

**Exploring the impact of training in psychological
support for long-term injured athletes on sport
psychologists' professional development and practice**

**A Thesis Submitted for the
Degree of Doctor of Philosophy**

By

Helen Pickford

**Department of Sport, Health & Exercise Sciences,
Brunel University London**

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Abstract

This research explores the professional development of sport and exercise psychologists in supporting long-term injured athletes. The objectives of this research were to design and deliver a theoretically grounded professional skills workshop ('Injury informed Acceptance and Commitment Therapy'- IACT) for sport psychology practitioners and explore the practitioners' perceptions of the impact of training on their practice. Injury is well-recognised to have significant psychological consequences for athletes, and while practitioners regularly work to support them, there is currently a paucity of training available on this important topic. The study used an applied interpretive methodology with principles of integrated knowledge translation and a practice-based approach to explore professional development.

Sport psychology practitioners attended a one-day CPD workshop that aimed to equip practitioners with the necessary skills and knowledge to better support long-term injured athletes. The CPD was designed and developed to meet the needs of practitioners including understanding the injury journey and the associated mental health risks for athletes, ACT therapeutic skills, and evidence-based practice. Data were collected through questionnaires, focus-group interviews, and follow-up interviews with practitioners at 3- and 6-months post workshop.

Results showed that the IACT workshop was effective CPD training, improving practitioners' knowledge and understanding of the injury journey, the potential impacts on athlete mental health, and their confidence in being able to effectively support injured athletes. Results from follow-up interviews showed that practitioners perceived the workshop to have significant, wide-ranging impacts on their practice, and findings were organised into five general dimensions; 'Self', 'Therapeutic Alliance', 'Working Alliance', 'Process and Organisation', and 'Beyond', conceptualised as a 'ripple effect'. This research adds important practice-based evidence and concludes that current training requirements for sport psychologists in this area are insufficient, and more training of this kind needs to be available to protect athlete wellbeing, bridge the research-practice gap, and develop the profession.

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Chapter 1: Introduction

1.1 Overview

This research explores a critical but under-researched area of professional development within sport psychologists' practice (Wylleman, Harwood, Elbe, Reints & De Caluwe, 2009), specifically their work supporting injured athletes. Injury is a common experience for athletes and a well-established risk factor for athlete mental health and wellbeing (Chang et al., 2020; Moesch, Kenttä, Kleinert, Quignon-Fleuret, Cecil & Bertollo, 2018). While it is commonly a part of sport psychologists' job roles to support injured athletes, there is a lack of professional training in this area (Pickford & Gervis, in press). To date, there is limited understanding of the process of professional development and the impact and effectiveness of practitioner training on sport psychology practice. This is concerning, as practitioners themselves are 'central to effective practice' (Tod, Hutter & Eubank, 2017, p. 136), and evidence from practice is therefore critical in understanding the impact of training on the work of practitioners in context. This can only be achieved if the researcher has a 'strong grasp on applied disciplinary perspective' (Thorne, 2014, p.8), and this research therefore deliberately adopts a practice-based approach to explore professional development. Wylleman et al., (2009) discuss the challenges in assessing the quality of practitioner training programmes, highlighting an 'urgent need' (p. 443) for more research into the development of sport psychologists from novice to experienced practitioners, and point to the wide variety of service delivery, and range of variables impacting efficacy, as additional challenges in this area.

Sport psychologists, as a specific sub-discipline of psychology, should have both knowledge of mental health, the necessary therapeutic skills to work with sub-clinical mental health issues, and a strong understanding of both the sports environment and the unique challenges those environments present (Gervis, Pickford & Hau, 2019; Ward, Sandstedt, Cox & Beck, 2005). However, recent research has called for more training for sport psychologists and a change to training requirements to ensure practitioners have the necessary therapeutic skills to support athlete mental health (Prior, Papathomas & Rhind, 2025; Quartiroli & Wagstaff, 2024; Winter & Collins, 2024).

The landscape of sport psychology practice is changing (Sly, Mellalieu & Wagstaff, 2020), and the current training guidelines may not be fit for purpose in preparing practitioners for the modern practice environment (Prior, Papathomas & Rhind, 2025; Quartiroli & Wagstaff, 2024; Winter & Collins, 2024). Contemporary practitioners are increasingly responsible for the mental health and wellbeing of athletes (Sly, Mellalieu & Wagstaff, 2020), and there have been several significant position statements in recent years regarding the mental health of athletes (Moesch et al., 2018, Reardon et al., 2019; Van Singerland et al., 2019). Mental health is a core component of a culture of

excellence (Henriksen, Diment & Kuettel, 2024), but sports environments are not always conducive to good mental health, 'The environment can both nourish and malnourish mental health' (Henriksen, Schinke, Moesch, McCann, Parham, Larsen & Terry, 2020, p. 557). While sports environments have the potential to negatively impact athlete mental health (Chang, Putukian, Aerni, Diamond, Hong, Ingram, Reardon & Wolanin, 2020; Fisher & Anders, 2020; Schinke, Stambulova & Moore, 2018), mental health literacy in the system contributes to psychologically informed environments that are a protective factor for athletes (Purcell, Pilkington, Carberry, Reid, Gwyther, Hall, Deacon, Manon, Walton & Rice, 2022).

Given that injury is extremely common in sport, and is a well-recognised factor which puts athlete mental health at risk (Chang et al., 2020; Moesch et al., 2018), it is critical that sport psychologists are appropriately trained to effectively support injured athletes. The psychological impacts of injury are well researched, and while they span a spectrum from mild to severe, all injured athletes will be impacted in some way (Gervis, Pickford, Nygård, & Goldman, 2022). There is a duty of care owed by sports organisations and a responsibility for professional bodies to safeguard the psychological wellbeing of these athletes (Kavanagh, Rhind, & Gordon-Thomson, 2021), and given the high rates of injury in sport, a huge number of athletes stand to benefit from improved support.

Moreover, supporting injured athletes through their rehabilitation journey has been found to be a core part of the role of sport psychologists (Pickford & Gervis, in press). For this reason, practitioners need to have the relevant skills, knowledge and expertise to effectively work with injured athletes, and be included in rehabilitation support teams (Moesch et al., 2018). Indeed, there are calls for more psychologists to be included as part of the rehabilitation support team for athletes, and sports environments more generally, to safeguard athletes' mental health and psychological wellbeing (Moesch et al., 2018). Therefore, there is a need for further training in mental health and therapeutic modalities to allow sport psychologists to work effectively in this role (Quartiroli & Wagstaff, 2024; Winter & Collins, 2024). However, these topics are not currently required as core competencies in all professional training, despite the fact that practitioners will routinely work with injured athletes, therefore, practitioners often lack the necessary training (Pickford & Gervis, in press). The inadequate training available on the psychology of injury and how to effectively support injured athletes, leaves these athletes vulnerable to a myriad of psychological disruptions.

While the psychological challenges of injury are well understood, there is a lack of clear therapeutic solutions provided to psychologically support injured athletes (Reese, Pittsinger & Yang, 2012), hence the research-practice gap in this area (Evans & Brewer, 2022). Training for sport

psychologists is therefore essential, not only to close this gap, but also to safeguard athletes' psychological wellbeing, and optimise rehabilitation outcomes (Roy-Davis, Wadey & Evans, 2017).

Understanding of injury in isolation is not sufficient to effectively support injured athletes. A therapeutic solution, based in a specified therapeutic modality, is needed, and practitioners must be trained to use the necessary therapeutic skills to offer a coherent treatment solution. The therapeutic modality selected for this research was Acceptance and Commitment Therapy (ACT, Hayes, Pistorello & Levin, 2012), due to its flexibility and congruence with the researcher's practice philosophy. While a relatively new therapeutic approach, there is a growing body of evidence supporting the efficacy of ACT in interventions targeting chronic pain and mental health (Gloster, Walder, Levin, Twohig & Karekla, 2020; Veehofs, Trompetter, Bohlmeijer & Schreurs, 2016). A professional skills workshop ('Injury informed ACT', referred to as the 'IACT' workshop) was developed to provide training to practitioners, focussed on improving their understanding of the injury journey and the associated psychological consequences, and developing therapeutic skills using ACT in work with injured athletes. The research used an Integrated Knowledge Translation (IKT) approach (Smith et al., 2022) to design and develop the IACT training. Both the development and evaluation of the training was informed by researcher reflections and feedback from practitioners at all stages.

The overarching purpose of this research was to improve the support provided to injured athletes through the professional development of the sport psychologists supporting them. It is hoped that this improved level of support translates into better athlete outcomes, either by mitigating risks to mental health, expediting recovery and rehabilitation, facilitating a successful return to training and competition, or supporting a positive transition out of professional sport.

1.2 Aims of the Thesis

The aim of this research was to investigate the professional development of sport psychologists in supporting injured athletes. The objectives of this research were to design, deliver and explore the practitioners' perception of impact on practice of a theoretically grounded professional skills workshop ('Injury informed ACT'- IACT) for sport psychology practitioners. The workshop was designed to provide practitioners with an understanding of the psychological impacts of injury and a therapeutic toolkit to take forward into their practice with injured athletes. There were three objectives;

1. To design and develop a workshop to provide training for sport psychologists in supporting injured athletes using ACT, using principles of integrated knowledge translation to inform the evolution of the workshop.
2. To deliver the workshop to practitioners and collect data to evaluate the workshop as professional training.
3. To explore the practitioners' perceptions of the training's ongoing impact on their professional practice through follow-up interviews conducted 3- and 6-months following practitioner attendance at the IACT workshop.

This is in line with recommendations made by Evans & Brewer (2022) to close the research-practice gap in the psychology of sport injury. Hess, Gnacinski & Meyer (2019) discuss the need for more research looking at *how* theories of sports injury are integrated into practice and suggest qualitative methods of enquiry might be particularly suited for this purpose.

The research objectives were assessed using an applied interpretive approach using mixed methods. Quantitative data were collected to assess changes in self-reported practitioner knowledge and confidence around the topic of injury and rehabilitation for athletes. However, the primary source of data was semi-structured interviews and post-workshop focus groups. Qualitative data were collected to understand the perceived impact of the workshop for practitioners, whether the professional skills training had any perceived impact on their practice, and whether practitioners felt the change in their practice impacted injured athletes.

1.3 Structure of the Thesis

Chapter 1 – Introduction

Chapter 1 provides an overview of the research background and purpose, states the aims and objectives of the research, and lays out the structure of the thesis.

Chapter 2 – Literature Review

Chapter 2 provides a review of the relevant literature in three distinct sections. Chapter 2 section 1 explores the psychology of sports injury and rehabilitation, and the intersection of the injury rehabilitation journey and mental health. This section includes injury classification and rates, psychological models of sports injury responses, and psychological consequences of injury. This is followed by an overview of the landscape of current research on psychological intervention following injury, including a systematic review.

Section 2 explores the origins of sport psychology, United Kingdom (UK) training routes for sport psychology practitioners, and the changing practice landscape for sport psychologists, before consideration of professional development needs.

Section 3 goes on to explain the theoretical and philosophical basis of Acceptance and Commitment Therapy (ACT) as the intended therapeutic modality for intervention, and the rationale for using it in this instance. This section includes the origins of behaviour therapy, the theoretical and philosophical roots of ACT, the ACT paradigm and its process of change, evidence for the efficacy of ACT and the rationale for using ACT as the intervention framework.

Chapter 3 – Methods and Methodology

Chapter 3 is concerned with research philosophy, including a discussion of applied interpretivist research and integrated knowledge translation, and consideration of how this will be congruent with research methods, intervention design and data analysis. This is followed by a consideration of intervention methods and the process of the research, and an overview of Reflexive Thematic Analysis as the method of data analysis for the qualitative data collected. Finally, this chapter will consider researcher reflexivity, including personal injury experience, practice background and research experience to date, and how this positionality influences the research.

Chapter 4 – Iterative Codesign Process of a CPD Workshop for Practitioner Sport Psychologists Working with Long-Term Injured Athletes

Chapter 4 is concerned with the first research objective, to design a training intervention for sport psychology practitioners that explores using ACT with injured athletes. This chapter explores the iterative development process of the continued professional development (CPD) workshop ‘Using ACT with injured athletes’, and how practitioner feedback was used to inform the evolution of the workshop design and establish that the final CPD was fit for purpose. Data were collected in the form of focus groups and questionnaires, and were analysed to ascertain whether the workshop met the needs of the practitioners who attended. This chapter concludes with reflections on the piloting process and critical learnings for future workshops, data-collection, and analysis.

Chapter 5 – IACT Workshop Evaluation

Chapter 5 explores the second research objective, the evaluation of the IACT CPD workshop ‘Using ACT with injured athletes’. After the conclusion of the design and development process described in Chapter 4, the IACT CPD workshop was delivered three times. This chapter evaluates the IACT workshop and its implementation as a CPD, and discusses the immediate impact on practitioner understanding of the psychology of injury rehabilitation and confidence in supporting

injured athletes. This evaluation used quantitative data collected at the workshops through questionnaires, and qualitative data, collected through focus groups and follow-up interviews conducted 3- and 6-months post-workshop.

Chapter 6 – Practitioner Perceptions of Impact - Discussion of Results

Chapter 6 explores the third research objective, understanding the practitioners' perceptions of the impacts of the IACT CPD workshop on practitioners and their professional practice. This chapter discusses the qualitative data collected through interviews at 3- and 6- month follow-up. Through a process of reflexive thematic analysis five general dimensions were created; 'Self', 'Therapeutic Alliance', 'Working Alliance', 'Process and Organisation' and 'Beyond'. These are discussed in turn, followed by three illustrative cases which explore the interconnected themes of the general dimensions.

Chapter 7 – Conclusions

Chapter 7 summarises the findings from the three research objectives, including the process of designing and developing the IACT CPD workshop, the evaluation of the IACT CPD workshop, and the practitioner perceptions of the long-term impacts on practice. The implications of the research for the training and professional development of sport psychology practitioners will be considered. The limitations of the research are discussed, followed by implications for practice, practitioner training and development, supervision, and possible future directions for research.

Chapter 8 - References

Note:

During the writing of this thesis, the British Association of Sport and Exercise Scientists (BASES) was awarded chartered status and became the Chartered Association of Sport and Exercise Scientists (CASES). The acronyms BASES and CASES therefore refer to the same organisation.

The professional title of 'sport and exercise psychologist' is a protected title, and refers to practitioners who are accredited either by CASES or the British Psychological Society (BPS). This thesis focusses on those sport and exercise psychologists working predominantly in sport, rather than with exercise populations, and therefore uses 'sport psychologist' for brevity.

This thesis was started before the introduction of APA 7, and therefore the referencing conforms to APA 6 throughout.

Chapter 2: Literature Review

2.1 Literature Review Section 1 - The Problem of Injury

This chapter reviews the relevant literature and is in three sections. The aim of this first section is to set out the problem injury poses for athletes, including injury rates in sport (section 2.1.1), the stages of injury rehabilitation and the psychological consequences of injury for athletes (section 2.1.2), and the research on psychological interventions for injured athletes to date (section 2.1.3). The second section sets out the professional development of sport psychology, including its origins and routes to qualification (section 2.2.1) and research to date on professional development (section 2.2.2). The third and final section provides an overview of Acceptance and Commitment Therapy (ACT), including its origins (section 2.3.2), theoretical foundations (sections 2.3.3-2.3.4), process of change (section 2.3.5) and evidence of the efficacy of ACT as a therapeutic method (section 2.3.6).

2.1.1 Injury in Professional Sport

2.1.1.1 Measuring Injury

In order to understand the scope of the problems posed by injury for athletes, it is important to understand just how often injury occurs. There are many ways of measuring injury, and this can make it difficult to compare and contrast injury rates in sport with other contexts. The incidence of new injuries over a given time is used to measure risk of injury in many situations, including occupational health and safety figures in the UK as reported by the Health and Safety Executive (HSE, 2022). Incidence rate is a popular method to conceptualise these new injuries per hours of exposure (Nielsen, Debes-Kristensen, Hulme, Bertelsen, Møller, Parner & Mansournia, 2019). However, injury prevalence, 'the proportion of athletes affected by problems at any given time' (Bahr, 2009, p.972) has been suggested to be a more useful measurement of injury than incidence (Bahr, 2009), in order to better capture chronic injuries that may be omitted from incidence data. Recommendations that sports injuries are measured in prevalence rather than incidence were repeated in Soligard et al., (2016) to improve monitoring practices for overuse injuries, and in Nielsen et al., (2019) to describe the number of athletes injured at a given time.

The latest figures from the HSE show the highest occupational injury rates in the UK occur in agriculture, forestry and fishing industries, with 3970 injuries in the last 12 months per 100,000

workers (HSE, 2022). This is difficult to compare to sports injury rates, but equates to 3.97 injuries per 100 workers per year. In freestyle snowboarding (considered a relatively high-risk sport), 51.6 injuries per 100 athletes per season have been reported (Flørenes, Nordsletten, Heir & Bahr, 2012). This is obviously a far higher rate than in the agriculture, forestry and fishing industries, but freestyle snowboarding may not be a representative sport in terms of risk, and therefore not the most useful comparator.

Differences in measurement make exact injury numbers in sport difficult to compare. In their meta-analysis, Smith, Davies, De Medici, Hakim, Haddad and Macgregor, (2016) found 7332 injuries reported in 2617 ballet dancers, over study periods ranging from 5 months to 10 years, an average of nearly three injuries per athlete. In one study, average injury prevalence in youth athletes (15-19 years old) was 38.7% over a year ($n = 340$), (Von Rosen, Kottorp, Fridén, Frohm & Heijne, 2018). Jones, Almousa, Gibb, Allamby, Mullen, Andersen and Williams, (2019) conducted a systematic review looking at injury in high level youth football. The pooled estimates for injury incidence per 1000 hours of training and matches was 5.8 for under 9 to under 21 players (7.9 for under 17 to under 21) with 18% classified as severe (more than 28 days recovery time). This is in line with professional male football, with 8.1 injuries per 1000 hours of exposure (López-Valenciano, Ruiz-Pérez, Garcia-Gómez, Vera-Garcia, Croix, Myer & Ayala, 2020). If we consider the average 40-hour work week in the UK would present approximately 2000 hours of exposure per year, and in the most dangerous industries there are 3.97 injuries per 100 workers per year, (HSE, 2022), that equates to 3.97 injuries per 20,000 hours of exposure, roughly 0.1958 injuries per 1000 hours (assuming all workers are full-time). These figures are still not fully comparable, as 'exposure' in football is to training and matches, which cannot be considered equivalent to a 40-hour working week in terms of exposure in industry. However, even with these very approximate calculations, professional athletes are clearly much more likely to get injured in the course of their employment each year than the average UK worker.

2.1.1.2 Classifying Injury

In order to understand the scale of the injury problem in professional sport, both the number and severity of injuries should be considered. In order to understand injury severity, it is necessary to understand how sports injuries are classified. The International Olympic Committee (IOC) recommend that injury is classified by relationship to sports activity (direct/indirect/unrelated), mode of onset (acute/repetitive; sudden onset/repetitive; gradual onset), mechanism of injury (contact/non-contact & direct/indirect), body region/area, and tissue/pathology type (Bahr et al., 2020). Injuries are usually classified through the sport specific Orchard Sports Injury Classification System (OSICS), (Orchard, Rae, Brooks, Hägglund, Til, Wales & Wood, 2010), or the Sports Medicine

Diagnostic Coding System (SMDCS) (Orchard, Meeuwisse, Derman, Hägglund, Soligard, Schwellnus & Bahr, 2020). 'Severity' can be described in 'time loss', clinical extent of the injury, athlete's self-reported consequences, or the societal cost. Time loss is the most common measure (Bahr et al., 2020), and while it is simple to assess there are some limitations. Firstly, there is often a grey area between returning to participation and being 'fully fit', which may underestimate severity. Conversely there may not be a return to participation for an extended period following physical recovery, leading to overestimation of injury severity. It is also difficult to measure the time loss impact of health problems that may hamper performance but do not require an absence from training or competition (Palmer-Green, Fuller, Jaques & Hunter, 2013). Finally, it is also difficult to estimate time loss for severe issues that lead to retirement from sport or death (Bahr et al., 2020). The IOC recommends that the time loss measures are categorised in the following ranges: 0 days, 1 to 7 days, 8 to 28 days and >28 days (Bahr et al., 2020). Long-term injuries would therefore be considered most severe, and classified by time loss as injuries lasting in excess of 28 days.

Time loss and incidence measures do not give a complete picture of the impact of injury in isolation. Indeed, there have been recommendations that injury severity and injury incidence are combined in a measure of injury burden (Bahr, Clarsen & Ekstrand, 2018). Measuring injury burden provides a way to compare different injuries in terms of the impact on the team as a whole. A few incidences of injuries with long recovery times (for example Anterior Cruciate Ligament (ACL) rupture – a serious knee injury) may have a similar burden on a team as much more common, but less severe injuries (for example hamstring muscle injuries), (Bahr, Clarsen & Ekstrand, 2018). While these measures may be useful in conceptualising the impact of injury on a squad of athletes, what these measures do not take into account is the impact of the injury on the *individual*. It is widely recognised that injury has impacts beyond the physical; Valovich McLeod, Bay, Parsons, Sauers and Snyder, (2009) found that injured adolescent athletes reported lower health-related quality of life, and sports injury is a major cause of career termination (Ristolainen, Kettunen, Kujala & Heinonen, 2012). These are both examples of significant impacts for athletes which are not captured by injury surveillance data.

2.1.1.3 Stages of Injury Rehabilitation

Typically, there are three phases to the physical rehabilitation process for long-term injury (Prentice & Arnheim, 2011). These are; Phase 1 – Acute, Phase 2 – Repair, Phase 3 – Remodelling (or Return to Training). With respect to sports performance, there is a distinct additional phase; Phase 4 - Return to Competition (Clement, Arvinen-Barrow, & Fetty, 2015). Importantly, these phases have different psychological impacts on injured athletes (Clement et al., 2015), and setbacks in rehabilitation often mean that athletes can move both forwards and backwards through the stages.

The phases will be discussed with their associated impacts, followed by a more detailed examination of the different psychological and behavioural impacts of injury.

In phase 1 (acute) athletes often exhibit debilitating emotional reactions such as shock, anger, fear, confusion, anxiety, and helplessness (Carson & Polman, 2008; Tracey, 2003). These reactions are often influenced by the cognitive evaluations athletes make about the impact of their injuries (Podlog, Heil & Schulte, 2014). For example, thoughts about an inability to continue playing at their pre-injury level, concern about time missed from participation and self-doubt about their future careers are regularly reported by athletes (Ruddock-Hudson, O'Halloran & Murphy, 2014; Tracey, 2003). The significance for a player experiencing prolonged negative emotional reactions should not be underestimated as this may result in increased risk of mental health problems.

Phase 2 (rehabilitation) can be a long and drawn-out process of repairing physical damage (Heijne, Axelsson, Werner & Biguet, 2008). Throughout the rehabilitation phase athletes can often experience psychological disruptions such as fluctuations in motivation, feelings of exclusion, and loss of athletic identity (Manuel, Shilt, Curl, Smith, Durant, Lester & Sinal, 2002; Ruddock-Hudson, O'Halloran, & Murphy, 2012). Emotional reactions to rehabilitation include feelings of loss, frustration, denial, anger and depression (Clement et al., 2015; Tracey, 2003). Notably, research has demonstrated that these psychological responses to injury can trigger and/or uncover mental health issues such as depression, suicidal ideation, anxiety, eating disorders and substance use/abuse (Gervis, Pickford & Hau, 2019; Heaney, 2006; Putukian, 2016; Sundgot-Borgen, 1994). An additional challenge in phase 2 is adherence to rehabilitation. Non or poor rehabilitation adherence has been found to be characteristic of athletes unable to cope psychologically with their injuries (Arvinen-Barrow, Hemmings, Weigand, Becker, & Booth, 2007, Heijne, et al., 2008). Furthermore, difficult psychological responses to injury have been found to disrupt the quality and nature of athletes' rehabilitation programmes (Johnston & Carroll, 1998; Podlog et al., 2014). Rehabilitation adherence is important because non-adherence increases the likelihood of subsequent injury and its associated psychological consequences (Granquist & Brewer, 2013; Hsu, Meierbachtol, George & Chmielewski, 2017). Johnson (1997) suggests that in order to ensure long-term injured athletes return to competitive sport, it is crucial that psychological risk factors are identified early and appropriate psychological support is provided. This aligns with both the American College of Sports Medicine (2006) and National Institute of Health and Care Excellence (NICE) Guidelines (2009).

Phase 3 (return to training) involves the introduction of potentially injury-provoking situations in a training context. Although an injured athlete may be physically ready to return to training it does not necessarily mean they are psychologically ready (Podlog & Eklund, 2006). In this phase, fear of reinjury has been found to affect athletes' progress through rehabilitation. Fear of

reinjury refers to anxious thoughts and feelings about an injury reoccurring when returning to sport (Tripp, Stanish, Ebel-Lam, Brewer, & Birchard, 2007). This can cause long-term physical impairment, reduced performance levels, reduced satisfaction with sport and increased risk of further injury whilst training (Ardern, Taylor, Feller, & Webster, 2012; Johnston & Carroll, 1998; Lentz, Zeppieri, George, Tillman, Moser, Farmer & Chmielewski, 2014).

The final phase of rehabilitation is return to competition (phase 4). A lack of psychological readiness to compete has been found to have a debilitating psychological impact, leading to competitive anxiety, fear of reinjury and lower levels of performance in comparison to pre-injury competition (Bianco, 2001; Clement et al., 2015; Heil, 1993; Hsu et al., 2017; Podlog & Eklund, 2006). Research states that in addition to physical treatment, it is crucial that long-term injured athletes are assessed to ensure they are psychologically prepared to compete (American College of Sports Medicine, 2006; Podlog & Eklund, 2007). Psychological support is therefore necessary at every stage of rehabilitation from a long-term injury. The amount of support needed and the severity of the psychological disturbances and behavioural disruptions will vary between individuals, and the challenges facing athletes will change as they move through their rehabilitation journey. These stages of injury therefore provide a useful way of breaking down the rehabilitation journey, and can be applied flexibly according to each injury's unique timeline. The stages also help to illustrating the different challenges, both physical and psychological, that athletes may face at each stage as the landscape of rehabilitation changes.

2.1.1.4 Injured Athlete Support

Integrated, interdisciplinary support teams for injured athletes have long been recommended as best practice (Buckthorpe, Frizziero & Roi, 2019; Dijkstra, Pollock, Chakraverty & Alonso, 2014). However, in many sports, support for injured athletes remains primarily the domain of specialists in physical rehabilitation, for example physiotherapists/athletic trainers, and strength and conditioning (S&C) coaches (Gervis, Pickford, Hau & Fruth, 2020). In addition, despite not being medical professionals, coaches may have the biggest influence on athlete decisions about their own fitness to compete (Mayer & Thiel, 2018). While these practitioners are essential for rehabilitation and return to competition, they are unlikely to be fully addressing the psychological needs of injured athletes, because they are not trained to do so (Heaney, 2006; Tracey, 2008). Receiving social support from rehabilitation staff is important for athlete outcomes (Yang, Schaefer, Zhang, Covassin, Ding & Heiden, 2014), but this is distinct from the specialised psychological support that can be provided by trained psychological practitioners. A review of the literature found that physiotherapists had a positive attitude to psychological interventions in rehabilitation, but that more training was required to allow them to provide this to their clients (Driver, Kean, Oprescu &

Lovell, 2017). A lack of both upskilling opportunities and access to sport psychologists was perceived as a barrier to physiotherapists implementing more psychologically informed practice (Annear, Sole & Devan, 2019). Education on sport psychology has been shown to improve physiotherapists appreciation of sport psychologists, and their use of psychological strategies (Heaney, Walker, Green & Rostron, 2017). Sport psychologists also felt a multidisciplinary approach was the best way to support injured athletes, keeping the injured athlete at the centre of discussions and decision making (Arvinen-Barrow & Clement, 2017; Gervis, 2022). However, sport psychologists are not yet a normalised part of rehabilitation teams (Gervis et al., 2020).

2.1.2 Psychological Consequences of Injury

Injury is a part of sport, and comes with psychological challenges which will change throughout the rehabilitation process. Those challenges can have significant impacts on athletes, and those impacts will be considered in more detail. This section will first consider some of the existing models of the psychological consequences of injury. Each of the common psychological and behavioural consequences of injury will then be discussed.

2.1.2.1 Models of Injury

Early models of injury were heavily influenced by the Kubler-Ross stage theory of grief (Walker, Thatcher & Lavellee, 2007), including Heil's (1993) model of 'The affective cycle of injury' (figure 2.1).

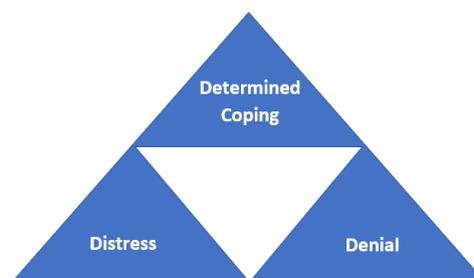


Figure 2.1: The Affective Cycle of Injury (Heil, 1993)

Heil suggests there will be a trend towards determined coping over the course of rehabilitation, but psychologists should be aware of denial (1993). This may present in the form of refusing to accept injury severity, or assertions from the athlete themselves that they will soon be back to full fitness. Heil considered denial to be both a protective mechanism, and also problematic to the extent that it prevents athletes confronting the '*emotional work of recovery*' (Heil, 1993, p. 40). Distress in Heil's model refers to the '*inherently disrupting and disorganizing impact of injury on emotional equilibrium*' (1993, p. 36), though it was suggested that this was only relevant to the most traumatic

and severe injuries. There has since been only minimal support for the 'denial' component of grief stage models of injury (Udry, Gould, Bridges & Beck, 1997), though parallels could be drawn between the behaviours associated with denial and those currently understood through an Acceptance and Commitment Therapy (ACT) framework as 'avoidant coping behaviour'. However, it is now accepted that almost all injuries have a psychological impact, not only the most severe.

At a similar time, cognitive appraisal models were applied to the injury context. Individual differences in coping and response to stress were thought to be mediated by cognitive appraisals (Lazarus & Folkman, 1984). How someone makes sense of the situation (which is largely based on personal history and context) can influence their evaluation of the event, and therefore their emotional responses and subsequent decision making, i.e. how they cope (Lazarus & Folkman, 1984). Research has shown that cognitive appraisals may be relevant to how athletes respond to injury. For example, in one study athletes who were less optimistic experienced greater stress at 4 days post-injury, and those who had experienced more adverse life events in the previous year, perceived injuries to be more difficult to cope with (Albinson & Petrie, 2003). Negative appraisals have also been related to emotional disturbance and avoidant coping strategies, and negative appraisals of ability to cope were associated with higher stress levels (Daly, Brewer, Van Raalte, Petitpas & Sklar, 1995; Albinson & Petrie, 2003).

Wiese and Weiss (1987) proposed a combination of cognitive appraisal and stress response models, resulting in a four-stage model of psychological response to injury. Not dissimilar to the grief response models, this model includes athlete beliefs and emotional responses which will change athlete behaviour in rehabilitation (figure 2.2).

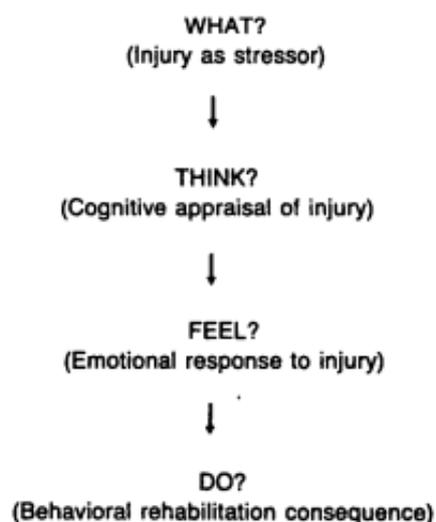


Figure 2.2: Four Stage Stress Response to Athletic Injury (Wiese & Weiss, 1987)

Wiese and Weiss (1987) make the point that stages two to four of the model will change throughout rehabilitation as athletes adapt to the different challenges. An athlete was considered ready to return to competition ‘when deemed both physically and psychologically ready’ (Wiese & Weiss, 1987, p. 328). At the time this model was proposed, there was little empirical evidence to support it, and psychology of injury research was very much in its infancy. Wiese and Weiss make explicit the link between emotion and behaviour, and the behaviour of athletes through the rehabilitation process has a large impact on whether rehabilitation is ‘successful’. By 1998, Wiese-Bjornstal, Smith, Shaffer and Morrey had built on this simple model to propose an integrated model of response to sport injury (figure 2.3).

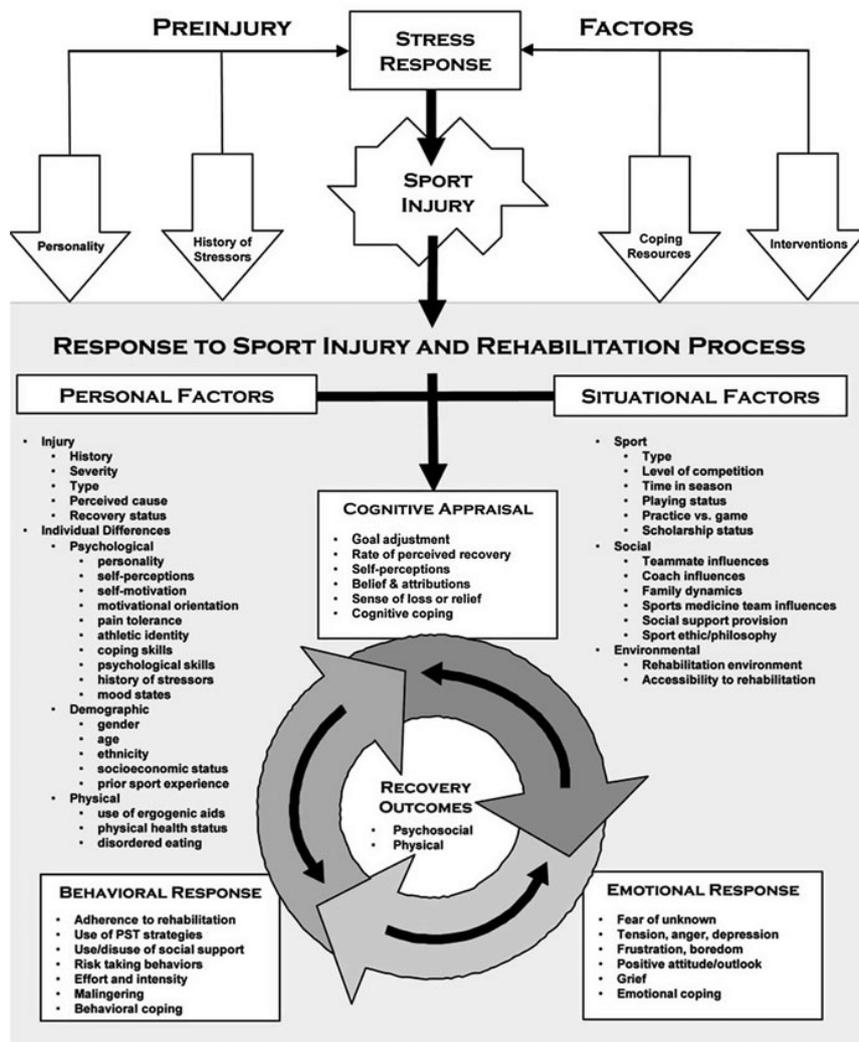


Figure 2.3: An Integrated Model of Response to Sport Injury (Wiese-Bjornstal et al., 1998, image from Tranæus, Ivarsson & Johnson, 2017)

The integrated model combines preinjury factors, stress response, situational factors, personal factors and cognitive appraisals to understand changing behavioural and emotional responses to injury, and the influence those have on recovery outcomes. The central bidirectional arrows demonstrate the ‘dynamic nature of the recovery process’ (Wiese-Bjornstal et al., 1998, p. 48) and the interconnected nature of the different factors and responses.

Focussing specifically on post-injury psychological responses, Wiese-Bjornstal later proposed the biopsychosocial model (2010) of response to injury (figure 2.4).

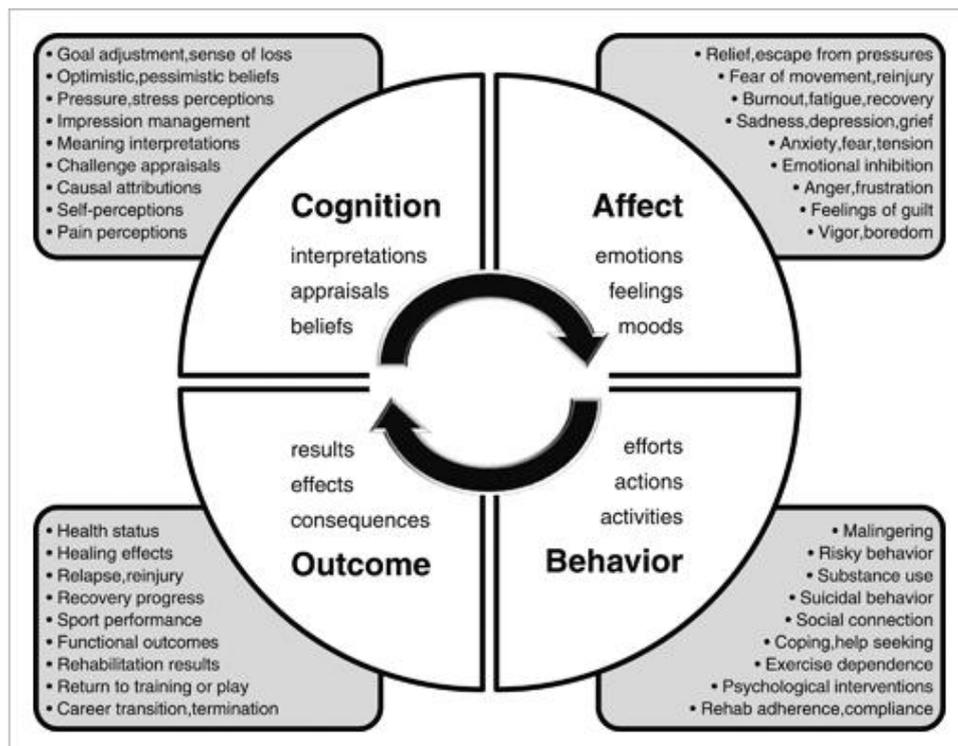


Figure 2.4: The Biopsychosocial Model of Response to Injury (Wiese-Bjornstal, 2010)

What these models have in common is that they acknowledge the wide variety of cognitive, behavioural and emotional impacts on behavioural (rehabilitation) outcomes, and the dynamic way in which these factors impact each other. There is an understanding therefore that recovery is not a straightforward process of physical healing. The psychological impacts on, and assessments of, the injured individual are central to the recovery process. These are further elaborated in models of sports injury related growth (SIRG) (figure 2.5).

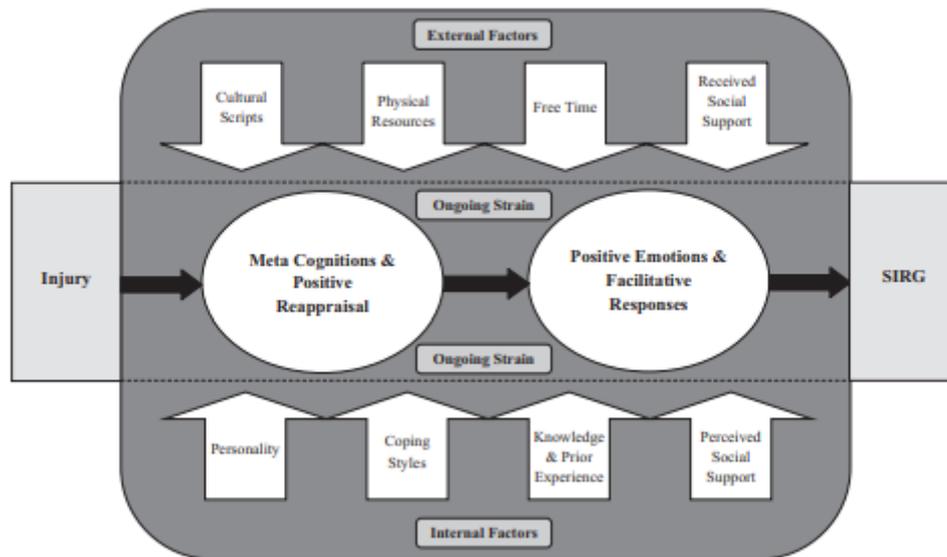


Figure 2.5: Sports Injury Related Growth (Roy-Davis, Wade & Evans, 2017)

This model makes it clear that while appraisals are important to the athlete dealing with injury, there are a multitude of other factors which will impact their outcomes. This model represents a shift from the earlier closed-system models to much more contextual representations. There is a wealth of research suggesting psychosocial factors have an impact on actual and perceived rehabilitation outcomes (Forsdyke, Smith, Jones & Gledhill, 2016). The model of sports injury related growth (Roy-Davis et al., 2017) not only includes both internal and external influences on injury appraisal, but also demonstrates that with the appropriate support it is possible for athletes to have positive outcomes following injuries, beyond simply returning to sport. The concept of post-injury psychological growth strengthens the argument for psychological support following injury; in the right conditions support teams can go beyond the mitigation of psychological distress and promote psychological growth following sports injury. These later models of psychological response to injury consider many more of the biological, social and psychological impacts on athletes' physical rehabilitation and provide a much richer framework for the experience of injured athletes. Considerable research has been conducted on psychological responses to injury in athletes, and this will now be explored in more detail.

2.1.2.2 Psychological Impacts of Injury

As the models discussed above suggest, it is well recognised that injury has psychological impacts for athletes. These impacts can range from the minor to the severe, and will be unique to each individual, influenced by factors including life experience, coping mechanisms, available support, the culture of the sport, and the severity of the injury itself, to name a few. Some of the most common impacts will now be explored in further detail, including impaired daily functioning,

depression, anxiety, loss of athletic identity, isolation, rumination, self-sabotaging behaviour, and addictive behaviour (Gervis et al., 2022).

Impaired Daily Functioning. In order to understand the psychological impacts of injury on athletes, it is necessary to understand the material impact that injury can have on their daily lives. Athletes, particularly those who are professional or part of a full-time team set-up, have a life and daily schedule that is oriented around their sport. Sport-specific training, strength training, mobility, recovery, nutrition and rest are all core parts of a professional athlete's daily life. Injury not only prevents athletes from competing in their sport; it can also disrupt their daily routine, with changes to the support staff they see, the time they spend with team mates, the training and recovery they do, and the nutrition they need. This in itself can be difficult for injured athletes to adjust to (Mosewich, Crocker, & Kowalski 2014). Beyond their sporting life, it can also impact their leisure activities, social activities and sleep. Loss of routine and boredom are both stressors experienced by injured athletes (Evans, Wadey, Hanton & Mitchell, 2012), and these can contribute to other mental health issues.

Injured athletes are likely to experience changes to their sleep, with some studies suggesting injured athletes have significantly less REM sleep than non-injured athletes (Reiner, Kodesh, Bogina, Funk & Kuflik, 2022). Sleep disturbance has been linked to increased inflammation and reduced muscle repair/recovery following intense exercise (Nédélec, Halson, Abaidia, Ahmaidi, Dupont, 2015), and therefore disturbed sleep may have implications for physical recovery. While pain can disturb sleep, adequate recovery sleep may be necessary for normalising pain sensitivity (Stroemel-Scheder, Kundermann & Lautenbacher, 2020), making sleep particularly important for athletes in rehabilitation or returning to training who need to have an accurate perception of their pain.

In a large-scale survey of psychological and behavioural consequences of injury, impaired daily functioning was experienced most often by athletes when injured (Gervis, et al., 2022). Boredom, difficulty relaxing and sleep disturbance may not seem like critical issues for injured athletes, but these seemingly innocuous disturbances can impact both mental and physical health, and exacerbate other issues such as depression or addictive behaviour. Practitioners working with injured athletes therefore need to have an awareness of these 'minor' issues, and the potential consequences for athlete mental health.

Sadness, Depression & Suicidality. Experiencing sadness, grief or anger following a sports injury are normal emotional reactions (Tracey, 2003). Another normal physiological response to injury is inflammation, which is linked to increased levels of cytokines. Cytokines can be either pro- or anti-inflammatory, but pro-inflammatory cytokines which can result from chronic inflammation or surgery (Capuron & Dantzer, 2003) have been linked to 'sickness behaviour' including malaise, fatigue, and reduced appetite, (Konsman, Parnet & Dantzer, 2002). This has the behavioural impact of reducing activity to allow injuries to heal (Felger & Lotrich, 2013), but also intersects with depression. Basal inflammation is associated with depressive symptoms (Vogelzangs, De Jonge, Smit, Bahn & Penninx, 2016), and the link between depression and inflammation has been demonstrated in various populations, including those with rheumatoid arthritis, (though it is possible in this population the relationship is moderated by pain), (Dickens, McGowan, Clark-Carter & Creed, 2002). Depression in response to inflammatory cytokines could therefore be classified as 'a medical condition- or substance-induced mood disorder' (Capuron & Dantzer, 2003, p. S121). The mechanism of action between cytokines and depression is not yet clear, though have been suggested to include 'influence of cytokines on the HPA axis, on neurotransmission, and a direct action on hippocampal neurogenesis' (Krishnadas & Cavanagh, 2012, p. 497). This clearly provides a physiological explanation for mood disturbance in an injured athlete population.

Importantly for practitioners, there is a possible link between childhood trauma, inflammation, and therefore depression. Children who had been exposed to stressful events early in life had higher levels of C-reactive protein (CRP) which is a marker of inflammation (Moreira et al., 2018; Vogelzangs et al., 2016). Research has shown traumatic childhood experiences and social adversity in childhood were associated with increased pro-inflammatory cytokines, and therefore increased chances of depression (Moreira et al., 2018; Slopen et al., 2015). One way cytokines may act on the brain is through the afferent vagal pathway (Krishnadas & Cavanagh, 2012), making it particularly relevant for individuals who have experienced trauma, as this often affects self-regulation through the vagal pathway (Porges, Doussard-Roosevelt & Maiti, 1994). Injured athletes who have a history of trauma or childhood adversity may therefore be more at risk for depression following injury, particularly in the acute phase.

The link between injury and depression has been widely supported by research findings. Cox (2015) found athletes who had sustained an injury in the last six months exhibited more severe symptoms of depression than healthy athletes. Appaneal, Levine, Perna and Roh (2009) measured depression using both self-report and semi-structured interview, and found elevated depression at both one week and one-month post-injury. Gulliver, Griffiths, Mackinnon, Batterham and Stanimirovic (2015), and Putukian (2016) found injured athletes were significantly more likely to

report symptoms of depression. Wolanin, Gross and Hong (2015) conclude that while athletes per se are not at greater risk of depression than the general population, there are sport specific risk factors, including injury and career termination, that make depression more likely. They also warn that athletes are less likely to report depression due to the culture of many sports (Wolanin et al., 2015). These conclusions are supported by a systematic review by Gouttebarga et al., (2019) which found involuntary retirement as a result of injury was a risk factor for mental health issues including depression and anxiety post-sporting career. This provides a strong rationale to monitor all injured athletes for depression, and for support staff to be alert to signals that may not be explicitly reported.

The elevated risk of depression in athletes can have severe consequences. Smith and Milliner (1994) point out that injured athletes are often part of the 'high risk' demographic for suicide. Suicide was the leading cause of death for 20-34-year olds in the UK between 2001 and 2018 according to the Office for National Statistics (ONS, 2020). In their research, Smith and Milliner found that injured athletes who had attempted suicide had all had serious injuries requiring surgery, long arduous rehabilitation, and were replaced in their team positions by teammates, (1994). While there is no explicit link between injury and suicide, a review by Datoc, Horne and Golden (2020) found that decreased athletic performance, depression, and loss of athletic identity were all potential risk factors for suicide in athletes, and these are all common consequences of injury. Gervis et al., (2022) found that 55.1% of athletes reported feeling that 'life was not worth living' during their injury experience, and low scores on the Reasons for Living inventory were reported by suicide attempters in Mann, Waternaux, Haas and Malone, (1999). Rao and Hong (2016) call for more mental health screening for athletes 'missing a prolonged period of participation' (i.e. when injured) to mitigate risk of suicide. The majority of those who take their own lives are successful on the first attempt (Mann et al., 1999), making proactive monitoring and support vital to ensure the safety and wellbeing of athletes.

Anxiety & Fear of Reinjury. Injured athletes are unable to train and compete, and may be concerned about a plethora of issues including their recovery and return to sport, their position on a team, fulfilling contractual obligations and the associated financial pressures, or potential setbacks during rehabilitation. Injury is one of the biggest stressors for athletes (Reardon et al., 2019) and this additional stress response is supported by research regarding anxiety in injured athletes. In their systematic review and meta-analysis, Rice et al., (2019) found anxiety to be significantly higher in injured athletes. Anxiety was also significantly higher in athletes with lower career satisfaction, which is likely to affect injured athletes who cannot perform at their desired level. Monsma, Mensch and Farroll (2009) found athletes who had been injured longer reported higher levels of somatic

anxiety. In professional footballers, common mental disorders (CMD) including anxiety were significantly correlated with both injuries and operations (Gouttebauge, Frings-Dresen & Sluiter, 2015). Gulliver et al., (2015) found injured athletes were significantly more likely to report symptoms of generalised anxiety disorder. While increased social support is associated with decreased state anxiety (Covassin, Crutcher, Bleecker, Heiden, Dailey & Yang, 2014), injured athletes are often isolated from sources of social support, including teammates.

Forsdyke et al., (2016), distinguish between injury related and performance related anxieties following injury. Performance related anxieties include concern about regaining competitive level, or other competitors 'overtaking' (Gervis et al., 2022). Injury related anxieties include concern about recovery, and fear of reinjury. Fear of reinjury is the specific fear of the injury happening again, distinct from reinjury anxiety, worry about the consequences of being injured again. Similar to kinesphobia in the fear-avoidance model of chronic pain (see section 2.3.7.3), fear of reinjury can alter movement patterns, and reduce the range of movements an athlete is willing to perform, which has an associated impact on rehabilitation and successful return to sport (Jónsdóttir, Briem, Tranberg & Brorsson, 2021; Hsu, George & Chmielewski, 2020).

Physical and psychological factors have independent influences on athlete recovery and readiness to return to sport (Hsu, George & Chmielewski, 2016). Fear of reinjury is incredibly common in injured athletes, with up to 93.6% of injured athletes experiencing fear of reinjury at some point during their rehabilitation (Gervis et al., 2022). Hsu et al., (2017) outline the impact of fear of reinjury on rehabilitation outcomes, including physical impairment, perception of physical function, and delayed return to sport. Risk of reinjury was found to be a common stressor for athletes returning to sport (Evans et al., 2012; Mosewich, Crocker & Kowalski, 2014). This is consistent with the proposed 'U' pattern of recovery, where fear of reinjury is highest in the acute phase, reduces during rehabilitation before increasing again approaching return to sport and competition (Hsu et al., 2017). However, fear of reinjury is particularly prevalent when athletes have experienced a 'flare-up' or setback in their rehabilitation journey (Podlog & Eklund, 2006), and practitioners need to be aware of these setbacks and alert to the potential psychological consequences, highlighting the need for interdisciplinary communication within the rehabilitation support team.

Loss of Athletic Identity. Athletic identity can be defined as 'the degree of importance, strength and exclusivity attached to the athlete role that is maintained by the athlete and influenced by their environment', (Cieslak, 2004, p. 39). The process of constructing an athletic identity can begin in childhood (Sparkes, 1998), and it is desirable to have a social identity of 'athlete' (Nasco & Webb, 2006). This may make the athletic identity particularly important and pervasive (Nasco &

Webb, 2006). Edison, Christino and Rizzone, (2021) suggest that athletic identity may be developed as young athletes transition to a higher level of sport, and this higher level often involves increased participation time. Athletic identity is positively associated with self-reported involvement in sport (Tasiemski & Brewer, 2011), therefore as athletes spend increasing amounts of time in the sports environment, at increasingly higher levels, they come to identify more as an 'athlete'. Team athletes have been found to score more highly on measures of athlete identity than individual athletes (Zhou, Heim & O'Brien, 2015), and it is possible that the collective identity and in-group out-group evaluations contribute to the development of the (social) athletic identity (Brewer & Yuki, 2007).

In the collegiate model of sport, athletic identities change significantly over time, and when athletes are nearing the end of their collegiate programmes, athletic identity is often diminished (Lally & Kerr, 2005). However, this pattern may be specific to athletes in the collegiate or university sport context, and less applicable to professional athletes. Tasiemski and Brewer (2011) report an inverse relationship between athletic identity and age, which could indicate athletic identity decreases as other identities are added such as partner, parent, etc. The process of redefining the self may start well before a predicted retirement (Lally, 2007), however sports injuries are unpredictable by nature, and athletes are therefore confronted by challenges to their identity unexpectedly. This can lead athletes to deal with feelings of loss, and as described by Sparkes, (1998) 'the demise of the glorified self' (p.656).

While athletic identity may protect against burnout in younger athletes, the same meta-analysis also found increased athletic identity to be associated with higher risk of depression following injury (Edison, Christino & Rizzone, 2021). Injury prevents athletes from participating in their sport, and therefore challenges their athletic identity. Those for whom that identity is very important would therefore be more challenged by injury. Brewer, Cornelius, Stephan and Van Raalte (2010) found that athletic identity decreased significantly following ACL reconstruction surgery, and slower rehabilitation was associated with greater decreases in athletic identity. Brewer et al., (2010) suggest this is a deliberate 'deselection' of the athletic identity as a method of self-protection, (Major & Schmader, 1998). Indeed, the greatest decreases were found 6-12 months post-surgery, where athletes are often returning to sport, and the authors suggest that deselection of the athletic identity is a mechanism of protecting the self from negative comparative evaluations during that return to sport phase (Brewer et al., 2010). Perception of the sports environment as 'caring' is positively associated with athletic identity (Poux & Fry, 2015), which implies there is a greater risk to athletic identity when the environment is then suddenly seen as 'uncaring', something that can affect injured athletes experiencing isolation (Gervis, Pickford & Hau, 2019). Retired footballers with

higher athletic identity were more likely to have depressive symptoms (Sanders & Stevinson, 2017), suggesting these effects may continue beyond the competitive career.

Isolation and Feeling Isolated. Injured athletes are often separated from other athletes and teammates who offer a source of social support. Rehabilitation may take place at different times or in different locations from normal training and the injured athlete may be less in contact with coaches and find the physiotherapist to be their new point of contact. This has an impact on the social support networks, sources on whom the athlete may call, and their perception of the social support available to them (Mosewich, Crocker & Kowalski, 2014). Social support has been found to be important for both psychological wellbeing during rehabilitation (Manuel et al., 2002), and recovery outcomes (Yang et al., 2014). Pollak, Boecker, Englert and Loschelder, (2022) found informational social support and positive reframing to be predictors of sports injury related growth (SIRG).

Perception of social support and received social support are distinct constructs. Perceived support refers to the belief that help would be provided if needed, while received support is the assistance that is provided (Norris & Kaniasty, 1996). For injured athletes, perceived social support can reduce the magnitude of psychological responses to stressors, while received social support reduced the magnitude of psychological responses, regardless of stressors (Mitchell, Evans, Rees & Hardy, 2014). Podlog, Dimmock and Miller (2011) looked at the injured athlete experience through a framework of self-determination theory and suggested that social support helped injured athletes meet relatedness needs. Claytor (2019) found isolation following a season-ending injury to be experienced differently by different athletes, but often most pronounced in the acute stages of injury. All athletes reported feeling isolated; isolation was conceptualised as being removed from the team and team activities while injured, and even when received social support was high, some athletes still felt isolated (Claytor, 2019). Contrary to Claytor (2019), Evans, et al., (2012) found isolation to be less common in the acute stages of injury, but was more regularly reported as a stressor in the rehabilitation phase.

Self-isolating behaviour and feeling isolated are both common experiences of injured athletes, reported in 76.5 and 88.2 percent of athletes respectively in one study (Gervis et al., 2022). Perception of social support provided by different members of an athletes' support team may be particularly important on returning to sport (Forsdyke et al., 2016). Social support is most effective when it aligns with the individual needs of the athlete (Fernandes, Machado Reis, Vilaça-Alves, Saavedra, Aidar & Brustad, 2014), and practitioners should therefore be ready to adapt to the needs of the individual. Whether feeling isolated or deliberately self-isolating, injured athletes do not

always have access to the support they need, which can exacerbate other mental health issues such as depression and have a detrimental impact on physical outcomes (Yang et al., 2014).

Fixation on Injury.

Rumination. Preoccupation with injury is a commonly reported psychological consequence of injury, with 97.9% of athletes in one study reporting it at some point during their rehabilitation (Gervis et al., 2022). Injured athletes are significantly more likely to engage in reflective rumination than uninjured athletes (Tahtinen, McDougall, Feddersen, Tikkanen, Morris & Ronkainen, 2019). While reflective rumination is thought to be a process of understanding the injury and can be facilitative, athletes high in both brooding and reflective rumination are more likely to report depressive symptoms than those low in brooding and reflective rumination (Tahtinen et al., 2019). Worry about regaining competitive level is common, but also has an impact on the wellbeing of athletes (Gervis et al., 2022). Social comparison was found to be a major stressor for injured athletes (Evans et al., 2012), as they see teammates and competitors improving while they are recovering from injury. Sport-related self-confidence is associated with a successful return to sport following injury (Forsdyke et al., 2016), and comparison with others who are not injured may undermine this self-confidence. While it is normal for an injured athlete to spend a significant amount of time thinking about their injury and rehabilitation, it is possible for these thoughts to become intrusive, and subsequently lead to efforts to reduce or avoid thoughts about the injury which may not be optimal for recovery.

Trauma and PTSD. Sports injury has the potential to be traumatic for athletes, whether the injury event itself, the rehabilitation process, or vicarious trauma from witnessing the injuries of others (Day, Bond & Smith, 2013). Not all injury events cause psychological trauma. For an event to create trauma it must be perceived, consciously or unconsciously, as beyond one's capacity to deal with, and there is therefore a distinction between subjectively and objectively traumatic events (Boals, 2018). Krupnik (2019) considers trauma to be a stress response which includes a breakdown of self-regulatory functions, which is helpful in understanding the subsequent impact of trauma on athletes when exposed to similarly stressful situations; their experience of trauma impairs their self-regulation. This disruption to the autonomic nervous system (ANS) is explained in Polyvagal Theory (Porges, 2011). The vagus nerve regulates the body's experience of safety and danger, and responds differently to different levels of threat. The most recently evolved is the 'safe' ventral vagal state, allowing for connectedness and social interaction. The sympathetic response is activated when a threat is perceived, 'mobilising' the body, ready for a fight or flight response. However, if the threat is perceived as insurmountable in the sympathetic state, the oldest branch of the vagus nerve, the

dorsal vagal branch, becomes dominant, leading to 'immobilisation' and disconnection (Porges & Dana, 2018).

Trauma responses which meet diagnostic criteria (re-experiencing of the traumatic event, avoidance of stimuli associated with the trauma, and symptoms of increased arousal) may be diagnosed as Post-traumatic Stress Disorder (PTSD) (Van der Kolk, 2000). PTSD may be more prevalent in athletes than in the general population, and the stressors that cause PTSD include sport-related injuries (Aron, Harvey, Hainline, Hitchcock & Reardon, 2019). Bateman and Morgan (2019) found injured athletes reported elevated PTSD symptomology, across all three indicators of intrusions, avoidance and hyperarousal. Injured athletes also exhibit greater physiological reactivity to trauma stimuli, indicating heightened autonomic nervous system (ANS) activity (Appaneal, Perna & Larkin, 2007). Traumatic experiences can alter not only psychological responses, but also physiological responses to subsequent stressors (Meyer, Albrecht, Bornschein, Sachsse & Herrmann-Lingen, 2016). This can have long-term implications for both physical and mental health, (Williamson, Porges, Lamb & Porges, 2015) and highlights the need for athletes to have access to psychological support following injury in order to prevent acute trauma responses becoming PTSD (Forneris et al., 2013).

Self-Sabotaging Behaviour. Self-sabotaging behaviour following injury may include rehabilitation non-adherence, relationship difficulties, and eating disorders. Relationship problems were a significant issue affecting former footballers who had experienced injury (Gervis, Pickford & Hau, 2019), and were reported by 68.4% of injured athletes during their rehabilitation (Gervis et al., 2022) but are not well researched in this population. Rehabilitation non-adherence and eating disorders are discussed in further detail below.

Rehabilitation Non-Adherence. Rehabilitation adherence is thought to be important for rehabilitation outcomes (Granquist, Podlog, Engel & Newland, 2014) and influenced by person factors and situation factors. Person factors include cognitive appraisal, self-efficacy, motivation and psychological skills, while situation factors may include social support, therapist characteristics and treatment efficacy (Goddard, Roberts, Byron-Daniel & Woodford, 2021). These situation factors are the target of many of the support team interventions. The support team plays a significant role in injury rehabilitation and adherence, but can act as either a motivator or a barrier. The medical team and a lack of confidence in them can itself be a significant stressor for injured athletes (Evans et al., 2012).

Avoidance coping strategies help to control emotional states in the short term (Carson & Polman, 2010), but rehabilitation is often a long-term programme. Acceptance and commitment

therapy (ACT) aims to decrease avoidant behaviour and has been helpful in improving rehabilitation adherence (Perret, 2014). Physical rehabilitation staff often describe athletes who show poor rehabilitation adherence as 'lazy' or 'lacking motivation', and researchers recommend using goalsetting and building good rapport between athlete and support staff to combat this (Granquist et al., 2014). However, it may be that more education of rehabilitation personnel is needed to enable them to understand the link between rehabilitation non-adherence and psychological distress, to then facilitate better rapport and help rehabilitation teams support injured athletes to engage, rather than judging them to be 'unmotivated'.

Eating Disorders. A common consequence of injury is that an athlete often cannot train and/or compete at their 'normal' levels. A reduction in the volume or intensity of physical activity is almost inevitable with injuries, particularly in the early stages. This reduction in activity changes an athlete's energy requirements which can lead to unwanted weight gain or muscle loss, and therefore injuries can act as triggers for eating disorders (Bratland-Sanda & Sundgot-Borgen, 2013). Injured athletes have reported feeling that they do not 'deserve' food (Sundgot-Borgen, 1994), and disordered eating is particularly likely in sports which are weight-sensitive (Currie, 2010). Ravi et al., (2021) found a significant relationship between eating disorders and injuries. It is important to note that eating disorders may present differently depending on gender and sport differences. While Rauh, Nichols and Barrack (2010) found eating disorders to be a risk factor for musculoskeletal injury, it is unclear from the data in the Ravi et al. (2021) study whether eating disorders were a risk factor for injury or whether they were more likely to occur following an injury. In either case, it is important for practitioners working with injured athletes to have an awareness of eating disorders to properly support injured athletes.

Addictive Behaviour.

Alcohol Misuse. There is not clear evidence that injured athletes are more likely to misuse alcohol than uninjured athletes. While Bianco (2019) found no significant differences between injured and non-injured athletes' alcohol consumption, being currently injured was associated with increased alcohol consumption in Australian athletes (Purcell, Rice, Butterworth & Clements, 2020). The rationale for increased alcohol consumption is that injured athletes may use alcohol as a coping mechanism, but alcohol is also unhelpful for injured athletes due to the negative impact it can have on physical healing (Barnes, 2014). Counsellors working with members of the professional footballers' association (PFA) suggested misuse of painkillers and gambling addictions were more prevalent in elite football, as they would be less likely to be picked up by medical department testing (Gervis, Pickford & Hau, 2019).

Misuse of Painkillers. Painkillers may be misused by injured athletes for a variety of reasons.

A common reason to misuse painkillers appears to be to mask pain and play through injury, with studies finding this to be occurring in a variety of sports over the last 20 years (Carreathers, 2020; O'Connor, McCaffrey, Whyte, Moran & Lacey, 2019; Tricker, 2000). It has been argued that the willingness to use painkillers to play through injury is elite sports' presenteeism (Mayer & Thiel, 2018), with muscle and joint aches, or use of painkillers not seen as legitimate reasons for rest. This study classified roughly half of the respondents as 'conditionally willing to rest' (50.2%), but the remainder were 'rest-averse and pain trivializing'. This second group do not generally believe that the risk of exacerbating an injury is enough to withdraw from a competition, and the German athletes surveyed demonstrated a relatively high willingness to compete in pain, and while medicated. Elite athletes were more likely to be in the rest-averse and pain trivialising group, which the authors suggest may be because of the perceived social importance of higher-level competitions changing the balance of risk versus reward when competing hurt (Mayer & Thiel, 2018).

A study of medication use in major football tournaments found non-steroidal anti-inflammatory drugs (NSAIDs) to be the most common (Tscholl, Vaso Weber & Dvorak, 2015). Of the athletes who had used analgesics in sport, 64% reported using them to be able to compete in an important match/competition despite an injury, and 45% reported using them in order to train during an important period (Overbye, 2021). Though athletes reported less willingness to use analgesics specifically for performance enhancement, it could be argued that if painkillers are allowing athletes to compete where they would not otherwise be able to, this is itself performance enhancement. There does not seem to be a significant gender difference in the willingness to use analgesics, which is interesting when compared to other risk-taking behaviours in which men are normally more likely to engage (Tscholl et al., 2015; Overbye, 2021). In many of these European studies, the painkillers in question range from mild analgesics such as paracetamol, NSAIDs such as ibuprofen, to cortisone injections (Overbye, 2021). These medications have damaging side effects, however in countries such as the United States of America (USA), where the misuse of opioids on a wider societal level is more common, athletes may be at greater risk from stronger analgesics.

There has been evidence of higher rates of misuse of prescription opioids in injured athletes (Regan, Hanlon, Teitelman, Compton & McDonald, 2019). Of the National Football League (NFL) players who used prescription opioids, 71% misused them while playing in the NFL, and misuse of opioids was related to having three or more NFL injuries (Cottler, Abdallah, Cummings, Barr, Banks & Forchheimer, 2011). Importantly, painkiller misuse may continue beyond injury. Those who misused opioids during their sporting career were more than three times more likely to misuse opioids in retirement (Cottler et al. 2011). Misuse of painkillers is an important issue in sport in general, but

potentially particularly problematic for athletes with chronic 'minor' injuries. These athletes are also easy to miss when assessing severity according to time lost, or duration of injury, and particular care should be taken to identify those vulnerable to misuse of painkillers, to mitigate the risks of more serious addiction in the future.

Gambling. Gambling is a behavioural addiction, and may be particularly prevalent in sports where drug and alcohol use are monitored; indeed, gambling was a critical issue discussed by counsellors working with professional football players who had experienced injury (Gervis, Pickford and Hau, 2019). Gambling rates may be higher in student athletes than the general student population (Weinstock, Whelan, Meyers & Watson, 2007), and therefore young injured athletes may be particularly at risk. Athletes who are injured will often find they are more isolated than normal, with more time on their hands without their normal training commitments. Those who increased their gambling during the Covid-19 pandemic (when isolation and boredom were more prevalent) were more likely to have symptoms of a gambling problem (Håkansson, Jönsson & Kenttä, 2020). It is possible therefore that those athletes already at risk of problem gambling may increase their gambling behaviour when injured.

Exercise Addiction. Estimates of exercise addiction in athletes are varied, and difficult to measure due to the similarities between the characteristics of a strict training schedule for a highly motivated athlete, and an addiction to exercise (Juwono, Tolnai & Szabo, 2021). Prevalence estimates for exercise addiction in an athlete population range from 2.7% (Zeulner, Ziemainz, Beyer, Hammon & Janka, 2016) to around 40% (Smith, Wright & Winrow, 2010). This variation in results could be indicative that current exercise addiction scales are not appropriate for use with an athlete population (Juwono, Tolnai & Szabo, 2021), but athletes are at least as vulnerable to exercise addiction as the general population, if not more so. Injury clearly provides a challenge to those who are dependent on exercise, or at risk of being so. While rehabilitation adherence is recommended to expedite recovery, researchers have identified rehabilitation *overadherence* as a separate issue (Podlog, Gao, Kenow, Kleinert, Granquist, Newton & Hannon, 2013). There is often a drive to keep training despite injury, and against the recommendations of rehabilitation professionals (Mosewich, Crocker & Kowalski, 2014). Injured athletes with exercise addiction are more at risk of depression and distress than injured athletes who are not addicted to exercise (Lichtenstein, Nielsen, Gudex, Bojesen, Hinze & Jørgensen, 2017). Exercise addiction, like eating disorders, can be both a cause of injury, or triggered by injury. In either case, it is important that support staff surrounding injured athletes are aware of the symptoms and how to support those athletes who are affected.

Concussion. Concussion injuries progress differently from musculoskeletal injuries, with uncertain prognosis, huge variety in presentation and few visible signals of injury (Covassin, Elbin, Beidler, LaFevor & Kontos, 2017). This lack of visible symptomology can lead to accusations of ‘malingering’ (Covassin et al., 2017), but concussed athletes face many of the same psychological challenges as athletes with long-term musculoskeletal injuries. Covassin et al., (2014) found no significant differences between anxiety scores in athletes with concussion and athletes with orthopaedic injuries. The specific psychological impacts of concussion are therefore only briefly discussed here, and much of the previous discussion around psychological impacts of injury is applicable to athletes with concussion.

Concussion is associated with increased depression after 14 days and decreased cognitive performance (Kontos, Covassin, Elbin & Parker, 2012). Sleep disturbances are common post-concussion and often symptomatic of ongoing recovery (Murdaugh, Ono, Reisner & Burns, 2018). Yang, Peek-Asa, Covassin and Torner (2015) found concussed athletes suffered with co-occurring depression and anxiety, with depression scores at baseline predicting both anxiety and depression post-concussion. Athletes report more PTSD symptoms following a concussion (Brassil & Salvatore, 2018), and Goutteborge et al., (2019) found a link between career related concussions and post-sport mental health issues, but could not ascertain a relationship of causality. Head injuries have been suggested to be related to suicide attempts (Mann et al., 1999), though the authors suggest this may be mediated by the relationship between impulsivity/aggression and suicide, with more impulsive and aggressive people are more likely to both sustain head injuries and die by suicide. More recent literature suggests the link between sport related concussion and suicide is inconclusive (Datoc, Horne & Golden, 2020).

2.1.2.3 Psychological Consequences of Injury Summary

The psychological impacts of injury are varied, complex, and interrelated. It is difficult to predict which psychological consequence(s) of injury may most significantly impact an athlete, as the consequences are moderated by, and interact with many antecedents, as well as other contextual and situational factors. For example, identical injuries, experienced by the same athlete, may result in different psychological consequences and impacts depending on age, stage of career, coping strategies, and available support. These psychological consequences of injury also interact with existing mental health issues. In the case of disordered eating, injury can be a trigger for an issue to develop, or exacerbate an existing issue (Bratland-Sanda & Sundgot-Borgen, 2013, Ravi et al., 2021). Even across the course of a rehabilitation journey, the psychological challenges facing injured athletes will change (Clement et al., 2015). Each individual athlete will experience some measure of

psychological disruption as a result of being injured, but exactly which consequences have significant impact, and the magnitude of that impact, is unique to each individual, and each injury.

This review has focussed on the psychological consequences of injury which present challenges to athletes. A recent systematic review investigated the constructive psychological outcomes of injury for athletes and found that injured athletes often experienced 'personal growth' over the course of their rehabilitation, demonstrated through changes in resilience, communication skills, goal setting, coping skills, emotional intelligence and mental toughness, among other factors (Egea, Espejo, Ramos-Pastrana & Zafra, 2025). However, this review did not include whether the provision of psychological support was a factor in growth over the course of rehabilitation. The authors point to a parallel research-practice gap in this area. Constructive consequences of injury are clearly possible, evidenced by this review and the growing body of research on SIRG (Roy-Davis et al., 2017), however this present research is concerned with safeguarding athlete wellbeing, and providing appropriate psychological support to mitigate the psychological risks of injury in the first instance. Psychological challenges and personal growth are not mutually exclusive. Through appropriate psychological support in the injury process, it is possible that these constructive outcomes of injury may be enhanced, but the primary priority is to help athletes navigate the challenging consequences.

As with many areas of health research, the literature base in psychological impacts of injury is biased towards adult males, and particularly those with anterior cruciate ligament (ACL) injuries (Forsdyke et al., 2016). ACL injuries are among the most severe sports injuries in terms of time-loss, almost always require surgery, and have extended rehabilitation periods in the region of 9 months. The assumption therefore is that these injuries may result in the most severe psychological impacts (Gouttebarga et al., 2015). The extended rehabilitation time offers an opportunity to follow athletes on a rehabilitation journey which will almost certainly last a minimum of 9 months, making the population an attractive one for researchers.

This bias aside, the research provides a comprehensive understanding of the psychological challenges faced by injured athletes, and how vulnerable this population is to serious mental health problems in both the short- and long-term. The question remains, what can support staff do to minimise the risks to athlete mental health, and how can psychological interventions be implemented to support athletes (Evans & Brewer, 2022; Hess, Gnacinski & Meyer, 2019)

2.1.3 Psychological Intervention Following Injury

This section aims to evaluate existing interventions to psychologically support injured athletes. A systematic review conducted in 2012 looking at the efficacy of psychological support for injured athletes will be discussed, followed by an overview of intervention research conducted between 2010-2022.

2.1.3.1 Research to 2012

Reese, Pittsinger and Yang (2012) conducted a systematic review summarising the extant literature regarding the efficacy of psychological support for athletes following injury. Their review looked specifically at studies published since 2000, and their inclusion criteria are summarised in table 2.1 below.

Table 2.1: Summary of the Inclusion Criteria for the Systematic Review of Reese, Pittsinger & Yang, (2012)

Characteristic	Criteria
Study Design	Randomised control trials (RCTs) Non RCTs using a comparison group Before and after designs Qualitative methods
Participants	Severely injured athletes (> 21 days time loss) Competitive and recreational levels Aged 17 and older
Intervention	Psychological interventions aimed at either: - Reducing post-injury psychological consequences (Including but not limited to depression, anxiety, general psychological distress) And/or - Improving psychological coping (Including improving reinjury anxiety) Excluding - Interventions not intervening directly with athletes' psychological processes (e.g. Teaching athletic trainers to use skills with injured athletes but not measuring the direct impact on the athlete) Psychological intervention defined as ' <i>those that utilized psychological strategies including imagery, goal-setting, relaxation, and other common techniques that were implemented during the post-injury rehabilitation period</i> '. (p.72)
Outcome Measure	Any outcome measure including: - Measures of psychological consequences (including anxiety, devastation, restlessness) - Measures of psychological coping (including mood, self-efficacy and psychological flexibility) - Measures of reinjury anxiety

Reese, Pittsinger and Yang (2012) identified seven articles that met their inclusion criteria (see table 2.2 below), of those two reported findings from the same study, therefore the total

number of included studies is six. Four of the studies reported outcomes relating to mitigating negative psychological consequences, with two of those four (Evans & Hardy, 2002a; Johnson, 2000) reporting no significant effect, and two (Rock & Jones, 2002; Mankad & Gordon, 2010) reporting a decrease in negative psychological consequence following intervention. Five studies (Johnson, 2000; Evans & Hardy, 2002a; Mankad & Gordon, 2010; Rock & Jones, 2010; Mahoney & Hanrahan, 2011) looked at outcomes relating to psychological coping. While four studies reported improvements in measures including mood, self-efficacy, confidence, support seeking, and perception of social support, one study found no significant difference in positive feelings towards rehabilitation or feelings of stress/worry (Johnson, 2000).

Table 2.2: Summary of Studies Included in Reese, Pittsinger & Yang (2012)

Author (Year)	Participants	Intervention	Results
Johnson, (2000)	58 participants (52 men, 6 women) – only men in experimental group	Stress management and cognitive control, Goal setting, Relaxation/guided imagery, 3 x 15-25min individual sessions	Only relaxation/guided imagery showed statistical differences between experimental and control group (measured by Patient self-rating questionnaire, PSQ). Significant change in mood state during rehabilitation in experimental group (Measured by Mood Adjective Checklist MACL).
Cupal & Brewer, (2001)	30 ACL-r patients (16 men 14 women) From recreational to competitive athletes	10 sessions of relaxation and guided imagery (30-40mins), scripted and recorded, and listened to daily	Significantly greater knee strength, significantly lower levels of reinjury anxiety and pain in experimental groups compared to control.
Rock & Jones, (2002)	3 ACL-r patients (2 men, 1 woman)	6 sessions (40-60min) of counselling skills intervention	2 of 3 participants evaluated intervention favourably, providing emotional, listening and informational support. Mood disturbance below pre-surgery levels by the end of rehabilitation.
Evans & Hardy, (2002a)	77 injured participants (6 women, 33 men) recreational to competitive	Goal setting (4-5 sessions, 60-105mins each) over 5-week period	Experimental group rehabilitation adherence significantly better than social support or placebo and self-efficacy
Evans & Hardy, (2002b)	9 Participants (2 women, 7 men)	Goal setting (4-5 sessions, 60-105mins each) over 5-week period	Qualitative follow up of 2002a study. Further exploration of results from previous study.
Mankad & Gordon, (2010)	9 Elite athletes (4 men, 5 women)	Written emotional disclosure (3 x 20min sessions over 3 consecutive days	Reduction in devastation, dispirited, feeling cheated and restless scores (Psychological response to sports injury inventory) representing diminished grief response.

Mahoney & Hanrahan, (2011)	4 athletes (2 male, 2 female)	4x sessions ACT intervention over 4 weeks	Athletes reported skills were useful (particularly defusion and mindfulness).
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Limitations

The authors note that these studies are limited by small sample size and short follow-up time. There are also questions to be raised about the rigour of the interventions delivered. While some interventions employed a specific psychological framework (for example, Mahoney & Hanrahan, 2011, used an ACT intervention), others used written emotional disclosure (Mankad & Gordon, 2010) or a psychological skills approach (Johnson, 2000). It is also unclear in some studies who delivered the interventions and whether they were appropriately qualified to do so.

Conclusions

These studies suggest there is a benefit to psychological support following injury. Though the interventions targeted a variety of different outcomes, there is evidence that support can be beneficial to athletes. However, the review concluded there were a 'significant lack of well designed intervention studies targeting this population' (Reese, Pittsinger & Yang, 2012, p. 76), with only six studies meeting the inclusion criteria. With fewer than 200 total participants (and only 36 women) represented, it is not appropriate to draw robust conclusions from this review, but there is nevertheless a good rationale for further investigation in this area.

2.1.3.2 Recent Research

The body of literature was last reviewed in 2012, examining studies published between 2000 and 2012 (Reese, Pittsinger & Yang, 2012). The strengths and limitations of the evidence to date have been discussed, subsequently the aim of this section is to assess the extant literature to ascertain whether the knowledge base has moved forward in the years since 2012. A systematic review was conducted by the author of this current thesis to understand whether psychological rehabilitation post injury is effective in improving outcomes for athletes. Improved outcomes may include mitigation of negative psychological consequences or improved rehabilitation outcomes such as improved adherence to rehabilitation programmes or reduced fear of reinjury. The review assessed literature from 2010 to 2021, in order to evaluate the knowledge base produced in the years since the previous review. The full systematic review can be found in appendix 2.1, a summary of the relevant findings is presented below.

Inclusion Criteria

This review is not a direct update of Reese, Pittsinger and Yang (2012), as the selection criteria have been modified. Studies were deemed eligible for inclusion if they met the following PICO criteria:

Participants. Elite athletes (including professional athletes, collegiate athletes, or Olympic athletes) of any sport over the age of 18 who had experienced an injury (soft tissue, musculoskeletal or concussion) which kept them from training or competing in their sport for a significant amount of time.

Intervention. Any psychological intervention based in a recognised theoretical framework delivered by an appropriately qualified mental health professional. This represents a more specific standard for the intervention than Reese, Pittsinger and Yang (2012), and also adds the caveat that the interventions should be delivered by qualified practitioners. The purpose of this was to focus the review on studies which apply rigorous interventions through appropriately trained practitioners, which should ensure interventions delivered to the athletes meet basic standards.

Comparison. For controlled study designs comparator should be to another intervention or no intervention. For other study designs this is not relevant.

Outcome. Outcome measures may include either rehabilitation outcomes or mitigation of negative consequences of injury. These may include; return to pre-injury level of performance, quality of life during rehabilitation, post traumatic growth, reinjury measures, adherence to physical rehabilitation, wellbeing measures including mood, self-esteem, reinjury anxiety, or any established measure of depression or anxiety.

This review only included studies published since 2010. Finally, only studies published in English, or translated into English, were included.

Results

Searches of relevant databases yielded 1561 results. Two additional results were found from reference list handsearching. After removing duplicates 1194 studies remained. After screening of all titles 1106 were excluded leaving 88 results. Full abstracts for those results were screened, excluding 67 studies and leaving 21 results which went on to full text screening. Three studies were removed because full text was not available, two were removed because no English translation was available. At this stage, none of the remaining 16 studies met all eligibility criteria.

Discussion

Of the 16 studies which went on to full-text screening, eight were excluded as no relevant intervention was conducted. Two were case studies describing psychological intervention, but with no research question or results. The remaining studies met some of the eligibility criteria and a selection of these which were not included in the Reese, Pittsinger and Yang (2012) study are considered below, followed by several relevant studies published after the searches were conducted, but before the publication of this thesis.

Ardern and Kvist (2020) published a protocol for a randomised control trial using an intervention delivered via smartphone for athletes following ACL reconstruction. The design of this study meets all eligibility criteria but at the time of searching did not yet have any results published. The study aims to recruit 222 participants and is a parallel group, two arm superiority trial using Cognitive Behavioural Therapy as its theoretical basis. The intervention was designed by qualified psychologists, but is planned to be delivered through a smartphone application. The primary outcome measure is return to sport and pre-injury participation level within 12 months. Secondary outcome measures are return to sports participation, new knee injuries, patient-reported outcomes; psychological readiness to return to sport (ACL-RSI), self-efficacy (K-SES), motivation to return to sport, Quality of life (ACL-QoL), patient reported knee function (SANE and IKDC) and functional knee stability, Clinician-measured knee function; Quadriceps and hamstring strength, hopping performance and knee effusion, and finally adherence. This is a large-scale study using a theoretically-grounded intervention, and when results are available they will represent a significant contribution to this area of research.

Sheinbein (2017) published results as part of a PhD thesis, but was excluded due to the mean age of participants (16.75 years). The outcome measures studied were pain (4-item Visual Analog Scale VAS), stress (two single items measured on a Likert scale), depression (CES-D-NLSCY, 2005, 12 item scale), reinjury anxiety (28 item RIAI, 13 item RIAI-RR and 15 item RIAI-REC), psychological readiness to return to sport (I-PRRS, 6 items), and range of motion (using standard goniometry procedures). There were 20 participants divided between three experimental conditions; goal setting only, goal setting plus mindful self-compassion (Germer & Neff 2013) and goal setting plus imagery (Cupal & Brewer, 2001). No significant differences were found between intervention groups. The study was based on ACL rehabilitation but only took measurements for the first seven weeks of rehabilitation following surgery. For a rehabilitation which usually lasts 6-8 months this is not representative of the full rehabilitation journey. Additionally, measuring a psychological readiness to return to sport when that return may still be more than four months away is not necessarily a valid measure of impact.

Yoon and Yoon (2014) examined the effects of psychological skills training in a single case study. This case study did not meet the inclusion criteria because it was not clear whether the intervention was delivered by an appropriately trained professional, and there is limited information on the theoretical justification for 'Psychological Skills Training' as an intervention post-injury. The intervention itself was Psychological Skills Training, including work on 'goal setting', 'anxiety control', 'attention concentration' and 'confidence'. Outcome measures reported were the Korean version of the Psychological Skills Questionnaire (PSQ), the Profile of Mood States (POMS) and 'interview'. The PSQ and POMS were delivered on two occasions, once at the beginning of the intervention period and once at the end. It is unclear whether the POMS was delivered each day for a week, and then averaged, or whether the average mood of the week was reported. The interviews provided qualitative data regarding how the athlete felt about his rehabilitation. The results suggest the targeted psychological skills all showed improvements as measured by the PSQ, but there was no statistical analysis as to whether these results were significant. POMS results showed decreased tension, depression and fatigue, and increased anger and vigour, with no change in the confusion score. The authors make comparisons between the athlete's POMS and the 'iceberg profile' which has been proposed as the 'ideal' profile for athletic performance (Lochbaum, Zanatta, Kirschling & May, 2021), however, it is not known how this might compare with what is 'normal' for this particular athlete. With no POMS data from before the injury event, and only two sets of data, it doesn't seem reasonable to draw any significant conclusions from these results.

In an unpublished PhD thesis, Perret (2014) looks at ACT as a therapeutic framework specifically for the purpose of improving rehabilitation adherence. The sample consisted of seven athletes and the intervention was delivered over six weeks with a four-week follow-up. This study was not included as two of the participants were under 18 years of age and the participants were not competitive athletes. Rehabilitation Adherence Measure for Athletic Training (RADMAT) was used to assess adherence to rehabilitation, with Psychological Inflexibility in Pain Scale (PIPS), Cognitive Fusion Questionnaire (CFQ13), 5-Facet Mindfulness Questionnaire (FFMQ), and the Acceptance and Action Questionnaire-II (AAQ-II) were used to measure changes in psychological flexibility and mindfulness processes targeted through ACT. Five participants showed increases in rehabilitation adherence from baseline to the end of treatment, and four of those maintained these improvements to four-week follow-up. Measures of ACT skills such as decreases in cognitive fusion, increases in mindfulness skills and decreases in psychological inflexibility were partially supported.

Brewer, Van Raalte and Cornelius (2022) used a multimedia intervention to examine the effectiveness of psychological intervention in injury rehabilitation. There were 69 participants (30 female and 39 male) with a mean age of 35.01 years, of which 35% self-identified as competitive

athletes. Participants were randomly assigned to experimental and control conditions. Surgery and rehabilitation process variables were measured, including knee pain, assessed with a numerical rating scale (NRS), anxiety measured using State-Trait Anxiety Inventory (STAI), and kinesphobia with the Tampa Scale for Kinesphobia (TSK). Objective outcome variables included measures of range of motion and knee laxity, while subjective measures were assessed with the Knee Outcomes Survey – Sports Activities Scale (KOS-SAS). The multimedia intervention used a Cognitive Behaviour Therapy (CBT) approach, divided into three sections; general information, surgery and rehabilitation. The surgery section was further divided into; before surgery, day of surgery, and after surgery. Each subsection included three subdivisions of; overview, closer look, get practical. Therefore, there were a total of 15 subdivisions. These included education about ACL reconstruction, rehabilitation, and the likely progress of recovery, alongside practical relaxation and guided imagery sessions. Measures were repeated until six months post-surgery. There were medium effect sizes for confidence in ability to cope with surgery and rehabilitation, reduced levels of kinesphobia, more engagement with education materials and greater perceived utility of education materials. These results suggest that psychoeducation interventions are helpful for confidence and kinesphobia, but more research is needed, and longer follow-up durations should be considered for surgeries such as ACL reconstructions that have a lengthy rehabilitation.

Swettenham and Whitehead (2022) produced a case study which considered a single injured male football player and an ACT intervention. The aim of the intervention was to support the injured athlete through rehabilitation and to improve adherence to the prescribed rehabilitation program. Psychological flexibility was measured using the Acceptance and Action Questionnaire -II (AAQ-II) and the Cognitive Fusion Questionnaire (CFQ). Both of these measures suggested psychological flexibility increased over the duration of the intervention, though the interval between measures was not specified. No measures of rehabilitation adherence were specified, so it is not possible to conclude whether increased psychological flexibility had an impact on rehabilitation adherence in this case.

While a formal data synthesis is not possible due to a lack of eligible studies, it is worth noting that a wide variety of outcome measures were used in the studies described above. The previous review found that intervention outcomes were intended to reduce negative psychological consequences, increase positive psychological coping and reduce reinjury anxiety (Reese, Pittsinger & Yang, 2012). Many of the outcomes detailed in this discussion would fit into these categories, however three studies also looked at physical measures of recovery including knee range of movement, knee laxity, hopping performance, hamstring and quadricep strength and knee effusion (Brewer, Van Raalte & Cornelius, 2022; Ardern & Kvist, 2020; Sheinbein, 2017). Indeed, the intended

primary outcome measure of Ardern and Kvist's study is return to sport at pre-injury level within 12 months, and both Perret (2014) and Swettenham and Whitehead (2022) used an ACT intervention specifically to enhance injury rehabilitation. This could suggest a greater understanding that physical rehabilitation is linked to psychological factors and emphasises the importance of interdisciplinary collaboration to support athletes. The AAQ-II measure was used to assess psychological flexibility (the ACT mechanism of change) in the three studies using ACT, and a psychological skills measure for the case study taking the psychological skills approach, however Brewer, Van Raalte and Cornelius (2022) in their CBT study used outcome measures of state-trait anxiety, and Ardern and Kvist, (2020) used physical outcome measures, rehabilitation adherence, and psychological readiness to return to sport, but no other measures of psychological change. This is perhaps due to the less well understood mechanisms of change for CBT, but it is interesting that not all studies using psychological interventions are using psychological measures of change.

2.1.3.3 Recent Research Conclusions & Next Steps

The results of this review demonstrate that the field has not made significant progress since 2012, when Reese, Pittsinger and Yang concluded there was a 'significant lack of well designed intervention studies targeting this population' (p. 76). While there has been an abundance of recent research detailing the variety and prevalence of psychological consequences of injury, there has been little evidence that psychologists have been involved in trying to mitigate the negative consequences for athletes. As set out by Evans and Brewer (2022), there is a gap between what is known about the psychology of injury, and what is being done in practice to support athletes. Given recent research that psychologists are not routinely available in clubs (Gervis et al., 2020), and not fully trained in the psychology of injury (Pickford & Gervis, in press) this is perhaps not surprising.

The next step towards improving support for injured athletes across elite sport is to examine how that support might be implemented (Hess, Gnacinski & Meyer, 2019). Sport psychology is a growing profession in the United Kingdom, and these practitioners need to be appropriately trained to address the needs of injured athletes (Pickford & Gervis, in press). This research will therefore implement a training intervention for sport psychology practitioners and explore practitioners' perceptions of how that intervention impacts on their practice, and on the athletes they support.

2.1.4 Literature Review Section 1 - Summary

This section has established that injury in sport is common, and has significant psychological consequences for athletes. Significant models of the psychology of injury have been discussed, followed by the common psychological consequences of injury and the research in these areas to date. It is established that there is a research-practice gap in this area (Evans & Brewer, 2022), and a

lack of well evidenced interventions aimed at supporting injured athletes through the rehabilitation process. The next sections will outline sport psychologists' professional training (section 2.2), followed by an interrogation of Acceptance and Commitment Therapy (ACT) as a therapeutic modality (section 2.3).

2.2 Literature Review Section 2 – Professional Training

The previous section has thus far established that injury is a common psychological problem for athletes, and discussed several of the models that have been used to conceptualise the psychological response to sports injury. The previous section has established the common psychological challenges affecting injured athletes during their rehabilitation, and an overview of the literature to date regarding psychological intervention post-injury.

This section aims first to provide an overview of the professional education and professional development of sport psychology practitioners, and will briefly consider the origins of sport psychology, sport psychologist training, and the changing professional landscape (section 2.2.1), followed by an overview of the research on professional development for sport psychologists (section 2.2.2).

2.2.1 Sport Psychology in the UK

Sport psychology is a relatively young profession, initially developed as a method to improve athletic performance (Aoyagi, Portenga, Poczwardowski, Cohen & Statler, 2012). The International Society of Sport Psychology (ISSP) first met in 1965, the European Federation of Sport Psychology (FEPSAC) was formed in 1968, while the British Association of Sport Sciences (BASS, later BASES and subsequently CASES) was the first UK body with a register of sport psychologists, in 1988. The Division of Sport and Exercise Psychology under the British Psychological Society (BPS) was not established until 2005 (BPS, 2008). The BPS describes this as follows:

‘...with a powerplay worthy of any professional ice hockey team, and with the prospect of statutory regulation looming ever larger, the BPS seized control and ownership of the only professional area within psychology where practitioners had in place a registration scheme that did not ipso facto include BPS membership.’ (BPS, 2008).

Until very recently, the BPS maintained a monopoly on the title of ‘Chartered Sport and Exercise Psychologist’, and registration for its practitioners with the Health and Care Professions Council (HCPC) as ‘Practitioner Psychologists’. However, sport psychology practitioners qualified through

CASES have been eligible for HCPC registration since 2020 (CASES, 2019), and have recently gained Chartered status (CASES, 2025), making the qualifications equivalent.

As a discipline (particularly in the UK), sport psychology has its roots in sport science, not psychology (Goldman, Gervis & Griffiths, 2022), and is often found under the umbrella of sport science disciplines, both in academic institutions and in sports organisations. This origin has left a legacy of positivism in the discipline, and the vast majority of the research in the discipline’s recent history has been quantitative in nature (Poucher, Tamminen, Caron & Sweet, 2020). There have been several challenges to this legacy, and calls to expand research in sport psychology to include more philosophically and methodologically coherent qualitative methods of investigation, to reflect the changing nature of practice in this discipline (Poucher et al., 2020; McGannon, Smith, Kendellen & Gonsalves, 2021). Indeed, the qualitative literature regarding practice and professional development is only just emerging.

2.2.1.1 Sport Psychologist Training

There are two routes to qualification as a sport and exercise psychologist in the United Kingdom. The first is through the British Psychological Society (BPS) ‘Stage 2’ training to become a Chartered Psychologist (Sport and Exercise). The second is through the Sport and Exercise Psychology Accreditation Route (SEPAR) within the Chartered Association of Sport and Exercise Scientists (CASES) to become a CASES Accredited Sport and Exercise Psychologist. These are protected titles, enabling practitioners to be eligible to be registered with the Health and Care Professions Council (HCPC) as Sport and Exercise Psychologists, under the ‘Practitioner Psychologists’ category. HCPC accreditation acts as quality assurance, and demonstrates that registrants have met the professional and ethical standards deemed necessary to practice safely and independently. There are some differences in the educational requirements of each qualification, which will be outlined in table 2.3 below.

Table 2.3: Sport and Exercise Psychologist Training Requirements through BPS and CASES

Requirements	BPS	CASES
Undergraduate Degree	2:2 Undergraduate degree – if this is not a BPS accredited Psychology degree, then a Psychology conversion course is required	Sport and Exercise Science or equivalent in appropriate and related subject 60 credit Open University ‘Investigating Psychology’ module may be required
Postgraduate Degree	BPS Accredited MSc in Sport and Exercise Psychology	Sport and/or Exercise Science MSc or equivalent in appropriate and related subject (CASES Accreditation is optional)

Requirements	BPS	CASES
Professional Training	Qualification in Sport and Exercise Psychology (Stage 2) Supervised Practice – 2 year minimum	SEPAR Supervised Experience – 2 year minimum
Cost (as of 22.03.25)	£120 enrolment fee £6217.20 qualification fee Plus, supervisor fees Total: £6337.20 (Not Including Supervisor fees)	£3995 Including 9 compulsory workshops and courses Plus, supervisor fees Total: £3995 (Not including supervisor fees or OU psychology module if needed)
Injury education requirements	Not mentioned in QSEP Handbook (2018)	Understanding special issues in sport psychology – <i>‘Related topics include: injury and rehabilitation’</i> (p.22) The Sport Sciences and Allied Professions – <i>‘cover knowledge areas associated with, for example... injury and rehabilitation’</i> (p.23) Select appropriate interventions based on needs analysis – <i>‘candidates should consider a range of interventions, such as:... managing a particular career transition and/or injury’</i> (p.25)
References	BPS (2021) BPS (2022a)	BASES (2022a) BASES (2022b)

Both qualifications are based on evidence of supervised practice, evaluated through written evidence and reviewed by a panel of practitioners. The BPS qualification is attainable either through ‘Stage 2’ training alone or a professional doctorate with ‘Stage 2’ training alongside PhD level study. Both SEPAR and Stage 2 training are deemed to be ‘level 8’ qualifications, equivalent to PhD level work. Mental health and counselling skills are core topics for CASES SEPAR, and are required on CASES accredited MSc courses, but are not required on BPS Stage 2, or BPS accredited MSc courses. A search of the training guidelines for both organisations revealed that, while there are more mentions of injury as an important topic in the CASES qualifications, there is not a specific requirement to demonstrate an understanding of injury in either qualification (see table 2.3). While practitioners with a specific interest in this topic may undertake self-guided learning, or find informal sources of knowledge, training is not required by either training body, either at MSc level, during supervised practice, or post-accreditation.

Research conducted by the author of this current thesis in fulfilment of the ‘research’ component of BPS Stage 2 practitioner training (Pickford & Gervis, in press), investigated the formal and informal training undertaken by sport psychology practitioners in the UK. This research found that while working with injured athletes was ‘always’ or ‘usually’ part of the job role for more than

60% of the practitioners in the study (only one respondent answered that working with injured athletes was 'never' part of their role), only 25% reported having had a 'moderate' or 'substantial' amount of formal training on the topic, and 28.57% reported having had no formal training at all in this area. Where formal training was reported, this ranged from a single lecture at MSc level, through to a full module on the psychology of injury, but several practitioners also reported self-directed research during their degrees as significant sources of formal training. While more practitioners (89.71%) reported having received informal training in supporting injured athletes, this training ranged from self-directed reading, to specific topic in supervised practice, but was most often gained through working with other MDT professionals. The research concluded:

'Sport Psychologists receive limited formal training on the psychological impacts of injury, and the quality of this education is questionable. Often, the most training is received 'informally' through practitioners who may be experts in the injury rehabilitation journey from a physical perspective, but have limited expertise on the mental health aspects of injury. Practitioners were aware of the need for more mental health CPD (Quartiroli & Wagstaff, 2024), but this is not routinely offered or required by all training bodies.' (Pickford & Gervis, in press, p. 15)

It would seem appropriate, given the severity of potential psychological impacts and the prevalence of injury in sport, to provide some education on the psychology of injury at MSc level (Stage 1). Training on how to support injured athletes and appropriate interventions that may be employed are more appropriate for Stage 2 (post-MSc) professional training, but is not mandated by any training guidelines.

The implication of this is that qualified, practicing sport psychologists may not have a basic understanding of how injury can affect athletes and their mental health. When we consider the high rates of injury, and the serious psychological consequences that injury can have for athletes, this is clearly a concern. The current requirements are not ensuring practitioners are trained to provide the support for injured athletes that groups such as the IOC (Reardon et al., 2019) and American College of Sports Medicine (2006) recommend. It is a strength of the profession that sport psychologists have an understanding of the athletic lifestyle and issues affecting the wellbeing of athletes in a way that counsellors and clinical psychologists do not (Gervis, Pickford & Hau, 2019). Given the frequency of injury in sport, and the fact that work with injured athletes is almost always part of the job role (Pickford & Gervis, in press), this is clearly a concern. This must lead us to question whether the qualification guidelines should be amended to require an understanding of injury, and the associated mental health risks, for all sport psychologists.

2.2.1.2 The Changing Professional Landscape of Sport Psychology

A comprehensive history of the professional landscape is provided by Sly, Mellalieu and Wagstaff, (2020), detailing the shifting priorities of the profession across recent decades. They state that the profession as a whole has moved from a singular performance focus and reliance on psychological skills training, through a subsequent emphasis on performance excellence, incorporating principles of positive psychology, to a focus on culture and interdisciplinary working informed by organisational psychology (Sly, Mellalieu & Wagstaff, 2020). In a recent systematic review (Wadsworth, McEwan, Lafferty, Eubank & Tod, 2024) the reflective accounts of sport psychology practitioners revealed increasing references to 'holistic' practice and the need to understand the whole person. Broadly speaking, the discipline is shifting from a positivist, mental skills approach, relying on psychometric data, to a more person-centred approach, resulting in an increased need for qualitative methods of investigation to reflect this change (Poucher et al., 2020).

Contemporary practitioners are increasingly responsible for the mental health and wellbeing of athletes, despite professional bodies encouraging referral networks to clinical colleagues (Sly, Mellalieu & Wagstaff, 2020; Hartley, 2020). This is a contentious issue, (Roberts, Faull, & Tod, 2016), some argue awareness and competence in supporting mental health issues is essential, as sport psychologists need to be 'holistic practitioners' and understand the athlete as a whole person. However, others suggest that the support of clinical issues is best left to clinical psychologists, while sport psychologists focus solely on 'performance' issues. The distinction between 'mental skills practitioners' and 'therapists' in sport psychology practice has developed over the last decade (Herzog & Hays, 2012), however the increasing awareness of the sports environments' potential to be damaging to athletes in itself (Fisher & Anders, 2020), has added weight to the argument that psychologists working in sport need therapeutic skills. Research suggests that clinical and counselling psychologists, while experts in mental health, are naïve to the sport context, (Gervis, Pickford & Hau, 2019), which hinders their work with athletes and adds further weight to the argument that athlete mental health should be supported by sport psychologists with understanding of the significant role of the contextual and lifestyle factors in professional sport. However, there is a need for further training in mental health and therapeutic modalities to allow sport psychologists to work effectively in this role (Quartiroli & Wagstaff, 2024; Winter & Collins, 2024).

This study is based in the belief that an awareness of, and competence in supporting, mental health is essential for any practitioner with 'psychologist' in their professional title. If the work of a sport psychologist includes supporting mental health, the use of an evidence-based therapeutic modality is essential to ensure effective, ethical practice. While clinical psychologists, external to the sport context, may be best placed to support the most severe mental health issues (i.e. those that

have clearly breached clinical thresholds, or those which require specific expertise, such as psychosis), sport psychologists have a critical role to play in the support of sub-clinical mental health issues. Not only is this an important part of 'holistic support' for athletes, intervention at the sub-clinical stage of mental health helps to prevent issues escalating into clinical issues, reduces the need for external referral, and diminishes suffering (Hartley, 2020). Having access to support internally helps to overcome some of the barriers associated with external help seeking for athletes, including a reluctance in sporting environments to refer athletes for psychological support (Lynch, 2021). When we consider the realities of external referral, with barriers including stigma (Castaldelli-Maia et al., 2019; Petersen, Schinke, Coholic, Lavière & Giffin, 2024), long waiting lists (Frith, 2017; Kotera, Harris, Raschbauer & Gibson, 2022), and the difficulty of finding practitioners with an understanding of the unique sporting context (Gervis, Pickford & Hau, 2019), the rationale for practitioners within sport to be able to support sub-clinical mental health is strengthened further. This is particularly pertinent to injured athletes, as the evidence clearly demonstrates that injury has the potential to trigger or exacerbate mental health issues.

Training therefore needs to offer both knowledge of the psychological impacts of injury for athletes, but also the necessary therapeutic skills to be able to effectively support injured athletes who are facing mental health challenges (Prior, Papathomas & Rhind, 2025). Sport psychologists are currently vulnerable to finding themselves ill-equipped due to lack of knowledge and appropriate training. The aim of training therefore is to both raise awareness of the psychological challenges, but also to provide practitioners with therapeutic solutions that will be helpful to their clients.

2.2.1.3 Training Supervision and Professional Development

There is a unified approach to practitioner development across all disciplines within psychology, and trainee practitioners follow similar patterns of development (McEwan & Tod, 2023). An effective supervision relationship and peer support are both crucial to the development of trainee and neophyte practitioners (Sharp, Hodge & Danish, 2021). Wadsworth, McEwan, Lafferty, Eubank and Tod, (2021) point to the parallels between the developmental paths of counselling psychologists and sport psychologists. In the development of counselling psychologists, 'Interpersonal sources of influence propel professional development more than 'impersonal' sources of influence' (Rønnestad & Skovholt, 2013, p. 153), and this is also true for sport psychology.

However, sport psychology's roots in sport science have resulted in different professional norms. For example, the discipline has different supervision practices from other psychological disciplines post-accreditation. In counselling and clinical psychology, it is a requirement for practitioners to have ongoing professional supervision, but this is not the case for sport

psychologists (Winstone & Gervis, 2006). Given that effective ongoing supervision and peer support remains crucial for the professional development and wellbeing of established practitioners (Sharp, Hodge & Danish, 2021), we must question these professional norms, particularly as the discipline moves towards more therapeutic approaches. There remains a paucity of research on what constitutes 'effective' supervision in sport psychology (Tod, Eubank, McEwan, Chandler & Lafferty, 2020).

2.2.2 Professional Development Models

The professional development of sport psychologists can be understood in similar ways to other psychology practitioners (Tod, 2007). However, in recent years, there have been efforts to understand the professional development of applied sport psychologists, and Wylleman et al. (2009) point to 'challenges in definition, education and vocational development' (p. 442). Wylleman et al. (2009) highlight the paucity of data on the professional development of applied sport psychologists, particularly with regards both students and experienced practitioners, and the careers of female practitioners. Wylleman et al. (2009) also discuss the challenges in assessing the quality of practitioner training programmes, and highlight the differences in the supervised practice requirements for (European) sport psychology trainees compared to other psychology disciplines. Finally, Wylleman et al. (2009) highlight an 'urgent need' (p. 443) for more research into the development of sport psychologists from novice to experienced practitioners, and point to the wide variety of service delivery, and range of variables impacting efficacy, as additional challenges in this area.

More recent research by Tod, Hutter and Eubank (2017) calls for more research on practitioners and their professional individuation, as the practitioners themselves are 'central to effective practice' (p. 136). McEwan, Tod and Eubank (2019) subsequently assert that professional development is reflected in the 'ongoing process of individuation' (p. 3), including trainee practitioners' evolving theoretical orientation and working style. McEwan, Tod and Eubank (2019) identify both internal and external sources of influence on the individuation of trainee sport psychologists, while experienced practitioners had internalised external sources of knowledge such as theoretical approaches and supervisor input, and professional relationships with peers continued to have significant impact on professional development, highlighting the importance of peer support networks. Critical life events were also significant sources of development for experienced practitioners, highlighting the importance of life experience in professional development.

Fogaça, Quartiroli and Wagstaff (2024) present a four-phase developmental model for sport psychologists (see figure 2.6), titled the Sport Psychology Professional Development (SPPD) model.

In the 'introduction phase' practitioners are consciously connecting theory to practice, building mental models, identifying problems and exploring potential solutions. In the 'exploration phase', practitioners rely less on 'textbook' interventions, seek to integrate theoretical knowledge with peer and supervisor feedback, and begin to develop a personal approach. In the 'consolidation phase', practitioners begin to have an integrated philosophy and understand where this philosophy aligns (or does not align) with practice environments, and engage in authentic conversations while simultaneously considering therapeutic intervention, theory and evidence-based principles. Finally, in the 'fulfilment phase', practitioners constantly reassess and monitor their own practice while contributing to the development of the profession through mentoring or working for professional bodies.

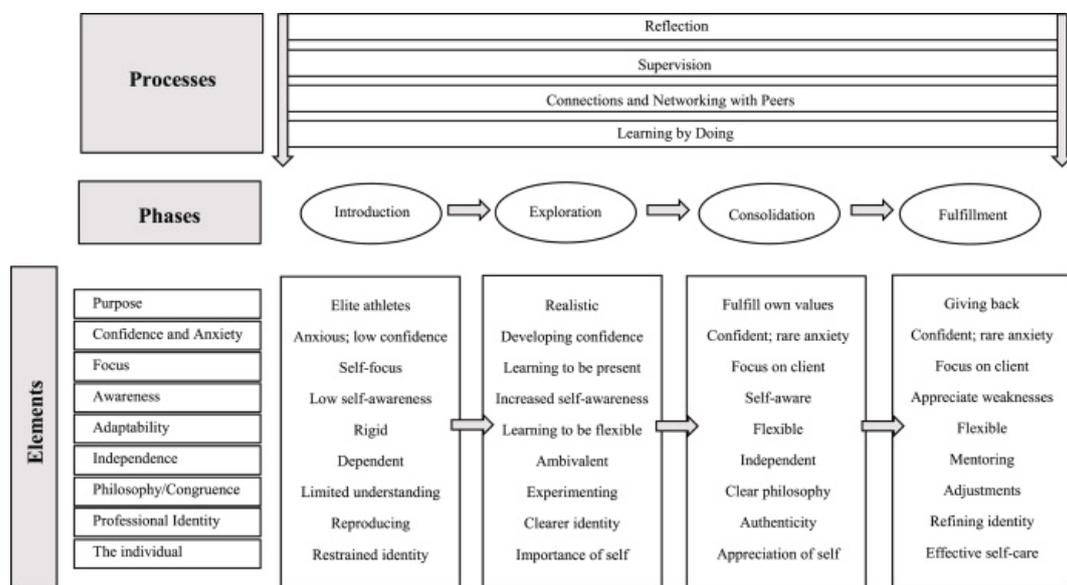


Figure 2.6: Sport Psychology Professional Development (SPPD) Model (Fogaça, Quartiroli & Wagstaff, 2024)

Nine elements of development are set out in this model, three of which (philosophy and congruence, professional identity and the individual) are supported by the other six elements; purpose, confidence and anxiety, focus, awareness, adaptability and independence. In order for training to impact professional development and practice, CPD engagement should elicit changes in a number of these elements.

There have been calls for more research into the professional development of sport psychology practitioners (Tod, Hutter & Eubank, 2017; Wylleman et al., 2009). The discipline itself is evolving quickly, and a tension exists between the profession's roots in sport science and the therapy-based approaches emerging as sport psychologists are starting to identify more as 'holistic' practitioners (Wadsworth et al., 2024). It is necessary for contemporary practitioners to be

competent in supporting athlete mental health in sports environments that have the potential to be psychologically damaging (Fisher & Anders, 2020; Quartiroli & Wagstaff, 2024), and current training guidelines are not consistently aligned with this need.

There is limited research on the professional development of sport psychologists, however the SPPD (Fogaça, Quartiroli & Wagstaff, 2024) provides a helpful reference for understanding how training may impact practitioners. This model also provides an understanding of how training may provide opportunities for professional development for practitioners at various stages of their career.

2.2.3 Literature Review Section 2 - Summary

In section 2.1 it was established that; injury is a psychological risk for athletes, there is a significant lack of well-designed interventions for injured athletes, and interventions should be grounded in a specified therapeutic framework. Section 2.2 has further established that sport psychologists are psychologists, but training requirements do not meet the rigours of other psychological professions in regards to mental health. Furthermore, sport psychologists may be best placed to deliver post-injury interventions, but lack the necessary training to provide them. Therefore, training in this area should include mental health, counselling skills, and working effectively in a multidisciplinary team. This chapter will go on to discuss Acceptance and Commitment Therapy (ACT) as a therapeutic modality for psychological intervention.

2.3 Literature Review Section 3 – Acceptance and Commitment Therapy

The final section of the literature review will provide an overview of Acceptance and Commitment Therapy (ACT) which is proposed as the therapeutic solution for the psychological impacts of injury set out in section 2.1. This includes the history of behavioural therapy (section 2.3.2), the philosophical basis of ACT (section 2.3.3), an overview of ACT as a therapy (section 2.3.5), efficacy of ACT interventions (section 2.3.6) and finally the rationale for using ACT as the therapeutic modality (section 2.3.7).

2.3.1 What is ACT? Introduction

ACT is a therapeutic method, largely designed to address clinical and sub-clinical mental health issues. Before discussing ACT in detail, it is important to situate it in the behavioural tradition of psychotherapy and explore its underlying theoretical and philosophical assumptions. This section will therefore begin by outlining how behaviour therapy has developed over time, before examining

in more detail at the underlying philosophy of Functional Contextualism and Relational Frame Theory (RFT) which are the foundations of ACT. Furthermore, ACT's process of change, core processes, and therapeutic goals will then be discussed.

2.3.2 A Brief History of Behaviour Therapy

Behaviour therapy began with two key commitments: firstly, to produce a scientifically based analysis of behavioural health problems and their treatment framed in terms of basic psychological processes. Second, to develop well-specified and empirically validated interventions for those behavioural problems (Hayes, Luoma, Bond, Masuda & Lillis, 2006). At the time, clinical traditions were only weakly linked to established principles, vague in their intervention process, and with little evidence of efficacy (Hayes, 2004). Thus, behaviour therapy sought to explain maladaptive behaviour and find evidence-based solutions.

The first wave of behavioural therapies were positivist in their epistemology, with Watson believing that the study of psychology should rely exclusively on experimental observation (Moore, 2011). Watson's behaviourism used the 'habit' as its unit of analysis, reducing all psychological phenomena to stimuli-responses, and associations between the two (Moore, 2011). Behaviour therapy was therefore based on conditioning, and targeted problematic behaviour (Hayes, 2016). Though initially based on principles from lab-based experiments, behaviour analysis could not empirically explain cognition (Hayes et al., 2006). Skinner went beyond stimulus-response relationships to consider language and cognition. Whilst he established a scientifically valid framework for investigating cognition, Skinner failed to provide an empirically adequate analysis of internal behaviour including thoughts and feelings (Hayes, 2004). Under the misleading label of 'radical behaviourism' Skinner concluded that language and cognition were not necessary for understanding overt behaviour (Hayes, 2004). By modern standards, the first wave of behaviour therapy was therefore reductionist in its approach to behaviour, and offered little real-world validity due to the closed-systems empirical approach employed in building its evidence base.

2.3.2.1 Cognitive Behavioural Therapy (CBT)

The second wave of therapies that followed took a step away from the extreme end of positivism. Adding Beck's cognitive therapy to behaviourism produced Cognitive Behavioural Therapy (CBT), which is philosophically rooted in Stoicism (Robertson, 2018). Early cognitive behavioural therapies looked at 'cognitive errors' and interventions needed to correct them (Hayes, 2004). The focus of both first and second wave therapies was 'content change' of thought (first order change), designed to 'modify dysfunctional beliefs and faulty information processing' (Beck, 1993 p.194). CBT has become a dominant western response to a plethora of mental health issues,

through detection, correction, testing and disputation of 'cognitive errors' (Hayes, 2004). However, CBT often uses mechanistic descriptions of processes, and is based on an information processing model of human cognition and the inherently mechanistic assumption that the form or frequency of a thought itself has a direct impact on emotion and behaviour (Hofmann, Ellard & Siegle, 2012; Hayes, 2004).

Cognitive Behaviour Therapy is currently the 'gold standard' of behaviour therapy, offered widely across the National Health Service (NHS) in the UK, and recommended by the NICE as a treatment for generalised anxiety disorder (NICE, 2011a), depression in adults from sub-clinical to severe levels (NICE 2011b), depression in adults with chronic health problems (NICE, 2009), depression in children and young people (NICE, 2019), Obsessive Compulsive Disorder and Body Dysmorphic Disorder (NICE, 2005), Social Anxiety Disorder (NICE, 2013), Eating Disorders (NICE, 2017), Chronic Fatigue (NICE, 2021b), and chronic pain (NICE, 2021a), among others. In order to understand the different perspective offered by ACT, it is necessary to first discuss the treatment method and assumptions underlying CBT in more detail. Dobson describes CBT as 'loosely rationalistic and empiricist in background' (2013, p. 224) where the assumption is that 'cognitive distortions are markers of mental disorder and that correction of cognitive distortion is therapeutic' (2013, p. 224). Hofmann, Asmundson and Beck (2013) point out Cognitive Therapy's (CT) basis is in 'critical rationalism' and therefore 'patients in CT are encouraged to generate hypotheses based on their beliefs (theories) about the world, themselves, and their future' (p. 200). An understanding of the behavioural consequences of these thoughts is what distinguishes Cognitive Behaviour Therapy from Cognitive Therapy. Nonetheless, CBT is primarily concerned with the cognitive realm. Thoughts and feelings are labelled 'positive' or 'negative' (Hofmann, Asmundson & Beck, 2013), and the assumption is that those thoughts, feelings and beliefs can be modified, either as a result of 'restructuring the automatic thoughts', (p.505) or changing the beliefs from which those thoughts originate (Wenzel, Chapman, Newman, Beck & Brown, 2006). These 'maladaptive beliefs' are the target of much of CBT intervention, with the goal of cognitive change in order to facilitate behaviour change. Boden, John, Goldin, Werner, Heimberg and Gross, (2012) describe maladaptive beliefs as 'negatively biased, inaccurate and rigid' (p. 287). Cognitive behavioural approaches have many, varied, and increasing numbers of maladaptive thoughts, treated as variables. These 'cognitive errors' include catastrophising, control beliefs, coping, distraction, hypervigilance, and interference, among many others (McCracken & Morley, 2014). The central tenant of CBT holds that diagnosable mental health problems are caused by problems with thoughts that need to be corrected in order to produce changes in behaviour. 'Thoughts and beliefs are treated as hypotheses to be tested' (Wenzel et al., 2006, p. 506), and progress can be made through testing those hypotheses and

judging them as ‘correct’ or incorrect’. Questions remain in CBT about precisely what the mechanism of change is and how it operates (Dobson, 2013). Changes in beliefs are positively associated with treatment outcomes, but there is no real explanation of the process through which those beliefs are changed (Wenzel et al., 2006). Protocols in CBT are selected according to Diagnostic and Statistical Manual of Mental Disorders (DSM) diagnostic criteria, and it is thought that the diagnostic reliance of CBT has been heavily influenced by the insurance-based medical model (Elkins, 2009), and the need for a diagnosis to secure treatment funding (and indeed research funding).

Eventually, questions began to be raised about whether directly changing cognition is a primary, necessary method of clinical improvement (Hayes, 2004), or if changing cognition is possible. There is no single clear mediator of change in cognitive therapy (Hayes, 2004), though catastrophizing is thought to be a key process (Trompetter, Bohlmeijer, Fox & Schreurs, 2015). This lack of clarity has led to criticism, and seems to have been a driving force in the development of the third wave of behaviour therapy (Hayes & Hoffman, 2017). There is some evidence that a ‘third wave’ of CBT is emerging, emphasising a transdiagnostic approach and considering contextual and experiential strategies that are not found in ‘traditional’ CBT (Carvalho, Martins, Almeida, & Silva, 2017). However, it has been argued that this third wave represents a new approach to the ontological and epistemological assumptions underlying intervention (Hayes & Hoffman, 2017), and therefore the approach is fundamentally different. The evidence base is still in its early stages.

In the early 1990’s focus in behavioural therapy more broadly began to shift to the function of thought, rather than the content (Hayes, 2004), giving rise to the third-wave of behavioural therapies. Third wave behavioural therapies combine cognitive behavioural traditions with acceptance and mindfulness (Fletcher & Hayes, 2005) and include Acceptance and Commitment Therapy (ACT), Dialectic Behavioural Therapy (DBT) and Mindfulness Based Cognitive Therapy (MBCT), among others. These approaches are largely transdiagnostic, looking at changing behaviour, or responses to cognition, rather than changing cognition itself or ‘diagnosing’ a specific disorder. ACT will be discussed in further detail, starting with its theoretical basis; Relational Frame Theory (RFT).

2.3.3 Relational Frame Theory

The theoretical basis of ACT is Relational Frame Theory (RFT) which was developed as a ‘post-skinnerian approach to human language and cognition’ (the title of Hayes, Barnes-Holmes & Roche, 2001). Ingvarsson and Morris (2004) argue that RFT builds on Skinner’s principles. While RFT represents a substantial shift in understanding, it does not contradict Skinner’s principles, making RFT more ‘post-skinner’ than ‘post-skinnerian’. Whether or not RFT is ‘post-skinner’ or ‘post-

skinnerian' is still a matter of debate (Gross & Fox, 2009), and while it is important for the sake of conceptual accuracy, makes little practical difference.

2.3.3.1 Core Concepts of RFT

RFT is a theory of learning and linguistics which helps to explain how we make sense of the world around us and how our cognitions impact our behaviour. Relational frames are built through networks of relationships between stimuli, and for clarity will be explored from a starting point of language. In learning language, children are taught that the spoken word 'dog' is equivalent to the animal dog, establishing a stimulus equivalence relationship. That relationship becomes bi-directional without formal instruction, so that the animal dog is equivalent to the spoken word 'dog' (Hughes & Barnes-Holmes, 2014). Early theories of stimulus equivalence (Mackay 1985) found that children with learning difficulties formed relationships between stimuli that had not been explicitly taught. If a relationship of equivalence between A and B, and B and C was explicitly taught, the relationship of equivalence between A and C could be made without needing explicit reinforcement. These derived relationships are foundational to RFT. To illustrate: if the relationship between the spoken 'dog' (B) is equivalent to the animal dog (A), and the spoken 'dog' (B) is equivalent to the written word 'd-o-g' (C), the relationship between the written 'd-o-g' (C) and the animal (A) can be derived without the need for that relationship to be made explicit (see figure 2.7).

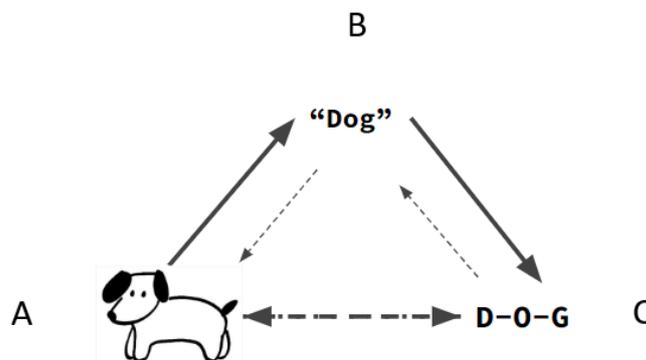


Figure 2.7: Relational Equivalences

Relational frames go beyond equivalences, and relations of comparison and opposition can be derived in the same way as those of equivalence (Gross & Fox, 2009). For example, if a dog is bigger than a cat then a relation of comparison tells us that cats are smaller than dogs. Relations of comparison are easily illustrated by 'formal' (i.e. empirically observable) cues such as size, colour, texture etc. but crucially, 'arbitrary' contextual and social cues can also be the basis of relations (Blackledge, 2003). A child can be told dogs are 'better' than cats and therefore form a 'better than' relationship based only on the social context they inhabit.

The derived bidirectional relational response between stimulus relations is called mutual entailment. Mutual entailment refers to the complementary relationships between A and B, and B and A (Blackledge 2003). In equivalence relations this is also known as symmetry (Gross & Fox, 2009). For example, the written word 'dog' is equivalent to the spoken word 'dog'. Combinatorial entailments occur between three or more stimuli and are constructed through combinations of other relationships (Barnes-Holmes & Harte, 2022). For example, if dogs are bigger than cats, and horses are bigger than dogs, *mutual* entailment tells us that cats are smaller than dogs. *Combinatorial* entailment uses two different explicit relationships to derive the relationship that horses are bigger than cats. When examined in isolation, these relationships are relatively simple. However, with only a few explicitly trained relationships, networks can quickly become very complex, and encompass a huge number of derived relationships (Steele & Hayes, 1991). These networks are relational frames, and help to shape human cognition.

The relational equivalences that prompted the development of RFT were first observed in language teaching by Sidman (1971, cited in Barnes-Holmes & Harte, 2022), and relational frames are deeply connected to human language (Barnes-Holmes & Harte, 2022). There is evidence that while mutual entailment understanding develops in children from 18 months, combinatorial entailment does not occur automatically, but is taught through the process of learning language (Lipkens, Hayes & Hayes, 1993). While basic relations of comparison with formal cues can be taught to non-humans, there is limited evidence for the formation of untrained stimulus-equivalence and symmetry relationships in non-humans (Dugdale & Lowe, 2000, Lionello-DeNolf, 2021, Barnes-Holmes & Harte, 2022). This goes some way to explain why research on animal behaviour cannot be easily generalised to human behaviour, and why Skinner's behaviourism has since been accused of reductionism. Horne and Lowe, (1996) argue that naming as a feature of human language provides the basis for stimulus equivalence, and some go as far as to claim that human language *is* relational framing (Hayes & Berens, 2004). Relational frames then, are crucial for human language, and language is crucial for relational frames.

2.3.3.2 Applying RFT to Behaviour

Although RFT emerged from language research, relational frame development is not limited to language. Learning equivalence relations during early language development can be generalised to language or symbolic relations (Barnes-Holmes & Harte, 2022). Mutual and combinatorial entailments can go beyond language to somatic responses, emotions and behaviour. Building relational frames for actions and responses helps us navigate the world and solve problems. Harlow's (1949) work on learning sets demonstrated that problems were solved more efficiently when preceded by problems which shared features of solutions (cited in Ingvarsson & Morris, 2004).

As humans, our ability to solve complex problems is mediated by our previous experience of similar problems, based on the relational frames which have already been constructed.

Arbitrarily applicable relational responding (AARR) is learned behaviour at the centre of language and cognition for which RFT seeks to provide an explanation (Hayes & Berens, 2004; Barnes-Holmes & Harte, 2022). Relational responding is the ability to respond to the relationship between stimuli rather than the stimuli themselves (Blackledge, 2003). For example, being asked to pick the 'biggest' dog from a choice of three different breeds could be taught in terms of physical properties of the objects in question, but being asked to pick the 'best' dog will depend entirely on the individual's relational frame network surrounding those dogs. For relational responses to be 'arbitrarily applicable' they must be responding to arbitrary stimulus properties rather than formal properties (Blackledge, 2003). This makes relational frames inherently contextual, and unique to each individual.

Networks of relational responses are altered when new relations are made through transformation of stimulus function, a defining characteristic of RFT (Blackledge 2003). Transformation of function helps us understand how this theory of language acquisition might have implications for behaviour because stimuli can be both reinforcing and aversive (Ingvarsson & Morris, 2004). In the dog example, a person might like dogs, but are then told that dogs may bite. If the relation is already in place that being bitten is painful, then the new relation might lead to an aversive response when a bark is heard. Alternatively, if a person has experience of being bitten by a smaller animal such as a hamster, and has the established frame of 'animals might bite', then meeting a dog might lead to an aversive response. Furthermore, a dog is a larger animal than a hamster, and therefore the relationship might be made that it will produce a bite that is bigger in magnitude than a hamster bite. Consequently, meeting a dog might produce a larger aversive response than exposure to a hamster.

Transformation of function explains human behaviour that conditioned responses cannot. Conditioned responses require contingencies that have been experienced, while RFT provides an explanation that does not require experiential learning (Blackledge, 2003), something that was missing from early behaviourism. Our ability as humans to speak, listen and understand allows us to derive relations between words and events that help us make sense of the world, and transformation of function demonstrates how events can acquire functions through indirect relational means (Hayes, 2004). Superstitions illustrate this concept well, as they are learned patterns of behaviour (for example not walking under ladders) that are culturally contextual and are not necessarily based on personal experience of negative consequences. Relational frames are

therefore the basis through which we can learn from our own and others' experiences, and from the culture that surrounds us.

The basic unit for RFT is the relational frame, however relational frames are an active process, rather than a structure. As explained by Gross & Fox; 'Relational frames describe behaviours or repertoires, not hypothetical or inferred mental structures or knowledge constructs' (2009, p.91). Relational frames are the 'product of a history of reinforcement' (Ingvarsson & Morris, 2004, p. 497), highly dependent on both the environment in which they are utilised and the individual's lifetime of learning (Blackledge, 2003; Barnes-Holmes & Harte, 2022). One example of this is the relationship between increased heart rate and fear. In certain contexts, for example being in a dark street, we may notice an increased heart rate. The situation of 'dark street' may have a relational equivalence to 'danger' which might lead us to label that increased heart rate as 'fear'. This may then prompt a behavioural response of running to a safe place. Once in the safe place, that increased heart rate is more likely to be attributed to the behaviour of running rather than the feeling of fear, in the absence of the situational assessment of 'danger'. Not only does this demonstrate the relational frame built between somatic responses and situations, but also the dynamic way in which relational frames change according to context. RFT explains how arbitrarily applicable relational responding may make sense in a specific context when it has been non-arbitrarily applied (Blackledge, 2003). Some researchers go as far as to suggest AARR is foundational to the communication, reasoning and problem solving which is fundamental in human intelligence (Cassidy, Roche & O'Hora, 2010). It also explains how behavioural repertoires are built, reinforced, and responses can be enacted without conscious thought. This type of responding allows us to react to changing situations quickly, but also provides the conditions for what may be described as maladaptive behaviour, and behavioural repertoires that become unhelpful in the long-term.

2.3.4 Functional Contextualism

Epistemic contextualism is concerned with knowledge in context. As explained by Hannon:

'If the purpose of 'knows' is to flag informants that are reliable enough to satisfy our needs and interests, and if our needs and interests vary with context, then what it takes to be a reliable informant will change from context to context; thus, we should expect that 'knows' and its cognates also vary in order to serve their purpose.' (2013, p. 900).

What is known, and therefore who is the expert, and what is the 'correct' answer, depends on the context. Social reality is therefore subjective, and open to individual interpretation.

There are two main areas of contextualism. Descriptive contextualism considers the person in the whole event, while functional contextualism looks to predict and influence interactions

between the person and the context (Hayes, 2004). Functional contextualism is clearly the more relevant branch for behavioural therapy, which aims to change behaviour. ACT is philosophically based on functional contextualism, which is itself a variant of pragmatism (Hayes, 2004). There is an emphasis of psychological epistemology over ontology in the pragmatic tradition – the reality of the world is only of interest when framed in terms of the impact it has on the actions of the people who exist in it (Vilardaga, Hayes, Levin & Muto, 2009). As explained by Hickman, Neubert and Reich (2009), the pragmatic view is that science is always embedded in the cultural context. As such we can't change behaviour without understanding the context in which it occurs. In functional contextualism the truth criterion is what works, (Hayes, 2004), a pragmatic view of truth. In this approach, successful principles are not true in that they reflect an accurate picture of the world, but that they result in effective action (McCraken & Morley, 2014). An example of this in ACT in practice is a general disregard for whether the content of a thought is objectively true. Of greater concern is whether that thought is 'helpful' or 'unhelpful' in any given context.

In contextualism there must be a statement of goal to allow analysis of whether something 'works', but goals can only be stated, not justified, true, or universal (Hayes, 2004, Vilardaga, Hayes, Levin & Muto, 2009). In other words, 'It is the achievement of the particular goal that validates the analysis', (Biglan & Hayes, 1996, p. 52). Analyses should have precision (are specific in how they apply to phenomena), scope (principles should apply to a broad range of phenomena) and depth (for example, psychology should not contradict biology), (Vilardaga et al., 2009). Defining behavioural goals is central to ACT, and those goals are always defined by the client. 'Behaviour' in functional contextualism includes all private (internal) and public (external) activities, including feeling and thinking (McCraken & Morley, 2014). This is a departure from the CBT model which, as previously described, considers 'behaviour' to be solely external. If a behaviour is not deemed to be problematic by the client, it will not be targeted for change by the ACT therapist. Behaviour is not judged on any external scale, but rather whether it moves the client towards their personal goals. In ACT, this concept is referred to as 'workability' (Hayes et al., 2006).

The analytic unit in functional contextualism is the 'ongoing act in context' (Fox, 2006). 'An act derives its meaning from the context' (Hayes, Pistorello & Levin, 2012, p.979) and therefore cannot be separated from its history and situation. Biglan & Hayes, (1996) suggested that a consideration of environmental (contextual) variables is essential to being able to influence behaviour. Removing problematic behaviours from their context is thought to miss the point of the problem, and therefore misunderstand the solution (Hayes, 2004). Any act can be analysed in a multitude of different ways, therefore functional contextualism sees analysis as a process of creation rather than discovery (Biglan & Hayes, 1996). This does not mean that there can be no

generalisations made, but that the principles of what is 'effective' start at the individual case level and may subsequently be applicable to other cases (Biglan & Hayes, 1996). This is again contrary to the CBT approach, which applies a 'protocol' according to the specified disorder, rather than considering individual differences.

2.3.5 What is ACT?

2.3.5.1 ACT Background

ACT emerged as a therapeutic framework in the 1980s, adopting a philosophy of a subjective reality partly as a reaction to the 'DSM era' of diagnostic criteria (Hayes, Pistorello & Levin, 2012). ACT is a transdiagnostic applied theory of psychopathology and psychological change which does not rely on cognitive change as a first-order process (Hayes et al., 2006). The need for a new behavioural therapy was based on:

1. The failure of the DSM system to provide functional diagnostic entities with known aetiology, course and response to treatment,
2. The need for a better explanation and understanding of processes of change underlying clinical intervention,
3. A wide range of syndrome definitions mapped onto a smaller number of psychological processes, e.g. avoidant coping. (Hayes, Pistorello & Levin, 2012)

ACT therefore aims to target behaviours such as avoidant coping, without a reliance on the 'diagnosis' of a specific condition. ACT is also explicit in its theoretical and philosophical assumptions and its process of change – psychological flexibility. The primary goal of ACT is to help individuals live a rich, full, and meaningful life (Harris, 2019a). As previously discussed, according to functional contextualism what constitutes a 'rich, full and meaningful life' is context-dependent and individually defined. Meaningful action is measured against personal goals, and only behaviour which is considered problematic for the individual, by the individual, will be targeted for change. This change is achieved through psychological flexibility, which is mediated by six core processes addressed in therapy. Psychological flexibility will first be explored, before each of the six core processes is considered in turn.

2.3.5.2 Process of Change

According to ACT and RFT, one source of psychopathology is the inability to persist with, or change behaviour in the service of long-term goals (Hayes et al., 2006). This can be conceptualised through an RFT lens as derived relations dominating over other sources of behavioural regulation 'due to an inability to detect the ongoing process of thinking as distinct from the products of thinking

(i.e., thought)' (Fletcher & Hayes, 2005, p. 318). In other words, unconscious patterns of AARR are enacted in response to situations, without consideration of their long-term implications. As stated by Hayes & Berens: 'The more important relational phenomena occur most dominantly in the context of applied work', (Hayes & Berens, 2004, p. 347). Once established, relational frames are very difficult to break or re-train due to the huge number of derived relationships available in complex networks (Hayes, 2004). A rigid pattern of responses to language or cognition through the relational frame network is termed psychological inflexibility. These responses can have outcomes which either reinforce or punish that response - direct contingencies. Relational frames can alter how direct contingencies operate (Hayes & Berens, 2004), and these direct contingencies can serve to reinforce particular responses. These patterns of response often develop to avoid discomfort, whether that be physical discomfort or uncomfortable thoughts or feelings. Smith et al., state that 'Actions that are emotionally avoidant, dominated by rigid rules, and share very little contact with present opportunities for values-based functions to be expressed in behavior are low in Psychological Flexibility (PF), and tend to become dysfunctional.' (2019, p. 228). An excellent illustration of this process can be found in the behaviours of substance misuse. In the presence of uncomfortable thoughts and feelings, the relational frame network provides the option of avoiding those difficult thoughts and feelings through substance use. This has a short-term benefit of reducing psychological discomfort and is therefore reinforcing. This response is then more likely to be used in the future when uncomfortable thoughts and feeling inevitably arise. This behaviour can be enacted with or without the conscious understanding of the mechanisms and pattern of response, and if continued more and more often, can become a repeated unhelpful behaviour. Other behavioural options might be more uncomfortable, or take longer to reduce discomfort, and are therefore less likely to be enacted. The automatic response to difficult thoughts and feelings is substance use: a rigid pattern of behaviour. Without conscious intervention, this behaviour is continued because of its short-term reinforcement, despite long-term detriment. Psychological inflexibility is a predictor of psychological distress (Fledderus, Bohlmeijer, Fox, Schreurs & Spinhoven, 2013), and promoting psychological flexibility is the process of change through which ACT impacts wellbeing.

In order to change behaviour, the ability to choose how to respond to any given situation is essential. However, being able to make a conscious choice relies on us being aware of our decisions, and not acting on automatic responses provided by the relational frame network. Psychological flexibility then is the ability to be aware of and open to thoughts and feelings, consider the choices in a given situation and make a choice guided by long-term goals and personal values (McCracken & Morley, 2014). Through the process of behavioural therapy, relational frame networks are often

added to, becoming more elaborate (Hayes, 2004). More elaborate frames give more response options in a given situation, and options that produce behaviour that has desirable outcomes for the individual become reinforced automatically (Hayes, 2004). Thus, psychological flexibility creates the opportunity for behaviour change.

The psychological flexibility model offers an alternative to the established information processing model of human behaviour found in well-established therapies such as CBT. The information processing model of cognitive science does not focus on environmental influences on human performance (Biglan & Hayes, 1996). However, the psychological flexibility model integrates both environmental and cognitive influences on behaviour (McCracken & Morley, 2014). The psychological flexibility model has never had more than six variables, organised under a single unifying process of psychological flexibility, and is therefore argued to be inherently integrative (McCracken & Morley, 2014). Those six core processes will now be considered in further detail.

2.3.5.3 Core Processes

Intervention in ACT is based around six core principles, normal psychological processes which are used to promote psychological flexibility. The ACT model provides the dimensions of ‘treatment’, with their inverts as ‘diagnosis’ (Hayes, Pistorello & Levin, 2012), as shown in table 2.4.

Table 2.4: Core ACT Processes and their Inverts (Hayes, Pistorello & Levin, 2012)

‘Treatment’	‘Diagnostic’
Acceptance	Experiential avoidance
Defusion	Cognitive fusion
Being Present	Attentional rigidity to past and future
Self-As-Context	Conceptualised self
Values	Unclear, compliant or avoidant motives
Committed Action	Inaction, impulsivity or avoidant behaviour

These six core processes are used flexibly in therapy, and to represent this they are often presented as a ‘hexaflex’ (see figure 2.8) with psychological flexibility at its core (Hayes, Stroschal & Wilson, 2011). Each of the six core processes, their contribution to psychological flexibility and their underpinning in RFT will be described below.

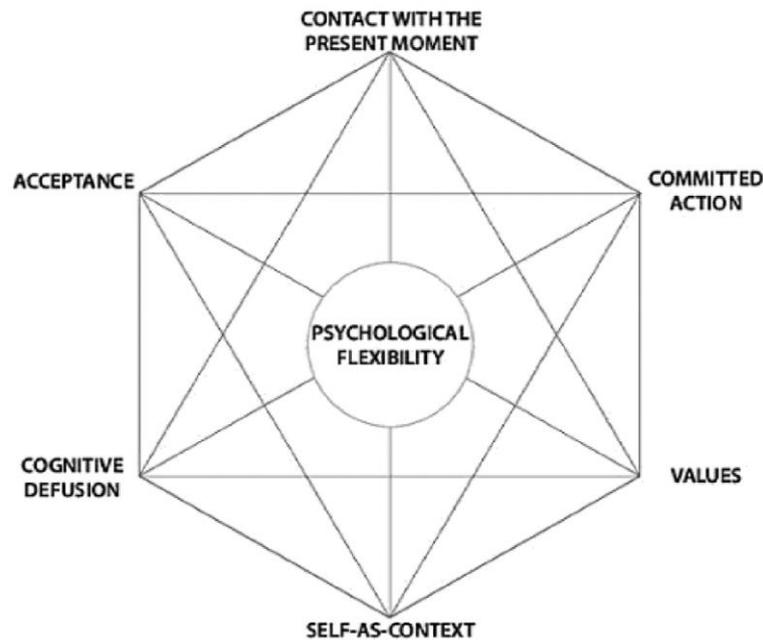


Figure 2.8: ACT Hexaflex, (Polk, Schoendroff, Webster & Olaz, 2016)

Acceptance

As humans, our automatic response is to avoid discomfort, whether physical or mental. Mental discomfort might include anxiety, sadness, uncertainty, or thoughts and feelings which threaten or contradict our self-concept. Often people will try to control their thoughts and feelings in an attempt to avoid fear or other unpleasant emotions. To mitigate unpleasant thoughts and feelings we can either try to suppress them or avoid situations which trigger them. In ACT this is termed experiential avoidance (Fletcher & Hayes, 2005).

Suppression of thoughts is ineffective, as ‘don’t think of x’ cues ‘x’ through the relational frame (Hayes, 2004). Telling someone ‘don’t think about a pink elephant’ almost always cues thoughts of a pink elephant. Avoidance is therefore a common strategy. In the CBT model, cognitive change is often conceptualised by replacing one thought with another, but in order to recognise that a thought needs to be replaced, it must be acknowledged and then disputed. Disputation is not necessarily an effective strategy for reducing the occurrence of difficult thoughts, or making them easier to live with (Richardson, 2020). RFT suggests that experiential avoidance processes are inherent in human language and cognition (Hayes, 2004). Avoidance is not only of physical situations, but also the thoughts and feelings which accompany them. Difficult thoughts and feelings can be cued by a huge number of different situations or events, as a result of the complex network of relational frames (Hayes, 2004). Trying to avoid those difficult thoughts and feelings narrows the behavioural repertoire. For example, a person might find that speaking in social situations provokes

thoughts of 'I'll look stupid' and 'No one wants me here', with the associated unpleasant emotions of fear and embarrassment, which might also lead to the somatic experiences of an increased heart rate and nausea. These cognitions, emotions and sensations are labelled as 'unpleasant' and 'uncomfortable', and avoiding speaking in social situations might therefore mean that those experiences happen less often, or less intensely. Avoidance therefore 'works' in that it reduces discomfort. This may not be a problem in itself, but due to the relational frame network those same emotions and cognitions may be triggered in other situations, which are subsequently also avoided. For example, avoiding speaking in meetings at work, or voicing opinions in a relationship. The behavioural repertoire has narrowed, as speaking up is not an option if uncomfortable thoughts and feelings are to be avoided. This might have bigger impacts on a person's ability to have a fulfilling career or meaningful relationships, and the action of staying quiet therefore becomes 'unworkable'.

Acceptance is conceptualised as 'the active and aware embrace of private experiences without unnecessary attempts to change their frequency or form' (Hayes, Pistorello & Levin, 2012, p. 982). This allows individuals to approach situations which may trigger uncomfortable or unwanted thoughts and feelings, rather than avoid them. For example, giving a presentation at work *despite* the fact that it might be uncomfortable, with thoughts of 'I'll look stupid' and feelings of fear. Acceptance of difficult thoughts and feelings therefore opens up a wider range of behavioural repertoires, increasing psychological flexibility. It is important to note that ACT does not advocate for a blanket acceptance of discomfort. Acceptance is only advocated when avoidant behaviours are standing in the way of action which will contribute to the individual's pursuit of a meaningful life (Blackledge & Barnes-Holmes, 2009).

Defusion

Cognitive fusion is underpinned by RFT as a well-trained relational frame, which produces responses without the need for conscious awareness of the process (Hayes, 2004). This leads to behaviour dominated by rules and evaluations (Hayes & Hayes, 1989). Cognitive fusion allows the literal content of thoughts to become 'true', for example the thought 'I'm worthless' may be believed, even in the presence of evidence to the contrary.

Defusion is a process which reduces the literality of thought content (McCracken & Morley, 2014). In RFT terms defusion seeks to reduce the 'stimulus function transformation that occurs through verbal relations' (Assaz, Roche, Kanter, & Oshiro, 2018, p. 405). In other words, reducing the impact of internal language on behaviour. While the original concept of defusion was thought to work by making the ongoing process of relational framing evident, thus changing the context of the event (Blackledge, 2007), others have proposed that cognitive defusion broadens the behavioural

repertoire available (Wilson, Murrell, Hayes, Follette & Lineham, 2004). Indeed, Wilson et al., (2004) argue that not only the broadening of the repertoire, but the experience itself that broadening the behavioural repertoire is possible, is a critical feature of defusion. If we consider an example of a phobia; upon seeing a spider, an individual might have the thought 'I can't deal with spiders' and respond by running away. If, however, the thought is noticed, and accepted, but not taken literally, there is an option for a response of staying still in the presence of a spider. Not only does this add another option in the relational frame, but the process of choosing a different response may in itself open up more options for responding in new ways in the future, for example being able to catch and move the spider.

Instead of challenging the 'truth' of the thought (as may be done in CBT), ACT acknowledges the presence of the thought as a thought, but not necessarily an important one. Thoughts are simply thoughts, not realities (Blackledge & Barnes-Holmes, 2009). Magritte provides a good example of this process of defusion with his painting of a pipe, and his statement 'Ceci n'est pas un pipe' ('This is not a pipe') (Hayes, Pistorello & Levin, 2012). The thought is there, but whether or not the thought is true is of little consequence. Defusion has been shown to be more effective than disputation and distraction in reducing the emotional discomfort and believability of negative self-descriptive thoughts (Masuda, Feinstein, Wendell, & Sheehan, 2010; Masuda, Hayes, Sackett & Twohig, 2004). While defusion has been shown to reduce the believability of thoughts, this is not an explicit goal of ACT, rather it is the *function* of the thought that is important. The goal of defusion is therefore to reduce the impact of thoughts on behaviour, rather than making them less believable, or proving them to be false.

Being Present

RFT considers psychopathology to develop when derived relationships dominate behavioural responses without direct awareness (Fletcher & Hayes, 2005). Behavioural responses such as avoidance often happen without direct awareness of the processes underlying them. In order to be aware of the process of thinking and how that is impacting behaviour, it is necessary to practice awareness of the thoughts and feelings that are present. The skills of acceptance and defusion rely on an awareness of this changing internal landscape of thoughts and feelings; being present allows a shift from control of thoughts and feelings to awareness and acceptance (Smith et al., 2019).

Anxiety is often conceptualised as worry about the future, while depression is a preoccupation with past events. In either case attention is not in the present. Being present also includes ACT's relative disinterest in the origins of unhelpful thoughts, feelings or behaviours (Jennings & Apsche, 2014). There is no way to change the past, and while relational frames can be

added to, they cannot be unlearned, so what therefore matters to behaviour change is the now. Being present also means connecting with where we are in the world, and noticing external stimuli (Fletcher & Hayes, 2005). Contacting the present moment involves attending to the current experience, including sensations, thoughts and emotions. For example, in a panic attack, the physical sensations of tight chest and increased heart rate are often automatically linked to feelings of anxiety through the relational frame. Being present fosters an understanding that physical sensations are distinctly different from the description of those sensations, and helps to distinguish literal reality from the content of thought (Blackledge & Barnes Holmes, 2009). So, a racing heart rate and a tight chest are noticed as what they are, sensations rather than the emotion of anxiety itself, a process that also helps with defusion and self-as-context. Bringing the attention to the present is a central skill of mindfulness, and mindfulness is often used in ACT to cultivate 'being present' in a focused, voluntary and flexible way (Hayes, Pistorello & Levin, 2012).

Self-as-Context

Deictic relations in language such as 'I/you', 'now/then' and here/there' lead to a sense of self as a perspective (Hayes, Pistorello & Levin, 2012). Verbal assessments of our lives such as 'am I a success or a failure?' can come to dominate our thinking (Blackledge & Barnes-Holmes, 2009) and lead to a conflation of self-descriptions with the self – a conceptualised self. The conceptualised self leads us to become fused with our own self-descriptions and personal narratives, and reduces options for alternative behaviours because of our attempts to be right about those assumptions (Hayes, Pistorello & Levin, 2012). Events that contradict this conceptualised self can lead to difficult thoughts and feelings which then foster experiential avoidance.

Self-as-context (or the noticing self) creates a distinction between thoughts and feelings, and the self. The conceptualised self might have the thought 'I am angry' and become the angry person, while the noticing self can see the emotion of anger and the thought, but not embody that anger. This perspective-taking self also fosters a sense of distance between the content of thought and the 'self', facilitating acceptance and defusion.

Values

Values in ACT are verbal statements about how an individual would like to go through life (Blackledge & Barnes -Holmes, 2009), and are a source of both direction and motivation (Wilson et al. 2004). Values also provide a reference point for how to assess behaviour: whether a specific behaviour is consistent or inconsistent with self-referenced values can help to understand why it may be functional or dysfunctional (Smith et al., 2019). Psychological inflexibility is a barrier to engaging in values-consistent behaviour (Plum, Stewart, Dahl & Lundgren, 2009). There is an

important distinction to be made between values and goals - goals are something which can be achieved and completed, and will change over time. Values are 'stable and long-term sources of positive reinforcement' (Blackledge & Barnes-Holmes, 2009, p.43) which can be lived regardless of context. For example, a goal for exercise might be to reach a certain weight, or run a particular distance. These goals can be derailed by many factors outside of personal control, such as illness, injury, or change in circumstances. A value associated with exercise might be improving or maintaining health and wellbeing, or being fit and seeking adventure. While external factors might influence how those values are enacted, values can still guide behaviour in almost any situation. An injured runner might not be able to achieve the goal of running a marathon, but they can still live their value of being fit and healthy by engaging with a rehabilitation programme or another sport which does not aggravate the injury. While values may guide behaviour in the service of goals, they are not goals themselves (Smith et al., 2019). The emphasis on the rewards of values-based living being 'stable' and 'long-term' differentiates it from behaviour which may provide short-term reward, such as avoidant behaviour, e.g. drug or alcohol consumption. Explicit values may be particularly useful motivators in situations where the benefits of a behaviour are delayed or longer term, for example the long-term benefits of exercise (Jackson, Williams, Hayes, Humphreys, Gauthier & Westwood, 2016).

From an RFT perspective, values serve as motivative augmentals. Formative augmentals establish stimuli as reinforcing or punishing (Plum et al., 2009) for example 'exercise is good for your health'. Motivative augmentals temporarily alter the effectiveness of those previously established relationships (Plum et al., 2009) and this is where the verbalising of values has an effect. 'I value my health' is a statement of a personal value which makes engaging in exercise behaviour (for which the relationship of improved health has already been established) more likely. Motivative augmentals relating to preferred outcomes have been shown to have a greater impact than those relating to non-preferred outcomes (Jackson, 2008). While there is some motivation in doing things simply because one 'should' do them, or through compliance or guilt, these are not the best motivators for achieving behavioural goals (Hayes, Pistorello & Levin, 2012). If we consider a person with depression, they are likely fully aware that they 'should' get out of bed and get some fresh air, but knowing they 'should' do something doesn't help them achieve that. 'Should' implies doing something to avoid negative consequences, and there is little reward in doing things to avoid something (Blackledge & Barnes Holmes, 2009). If we consider the example of exercise, it is much more compelling to exercise to approach the positive outcomes; for example, to maintain or improve health, or in the service of a value of fitness and adventure. In comparison, exercising

because you 'should' go to the gym to avoid feelings of guilt or distressing thoughts about being 'lazy' or 'unhealthy' is less intrinsically rewarding.

When mundane tasks are done with the express purpose of living one's values, they become more rewarding. However, values go beyond positive reinforcement to guide behaviour in a way that gives life more meaning, purpose or vitality (Blackledge & Barnes-Holmes, 2009). Values-guided action may lead to more pro-social behaviour, and taking action for the 'greater good'. This in turn makes behaviour more meaningful and purposeful, providing further stable positive reinforcement.

Committed Action

Inaction or avoidance may reduce 'negative' thoughts and feelings in the short term, but soon leads to patterns of 'unworkable action' that lead people away from their personal behavioural goals and values. If we consider agoraphobia, not leaving the house can completely eliminate difficult thoughts and feelings relating to being out in the world, but also drastically limits the possibility for fulfilling activities such as seeing new places or meeting friends. ACT is concerned with behavioural outcomes, taking action to move towards a more meaningful life, and that behaviour is conceptualised as committed action (Smith et al., 2019). Committed action is engagement in behaviour that is consistent with values (Blackledge & Barnes-Holmes, 2009). In ACT, committed action is the final step in changing behaviour (Smith et al., 2019). From an RFT perspective, verbalising a commitment to a specific behaviour may function as a formative augmental (Blackledge & Barnes-Holmes, 2009), creating an association between a specific behaviour and a desired outcome. Public commitment to a specific behaviour increases the likelihood of that behaviour thanks to the positive consequences of 'concordance between words and action' (Blackledge & Barnes-Holmes, 2009, p.48). In ACT, committing to certain behaviours also entails commitment to accepting the associated difficult thoughts and feelings which may arise from pursuing those actions (Blackledge & Barnes-Holmes, 2009).

Contacting the present moment and a perspective of self-as context allows awareness of current thoughts and feelings and how they may be shaping behaviour. Acceptance and defusion are tools used to reduce the impact of those thoughts and feeling on behaviour. Values help to understand what alternative course of action may be desirable and why, and committed action is the final step in achieving behaviour change.

2.3.5.4 Aims of ACT Therapy

The purpose of behaviour analysis is to predict and influence behaviour in and with a historical and situational context (Hayes & Berens, 2004). The aim of ACT is to allow people to react to different situations in a way that is aligned with their values, through increasing psychological

flexibility. ACT takes care to pursue valued behavioural goals rather than pleasant behavioural goals (Wilson et al., 2004). The aim of ACT is not happiness, it is to build a rich full and meaningful life in the face of the whole spectrum of human emotions (Harris, 2019a).

ACT does this through its six core processes, which can be broadly summarised in the 'triflex' as: open up, be present, and do what matters (Harris, 2019a). Being present involves contacting the present moment and connecting with the 'observing self' or self-as context'. Only by being present can we be aware of the process of our thinking, and only by being aware of the process of our thinking can we understand the impact our thinking has on our behaviour. 'Opening up' encompasses the processes of acceptance and defusion. Experiential acceptance and cognitive defusion attempt to change the context that supports a thought (Hayes, 2004). By accepting the presence and defusing from the literality of difficult thoughts and feelings, they have less impact over behaviour. Once we are present and aware of what's happening both internally and externally, non-judgementally and without attempts to control or avoid experiences, we can choose to 'do what matters'. 'What matters' is defined by the individual, according to their own identified values, and is achieved through committed action.

These core processes are not addressed in any specific order, but flexibly according to the needs of the client. There is an emphasis on applying the core processes not only in therapy sessions, but in everyday life. ACT is an active therapy, as implied by the title, and emphasises the process of incremental committed action to build wider behaviour change.

2.3.6 Efficacy of ACT Interventions

The previous sections provided some context for ACT by situating it in the behavioural tradition, exploring the underpinning theoretical and philosophical frameworks, and providing a brief overview of the therapeutic method and the process of change. The evidence for the efficacy of ACT as a therapy will first be explored more generally, before more detailed discussion of the evidence for ACT in the fields of sport, and chronic pain. Finally, the rationale for using ACT to work with injured athletes will be outlined.

2.3.6.1 ACT Interventions

The efficacy of ACT as an intervention in clinical mental health settings has been well researched (Dindo, Van Liew, & Arch, 2017), but sport settings may provide different challenges. There is limited research regarding ACT in sports contexts, and particularly with injured athletes. This section will therefore consider the evidence for ACT in clinical and mental health settings, followed by the evidence in sport populations. There is a substantial body of evidence for ACT as a treatment

for chronic pain, which is relevant to an injury/rehabilitation context. Pain is inevitable with injury, and though it is normally acute, for long-term injured athletes some of the lessons from chronic pain will be applicable to their experiences through the rehabilitation process. The evidence for ACT in chronic pain will therefore be reviewed, followed by other relevant research regarding the efficacy of ACT interventions.

2.3.6.2 Efficacy in Clinical and Mental Health Settings

There have been several meta-analyses and systematic reviews of ACT as a treatment, and the evidence base is growing rapidly. ACT is commonly compared to CBT, which as previously discussed is a well-accepted psychotherapy with a large evidence base, commonly used in western medical contexts. While there is a body of evidence for ACT interventions, there is some debate as to whether it is a superior intervention to other established frameworks. There is also some concern about the methodological rigour of the early evidence for ACT interventions. Öst (2008) looked at whether there was sufficient evidence for third wave behavioural therapies, including ACT, to meet the criteria for an empirically supported treatment. While there was significant criticism in this paper of methodological weaknesses in the third wave studies, the meta-analysis concluded that while there was a moderate effect size for both ACT and DBT, Öst argues that neither of them met the criteria for empirically supported treatments. ACT is, in relative terms, a newer treatment method, with much of the research published post 2000 (Hayes, Masuda, Bissett, Luoma & Guerrero, 2004). As discussed in Gaudiano's (2009) response to Öst, the therapies compared (ACT and CBT) are at very different stages of investigation and therefore receive very different levels of funding. Indeed, reanalysis by Gaudiano found that significantly more CBT studies received funding, and there was a moderate positive correlation between funding and methodological quality. There was also a significantly more funding (in terms of values of the funding) given to the CBT trials than the ACT trials, which Gaudiano points out is likely to have impacted methodological quality. A meta-analysis by Powers, Vörding and Emmelkamp, (2009) found ACT to be more effective than waiting list and treatment as usual conditions, but no more effective than other interventions. This was subsequently challenged by Levin and Hayes, (2009), who checked and corrected data errors, reclassified some outcome variables as either primary or secondary, and considered nicotine replacement pharmaceutical therapy as an intervention rather than 'treatment as usual'. They therefore concluded there was a significant benefit of ACT over other treatment conditions (this was again challenged by Powers & Emmelkamp, 2009).

More recently, Jiménez (2012) conducted a meta-analysis of studies comparing the efficacy of ACT and CBT interventions and found that ACT outperformed CBT on primary outcome measure in all cases. Importantly, ACT interventions had a higher impact on their proposed process of change

than CBT interventions. Jiménez (2012) also points out that studies comparing ACT and CBT often used symptom reduction as an outcome measure, which is not a goal of ACT as an intervention. Jiménez suggests this may be because of a lack of validated measures for ACT outcomes until more recently, and points out that it is significant that despite this bias, ACT still performed at least as well as CBT at follow-up (Jiménez, 2012). An updated review by Öst in 2014 concluded that ACT was ‘probably efficacious for chronic pain and tinnitus, possibly efficacious for depression, psychotic symptoms, OCD, mixed anxiety, drug abuse, and stress at work, and experimental for the remaining disorders’ (Öst, 2014, p.105). Öst, (2014) is keen to point out that in their meta-analysis ACT did not lead to *significantly* better outcomes than CBT, but ACT did perform at least as well as CBT for the outcomes measured. In the most recent meta-analysis (at time of writing), no difference was found between the efficacy of ACT and CBT, either at post-treatment or follow-up (Lewin, 2023).

A systematic review looking at the efficacy of ACT as a treatment for suicidal ideation and self-harm found only 5 studies in the area, and while there was only limited support for the efficacy of ACT in these cases, the effect on secondary measures of depression was significant (Tighe, Nicholas, Shand & Christensen, 2018). More recently, a review of meta-analytic evidence found ACT to be effective for depression, anxiety, substance use, chronic pain, and transdiagnostic combinations of conditions (Gloster et al., 2020) and there is further evidence for ACT as an effective treatment for psychosis (Bach, Gaudiano, Pankey, Herbert & Hayes, 2006). These comparisons serve an important purpose in evaluating the evidence base, but much of the focus of discussions is taken up with whether ACT is a significantly better treatment than the established norms. What does seem to have been established, is that ACT performs as well as current treatments, and is therefore a credible therapy.

2.3.6.3 Evidence for ACT in Sport

There is limited evidence of ACT interventions in sport to date, though the evidence base is growing. The related mindfulness- and acceptance-based interventions will therefore be included in the discussion here, as the two methods have similar mechanisms and targeted outcomes. Gardner and Moore (2012) discuss the development of mindfulness and acceptance-based approaches in sport, and the suggestion that optimal performance does not require the control of internal states or the reduction of negative thoughts. Gross, Moore, Gardner, Wolanin, Pess and Marks, (2018) compared psychological skills and mindfulness-acceptance-commitment (MAC) approaches on the mental health and sports performance of female athletes. The mindfulness-acceptance based approach took the view that optimal performance is based on an athlete’s ability to remain non-judgementally present with internal experiences while performing, despite the potential for internal discomfort – psychological flexibility. The psychological skill approach, in contrast, aims to reduce

the frequency of 'negative' thoughts and internal states while increasing confidence. This study found the MAC approach to have a significantly greater effects on both sport performance and mental health measures such as distress index, anxiety and emotion regulation compared to the psychological skills approach. This suggests MAC may be a more effective and more holistic approach to use in sport contexts than the established psychological skills approaches. Four sessions of ACT training were found to promote psychological flexibility in an ice hockey context (Lundgren, Reinebo, Näslund & Parling, 2020), which in turn was significantly correlated with improved performance. ACT has also been used on small scales to work with athletes struggling with specific sport injury related anxiety (Price, Wagstaff & Thelwell, 2022).

There has been preliminary support for using ACT interventions with injured athletes (Mahoney & Hanrahan, 2011) and ACT has been shown to reduce the negative psychological consequences of injury in this population (Reese, Pittsinger & Yang, 2012). Acceptance in itself has been shown to be a mitigating factor for psychological distress following ACL reconstruction (Baranoff, Hanrahan & Connor, 2015). Moesch, Ivarsson and Johnson (2020) used a mindfulness and acceptance-based intervention with six injured athletes and found the intervention significantly improved measures of wellbeing and non-reactivity (related to acceptance). In a comparable population, ACT has been used in interventions with military personnel. Udell, Ruddy and Procento, (2018) used an ACT intervention with injured US Navy recruits in training. They found significant effects for anxiety, experiential avoidance, pain acceptance, mindfulness, cognitive inflexibility, depression and pain reduction. Importantly, recruits who completed ACT treatment graduated from training at a higher rate than those who dropped out of the treatment, or controls who did not receive ACT intervention. This area of research is clearly still in the early stages, and it is hoped that this study will make a useful contribution to the area.

2.3.6.4 Evidence for ACT in Chronic Pain

ACT has recently been included in UK NICE guidelines for the treatment of chronic pain (NICE, 2021a). There is a substantial evidence base for ACT and other acceptance-based therapies in chronic pain, which has been the subject of several meta-analyses and reviews. Veehof, Oskam, Schreurs and Bohlmeijer (2011) conducted a systematic review and meta-analysis for acceptance-based therapies in chronic pain, of which seven of the 19 studies included used ACT. While they found medium effect sizes for all acceptance therapies on pain intensity, depression, anxiety, physical wellbeing and quality of life, the ACT studies in isolation found only a small effect size for pain intensity. This is perhaps unsurprising, as ACT does not seek to modify the experience of pain, but rather the impact of pain on behaviour. While the review concluded the effects were comparable to CBT, the authors also note that ACT is a promising alternative which needs more

research. A more recent review (Veehofs et al., 2016) included twenty-five randomised control trials using acceptance-based therapies in chronic pain interventions, demonstrating the rapid growth of the field. While effect sizes for pain intensity remained small, there were moderate effects found for pain interference and anxiety. As discussed by the authors, this finding is congruent with the aims of acceptance- and mindfulness-based therapies, however only four studies used this as an outcome measure and therefore these results should be interpreted cautiously. This analysis also found larger effect sizes for ACT than mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT), significantly so for anxiety and depression. This is suggested to be the result of ACT's focus on committed action and values, which are theorised to lead to long-term improvements in these areas. While these results were comparable to a similar review of CBT intervention for chronic pain (Williams, Ecclestone & Morley, 2012), Veehofs et al., (2016) found the effects of acceptance- and mindfulness-based therapies to have increased at follow up (with the exception of pain intensity), while the effects of CBT were not maintained. This suggests that the effects of ACT may be longer lasting, making it a more effective therapy in the long-term and potentially more cost-effective. An updated review of interventions for chronic pain (Williams, Fisher, Hearn & Ecclestone., 2020) analysed ACT separately and concluded that while studies showed a large benefit in reducing disability, the quality of the evidence was very low, and should therefore be interpreted with caution. This echoes other meta-analyses, and demonstrates the importance of funding high-quality, large-scale research in this area.

A review looking specifically at ACT for chronic pain again found significant moderate effect sizes for pain interference and psychological flexibility, smaller effect sizes for anxiety, depression and measures of functioning, and unsurprisingly no significant effect for pain intensity (Hughes, Clark, Colclough, Dale & Mcmillan, 2017). This analysis repeats the call for more high-quality evidence for ACT. McCracken and Gutiérrez-Martínez, (2011) found large effect sizes for acceptance of pain across all variables, and general psychological acceptance had a 'significant and unique role' in measured improvements. This is in line with ACT's explicit treatment goals, and supports the contextual nature of the therapy in that it does not target only pain (the primary 'problem') but also other factors that are part of the complex psychosocial context of chronic pain. These benefits are clearly applicable to an injury rehabilitation context.

2.3.7 Rationale for Using ACT

If there is no reliably demonstrable difference between ACT and CBT interventions, why use ACT? As discussed above, there is a wealth of evidence for the efficacy of ACT in chronic pain, but it is not well researched in a sporting context, and evidence for its use with injured athletes is limited

at best. There are several reasons ACT was chosen for this intervention; versatility, equality, philosophical congruence, clearly defined theoretical basis for process of change and clear evidence that intervention acts via that defined process of change. These factors will be discussed in turn.

2.3.7.1 Versatility

Psychological intervention in professional sport contexts does not always conform to set one-hour sessions, and often the short, incidental interactions are the most effective, as they happen when the motivation for behaviour change is highest (Haberl & Peterson, 2006). The unpredictable nature of the environment means intervention often needs to be deliverable and effective in relatively small 'doses'. CBT is very much a protocol-based therapy, while ACT is a process-based therapy (Hayes & Hofmann, 2017). This process approach is argued to be more integrative of psychosocial and contextual processes, as opposed to the previously dominant syndromic view of the protocol-based therapies. Process-based therapies are also more likely to be adaptable to short-term intervention.

ACT has been shown to be effective in 'brief' forms, for example Kyllönen, Muotka, Puolakanaho, Astikainen, Keinonen and Lappalainen, (2018) found 6 hours of ACT intervention to be an effective treatment for depression, with significantly more patients 'depression free' than in waiting list conditions. Reduced depressive symptoms persisted in follow-up up to 3 years post-intervention. McCracken, Sato and Taylor (2004) found four group sessions of ACT over two weeks had a significant effect for depression and patient rated improvement in chronic pain, with medium effect sizes for depression, disability and pain acceptance at three-month follow-up. Ruiz et al., (2018) found two sessions of ACT focussed on repetitive negative thinking (RNT, worry and rumination, thought to generate an inflexible behavioural repertoire (Ruiz, Hernández, Falcón & Luciano, 2016)) had clinically significant changes as measured by the General Health Questionnaire (GHQ-12) for nine out of ten participants, and in the Depression Anxiety and Stress Scale (DASS-21) for seven out of ten participants. A larger study in 2020 (Ruiz et al., 2020) found two 60-minute sessions of ACT had a significant effect on DASS scores compared to waiting list conditions with a very large effect size at one-month follow-up.

Even a single session of ACT could be enough to have a helpful impact on behaviour (Barreto & Gaynor, 2019). Ruiz et al., (2016) found one session of ACT (approximately 75 minutes) to be effective for RNT, with nine of eleven patients showing improvement in three of four RNT measures at six-week follow up, and all participants demonstrating improvement in at least one of four measures. A meta-analysis by Dochat, Wooldridge, Herbert, Lee and Afari, (2021) found preliminary support for single-session ACT intervention for chronic health conditions, but recommended larger-

scale research. This review looked at intervention effects on functioning and related domains, mental health, physical health and ACT processes. Results favouring ACT intervention were found in 88% of the studies for functioning, 67% of the studies for mental health, 31% for physical health and 73% for ACT processes. As ACT interventions target behaviour, which is closely related to measures of functioning, these results are not unexpected.

There is therefore support for ACT's efficacy in only a few sessions, and indeed a specific framework for brief ACT interventions has been developed. Focussed ACT (fACT) is a highly condensed version of ACT (Strosahl, Robinson & Gustavsson, 2012) which concentrates efforts on three core components of focussing questions, case formulation, and targeting (Linde & Strosahl, 2014). There is some discussion as to what makes a therapy 'brief', but Strosahl, Robinson and Gustavsson, (2012) provide the following clarification for what fACT considers 'brief':

'Our view is that a brief therapy is one designed for completion before it's natural breaking point. In this definition, brief therapy really represents, in part, the clinician's philosophical acceptance that the amount of time available to help a client is going to be limited, that the therapy process needs to be client driven, and that the clinician's mission (should he or she chose to accept it) is to help the client achieve meaningful behaviour change during the time available.' (Chapter 1, p. 2)

There has been support for fACT in primary care settings for populations including military veterans (Glover et al., 2016), general population (Burfield, 2019), and populations with depression (Arroll et al., 2022). Arroll et al., (2022) is notable due to the extremely brief intervention of approximately 10 minutes. This intervention was effective, but the only follow-up was at one-week post-intervention, which limits the utility of the findings. Feliu-Soler et al., (2018) discuss the cost-effectiveness of ACT as a treatment for chronic pain, surmising that while more evidence is needed, it shows promise when compared to relaxation- and medication-based treatment. As previously discussed, sports environments are unpredictable and often do not allow for structured, hour long sessions. Work with injured athletes can take place in between sets in the gym, on the walk to and from the pitch, or while waiting for the physiotherapist. The potential for ACT interventions that are both brief and flexible is therefore an advantage in a sport context.

2.3.7.2 Equality

ACT does not pathologize clients, or require 'diagnosis'. Öst (2008) criticised ACT studies for not assigning a diagnosis to participants;

'Six of the studies did not use a diagnostic system (DSM, ICD, or a similar standardized system) to diagnose the participants, which is remarkable since the earliest

study was published in 1986 and DSM-III (APA, 1980) should have been available when it was carried out.' (p. 300).

As Gaudio points out in their response (2009), ACT comes from a behaviour analytic tradition and does not assume that it is only relevant for those who fall under a specific DSM criterion. As discussed by Keyes (2005), mental health does not necessarily need to be referenced according to mental illness. This may be particularly helpful in sport cultures which still stigmatise mental health issues (Castaldelli-Maia, et al., 2019; Gorczynski, Gibson, Thelwell, Papatthomas, Harwood & Kinnafick, 2019).

In ACT, the relationship between therapist and client is one of equals (Hayes, Pistorello & Levin, 2012). The client is assumed to be the expert on their own experiences and there is no requirement to judge behaviour against external standards. This could be a particularly useful factor in the athletic population. There are several facets of the behaviour of competitive athletes which are an integral part of the athletic lifestyle but not objectively 'normal'. There is precedence in other areas (e.g. eating disorders) for athletes to be evaluated according to different criteria (Nagel, Black, Leverenz & Coster, 2000). ACT therefore provides an internally, rather than externally referenced framework for 'helpful' behaviour which is compatible with the life of an elite athlete.

The efficacy of ACT as an intervention does not appear to be mediated by region, education, ethnicity or socioeconomic background, making it a versatile and socially just therapy (Hayes, Pistorello & Levin, 2012). McCracken and Gutiérrez-Martínez, (2011) found no correlation for outcome or process variables with age, gender, education and duration of pain in their population of chronic pain patients, except for a small, significant negative correlation between age and acceptance of pain. Injured athletes represent a huge range of social and ethnic backgrounds and educational levels, and any potential therapy needs to be effective regardless.

2.3.7.3 Process of Change

It has been noted that ACT researchers have devoted a significant amount of time to understanding the process of change through which ACT intervention works (Ruiz, 2010). Understanding how an intervention works is essential for ensuring interventions are optimised, and targeting the necessary processes in order to have an effect. It is a strength of ACT that interventions have been shown to target the intended processes, and that mechanisms of change are well understood.

Mechanisms, moderators and mediators

Demonstrating that a treatment works is not the same as understanding how or why it works. Understanding the mechanism of change through which treatment is effective is crucial for

optimising therapeutic intervention and understanding exactly who might benefit from intervention. Mediators are often examined to understand changes (Kazdin, 2007), but while mediators may account statistically for changes in variables, they do not necessarily explain the mechanism that brought about the change. Moderators are characteristics that may have an impact on the direction or size of an effect, for example, if an intervention was more effective for women than men, gender would be a moderator (Stockton, Kellett, Berrios, Sirois, Wilkinson & Miles, 2019). In a study on ACT for chronic pain for example, effects were not moderated by demographic variables (McCracken & Gutiérrez-Martínez, 2011). The therapeutic goals of ACT are client directed, and the philosophical approach is to treat the individual in their own context. Therefore, it is perhaps unsurprising that demographic variations are minimised in such an individualised therapy.

The mechanism of change for ACT has been specified as psychological flexibility, as previously discussed it is targeted in ACT through six component processes. A meta-analysis by Levin, Hildebrandt, Lillis and Hayes (2012) examined the evidence for the efficacy of the components of psychological flexibility from 66 laboratory-based studies, across 57 publications. While Levin et al., found significant medium effect sizes for defusion, values and values plus mindfulness, and significant small effect sizes for present moment and mixed-mindfulness components, the effect size for acceptance was small and 'approaching significance' (2012, p.749). Importantly, components were examined in comparison to inactive conditions to ascertain their effect on theoretically specified outcomes. For example, looking at the impact on believability of thought and willingness, rather than thought frequency or intensity, which would not be targeted as outcomes by ACT intervention. In these conditions there was a significant large effect size for acceptance and values plus mindfulness components, significant medium effect size for defusion and present moment, and significant small effect size for mixed mindfulness and values. This suggests that the psychologically active components of psychological flexibility are acceptance, defusion, values and present moment. Psychological flexibility as a whole was found to have a greater (significant medium) effect on theoretically specified outcomes such as task persistence and believability of thoughts. The meta-analysis found no significant differences for efficacy in at risk/distressed participants versus convenience samples, but did find that the components of psychological flexibility had a greater effect when experiential content and/or metaphors were used, as opposed to verbal explanation alone (Levin et al. 2012). While the effect sizes are not large, these lab-based studies are not intended to model treatment outcomes, but rather improve the theoretical understanding of the mechanism of treatment.

In their meta-analysis, Stockton et al., (2019) found psychological flexibility as a whole to be a mechanism of change for mental health, but limited evidence to support it as a mechanism of

change for physical health or patient functioning. Acceptance was found to have a mediation or moderated mediation effect across all outcomes. There was no consistently demonstrated mediation or moderated mediation of challenging negative/dysfunctional cognition on outcomes across different therapies, suggesting this is not a mechanism of change during cognitive therapies. Other mediators which were not specific to ACT (for example self-efficacy and symptom frequency) failed to demonstrate a mediation effect. Stockton et al., (2019) conclude that this provides further evidence that the process of change in ACT are linked to the components of the psychological flexibility model. Improvements in psychological flexibility have a positive effect on depression and anxiety from very early in intervention (Fledderus et al., 2013). The same study showed that changes in psychological flexibility at the end of an intervention predicted changes in anxiety post-intervention.

Self-as-context is notably absent from the meta-analysis and from laboratory studies more generally, Levin et al. (2012) state that self-as-context 'has never been tested in isolation in a published laboratory-based component study' (p. 752). Indeed, Gootzeit (2014) points out that there are currently no specific measures for self-as-context. Stockton et al., (2019) point out that acceptance has been investigated more often than any of the other processes, and suggest this represents an imbalance in the literature, given that the six core processes of ACT are equally weighted in the model. While two studies in the meta-analysis by Stockton et al., (2019) examined committed action and showed it to be a mediator and a mechanism of change in ACT, it was not thought to be theoretically distinct from psychological flexibility as a whole.

Mechanisms Specific to Pain

As previously discussed, ACT is a well-researched intervention for chronic pain, and some of the lessons from chronic pain are transferrable to an injury population. McCracken and Vowles (2014) argue that instead of determining whether ACT or CBT is a better treatment for chronic pain, time and research funding would be better spent in determining the mechanisms by which change happens for chronic pain patients, and look to optimise those processes. The underlying mechanisms of ACT may make it particularly suited for working with chronic pain, because ACT does not necessarily seek to reduce the frequency or intensity of difficult thoughts, sensations, or emotions (such as pain), but rather the impact of those thoughts, sensations and emotions on behaviour. Therapy can therefore be effective in situations where changes to the difficult thoughts, sensations or emotions is unlikely or not currently possible, and both chronic pain and injury rehabilitation are perfect examples of such a situation. ACT does not abandon direct change efforts, but refocuses them toward more readily changeable domains, such as overt behaviour or life situations, rather than personal history or automatic thoughts and feelings (Hayes, Masuda, Bissett, Luoma &

Guerrero, 2004). There is some evidence that ACT is better suited as an intervention to those who have experienced more failed attempts to reduce their chronic pain (Feliu-Soler et al., 2018).

Pain itself is an inherently unpleasant situation, but is not actually indicative of harm occurring in the body (Butler & Moseley, 2013). While it is a normal human response to avoid pain where possible, in cases of chronic pain this can lead to drastically reduced opportunities to engage with life if the overarching goal is the avoidance of pain. This is exemplified in the fear-avoidance model of chronic pain (Vlaeyen, Crombez & Linton, 2016, see figure 2.9). Improvements in pain acceptance can therefore open up more behavioural choices and opportunities to engage with life in a meaningful way. Vowles and McCracken (2008) found that acceptance of pain was related to improvements in anxiety, depression and disability, and values-based action was related to changes in these same variables at three-month follow-up. In other words, acceptance of pain works in the short term but also allows the option for committed action, which has impacts in the longer-term. If we extrapolate this to a sports injury context, pain may well be an unavoidable part of rehabilitation. The natural reaction if pain avoidance is the goal is to therefore avoid rehabilitation (thanks to the relational frame). Acceptance of pain may therefore be vital to rehabilitation adherence.



Figure 2.9: *The Fear-Avoidance Model of Chronic Pain (Asmundson, Norton & Vlaeyen, 2004, p.10)*

Branstetter-Rost, Cushing and Douleh (2009) found that acceptance and acceptance plus values interventions had a significant impact on the tolerance of pain, but not pain thresholds, in an

acute pain task. The acceptance plus values condition had the longest pain tolerance of all groups. The authors suggest that this is due to the motivational direction of values:

‘Although an acceptance intervention seeks to encourage individuals with pain to go ahead and engage in activity despite the pain, and to not allow the pain to dictate one’s behavior, the question—“*why would someone willingly endure pain, or at least not work hard to avoid it?*”— remains. The answer to the question is values.’ (Branstetter-Rost, Cushing & Douleh, 2009, p. 891).

Through the lens of a fear-avoidance mode of chronic pain (Vlaeyen, Crombez & Linton, 2016) mindfulness scores were negatively associated with pain catastrophizing, and mindfulness moderates the relationship between pain intensity and pain catastrophising (Schütze, Rees, Preece & Schütze, 2010). In Veehof et al., (2016) ACT had greater effects on depression and anxiety than mindfulness-based interventions alone. Therefore, while mindfulness may be an important part of the treatment, it is not the only ‘active ingredient’ in ACT intervention. Wicksell, Olsson and Hayes, (2010) found changes in psychological flexibility significantly mediated pain disability and life satisfaction effects where other measures (self-efficacy, pain, anxiety, depression and kinesophobia) did not. This was consistent at follow-up for life satisfaction, but not pain disability. This supports the idea that psychological flexibility is the process of change that impacts chronic pain patients.

Scott, McCracken and Norton, (2016) examined the six core processes of ACT and their relationship with chronic pain. This factor analysis found evidence that a single general factor was dominated by acceptance and defusion items, with decentering and committed action represented to a lesser extent. The authors argue that these results support the simplified three factor model of psychological flexibility described above, though they also point to the need for more accurate measurement of each of the six core processes, particularly self-as-context. Vowles, Sowden and Ashworth, (2014) were the first to go beyond simply assessing psychological flexibility to examine the factors of ACT and their individual relationships with chronic pain measures of wellbeing. Following factor analysis, Vowles, Sowden and Ashworth, (2014) found support for a three-factor model of ACT in line with the ‘Open’, ‘Centred’ and ‘Engaged’ simplification of the original six core processes (McCracken & Vowles 2014). They found that there was coherence between the data, model and key aspects of functioning in their chronic pain population. The magnitude of correlation between factors was medium, suggesting they are related, but not overlapping, and all significantly correlated with pain intensity, distress and daily-functioning. Vowles, Sowden and Ashworth, (2014) conclude that there is support for the ACT model as an appropriate method for chronic pain.

Trompetter et al., (2015) examined the change in both psychological flexibility and pain catastrophising during an ACT intervention for chronic pain. Pain catastrophizing is not only a key component of the fear-avoidance model of chronic pain (Asmundson, Norton & Vlaeyen, 2004) but also a key target of CBT interventions (Jensen, Turner & Romano, 2001). While both psychological flexibility and pain catastrophizing improved during the course of the intervention, improvements in psychological flexibility independently mediated changes in pain interference, pain intensity and psychological distress. While pain catastrophising was uniquely related to long-term improvements in pain disability, catastrophising was an indirect mechanism of change via its influence on psychological flexibility. Changes in psychological flexibility had a direct effect on pain interference in daily life that also occurred earlier than changes in catastrophising, making psychological flexibility the more influential change mechanism (Trompetter, et al., 2015). While CBT may be effective in chronic pain, this implies that it is effective because of psychological flexibility. As psychological flexibility is more explicitly targeted by ACT interventions, ACT is therefore the most logical choice for intervention in this situation.

2.3.7.4 Conclusions

ACT can be efficacious in a wide range of situations, with short interventions that have shown useful effects (Ruiz, 2010). As discussed by Jiménez (2012) their review found ‘significant heterogeneity in primary outcome, depression, anxiety, quality of life, and ACT process measures. No significant degree of heterogeneity was found, however, in the CBT process measures’ (p. 345). ACT is effective through specified mechanisms of change, and the six component processes have all received support for their contribution to psychological flexibility. It is democratic therapy, which is internally referenced and does not pathologize individuals. This makes it ideal for the diverse athlete population who are dealing with completely understandable thoughts, feelings and emotions in their rehabilitation journey.

2.3.8 Literature Review Section 3 - Summary

This chapter has thus far established the prevalence of injury, the significant psychological consequences of injury for injured athletes, and that there is a research-practice gap in this area (Evans & Brewer, 2022). Section 2.2 established that while sport psychologists may be best placed to deliver psychological interventions for injured athletes, they often lack the training and expertise necessary to deliver this support. This final section (2.3) has explored the background and processes of ACT, along with evidence of its efficacy. Finally, the rationale for using ACT as the therapeutic modality for this study has been considered.

The prevalence of injury, and the associated psychological issues which impact injured athletes, clearly present a concern for athlete mental health and wellbeing. There is a lack of training available to allow applied sport psychologists to effectively bridge the research-practice gap and safeguard athlete wellbeing. This study will therefore design and develop a CPD training for sport psychologists. This CPD will aim to equip practitioners with the knowledge and skills to support injured athletes, grounded in a specified therapeutic modality, ACT. As discussed in section 2.3, ACT is a behaviour therapy with a growing evidence base, which has a well-understood process of change and is likely to be an effective therapeutic modality through which to support injured athletes. The next chapter will discuss the methods and methodology used to design and undertake the research.

Chapter 3: Methodology & Methods

3.1 Introduction

This chapter aims to explore the philosophical and methodological considerations on which the research is based, followed by the methods used. This includes methodology (section 3.2), research aims and process (section 3.3), research methods (section 3.4), and researcher reflexivity (section 3.5).

3.2 Methodology

3.2.1 *Applied Interpretive Research*

This study uses an applied interpretive approach to explore the perceived changes in understanding and practice resulting from a professional training workshop for sport psychologists titled 'Using ACT with Long-Term Injured Athletes'. Interpretivism holds that reality is constructed through social experiences, and is therefore suited to researching subjective meaning and experiences amongst people (Saunders & Tosey, 2012). This methodological approach originated in nursing intervention research (Thorne, 2016), and aims to produce meaningful research to support effective development of practice and the profession. An interpretivist paradigm is suitable to provide depth of understanding of specific contexts, rather than general and universal laws (Alharahsheh & Pius, 2020).

Applied interpretive approaches were developed in response to the limitations of both quantitative methods of enquiry, and the existing qualitative methods, to provide knowledge that was relevant in informing nursing practice (Thorne, Kirkham, & MacDonald-Emes, 1997). Positivist quantitative methods failed to adequately account for the individual contexts which impacted patient outcomes and the discipline of nursing, and though qualitative methods represented significant progress in understanding the experiences of both nurse and patients, the rigid methodological frameworks were found to be limiting (Thorne et al., 1997). Approaches such as phenomenology, ethnography and grounded theory were popular at the time, but did not produce knowledge which adequately accounted for nursing professionals' need to explore the 'dialectic between the general and particular, between commonality and individuality, between truth and perception' (Thorne et al., 1997, p. 171). The development of interpretive description drew upon interdisciplinarity, and the need for knowledge to directly inform practice, with respect for both individual experience and generalisable understandings (Thorne et al., 1997). Interpretive description is a flexible approach, but holds several principles which guide its use. Research questions tend to be articulated in terms of common experiences, highlighting the approach's

emphasis on pattern detection and understanding of variance in the experiences of the research participants. The approach is grounded in disciplinary understanding, rather than specific theories, and welcomes a variety of data sources to inform research (Thorne, 2016). Thompson Burdine, Thorne and Sandhu (2021) suggest that interpretive description is a particularly relevant approach to understanding education within healthcare, as it allows the development of findings that contribute to the understanding of the complexities of education and ultimately assist in the improvement of education and professional development for practitioners. The professions of nursing and sport psychologists are comparable, in that both are healthcare providers. Interpretive description has been used in the field of sport psychology to investigate career ending injury (Muscat, 2010), coach-parent relationships (Wall, Baugh, Pradhan, Beauchamp, Marshall & Young, 2019) and athlete perceptions of sport psychology (Bell, Knight, Lovett & Shearer, 2022).

The applied interpretive perspective accepts that while the experience of reality is constructed and understood through an individual, contextual lens, it does not reject the idea that an objective reality exists (Thorne, 2014). Rather, human (social and subjective) reality is different from physical (material) reality in that greater depths of meaning can be created in human reality than physical, and it is therefore suggested that the social sciences use different investigative methods than the physical sciences (Alharahsheh & Pius, 2020). In this regard it is an ontologically subjectivist and epistemologically relativist paradigm. Interpretive description allows for an understanding of both the experience of practitioners, but also the shared realities of practice and an understanding of the context which shapes those experiences (Thorne et al., 1997). Interpretive description was specifically designed to investigate clinical (practice) settings and interpret and explain the findings in such a way that it benefits the practitioners themselves, generating 'credible and meaningful disciplinary knowledge', (Thorne, Kirkham & O'Flynn-Magee, 2004, p. 2).

This research takes an applied interpretive approach underpinned by Critical Realist (CR) principles, which is congruent with the approach to understanding applied practice. The ontological assumption in CR is that a 'real' world exists, but CR considers reality to be a stratified open system with three 'layers'. At the level of the 'empirical' events occur and can be measured, however this measurement is only possible through the filter of human experience. Those events as we experience them are based on the 'domain of the actual' where events occur regardless of our experience of them. These events are underpinned by the 'domain of the real' which are the causal structures that act as forces to produce events (Fletcher, 2017). Objects are intransitive, but knowledge is transitive (Vincent & Mahoney, 2018), in other words, an ontological reality exists, but our understanding of it is constructed, making the epistemology relativist. Therefore, the real world

is not the same as the knowledge we have of it (Joseph, 2004). This is often referred to in critical realism as the Epistemic fallacy – the world is reduced to the knowledge we have of it. We cannot conflate what we know of the world with what it *is* (Reid, 2019).

While an applied interpretive approach is effective for describing practice in context, it does not seek to provide an explanatory model (Teodoro, Rebouças, Thorne, Souza, Brito & Alencar, 2018). Underpinning an applied interpretive approach with aspects of critical realism allows for causal explanations, while holding an understanding of the impacts of the cultural contexts and power dynamics of practice reality and their significant impact on practitioners. CR finds a middle ground between positivism and constructivism and is pluralistic in its methodology (Asif, 2013). Methodological plurality recognises that different methods are appropriate to investigate different aspects of the world, or different ‘levels’ in CR (Sayer, 2002). The choice to use an applied interpretivist method underpinned by a philosophical position of CR was made because ontological subjectivity is a basis of the interpretivist approach (Pervin & Mokhtar, 2022), in that reality is accessed through subjective experience. However, there needs to be recognition of some degree of objective reality in order to produce research that has generalisability in the realm of applied work and professional development. Critical realism holds that the objective reality exists, but our knowledge of that reality is constructed. This is therefore congruent with the applied interpretivist assertion that ‘subjective and objective truth are not... mutually exclusive’ (Thorne, 2014, p. 4).

Some authors argue that an interpretivist paradigm considers all opinions to be equally valid, a position of judgemental relativity (Van der Walt, 2020). However, CR does not support this view and operates a principle of judgemental rationality. Judgemental rationality holds that arguments can be made which allow us to judge one opinion to be more relevant than another, and CR uses retrodution (a focus on causal mechanisms and contextual conditions) to facilitate this process (Fletcher, 2017; Goldman, 2022). This is important for applied research, particularly for professions which operate in different practice contexts. For example, the opinion of an experienced practitioner operating as part of a multidisciplinary team will have a more informed view on interdisciplinarity and working alliances than a practitioner who has always worked independently. It would not be useful to treat the opinions of those two practitioners as equally relevant if the aim of the research is to understand impacts on interdisciplinary working and make recommendations to inform future training.

In order to understand the power dynamics and cultural context of sport psychology practice, the critical realist emphasis on agency and structure is a useful starting point. Agency refers to individual actions, while structure refers to the contexts in which individuals act (Booker, 2021;

Stutchbury, 2022). Agency and structure are important considerations for research in critical realism, and these considerations are relevant to applied research in sport. There is a bidirectional relationship between agency and structure, individual actions impact the context and social structures, while the structures influence actions. While individuals have agency, they are not often at liberty to act exactly as they please. Human behaviour and interactions are shaped by both the explicit and implicit contexts in which the person acts; 'we will not often make completely individual decisions that are entirely unaffected by external influence.' (Koopmans & Schiller, 2022, p. 1211). Every human culture has an impact on individual behaviour, and within that culture there may be other rules or frameworks which influence the behaviour of individuals. Agency and structure are important to understand in the context of research in sports environments. While each psychological practitioner, athlete, physiotherapist etc is an agent in their own right, they are influenced and constrained by the social structures and power dynamics within which they operate. This may be as explicit as a professional code of conduct, or implicit, such as the cultural norms of high-performance sport. This is an important consideration for research investigating professional practice, and the intricacies of these practice environments have been the subject of recent research, as discussed in Chapter 4, section 4.1.2.1 (Haluch, 2022; Rowley, Potrac, Knowles & Nelson, 2020).

The structures in place that impact the work of sport psychologists may include the boundaries of professional practice, the norms and constraints of the practitioners' employer, and the culture of the injured athletes' specific sporting context. A practitioner working in an elite sport team setting, for example, must navigate the structures of the multi-disciplinary team, the expectations of their job role, and cultural stigma regarding psychology and mental health. In conducting applied interpretivist research, Thorne (2014) advocates for a clear understanding of the 'disciplinary lens', including contextual factors that might influence implementation in the real world. For this reason, an applied interpretive approach is best suited to researchers with a 'strong grasp on applied disciplinary perspective' (Thorne, 2014, p.8). Therefore, the researcher's professional history (see reflexivity in section 3.5) is critical to the research. There are three central concepts to interpretive description as a qualitative method: 'gathering up available empirical evidence from all sources; having an actual practice goal; and, engaging with data in a way that acknowledges the clinical context' (Ng, 2021, p. 290). These concepts have helped to shape the research design, and are reflected upon during data analysis. Building upon the principles of an applied interpretivist approach to professional development through applied research, an integrated knowledge translation approach was used to integrate the expert knowledge of the researcher and other practitioners to inform the design and development of the workshop.

3.2.2 Integrated Knowledge Translation

Integrated Knowledge Translation (IKT) was developed specifically to bring together the expertise of academic researchers and ‘knowledge users’, i.e. the practitioners, clinicians, industry partners etc., to maximise the application and impact of research (Smith, Williams, Bone & Collective, 2022). The idea of ‘knowledge translation’ came to the fore with the popularisation of evidence-based medicine (Wathen & Macmillan, 2018). The approach has been used in healthcare settings to bridge the research-practice gap (Gainforth et al., 2021), and there is growing interest in its application both in the field of sport psychology (Leggat, Wadey, Day, Winter & Sanders, 2021), and bridging research-practice gaps in sport (Holt et al., 2018). IKT is considered to operate from a ‘technocratic rationale’, in that it was intended to produce knowledge specifically for practice and practitioners to improve end goals or outcomes (Smith, et al., 2022). While this is potentially a criticism of the approach when compared to coproduction approaches which undertake a more equitable and democratic procedure to knowledge creation, it is a pragmatic method to use given the constraints of this research project and aligns with the aims of applied interpretivist research.

While IKT shares many features of coproduction, it is not coproduction in the ‘purest’ sense, in that it was not developed to address inequity, and does not necessarily include those with lived experience - though they may be included (Smith et al., 2022). However, it is increasingly being included in the coproduction literature and shares many of the features of equitable and experientially informed research (Smith et al., 2022). There are many different definitions of and processes by which research may be considered ‘coproduction’. Williams, Sarre et al. (2020) warn against ‘cobiquity’, the misappropriation of the label of co-production for any research which utilises partnership working. Coproduction has been suggested to broadly offer ‘a process whereby professionals and those traditionally on the receiving end of their ‘expertise’ (e.g. patients/service users/marginalised citizens) can collaborate with the goal of achieving outcomes that arguably cannot be achieved otherwise’ (Williams, Sarre et al., 2020, p.3-4).

The views and voices of sport psychology practitioners have been integral to the conception, design, development, implementation and evaluation of this research. The purpose of this project was to improve outcomes for injured athletes by providing practitioners with a clear intervention framework and training. The approach is therefore technocratic (Smith et al., 2022).

The workshop was designed to address these issues by the researcher/practitioner, with input from experts in the field, and piloted on three occasions. Each pilot was followed immediately by a focus group to allow participants to give feedback, which then influenced the iterative

development of the workshop (see Chapter 4). Figure 3.1 below illustrates the points at which ‘end users’ were included in the design and development of the project.

The discipline of sport psychology holds evidence-based practice as a gold standard, and it is an important part of the HCPC Standards of Proficiency for Practitioner Psychologists (HCPC, 2023). However, although most applied practitioners agree that practice should be based on scientific evidence (Gardner, 2009), the scientific evidence base is not always transferrable to practice (Winter & Collins, 2015; 2016), contributing to the research-practice gap (Drapeau & Hunsley, 2014). Practice-based evidence is evidence collected from routine practice (Margison, Barkham, Evans, McGrath, Clark, Audin, & Connell, 2000), with the aim of contributing knowledge to the evidence base that uses evidence based-*rigour* to design studies prioritising practice-based *relevance* (Barkham & Mellor-Clark, 2003). Practice-based evidence is therefore a bottom-up approach which complements the top-down approach to research, and provides greater insight into the real-world efficacy of interventions (Barkham, Hardy & Mellor-Clarke, 2010). This research aims to use IKT and an applied interpretivist approach to produce evidence from practice that is useful for practitioners and professional development.

3.3 Research Aims and Process

The rationale for this project is based on an evidenced need for more research on practitioner training and professional development (Wylleman et al., 2009), and a need for both mental health and counselling skills to be included in such training (Prior, Papatomas & Rhind, 2025; Quartiroli & Wagstaff, 2024; Winter & Collins, 2024). Recent research asked sport psychology practitioners about their experiences of training in the psychology of injury and rehabilitation (Pickford & Gervis, in press), and found that there was a lack of training available in the psychology of injury, and effective therapeutic approaches to work with injured athletes.

The aim of the research is therefore to investigate the professional development of sport psychologists in supporting injured athletes. The objectives of this research are to design and develop a CPD training in post-injury psychological intervention, deliver the training, and investigate the perceived impact of this training on the sport psychology practitioners working with injured athletes. This research is explicitly designed to explore practitioner perceptions of the real-world practice impacts of this training intervention for sport psychologists. This decision was made based on previous research looking at the training and practice of sport psychologists, and the finding that training in this area is in high demand, but not often formally provided (Pickford & Gervis, in press), or investigated. The experiences of the athletes who are subsequently supported by the sport

psychology practitioners is particularly important. While it was not possible to explore their experiences directly, they are considered through the lens of the practitioners supporting them.

A psychoeducation intervention for injured athletes is 'complex' in that there are a number of different outcomes to consider, and the contexts in which the intervention will be delivered will likely have a high degree of variability (Craig, Dieppe, Macintyre, Michie, Nazareth & Petticrew, 2013). The medical research council (MRC) guidelines for complex interventions suggest that a systematic review of the evidence base be undertaken (if one does not already exist) to ascertain what is already known about similar interventions (Craig et al., 2013). Drawing on these guidelines, a systematic review was conducted exploring the research in post-injury psychological interventions since the review by Reese, Pittsinger and Yang (2012) and found no studies that met the inclusion criteria (see appendix 2.1). While there is consensus that there is a need for psychological intervention for injured athletes, there is still a lack of evidence about the process of professional development and how therapeutic intervention is efficacious in the area (Hess, Gnacinski & Meyer, 2019). This work can therefore proceed with reasonable confidence that a therapeutic intervention for injured athletes is likely to be effective, and that research in this area is likely to add value to the evidence base.

The Medical Research Council (MRC) guidelines are tailored to experimental studies, and the 'gold standard' of randomised control trials. Therefore, this research was framed by aspects of the MRC guidelines for complex interventions, and principles of integrated knowledge translation, to guide the research process and methods. The process included identifying and recruiting multiple stakeholders, enabling those stakeholders to influence the design and development of a professional development workshop (IACT). This engagement included attending the workshop and providing feedback on both content and delivery, through three iterations of the workshop's development (see figure 3.1).

The theoretical basis for the therapeutic framework (ACT) is covered in more detail in Chapter 2. A strength of ACT as a therapeutic modality is that the evidence for its process of change (psychological flexibility) is relatively well understood and supported by the research. The perceived utility of ACT as a therapeutic modality for working with injured athletes specifically will be further explored during this research. Moreover, there is sufficient evidence to support ACT as an effective therapeutic intervention (see Chapter 2), and therefore it is appropriate to shift the focus towards the application of ACT in real-world settings, thus generating practice-based evidence. This is also the case in the field of psychology of injury research, where there have recently been calls to bridge the knowledge-practice gap and start looking at *how* interventions can be implemented (Evans & Brewer, 2022; Hess, Gnacinski & Meyer, 2019).

For practitioners, providing psychoeducation and continued professional development, as well as peer support in implementing those lessons, may have an impact on their practice. This could be in the focus of their work (do they work with injured athletes more often), in their awareness (are they able to better understand the connections between injury and the associated psychological and behavioural impacts), in the timing of their work (are they supporting athletes returning to training with fear of reinjury), how they work with other professionals (have they been able to build more effective working relationships with other support staff), or simply in their confidence to be able to work with injured athletes. These will be assessed in line with Neimeyer, Taylor and Cox's (2012) recommendations for measuring meaningful outcomes, starting with practitioner understanding and confidence, practitioner perceptions of impact on practice, and finally practitioner perception of impact on athlete outcomes. Feedback on the professional skills workshops was collected and analysed to understand whether the workshop provided enough information, the correct type of training, and whether the workshop achieved its aim of preparing sport psychologists to work with injured athletes. Information was also collected from practitioners on the content of the interventions that they delivered to athletes, with the intention of gaining an understanding of intervention fidelity. The intervention was designed to be flexible and adaptable to a wide range of practice settings, but there are key factors that are important for congruence. Fidelity was assessed using the four factors described by Horner, Rew and Torres, (2006); intervention design and protocols, intervention training, monitoring of intervention delivery, monitoring of intervention receipt.

As previously mentioned, an iterative development process took place to develop the intervention framework and delivery, and refine the approach to evaluating the intervention (See Chapter 4). The MRC guidelines further suggest economic evaluations to ascertain cost effectiveness (Craig et al., 2013), but due to the small scale of the intervention, this was not deemed necessary.

Dissemination of the research findings needs to be targeted to the end-users of those findings (Gagnon, 2011). In this instance, the research findings are hoped to be useful to not only practitioners, but also to the organisations that train those practitioners, BPS and CASES in the UK (see section 2.2.1 for overview). However more broadly speaking, the results may be of interest to training bodies outside of the UK, to governing bodies and organisations who employ sport psychology practitioners, and to athletes themselves. The implementation of the professional skills workshop allowed the information about best practice for supporting injured athletes to directly reach the practitioners doing the work. It was hoped that collaborating with training organisations to promote the study would lead to further opportunities for collaboration and bring greater

awareness to the need for specific training in supporting injured athletes. However, on reaching out to these organisations, CASES were unable to support, and the BPS did not respond.

3.4 Research Methods

This research aimed to not only understand the perceived impacts of professional skills training on the practice of sport psychologists, but also evaluate the workshop itself as a method of professional development. For this reason, there were three sources of data; interviews, focus groups and pre- and post-workshop questionnaires, which are discussed below. Researchers suggest a purposive selection of a variety of information sources for the purposes of interpretive description (Dolan, Nowell & Moules, 2023; Thorne, Kirkham & O'Flynn-Magee, 2004). While the methods used were designed to produce data relevant to different aspects of the project as described above, there was significant cross-over, and data from the three different methods informed results of both the workshop evaluation and the exploration of impact on practice.

The research used principles of IKT to design and deliver a professional skills workshop focussed on using ACT with injured athletes (IACT). The iterative workshop development process comprised three stages, delivering the workshop to practitioners at each stage, collecting feedback from those practitioners, and developing the workshop in line with that feedback. After the third developmental iteration, practitioner feedback indicated the workshop to be appropriate for use as a CPD for sport psychology practitioners. This design and development process is illustrated in Chapter 4. The IACT workshop was then advertised and delivered on three occasions to participant practitioners. These workshop attendees provided feedback on their learning (pre- and post-workshop questionnaires), the workshop experience (focus groups), and the perceived impact the workshop had on their practice (3- and 6-month follow-up interviews). Figure 3.1 provides an overview of the process, and highlights where data was collected and stakeholders were engaged.

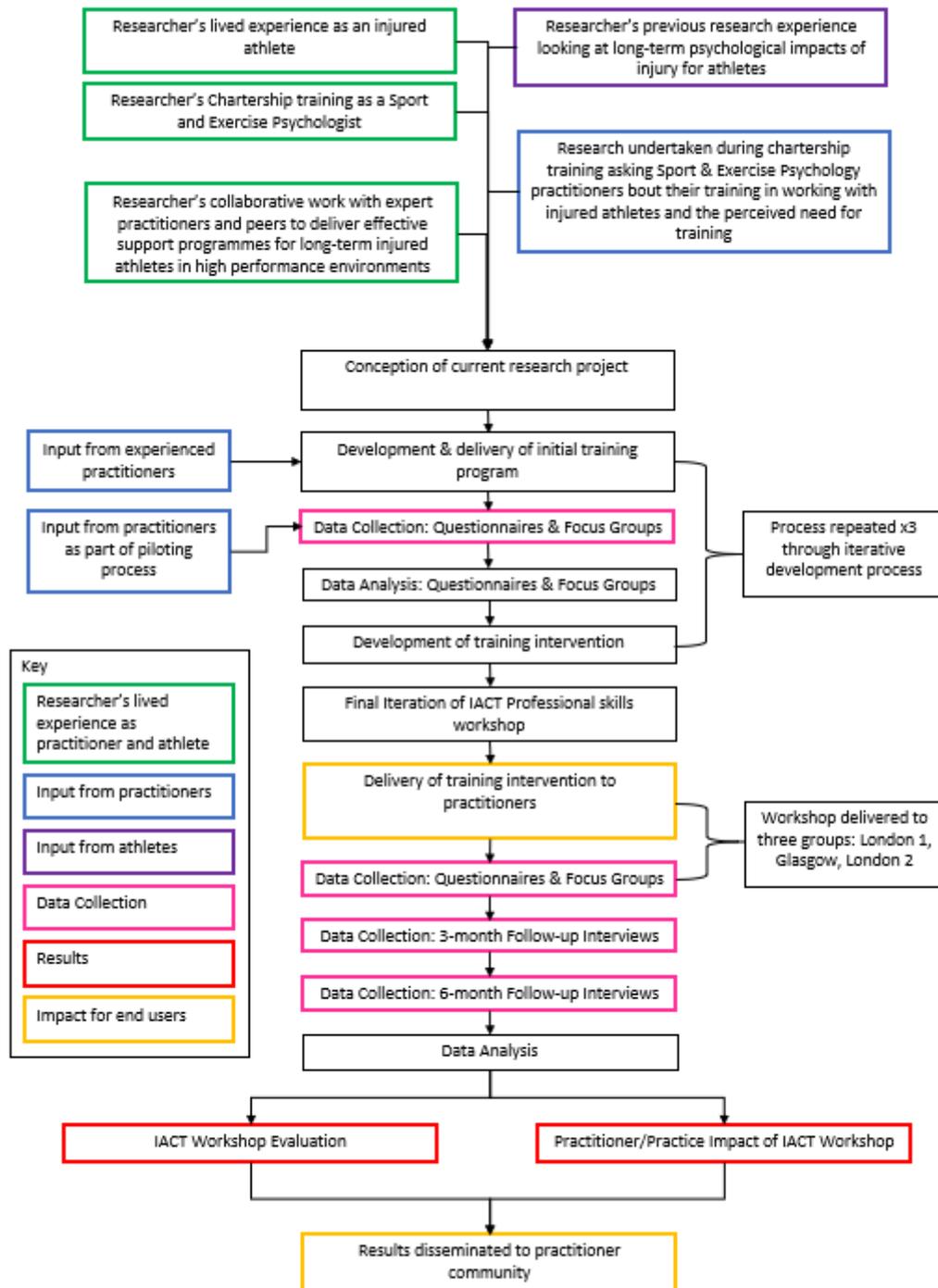


Figure 3.1: Overview of the Research Process

Once the delivery stage was complete, follow-up interviews were conducted with practitioners to gather their retrospective views on the IACT workshop and understand their perceptions of the impact of training on their professional practice. The data analysis was conducted in two parts, first the evaluation of the workshop itself and its immediate impacts on practitioners, which is discussed in Chapter 5. Second understanding practitioner perceptions of the longer-term

impacts of the workshop on practitioners and their professional practice, which is discussed in Chapter 6.

3.4.1 Ethics

Ethical approval was granted by Brunel University London Research Ethics Committee. Approval was granted in two stages, for the first development workshops (35873-LR-Feb/2022-38324-3 & 38278-LR-Aug/2022-41083-2), then the developed IACT workshops and follow-up (39988-A-May/2023-44935-2, see appendix 3.1). This approval was granted following the submission of risk assessments for both research locations, participant information sheet (appendix 3.2), participant consent forms (appendix 3.3) and sample questionnaires and interview guides (appendix 3.4, 3.6 & 3.7). All interviews were transcribed verbatim from audio or video recordings as applicable, and then anonymised using pseudonyms and omitting any identifying details regarding locations, clients, workplaces or organisations. All participants were over the age of 18, and were either fully qualified sport and exercise psychologists or trainees on supervised pathways to becoming one. One consideration was the discussion of potentially distressing topics during the workshop, including eating disorders, self-harm and suicidal ideation. This was mentioned in the participant information sheet, and as all of these topics should be familiar ground to psychological practitioners the risk of distress was low. However, in case of participants becoming distressed, there were two qualified psychologists present at each workshop, to allow for participants to be appropriately supported should the need arise.

3.4.2 Participants and Recruitment

This research used purposive sampling, in order to access information that is both rich and relevant to the research question (Vasileiou, Barnett, Thorpe & Young, 2018) aligned with interpretive description (Muscat, 2010). Guidelines for sampling in qualitative research often use 'saturation' as a measure of when an 'adequate' sample size has been reached, but 'saturation' is often poorly defined. This also offers little guidance at the point of research design as to how many research participants may be necessary. Guest, Bunce and Johnson (2006) suggest that in homogenous samples, data saturation is reached with twelve interviews. The participants in this study were all sport psychology practitioners who have an interest in working with injured athletes, using the same practice framework, and therefore could be considered to be homogenous. However it is important to note that there were minimal differences between participants in the sample. These occurred in the form of practice experience, and practice setting – do they work for a larger organisation such as a team or a club, or do they work with individual athletes as independent consultants. Despite these differences in professional context, the sample is deemed homogenous

due to consistent training and professional title and accreditation. The study design specifies interviews at 3- and 6-months post intervention, which produced more detailed data (Morse, 2000). A sample size of twelve participants aligns with recommendations (Guest, Bunce & Johnson, 2006), and this was therefore the number used to guide recruitment.

While sport and exercise psychology is growing as a profession, it is difficult to ascertain exactly how many professionals are currently accredited to practice in the UK. The latest information available shows that there were 249 sport and exercise psychologists on the HCPC register in 2018 (HCPC, 2018). However, this data was published before CASES accredited practitioners were able to apply for HCPC registration and the number now is likely to be a lot higher. This lack of accuracy notwithstanding, it is still clear that the number of registered sport and exercise psychology practitioners in the UK is low, around 1% of the total number of roughly 23,000 practitioner psychologists registered with the HCPC in 2018 (HCPC, 2018). Twelve participants may therefore be more representative of the entire population of sport and exercise psychologists than it may be in the case of specialisms with a larger pool of practitioners such as clinical psychologists, for example. While two of the three workshops were conducted in London, in an effort to make the participant pool more varied one workshop was conducted in Glasgow.

The development workshops were delivered in three events, to two different groups of participants. All development workshops were conducted at Brunel University London. Participants were recruited through professional networks (see appendix 3.8 for advert). The total number of attendees across all development workshops was 13. On attending a workshop, practitioners were asked to state their professional qualifications and length of experience (see table 3.1). The pilot included 3 participants who had completed MSc (stage 1) training, but were not yet enrolled on supervised practice pathways (stage 2). Development workshop attendees' average length of practice was 13.08 months (1.09 years) (SD = 14.49 months, 1.21 years). During the development process, practitioners who attended development workshop 1 (pilot 1) were invited to attend development workshop 2 (pilot 2). Of the practitioners who attended development workshop 1, four were able to attend development workshop 2, and are represented in brackets in the table below.

Table 3.1: Professional Qualifications of Development Workshop Attendees

Qualification	Development Workshop 1 & 2 (Returned for Workshop 2)	Development Workshop 3	Total (%)
Accredited Sport and Exercise Psychologist (CPsych, DPsych, CASES HCPC)	1 (1)	1	2 (15.38)

Trainee Sport and Exercise Psychologist (QSEP, SEPAR, ProfDoc Routes)	6 (3)	2	8 (61.54)
Other (Not currently on formal qualification pathway)	1 (0)	2	3 (23.08)

The IACT training was delivered in three workshops to different groups of participants. The first and third workshops took place at Brunel University London, while the second workshop took place at the University of Glasgow, in collaboration with the Scottish Sport and Exercise Psychology Network (SSEPN). Participants were recruited through adverts posted on professional social networks including LinkedIn and trainee sport psychologist Facebook groups (see appendix 3.8 for advert). The workshop in Glasgow was organised through one participant (a member of the SSEPN) who responded to the LinkedIn advert and offered to host the training and forward the advert to their other members.

The total number of workshop attendees across all three events was 17, with 15 practitioners interviewed at least once, and 12 completing both follow-up interviews. On attending a workshop, practitioners were asked to state their professional qualifications and length of experience (see table 3.2). Sport psychologists in training will complete a minimum of two years of supervised practice before achieving full accreditation, which is consistent across accreditation pathways. Trainee sport psychologists are therefore working professionals and will deal with similar clients to fully accredited practitioners, though they will be supervised remotely by an accredited training supervisor. The average length of practice of attendees was 31.8 months (2.6 years) (SD = 39.94 months, 3.3 years). Two workshop attendees had completed MSc (stage 1) training, but were not yet enrolled on supervised practice pathways (stage 2). Their data was included in the focus group interviews and questionnaires, but as they were not practitioners or trainees, they were not included in the follow-up interviews.

Table 3.2: Professional Qualifications of IACT Workshop Attendees

Qualification	Workshop 1	Workshop 2	Workshop 3	Total (%)
Accredited Sport and Exercise Psychologist (CPsych, DPsych, CASES HCPC)	1	3	1	5 (29.41)
Trainee Sport and Exercise Psychologist (QSEP, SEPAR, ProfDoc Routes)	3	1	6	10 (58.82)
Other (Not currently on formal qualification pathway)	1	1	0	2 (11.76)

During analysis and throughout Chapters 4, 5 and 6, data are attributed to participants through different codes. The different methods of data collection allowed for different levels of attribution. Questionnaire data was collected anonymously, and is therefore only attributed to the workshop in which it was collected; for example, in Chapter 5 short answer questionnaire responses may be coded 'W1' to indicate that data was collected in IACT workshop 1. Focus group data in Chapters 4 and 5 are coded by workshop and participant, for workshops in the development stage 'D1P1' indicates quotations attributable to participant 1 in the first development iteration of the workshop, while 'W1P1' indicates quotations attributable to participant 1 in the first (fully developed) IACT workshop. Data from follow-up interviews in Chapters 5 and 6 are coded to indicate the workshop, participant, and interview; therefore 'W1P1FU1' indicates practitioner 1, who attended the first IACT workshop, speaking in their first follow-up interview.

3.4.3 Data Collection

There were three methods of data collection used in the research; questionnaires, focus groups, and individual interviews. Both focus groups and questionnaires were used to collect data during the design and development phase and the delivery phase for the purposes of evaluating the workshop. Individual interviews were used in the delivery phase to explore the third research objective of exploring the perceived impact of training on practice. These methods will be explored in turn.

3.4.3.1 Questionnaires

Pre- and post-workshop questionnaires collected self-report data on practitioners' understanding of relevant topics (for an example, see appendix 3.4). The questionnaires combined self-reported measures of understanding and confidence with short open-ended questions to supplement focus group data in understanding the impact of the workshop on practitioners (Elliott & Timulak, 2005). The purpose of using a pre and post design for these questionnaires was to ascertain the change in practitioners understanding and confidence following their attendance at the workshop. Thus, these were completed before and after the workshop. The questionnaires were adjusted following the workshop development process, and therefore the development workshop questionnaires and the IACT workshop questionnaires are discussed separately below. The results of the development workshop data collection are discussed in Chapter 4, and the results of the IACT workshop data collection are discussed in Chapters 5 and 6.

Development Workshop Questionnaires. The purpose of the pre-workshop questionnaire was to ascertain practitioners' prior knowledge and current practices with long-term injured athletes. The pre-workshop questionnaire consisted of 14 items. The first item asked for length of

experience as a practitioner. Items 2–6 asked practitioners to rate their understanding of injury or related concepts on a scale of 0-10 (0 being *'no understanding'*, and 10 being *'full understanding'*). Item 7 asked practitioners whether they had a specific protocol for supporting injured athletes (*'yes'*, *'no'* or *'unsure'*), with an opportunity to provide additional information. Items 9-13 asked practitioners to rate their confidence in being able to work with injured athletes and recognise common issues affecting injured athletes on a scale of 0-10 (0 being *'no confidence'*, and 10 being *'full confidence'*). The final item asked practitioners *'What are you hoping to learn/take away from the workshop?'*

The post-workshop questionnaire followed the same format as the pre-workshop questionnaire, but omitted item 1. Item 14 was adjusted to ask *'What has been important for you in this workshop?'* This was deemed important as a means of understanding the immediate impact of the workshop in developing practitioner knowledge and confidence in supporting injured athletes. Full development workshop questionnaires can be found in appendix 3.4.

IACT Workshop Questionnaires. Pre- and post-workshop questionnaires were completed anonymously. The pre- workshop questionnaires consisted of 17 items. Two items asked for demographic information; *'What qualifications do you hold in Sport and Exercise Psychology (or what training pathway are you on)?'*, and *'How long have you been training or working as a Sport and Exercise Psychologist?'* Seven items asked practitioners to rate their understanding of injury and other related concepts, for example; *'How would you rate your understanding of trauma for injured athletes?'* Practitioners were asked to rate their understanding on a scale of 0-10 (0 being *'no understanding'*, 10 *'full understanding'*). One item asked practitioners to rate their confidence in being able to effectively support an injured athlete. Five items asked practitioners to rate their confidence at being able to identify common issues affecting injured athletes, these questions began with the stem *'How confident are you that you would be able to recognise the symptoms of the following issues in injured athletes?'* after which each item listed the issue, e.g. *'Fear of Re-Injury'*. These six confidence items were scored on a scale of 0-10, (0 being *'no confidence'*, 10 being *'full confidence'*). One item was a multiple-choice answer question *'Do you currently have a specific protocol for working with injured athletes'* (*'Yes'*, *'No'* or *'Unsure'*), followed by an option to provide additional information. The final item was an open-ended question *'What are you hoping to learn/take away from this workshop?'*

The post-workshop questionnaire consisted of 15 items. The 13 items rating confidence and understanding in the pre-workshop questionnaire were repeated. The multiple-choice answer question *'Do you currently have a specific protocol for working with injured athletes'* (*'Yes'*, *'No'* or *'Unsure'*), followed by an option to provide additional information was also repeated. The final open-

ended item was replaced by the question '*What has been important for you in this workshop?*', which was followed by an opportunity to provide any additional comments. Full IACT questionnaires can be found in appendix 3.5.

3.4.3.2 Focus Group Interviews

Focus group interviews were conducted immediately after each workshop. Focus group data is commonly used in an applied interpretive approach (Thompson Burdine, Thorne & Sandhu, 2021; Thorne, 2014) and as a participatory method of co-producing knowledge (Redman-MaLaren, Mills & Tommbe, 2014). In the development of the workshop, the focus group data was instrumental in understanding whether the workshop was fit for purpose and allowed practitioners to contribute opinions which informed the content and design of the training (see Chapter 4). In the delivery phase, this data provided feedback on the workshops' immediate impact on practitioners' understanding and confidence in the short term and was used to evaluate the IACT workshop as effective CPD training. The same focus group interview prompts were used at the development stage and the delivery stage.

Focus-group style interviews were conducted immediately after each workshop to collect practitioner feedback on the content and delivery. The focus group interviews were led by the researcher, were semi-structured and used a selection of prompt questions such as '*What has been useful for you in today's workshop?*' and '*do you think any of the things we covered today will be useful in your work?*' (for a full interview guide see appendix 3.6). The focus groups gave practitioners an opportunity to provide feedback on the workshop, from practicalities like the length and content of the day, the quality of the workshop, and what they felt might be missing from the training. The focus group was also an opportunity to get practitioners' ideas about how they saw themselves using the content in the future, and what had been particularly meaningful to them in the workshop. Focus group interviews at the development stage ranged in length from just under twenty-five minutes (development workshop pilot 2, total time 24:54) to over 35 minutes (development workshop pilot 1, total time 36:23), with a combined interview time of 1 hour 26 minutes 33 seconds. In the delivery stage, focus group interviews following the IACT workshops ranged in length from just under six minutes (workshop 3, total time 05:55) to over 25 minutes (workshop 2, total time 25:51), with a combined interview time of 52 minutes 22 seconds. The total focus group interview time across both the development and delivery phases was 2 hours, 18 minutes and 55 seconds.

3.4.3.3 Follow-Up Interviews

The primary method of data collection to assess the long-term impacts of the IACT workshop was interviews with practitioners conducted 3- and 6-months post intervention (interview guides can be found in appendix 3.7). Qualitative inquiry often uses open-ended verbal data to explore individual experiences (Elliott & Timulak, 2005), and the semi-structured interview is a well-established method of data collection in applied interpretive research (Bell et al., 2022; Thompson Burdine, Thorne & Sandhu, 2021; Thorne, 2014). Practitioners were asked to describe the ongoing impact of the workshop on their practice, how they applied the therapeutic interventions taught in the workshop, and details of if/how they adapted the intervention to suit their specific context(s). These interviews allowed for a deep exploration of individual experiences and contexts.

Practitioners were contacted following the IACT workshop to arrange follow-up interviews at mutually convenient times. These interviews were conducted online and were arranged as close to 3- and 6-months post workshop as scheduling allowed. Follow-up interviews were semi structured, and questions included '*What do you remember from the workshop?*' and '*What information has been important to you since the workshop?*' (for full interview guide see appendix 3.7). Interviews ranged in length between 14 minute 11 seconds to 44 minutes 39 seconds, with a combined follow-up interview time of 14 hours 9 minutes 38 seconds. Interviews were transcribed and anonymised prior to analysis, with a total of 263 pages of transcribed material. Follow-up interview data relevant to the content and delivery of the workshop is considered in Chapter 5. Follow-up interview data relating to the application and perceived impact of the IACT workshop is considered in Chapter 6.

3.4.4 Approach to Analysis

3.4.4.1 Reflexive Thematic Analysis

There are three distinct approaches to Thematic Analysis; Coding Reliability, Codebook and Reflexive (Braun & Clarke, 2019). The appropriate method for any given project depends largely on the philosophical basis of the research, making thematic analysis 'theoretically flexible' as a broad approach (Braun & Clark, 2021a). Codebook and coding reliability approaches often align with more positivist or post-positivist research frameworks, using pre-defined codes or multiple coders to assess coding reliability – underpinned by the positivist idea of an accessible universal truth. Reflexive approaches consider meaning to be derived from the data by the researcher, rather than found in the data. From Braun and Clarke's perspective, themes are 'interpreted and created' rather than a 'truth' that is found in the data or emerges from it (Braun & Clarke, 2019). Reflexive thematic analysis therefore aligns philosophically with applied interpretivist research, in that the 'truth' can be understood but is dependent on the individual and not a universal 'fact'.

Thematic analysis approaches share an aim to identify patterns of meaning across a dataset (Braun & Clarke, 2021a). Codes are the building blocks for broader themes (Clarke, Braun & Hayfield, 2015), which are ‘shared meaning-based patterns’ (Morgan, 2022, p. 2081) created through the researcher’s interpretation of the data. Reflexive Thematic Analysis often takes a more inductive approach to coding and theme development, and emphasises the quality, rather than frequency of codes and themes (Morgan, 2022). The strength of researcher subjectivity comes to the fore in this approach, with researchers using their expertise to interpret data and find commonalities across varied perspectives (O’Connor & Joffe, 2020). Themes can also serve the purpose of domain summaries (Braun & Clarke, 2019) and researchers have suggested that when using Reflexive Thematic Analysis in applied contexts, themes should point to actionable items (Campbell et al., 2021). Themes can represent both latent and more explicit meaning (Braun & Clarke, 2019), however, these themes need to be meaningful to practitioners in the applied field:

‘The aim within interpretive description is for a reader within the applied discipline to understand and easily follow the logic with which the elements of the findings are sequenced and presented... The aim here is to be able to generate a set of conclusions that both follows logically from a coherent study design process and also speaks to the discipline in a language that is internally consistent, logically accessible, and credible in the eyes of that theoretical “*thoughtful clinician*.”’ (Thorne, 2014, p. 11)

While holding similar aims to interpretive phenomenological analysis (IPA), the reflexive thematic analysis approach considers themes across cases in the first instance, as opposed to analysing each case in detail before searching for themes across cases (Braun & Clarke, 2021a). This research used reflexive thematic analysis in order to produce results which focus on broader themes of practice and allow for consideration of the wider practice context (Braun & Clarke, 2021a). According to Fryer (2022), a critical realist approach to thematic analysis (TA) should reject the idea that qualitative research cannot speak of causes. Being able to speak to causes and causal processes in the analysis is dependent upon the quality of data collected during interviews, and thought should be given to the levels of critical realism when phrasing interview questions (Brönnimann, 2022).

3.4.5 Quality in Thematic Analysis

While there is no one universal way of assessing quality in qualitative research (Rolfe, 2006), literature on trustworthiness in qualitative analysis recommends making clear the steps taken in the analysis process in such a way that other researchers may be able to fully understand the process used (Nowell, Norris, White & Moules, 2017). Thematic Analysis has been a popular method of qualitative analysis in sport and exercise research for several years, often citing Braun and Clarke’s

‘six step process’ to the original thematic analysis approach (2006, see figure 3.2). However, the authors later caveat this with the statement ‘Following procedure is not a guarantor for doing “good TA”’ (Braun & Clarke, 2021b, p. 329) and are critical of researchers who cite their six steps without fully understanding and engaging with them in practice.

Campbell et al., (2021), provide a detailed account of the process of thematic analysis in applied health research. They emphasise that the process is non-linear, and requires reflexive discussion and revision of the research question as new understandings are created from the data, and emphasise the importance of themes which relate to actionable outcomes. Fryer (2022) suggests a 5 step, critical realist approach to thematic analysis that seeks to understand causes in explanatory (rather than exploratory) research (See table 3.3).

Table 3.3: Five Steps for Thematic Analysis in Critical Realism, adapted from Fryer (2022)

	Phase	Description of the process
1.	Develop research question	Identify the experiences and/or events of interest, and develop one or more causal research questions.
2.	Familiarise yourself with the data	Skim read a large proportion of the data. Make notes on initial thoughts and questions.
3.	Apply, develop and review codes	Apply descriptive codes to the data using a data-led approach. Develop these codes by processes of standardization (use the same wording for similar codes) and consolidating (use theoretical terms to unite different codes). Review codes by assessing their validity.
4.	Develop and review themes	Develop themes (causal explanations of experiences/events). Review themes by assessing their validity.
5.	Generate conclusions and reports	Reflect on the overall analysis and review the validity of conclusions. Consider how to best communicate the conclusions.

This is similar to the concept of ‘practice validity’ in research findings, though as pointed out by Houston (2001) the concept of practice validity is ‘multifaceted’ and ‘dynamically evolving’ (p. 857). The goal of producing knowledge for practitioners, about *how* an intervention might work, is also a central aim of IKT, and therefore is important to consider when designing the analytic process for this research.

There are many different ways by which qualitative researchers can demonstrate credibility of their research, as outlined by Noble and Smith (2015, p. 34-5):

1. Accounting for personal biases which may have influenced findings
2. Acknowledging biases in sampling and ongoing critical reflection of methods to ensure sufficient depth and relevance of data collection and analysis
3. Meticulous record keeping, demonstrating a clear decision trail and ensuring interpretations of data are consistent and transparent
4. Establishing a comparison case/seeking out similarities and differences across accounts to ensure different perspectives are represented
5. Including rich and thick verbatim descriptions of participants' accounts to support findings
6. Demonstrating clarity in terms of thought processes during data analysis and subsequent interpretations
7. Engaging with other researchers to reduce research bias
8. Respondent validation: includes inviting participants to comment on the interview transcript and whether the final themes and concepts created adequately reflect the phenomena being investigated
9. Data triangulation, whereby different methods and perspectives help produce a more comprehensive set of findings

Some of these points have been considered already, personal biases are reflected upon under the heading of reflexivity (see section 3.5). Biases in sampling, and a critical reflection on the process of research will be covered in the limitations section (see section 7.2.7). Records have been maintained throughout the process, including reflections on workshops, and record of the process of coding and refining themes, and reflections on the decision making throughout the analytic process (see appendix 3.9). Similarities and differences in the data are highlighted in the results (see Chapters 5 & 6). Quotations from the raw data to support each code include, where possible, rich, contextualised examples (see Chapter 6).

The suggestions of Braun and Clarke (2006), Campbell et al., (2021), Fryer (2022) and Noble and Smith (2015) were all considered in the analytic approach taken in this study. The proposed steps for the analysis are presented in table 3.4, and represent a consolidation of the six-step model (Braun & Clarke, 2006), considerations from Thorne (2014), and Campbell et al., (2021), and lessons from the piloting process. These steps were followed with an awareness throughout that the purpose of the research is to produce information that is helpful to practitioners, with consideration to both the content and the form of the data presentation (Sandelowski & Leeman, 2012).

Table 3.4: *Outline of Analytic Approach*

	Phase	Description of process
1.	Define Research Question	Identify what questions the data can answer
2.	Data Familiarisation	Transcribe, read and re-read data, keeping note of initial thoughts and ideas
3.	Generate initial codes	Collate relevant and recurring data, topics and ideas into codes
4.	Review codes	Review and consolidate codes, check codes are valid descriptors and interpretations of the raw data
5.	Search for themes	Collate codes into initial themes
6.	Review Themes	Check themes are represented in both codes and raw data
7.	Refine Themes	Refine the specifics of the themes including names and definitions, and bring together in a cohesive ‘story’ of the data, which point to actionable outcomes
8.	Produce report	Identify rich and thick examples from the raw data to illustrate codes and themes. Reflect on the analysis, whether it reflects the data and what it offers in answer to the research question and how the results may benefit the intended audience.

These steps were used to guide the analytic process in an attempt to ensure that process was theoretically and philosophically congruent and rigorous. Notes on the decision-making throughout that process can be found in appendix 3.9. In addition to the general dimensions which were derived from the data, three illustrative cases are included in Chapter 6 to illustrate the interconnected nature of the general dimensions and highlight how the themes are interrelated and interact in specific cases to generate professional development and changes in practice. While not a standard way to report findings in RTA, these cases are not intended to represent a different method of data analysis, but rather a different presentation of the same themes. In this regard the illustrative cases are ‘knowingly incongruent’ with the standard process of RTA (Braun & Clarke, 2024). The themes from these illustrative cases were derived in the initial analytic process (across cases), and these themes are simply reorganised into cases, rather than presented within different general dimensions. These illustrative cases are intended to provide rich examples of practice impacts (Thorne, 2014), and provide additional learnings and engagement with the data in a way that ‘*acknowledges the clinical context*’ (Ng, 2021, p. 290).

3.5 Research as a Reflexive Sport Psychologist

In an applied interpretivist approach, researcher understanding of the discipline they are researching is necessary in order to produce results which are relevant to the applied field (Thorne, 2014). Researcher subjectivity is therefore a strength in this approach, however, researcher positionality has implications for the topic, participants and design of research (Holmes, 2020). As stated by Mackieson, Shlonsky and Connolly; 'the aim of reflexivity is not to demonstrate neutrality and objectivity, but to make explicit the researcher's contribution to all aspects of the interpretive research process.' (2019, p. 967). Positionality can fluctuate throughout the research process (Folkes, 2022). Folkes (2022) and Reyes (2020) agree that positionality goes beyond a 'shopping list' of researcher characteristics, and Reyes (2020) refers to 'visible' and 'invisible tools' used by ethnographic researchers in conducting their fieldwork. Social capital, for example, is an important invisible tool that can be overlooked in positionality statements based solely on demographics. The researcher's positionality will therefore be considered with reference to how it has impacted and influenced different areas of the research process and how that may have fluctuated throughout the research process.

I am a white, middle class woman in my early thirties. According to HCPC data more than 80% of practitioner psychologists are female, however women made up only 43% of registered sport psychologists in 2018 (HCPC, 2018), the only sub-set of practitioner psychologists where men outnumber women. I don't think it would be unreasonable to assume that being white and middle class would put me in the majority group of UK psychology practitioners, and I am therefore in a privileged position to be able to not have to consider this a barrier when conducting research. I do not think my age has had a big impact on my research, other than that I am old enough to not have to struggle to be 'taken seriously' as either a researcher or a practitioner on that basis.

I have experienced two major knee injuries, one while I was a 19-year-old competitive skier and one much more recently. Both were Anterior Cruciate Ligament (ACL) ruptures to my left knee. These experiences have undoubtedly impacted my choice of career and research interests. Beyond that, an ACL rupture is one of the most serious injuries commonly experienced by athletes, and well-known to be associated with a long and challenging rehabilitation. Experiencing the same injury at two very different points in my life has given me perspective on the specific psychological challenges of 'repeat injuries' and also demonstrated to me how athletes' individual contexts will change how they experience injury. Those injuries (and many others) mean I can speak from experience and understand how identical injuries may have completely different impacts. After a lot of consideration, I used a short video from my own recent rehabilitation experience to provide greater

context in the CPD workshop. I often joke that ACL injuries are a qualification in themselves when it comes to the psychology of injury rehabilitation, but this is based in the fact that lived experience of an ACL injury gives me more credibility in the eyes of injured athletes when I work as a practitioner myself, but also in the eyes of practitioners when I am delivering CPD education.

I've been researching various aspects of the psychology of injury and support available for athletes since my Masters degree in 2016. As part of my Masters dissertation I was involved in a project which looked at injury in professional football from several different angles. I interviewed counsellors working for the Professional Footballers' Association (PFA) about the issues that current and former footballers were bringing to counselling (Gervis, Pickford & Hau, 2019). They described various issues, but while all of the athletes had experienced injury at some point on the football journey, almost all practitioners felt injury was unrelated to the presenting problems in counselling. However, when asked about the perceived consequences of injury, and the antecedents to their client's current struggles, the answers were very similar. The research concluded that counsellors did not necessarily have enough understanding of the athlete experience of injury to be able to recognise the link between mental health issues and long-term injury. Another interesting outcome from this research was that counsellors assumed footballers were being psychologically supported through their injury experience 'in house' at their clubs. The second research project comprised a survey of medical departments and found that very few clubs actually employed psychologists at the first team level (Gervis, Pickford, Hau & Fruth, 2020). The assumption in clubs was that the physiotherapists were monitoring players for psychological issues – something that they would not ordinarily have had any training in.

Following my Masters degree, I was involved in further research investigating the prevalence and impact of psychological responses to long-term injury (Gervis et al., 2022). The results from this painted a much worse picture of the injured athlete experience than even we, as the researchers, expected. Finally, as part of my Chartership, I conducted a research project which asked sport psychologists about their training in injury (Pickford & Gervis, in press), which was inconsistent across participants, and an area that they felt was missing from their formal training. The outcome of this body of work is a bleak picture for injured athletes. All injured athletes will experience some measure of psychological disruption following injury. There are not sufficient psychologists employed within clubs to be able to support them, and sources of external psychological support do not have adequate sport-specific knowledge. Where sport psychologists are available, they are not necessarily appropriately trained to support injured athletes, as training in injury is not a compulsory part of qualification as a practitioner.

This research has led directly to the current project. While my research background has afforded me an in-depth knowledge of the subject area, I need to be careful during the analysis stages that I am looking at the data as it is, and not looking only for what I 'expect' to find. I also use statistics and information from this research background in the workshop with practitioners. There may be some social/academic capital implicitly attached to the use of these published studies which helps afford me greater credibility in the eyes of participants as an expert in the subject area.

As a practitioner, I have worked with injured athletes extensively, and understand some of the challenges the practitioners may experience when working with these clients. I have worked both as an independent practitioner and as part of large club set-ups in a variety of sports. This helps me to understand some of the challenges associated with multi-disciplinary team (MDT) working, but also how successfully navigating those professional relationships can enhance the support injured athletes receive. I have a dual relationship with the practitioners attending CPD workshops – I am both a peer/colleague, and also an educator/subject matter expert. Being a practitioner means I can more easily understand what information would be helpful for practitioners working with injured athletes, and my experiences working in larger organisations has directly informed much of the content of the workshops and emphasis on MDT working.

My professional history may have had an impact on recruitment, as I did advertise the workshops on LinkedIn, a professional networking website which displays employment history. I do display the logos of some of the teams I have worked with at the beginning of the workshop, and I talk about my current and former workplaces when telling attendees about myself. As some of my work experiences have been with organisations that may be deemed 'prestigious' in a sports context (for example, a Premier League football club), this may have an impact on my social capital within the group, and adds to my status as a 'subject matter expert'.

To summarise, this PhD could not have been done in this way, from an applied interpretive perspective, and the training would not have been designed, developed, or delivered in this way without authentic, substantial and meaningful lived experience. The personal, professional and academic experiences described above are therefore imperative to the creation of the research and the professional development workshop that is fit-for-purpose and significantly contributes to the development of the profession.

3.6 Methodology and Methods Summary

This chapter has laid out the philosophical and methodological approach to the research, including the use of an applied interpretive approach framed by critical realism, and utilising integrated knowledge translation in a technocratic approach to knowledge production. The aims and

process of the research have been described, including recruitment, participants, and methods of data collection. The approach to data analysis, reflexive thematic analysis, has been discussed, as has researcher positionality and reflexivity. The next chapter will explore the iterative codesign process of developing the training intervention for sport psychology practitioners.

Chapter 4: Iterative Codesign Process of a CPD Workshop for Practitioner Sport Psychologists Working with Long-Term Injured Athletes.

4.1 Introduction

This chapter is focussed on the first research objective, to design and develop a training workshop for sport psychologists to educate and upskill practitioners on supporting injured athletes using ACT. The aim of this chapter is to outline the design and development process of a professional skills workshop as a method of continued professional development (CPD) training for sport psychology practitioners that is fit for purpose and meets practitioner needs. The workshop provides training on both the psychological responses to injury and the application of injury informed ACT for sport psychologists. The training was developed through an iterative development process, and data collected at each stage through questionnaires and focus groups (see Chapter 3), were analysed in order to inform this process, the findings of which are presented in this chapter. This chapter will discuss considerations for effective professional development training and the rationale for a professional skills CPD (section 4.1.2), followed by an overview of the relevant content for both knowledge and therapeutic skills. The design of the workshop will be followed by detail on the iterative process of developing the workshop to ensure it meets professional needs (sections 4.3-4.6).

4.1.1 Continued Professional Development

Continued professional development (CPD) is required for all practitioners in order to maintain HCPC registration. While the HCPC does not set a specific threshold for CPD activity, it specifies that registrants must:

1. Maintain a continuous, up-to-date and accurate record of their CPD activities
2. Demonstrate that their CPD activities are a mixture of learning activities relevant to current or future practice
3. Seek to ensure that their CPD has contributed to the quality of their practice and service delivery
4. Seek to ensure that their CPD benefits the service user
5. Upon request, present a written profile explaining how they have met the standards for CPD (HCPC, 2024)

It is intended that this CPD workshop will meet the needs of practitioner psychologists by ensuring the training contributes to the quality of attendees' practice, is relevant to their current or future practice, and ensure the training is designed in such a way to allow it to benefit the service user – injured athletes. This section will therefore include relevant professional development literature that may inform the design of the CPD. This chapter considers the design and development of a training intervention for sport psychologists to address these training needs, and equip practitioners with the necessary skills and knowledge to practice effectively and provide athletes with appropriate support in a multidisciplinary environment.

4.1.1.1 Professional Development Considerations

A training intervention for sport psychology practitioners is an example of professional development, and therefore there are relevant lessons from the professional development literature that should be considered. There is a limited amount of research on professional development in sport psychology and there have been calls to address this paucity of research as a matter of urgency (Wylleman et al., 2009). However, there is evidence from other healthcare populations that may have relevance. Continuing professional development (CPD) is a common requirement for healthcare professionals, and can refer to a wide variety of activities which qualified practitioners may engage in for the purposes of maintaining their competence, improving the care they provide and maintaining their professional status (Neimeyer, Taylor & Cox, 2012).

The professional development literature provides guidance as to how training for professionals may be provided most effectively. A systematic review of CPD in nursing determined that for participants to engage in training it needed to be relevant for their professional level and practice. It was found that where there were limited opportunities for training this was a barrier for professional development (Vázquez-Calatayud, Errasti-Ibarrondo & Choperena, 2021). This research hopes to address the latter by providing an opportunity for training that is currently not available through either CASES or the BPS. The training will be designed to target discipline specific skills and areas of development (Fogaça, Quartirolí & Wagstaff, 2024), with relevant knowledge and skills for the multidisciplinary practice environment. Practitioners will self-select to attend the training, and therefore have judged that the general topic area is relevant for their practice.

The practice environment for sport psychologists is often interdisciplinary, with multidisciplinary teams (MDTs) bringing micropolitical challenges and making interpersonal working relationships with other professionals a crucial aspect of practice (Haluch, Radcliffe & Rowley, 2022). Maintaining good relationships with key professionals and 'finding one's place' in each individual practice context are important, and often unappreciated, aspects of the sport psychologists' role in

an organisation (Haluch, Radcliffe & Rowley, 2022). Training, particularly for work with injured athletes who will have significant medical involvement throughout their rehabilitation, therefore needs to include consideration of other professionals and building effective working relationships, something that is often overlooked in professional training (Rowley et al., 2020).

In research conducted with sport psychologists, classroom settings categorised as 'traditional learning' were thought to be useful to develop 'know-how' while peer-to-peer learning was thought to be particularly beneficial for professional development (Hutter, Oldenhof-Veldman, Pijpers & Oudejans, 2017). A popular format for CPD within European sport psychology practitioners is the professional workshop, which provides experiential knowledge from fellow practitioners (Wylleman, et al., 2009). This provides a strong rationale for this training on injury to be designed and delivered by practitioners with experience of working with injured athletes. A study conducted in the United States found that sport psychologists considered both counselling skills and deep understanding of the athletic context to be essential skills for practitioners (Ward et al., 2005). In order to work effectively with injured athletes, practitioners need to understand both the injury journey and the mental health implications of injury (Pickford & Gervis, in press). Training should therefore be designed and delivered by sport psychology practitioners with experience in working with injured athletes in a sport setting in order to allow insights on these essential topics. Experienced practitioners also have a clear understanding of the practicalities of consultation in these contexts, and understand how other athlete support professionals fit into the MDT, aligning with the recommendations of previous research (Hutter et al., 2017; Wylleman et al., 2009).

The Kirkpatrick model of training evaluation has been used over decades to evaluate professional training, prioritising clear, straightforward language, and a way of simplifying potentially complex evaluations (Bates, 2004; Kirkpatrick & Kirkpartick, 2006). This model of evaluation proposes four steps (or levels); Reaction, Learning, Behaviour and Results (Kirkpatrick, Craig & Bittel, 1970). The four steps of evaluation are summarised below.

The first level of evaluation is 'Reaction' and encompasses training participants' reaction to training, and is likened to a measure of 'customer satisfaction' (Kirkpatrick & Kirkpartick, 2006, p. 21). The second level is 'Learning', and is defined as the extent to which skills and knowledge increase as a result of the training. The third level is 'Behaviour', and is defined as the extent to which behaviour changes as a result of the training, within this level, Kirkpatrick & Kirkpatrick (2006) propose four conditions that must be met for behaviour change to occur: the person must have a desire to change, the person must know what to do and how to do it, the person must work in the right climate, and the person must be rewarded for changing. This acknowledges the contextual nature of behaviour change, and provides a more detailed framework for investigating why

behaviour change may not be evident following training. The fourth and final level is 'Results', and encompasses the impacts of training, and are often the reason training is implemented.

A criticism of CPD delivery for healthcare professionals is that the area is largely unregulated, with few clear requirements or standards (Neimeyer, Taylor & Cox, 2012). In order to address this, the training will be theoretically grounded, evaluated and developed through an iterative development process, and ongoing evaluation will continue through the implementation phase.

Neimeyer, Taylor and Cox (2012) recommend that CPD should:

1. Encourage best practice using recent conceptual advances to deliver relevant training, without necessarily relying on a didactic model;
2. Measure meaningful outcomes to evaluate effectiveness, on a continuum from documenting attendance to measures of learning, translation of learning to practice and finally measuring the impact of those changes on clinical outcomes;
3. Cultivate competence with respect to assessing, gaining and maintaining competence;
4. Embrace accountability with consideration to maintaining professional competence, delivering effective services, and protecting the consumer of those services.

These recommendations will be considered throughout the development and evaluation of this CPD, and guide the workshop development in conjunction with the MRC's guidelines on intervention research (Craig et al., 2013) and with reference to the Kirkpatrick model of training evaluation (Kirkpatrick & Kirkpartick, 2006).

4.1.2 Rationale for the Workshop

There is a need for CPD opportunities for sport psychology practitioners that include therapeutic skills, cultural competence, evidence-based practice and mental health (Quartiroli & Wagstaff, 2024). There is also a need for specific CPD to address the research-practice gap in the support of long-term injured athletes (Evans & Brewer, 2022). A workshop delivered by practitioners with experience and expertise in both injury and ACT, aims to address these needs.

The development of this workshop for practitioner sport psychologists working with injured athletes was guided by the results of Pickford and Gervis (in press), which explored the perceived competence and knowledge of sport psychologists working with injured athletes. Participants in the study highlighted a lack of training on the psychology of injury, leaving them with uncertainty as to best practice. This was despite the fact that working with injured athletes was a significant part their work. Furthermore, they expressed a need for specific training on tailoring support to different

stages of recovery, based in a specified therapeutic modality, and with understanding of mental health risks at different stages of rehabilitation in order to sufficiently mitigate risks to mental health and improve injury outcomes. The training used ACT as the therapeutic modality, as this framework can be applied in a variety of situations and can be used to enhance wellbeing, as well as address mental health concerns (see section 2.3.7 for more details).

The workshop was not designed with the Sport Psychology Professional Development (SPPD) model (Fogaça, Quartiroli & Wagstaff, 2024) in mind, as the workshop was designed before the model was published. However, the training intended to provide training opportunities which would align with the developmental elements of the model, and help practitioners to progress through one or more 'phase' of practice development in their work with injured athletes. This model will also provide a framework to understand the results of the workshop, and the processes through which professional development may be achieved.

In order to develop a CPD workshop that was robust and fit-for-purpose, there was an iterative development process which integrated academic knowledge with feedback from 'knowledge users' (sport psychology practitioners) in a process of Integrated Knowledge Translation, in order to take steps to bridge the research-practice gap (Gainforth et al., 2021). This chapter will describe the development process of the workshop, from its first iteration (pilot 1), the development of additional content (pilot 2), to the final developed workshop (pilot 3). After each development workshop pilot, data were collected and analysed to inform subsequent iterations. Each of the pilot workshops sought to build on the feedback and learnings from practitioners, resulting in modifications and changes to both content and delivery modalities. These are described in turn below, with discussion of feedback from practitioners and [reflections from the researcher](#) at each stage.

4.1.3 Process of Design and Development

The process of designing and developing the workshop was intended to ensure the needs of practitioners were met, and that the workshop was fit for purpose. An overview of the process is illustrated in figure 4.1 below.

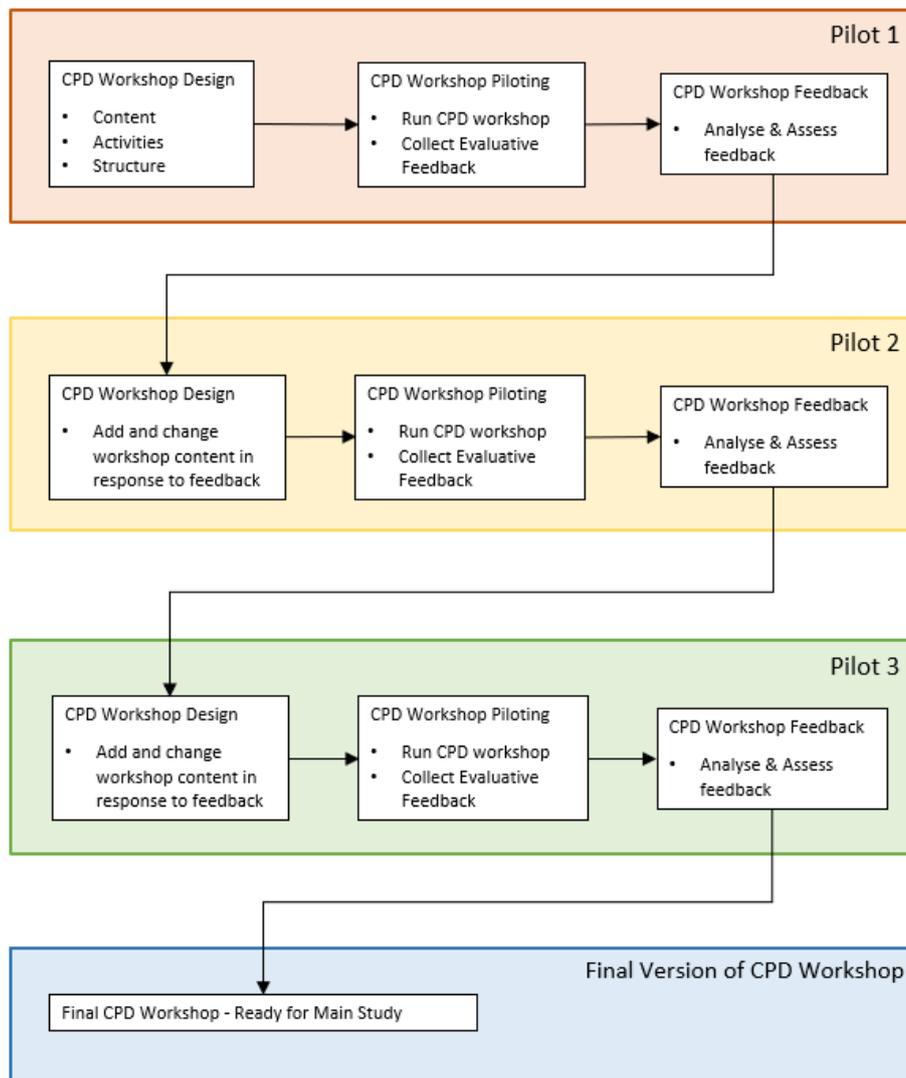


Figure 4.1: Process of CPD Workshop Design and Development

The aim of the development process was to assess the content and delivery of the workshop for sport psychology practitioners. This chapter explores the entire design and development process of the workshop to ensure that it was fit for purpose. This process is explored chronologically, with discussion of the content, activities, and feedback from practitioners discussed at the relevant points of the development process.

In order to meet the first research objective, data were collected in two ways, through a pre- and post-workshop questionnaire, and through focus-group style interview immediately following the workshop. The purpose of data collection at this stage of the design process was to enhance the development of the workshop, through understanding practitioners' perspectives on their learning experience. Full details of data collection can be found in Chapter 3, section 3.4.3. Qualitative data were analysed using Reflexive Thematic Analysis. A detailed description of the analytic approach can be found in Chapter 3 section 3.4.4.

4.2 Workshop Content Design

4.2.1 Psychoeducation Workshop Content

The content of the IACT workshop was drawn from current literature highlighting both the injury journey and the psychological challenges for athletes associated with long-term injury. The IACT workshop used ACT as the therapeutic modality, and a brief overview of ACT was included in the workshop. The research highlights a need for training focussing on mental health and counselling skills (Quartiroli & Wagstaff, 2024), understanding the psychological impacts of injury for injured athletes (Pickford & Gervis, in press), and the interdisciplinary nature of work in sports organisations (Rowley et al., 2020). The content design therefore prioritised these aspects of practice, and a brief overview of this is provided below.

4.2.1.1 Injury Background

A brief overview of research on injury was included in order to provide context for the workshop. Statistics on injury incidence (Ekstrand, Spretco, Bengtsson & Bahr, 2021), glossary of common injury terms, and structure of the MDT and other athlete support systems were briefly presented as an overview of the topic. The Biopsychosocial Model of Injury by Wiese-Bjornstal (1998) and model of Sports Injury Related Growth (Roy-Davis, Wadey & Evans, 2017) were included to demonstrate the origins of psychological intervention post-injury and the direction of current research.

4.2.1.2 Stages of Injury Rehabilitation

It is well accepted in injury rehabilitation that there are three distinct stages of recovery (Prentice & Arnheim, 2011) with a fourth stage for athletes. These stages were included so that participants could recognise the different stages and the associated psychological risks at each stage (Clement et al., 2015, for more details see section 2.1.1.3). The stages are as follows:

Stage 1 – Acute. The acute stage of injury is the period from injury onset to the start of rehabilitation, and is defined physically by high levels of inflammation, pain, and reduced range of

movement. This stage can be as short as a few days to a week, but in cases where surgery is required can also encompass longer periods of time. In this stage, common psychological challenges include shock, frustration, anger, confusion and anxiety (Mosewich, Corcker & Kowalski, 2014).

Stage 2 – Rehabilitation. The rehabilitation phase can last anywhere from a few weeks to months or years, depending on the type and severity of injury. This is a physical period of regaining range of motion, strength and stability. This is often the most psychologically challenging stage to navigate, with the longest duration. Common psychological challenges include isolation, frustration, depression, lack of motivation, and in later stages, fear of reinjury (Clement et al., 2015; Manuel et al., 2002; Ruddock-Hudson, O’Halloran, & Murphy, 2012; Tracey, 2003). The challenges experienced in this stage can also trigger or exacerbate disordered eating and substance use/abuse (Gervis, Pickford & Hau, 2019; Putukian, 2016; Sundgot-Borgen, 1994).

Stage 3 – Remodelling (Return to Training). The duration of the remodelling phase is again dependent on injury and sport. During this phase, sport-specific movement patterns and regaining sport-specific fitness are fundamental. A key concern at this stage is fear-of reinjury (Tripp et al., 2007).

Stage 4 – Return to competition. This stage is specific to athletes, as it involves returning to competition level strength, speed, or intensity of activity. It is distinct from the return to training phase as it often involves facing ‘live’ opponents or competitors, in less controlled environments than training situations. At this stage, it is crucial that athletes are psychologically ready to compete (American College of Sports Medicine, 2006; Podlog & Eklund, 2007).

Additional Phase – Setbacks. Setbacks in rehabilitation were added as a distinct additional category, referred to as a fifth ‘stage’ for continuity. While not all athletes will encounter setbacks in their recovery journey, those who do face significant mental and physical consequences (Evans, Wadey, Hanton & Mitchell, 2012). Owing to the impact that setbacks can have on an individual, it was decided to discuss them as an additional stage, despite the fact that they can occur at any point throughout the recovery progress, and that they are not universally experienced.

4.2.1.3 Prevalence of Psychological Consequences of Injury

The psychological impacts of long-term injury were illustrated using data from Gervis et al. (2022). The four most prevalent psychological impacts of long-term injury (fear of reinjury, depression, disordered eating, anxiety) and those with the most severe impacts (suicidal ideation) were considered in detail. The prevalence of these issues was also compared to what medical department leads thought to be the major psychological challenges in injury rehabilitation (Gervis et

al., 2020). This information highlighted the lack of awareness in sport (professional football clubs in this instance) and that the psychological challenges facing injured athletes may be underestimated.

Recognition of these issues was a key topic, and considered specific language and behaviours that might indicate an athlete struggling with their mental health. An interactive task was included at this stage to reinforce learning. Case studies were presented and practitioners asked to identify specific language or behaviours that would be important to recognise in practice (see appendix 4.2).

4.2.1.4 Pain Theory

An overview of pain theory was presented, using a short video (Moseley, 2017) and resources from Moseley and Butler (2015a) to provide an accessible explanation of pain. The 'protectometer' (Moseley & Butler, 2015b) was introduced to illustrate how psychological and contextual factors might influence pain, including information from emotion mapping research (Goldman, Gervis & Griffiths, 2022). These psychological and contextual influences were discussed in relation to injury, and how practitioners might help athletes understand pain and be more effective when working with athletes experiencing pain during rehabilitation.

4.2.1.5 ACT Overview

Background. A basic explanation of the philosophical and theoretical background of ACT was covered, including Relational Frame Theory and Functional Contextualism. The ACT Hexaflex was then presented followed by a brief overview of each of the six core processes (Hayes, Pistorello & Levin, 2012), with emphasis on how each might relate to the experience of injured athletes. The aim of the workshop was not to teach practitioners ACT as a full therapeutic method, but to provide techniques to support injured athletes using ACT. An overview was therefore provided to refresh those participants who are already well versed in ACT practice, and to provide context and background for those who had less experience of ACT as a therapeutic framework. As discussed in Chapter 2 (section 2.3.6), ACT is a versatile framework that allows practitioners to address a range of issues which may affect athletes during the rehabilitation process.

Understanding Behaviour. Functional analysis of behaviour was covered in more detail as a subsection of the ACT overview. Understanding avoidant behaviour is a key component of ACT therapy and is also critical to understand the behaviour of injured athletes, and how that behaviour might affect rehabilitation outcomes. This included examples of antecedents, behaviours and reinforcing consequences, and how practitioners might discuss those with athletes. Behaviour was also considered with reference to 'The Teenage Brain' (Jensen, 2015), as many of the athletes sport

psychologists work with are under 25 years of age and therefore not necessarily fully neurologically mature.

A practical example of functional behaviour analysis was subsequently demonstrated through a roleplay between facilitators. This was intended to give practitioners an example of how they might discuss the concepts with athletes, and use the information to set goals and reinforce 'helpful' behaviours in rehabilitation.

Using ACT Through Injury Rehabilitation. The final part of the workshop covered how ACT techniques might be applied through the injury journey. Suggestions for each stage were made for likely psychological challenges, and how ACT skills might be used to work with athletes struggling with those challenges.

4.2.2 Practical Exercises

The professional development literature not only highlights a need for training which focusses on counselling skills (Quartiroli & Wagstaff, 2024), but also the benefits of peer-to-peer learning (Hutter et al., 2017) and experiential knowledge (Wylleman et al., 2009). Therefore, in addition to the psychoeducation content, a purpose of the workshop is to provide practitioners with practical examples of how they might use the information provided in combination with ACT therapeutic skills to support injured athletes. A summary of the interactive activities included in the development workshop can be found below.

Stages of Injury Worksheet. A bespoke worksheet was designed to give practitioners the opportunity to consider the different psychological challenges that might arise at the different stages of the injury journey (see appendix 4.1). Space was provided for practitioners to consider what impact the psychological challenges may have on athletes and how this may change throughout rehabilitation. This was completed in pairs.

Case Studies. A selection of specially tailored fictional case studies was presented to practitioners, who were encouraged to identify the observable behaviours which may indicate an athlete was struggling with various psychological disruptions during different stages of the rehabilitation journey (see appendix 4.2). These case studies were discussed in pairs.

Role Play Demonstrations. Two roleplay demonstrations were conducted by the workshop facilitators, to provide examples of how ACT skills may be 'brought to life' and combined with other common strategies used during injury rehabilitation. The first looked at an athlete demonstrating avoidant behaviour, with the practitioner using acceptance, defusion and committed action skills.

The second considered an athlete struggling with fear of reinjury, and employed both contacting the present moment and mindful movement skills.

Case Formulation. Finally, practitioners were encouraged to use the skills and knowledge gained throughout the workshop to conduct a ‘live’ case formulation, with a workshop facilitator playing the role of the injured athlete.

4.2.3 Development Workshop Pilot 1 Content Overview

The table below (4.1) provides an overview of the content of the first development iteration of the workshop (pilot 1) and the interactive activities included.

Table 4.1: Development Workshop Pilot 1 Content

Slides	Content	Delivery	Approximate Proportion
1-3	Introduction		5%
4-12	Injury Overview		
13-25	Stages of Injury	Stages of Injury Worksheet	30%
26-43	Psychological Impact of Injury	Case studies	
45-56	Pain Theory		30%
57-70	ACT Overview		
71-79	Avoidant Behaviour	Roleplay (Demonstrated)	
80-98	How to Apply ACT Through the Stages of Injury	Mindful Movement (Demonstrated)	30%
99-105	Practitioner Tools	Case Formulation	
106-107	Conclusions		5%

The workshop was expected to last approximately 3 hours, with breaks to be taken as needed. The delivery of the workshop is discussed below, followed by data from both the pre- and post-workshop questionnaires and the focus group following the workshop.

4.3 Development Workshop Pilot 1

4.3.1 Development Workshop Pilot 1 Overview

Following the workshop design process described above, the first iteration of the workshop (pilot 1) was run with a group of practitioners. An overview of Pilot 1 can be found in table 4.2. This section will go on to describe the delivery, data collection and evaluation of participant feedback in detail.

Table 4.2: Overview of Development Workshop Pilot 1

Design	Delivery	Feedback
<p>Content:</p> <ul style="list-style-type: none"> Information on stages of Injury and psychological challenges at each stage Overview of ACT and how skills might be applied in an injury context 	<p>Participants:</p> <ul style="list-style-type: none"> Eight practitioners, ranging in experience from complete beginners to newly qualified practitioner <p>Duration:</p> <ul style="list-style-type: none"> Approximately 3 hours 	<ul style="list-style-type: none"> Delivered in a clear and coherent structure Valuable information providing a strong foundation in the injury journey for athletes Good summary of ACT Lacked practical skills and application

4.3.2 Development Workshop Pilot 1 Delivery

Participants. There were eight participants who attended the workshop pilot 1, with experience ranging from MSc graduates yet to commence supervised practice, to recently qualified sport and exercise psychologist. Mean length of experience was 13.75 months. For the purposes of this research, participants will be referred to as ‘practitioners’ throughout.

Delivery process. Workshop pilot 1 was a half-day psychoeducation CPD workshop including the content and activities outlined in sections 4.2.1 and 4.2.2. The purpose of the training was to provide education for practitioners on the psychology of injury and rehabilitation, the challenges faced by injured athletes, and practitioner skills for working with this population. The workshop used an ACT framework to approach case formulation and practitioner intervention and was delivered by the primary researcher (a chartered sport and exercise psychologist) with assistance from another experienced sport and exercise psychologist with expertise in supporting injured athletes. The practitioner to facilitator ratio was 4:1.

Summary. The total length of the workshop pilot 1 was approximately 3.5 hours, and covered the above material with opportunities for practitioner input and discussion throughout. Feedback was collected in the form of pre- and post- workshop questionnaires and a brief focus group following the workshop, both of which are further discussed below.

4.3.3 Development Workshop Pilot 1 Evaluation

4.3.3.1 Development Workshop Pilot 1 Focus Group Feedback

A focus group style interview was conducted with practitioners following the development workshop (pilot 1) and lasted approximately 36 minutes. Focus group interview data were transcribed and analysed using Reflexive Thematic Analysis to identify first order themes and sub themes. Two general dimensions of ‘Skills’ and ‘Knowledge’ are explored in tables 4.3 and 4.4 below.

Table 4.3: Development Workshop Pilot 1, General Dimension – Skills

General Dimension: Skills		
First Order Theme	Sub Theme	Quotation
Practitioner Skills	Applying Skills	<i>'I know the pain stuff and I think I know the stages and the potential issues and interventions there ... [but] when do you go to the pain stuff'</i> D1P2
		<i>'an understanding about where you might you know put that... when would I use certain things, what am I looking out for to know when to use that certain metaphor'</i> D1P3
	Examples of Skills	<i>'I feel like maybe more like actionable examples and stuff would be really helpful'</i> D1P1
		<i>'the case formulation just in general... you could follow it along to sort of get all that information I really enjoyed that bit'</i> D1P4
		<i>'I think it [the avoidant behaviour roleplay] was useful'</i> D1P5
	Chance to Practice Skills	<i>'yeah [the case formulation] worked quite nicely'</i> D1P3
		<i>'to watch you do it with somebody and then like right have a go ... partly because it- it breaks it up and separates it from just becoming a lecture if you know what I mean'</i> D1P5
Clear Purpose	Understanding	<i>'definitely I think the slide where you said about what are you trying to achieve kind of pieced it all together so, all the stages after that you kind of bring it back to what you're trying to achieve so that was really concise'</i> D1P1
	Application	<i>'the information on the screen was fine but then I couldn't really make that connection to what it looks like'</i> D1P6

Two themes were created under the general dimension of 'Skills'; 'Practitioner Skills' and 'Clear Purpose'. The sub themes under the theme of 'Practitioner Skills' revealed a need for more time focussing on practice of the psychological skills covered in the workshop. Practitioners felt they had a clear understanding of why intervention was needed for injured athletes, what the purpose of psychological intervention in the rehabilitation process might be, and what the intervention might include. However, there was a strong call for more emphasis on how practitioners themselves might apply those skills in practice, and what interventions might look like. As exemplified by one practitioner; *'having the opportunity to do which we didn't have so much of today'* (D1P4). When asked about the most impactful part of the workshop, the roleplays and interactive elements including case formulation, avoidant behaviour and mindful movement were reported as being the most useful. The demonstrations provided by the researcher and research supervisor were reported

to have been particularly helpful; *‘the visualisation for me was really strong, that was one thing that really stood out and helped me just understand it and see it step by step’* (D1P6). This supports recommendations for training to be delivered by practitioners with applied experience (Wylleman et al., 2009). The interactive tasks were also suggested to help with engagement as they broke up the information provided. Table 4.4 below explores the general dimension of ‘Knowledge’.

Table 4.4: Development Workshop Pilot 1, General Dimension – Knowledge

General Dimension: Knowledge		
First Order Theme	Sub Theme	Quotation
Balance of Content	Theory and Background	<i>‘I think it [the amount of theory] was- I think it was perfect really’</i> D1P2 <i>‘[the balance of mental health and injury] seemed right to me’</i> D1P2 <i>‘the RETURN maybe at the end in terms of giving people a bit more of a structure is probably the most relevant bit of theory’</i> D1P2
	Application to Practice	<i>‘I thought it was really good the detail in terms of like recognising depression anxiety disordered eating really good idea for those like indicators’</i> D1P2
	Additional Content	<i>‘you touched in at the start on chronic injuries ...what’s different about chronic injuries’</i> D1P2 <i>‘one of the things that I think I would struggle to spot is like gambling addiction... perhaps an addiction [case study]’</i> D1P2 <i>‘I was thinking doing like career ending injuries like how do you navigate that’</i> D1P6
Presentation of Content	Clear Structure	<i>‘everything else was really clear in terms of the ACT erm which skills you’d put in each stages I found that really helpful’</i> D1P6 <i>‘I would say it’s [understanding stages of injury] better ‘cause you broke it down in each stage and you done it twice we went back on it like acute stage and then rehab cause at first we were like, we weren’t too sure but then we went through it as a group it became much clearer’</i> D1P7

There were two themes created under the general dimension of ‘Knowledge’; ‘Balance of Content’ and ‘Presentation of Content’. The workshop structure was reported as being clear and logical, with an appropriate balance of theory and information about application. Practitioners reported that the workshop established the rationale for post-injury intervention and that the psychological risks for athletes were made clear;

‘for people ... who haven’t really understood that there’s a mental health consequence of injury, which could be a lot of people who are going to do this course... I think

that there's enough... I think the research as well anchors it actually when you came back with the percentages' D1P5.

Practitioners reported there was enough content on the main areas of injury, ACT, mental health and pain, with requests for more specific information on chronic injuries, career ending injuries, and addiction. Mental health understanding was reported to have been particularly useful, however without the necessary therapeutic skills practice to address this, this does not completely address the recommendations of research (Prior, Papathomas & Rhind, 2025; Quartiroli & Wagstaff, 2024). Structuring the workshop around the stages of injury and repeating those stages was reported to be helpful in aiding understanding of the process of injury rehabilitation and how intervention might follow that process. The workshop was thought to have contextualised the information in a useful way for practitioners, and made clear how the empirical evidence was relevant to their practice; *"cause it's not just knowledge now, we have put it onto a context' D1P7.* This feedback suggests that the workshop content and design at this stage provided sufficient information on the mental health risks of injury to allow practitioners to understand the rationale for post-injury intervention, and that the information was delivered in such a way that they could appreciate its relevance for their practice, as recommended for CPD training (Neimeyer, Taylor & Cox, 2012).

4.3.3.2 Development Workshop Pilot 1 Questionnaire Feedback

Questionnaire data were analysed to ascertain differences between pre- and post-intervention scores. As the sample is small no tests of power or significance are appropriate, but the results informed the development of the workshop and identified any areas that may have needed additional time and/or explanation.

The purpose of the intervention is to improve practitioners' understanding of the psychology of injury, and equip them with skills to apply that knowledge to their practice to enable them to effectively support injured athletes. In order to gauge understanding practitioners were asked to rate their overall understanding of the psychology of injury on a scale from 0-10. Average scores at pre-test were 5.375, and 8.286 at post-test, an increase of 54.1%. Similarly, in order to understand whether the workshop equipped practitioners with the skills to effectively support athletes, practitioners were asked to rate their overall confidence in working with injured athletes on a scale from 0-10. Average scores at pre-test were 4.625, and 7 at post-test, an increase of 51.35%.

Practitioners were asked to rate their confidence in being able to recognise some of the common psychological and behavioural consequences of injury on a scale of 0-10. The results are shown in figure 4.2 below.

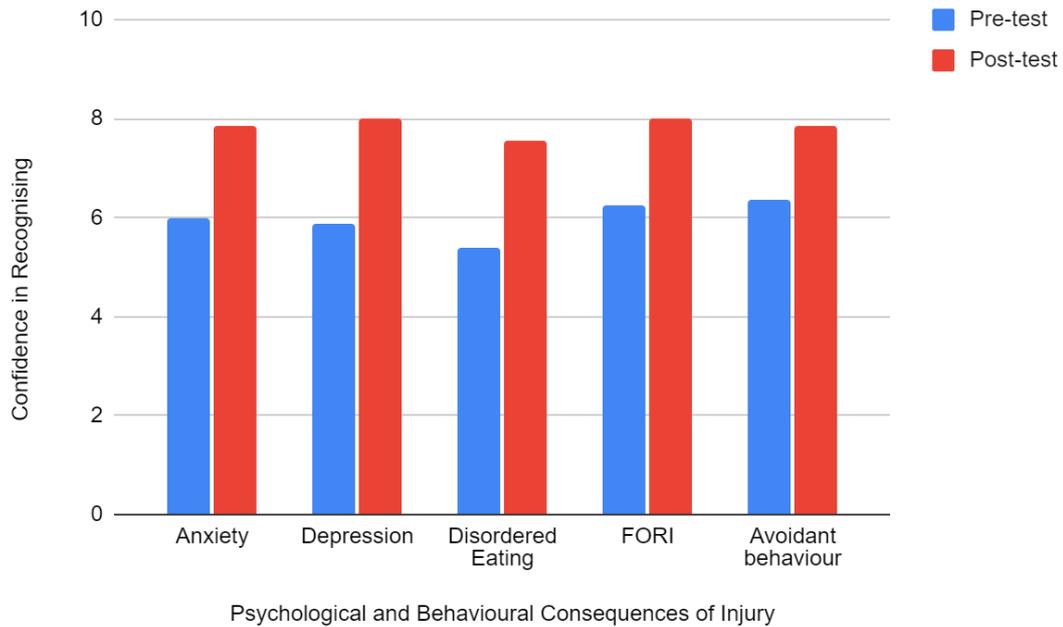


Figure 4.2: Mean Scores of Confidence in Recognising Common Psychological and Behavioural Consequences of Injury

Figure 4.2 shows that confidence in being able to recognise common behavioural and psychological consequences of injury increased from pre- to post-test. Percentage changes ranged from 23.25% increase (avoidant behaviour) to 40.86% increase (disordered eating). This supports feedback from the focus groups, that the workshop improved understanding of the mental health implications of injury for athletes.

4.3.4 Development Workshop 1 Practitioner Reflections

This first iteration of the workshop provided a lot of information on injury, the rehabilitation journey, and the potential mental health consequences of injury. This was my first experience of presenting a professional workshop to colleagues and peers, and while this was an intimidating experience initially, as the workshop went on I found the experience similar to presenting other workshops and felt more comfortable. The material was, naturally, very familiar to me, and I was able to answer questions and provide additional context on the information presented on the slides without difficulty. On reflection, the delivery was probably too fast passed in the early stages, and I asked ‘does that make sense?’ after several explanations, in an effort to reassure myself that the material was being understood and that my explanations were sufficient, though in hindsight this was unnecessary. The response from practitioners was positive, and this gave me confidence that the final training would be suitable for practitioners and worthwhile for them to attend (Kirkpatrick & Kirkpatrick, 2006).

While the content was well understood, the slides could have been more engaging and varied. One practitioner asked for more information on concussion, and following discussion with my supervisor after the workshop it was clear that additional material on trauma would help to contextualise and anchor the discussion on avoidant behaviour and also tie together some of the mental health material.

One practitioner remarked after the focus group: *'You've given me really useful information, but what do I actually do?'* and this question highlighted the fact that the workshop was missing critical practical examples of interventions, and the opportunity to practice those interventions. Experiential learning is vital to professional development (Hutter et al., 2009; Wylleman et al., 2009) but this was missing from this first iteration of the workshop, and needs to be addressed as a priority in the development process. This workshop provided academic learning, but not practical learning. Without the experiential learning, it is much harder for practitioners to translate the academic learning into practice, therefore limiting the changes in professional practice that may result from the training (Kirkpatrick & Kirkpatrick, 2006). This also serves to hold in place, rather than address the research-practice gap in this area (Evans & Brewer, 2022). The next development workshop must therefore seek to provide opportunities for both therapeutic skills practice and feedback from myself and the research supervisor in order to address the current imbalance between knowledge and skills.

4.3.5 Development Workshop Pilot 1 Critical Takeaways

- Feedback regarding the balance of content and the structure of the workshop suggests that the content was clear, accessible, and relevant for this population.
- Information on concussion was missing from the workshop.
- While the information on stages of rehabilitation and psychological challenge was clearly linked, more information on what to do in practice at each of the stages was needed.
- Additional content regarding trauma would help to link the behavioural and psychological challenges with the antecedents and ACT processes.
- As the pilot population were practicing sport psychologists, developing therapeutic skills should be a key consideration, and was clearly a missing piece for this first iteration of the workshop.
- It is interesting to note that despite the call for more therapeutic skills in the workshop, practitioner confidence in supporting athletes (application of the practical skills) increased by 51.35%, a similar increase to practitioners' reported understanding of the psychology of

injury. Given the feedback in the focus group, a far smaller increase in the practical application scores might have been expected.

4.4 Development Workshop Pilot 2

The evaluation of workshop pilot 1 demonstrated that there was a need for more practitioner skills training in ACT, rather than simply an overview of ACT as a therapeutic modality applicable to injury. Therefore, the focus of the second iteration of the development workshop (pilot 2) was specifically to pilot therapeutic skills content.

4.4.1 ACT Therapeutic Skills Content Design

ACT is concerned with improving psychological flexibility through developing psychological skills to enable individuals to 'open up', 'be present' and 'do what matters' (Harris, 2019a; Hayes, Strosahl & Wilson, 2011). Thus, the workshop focused on teaching the practitioners a range of ACT therapeutic skills which would enable them to work with injured athletes throughout rehabilitation. In order to provide a therapeutic solution to mitigate psychological distress and improve rehabilitation outcomes for injured athletes, ACT skills were discussed, demonstrated, and then roleplayed by practitioners with feedback from facilitators. The purpose of this was to provide a 'safe space' for practitioners to develop new therapeutic skills, and facilitate experiential learning with both peer and expert feedback (Hutter et al., 2009; Wylleman et al., 2009). Suggestions were provided for how, when and why these skills might be introduced to injured athletes throughout the rehabilitation journey. Each of the six core ACT processes, plus case formulation, were linked to the four stages of injury where they might be most applicable, though it was emphasised throughout that ACT is a flexible framework and each of the processes and skills discussed could be applied flexibly throughout the rehabilitation journey according to the presenting needs of the client.

Stage 1 (Acute) - Case Formulation. Case formulation is essential in any therapy, and ACT approaches case formulation in terms of unworkable action and establishes meaningful behavioural goals (Wilson et al., 2004). ACT is a contextual therapy and calls for understanding of the function of behaviours in context, and an individual's patterns of behaviour (Hayes, Strosahl, Luoma, Smith & Wilson, 2004). The acute stage of injury is associated with emotions of shock, anger, fear, confusion and helplessness (Carson & Polman, 2008; Tracey, 2003). The acute phase is often short-lived, and athletes may need time and space in this stage to process their change in situation. For practitioners, developing an ACT case formulation at this stage is essential, enabling insight into the athlete's previous experience of injury and trauma, which may impact their response to the injury experience (Porges et al., 1994). The case formulation process also allows for insight into the athlete's athletic identity (Edison, Christino & Rizzone, 2021), which may facilitate understanding of avoidant

behaviour. Gathering information on previous mental health concerns can help establish whether there are any specific risk factors or previously learned coping skills, and therefore additional mental health screening may be appropriate (Rao & Hong, 2015). A case formulation template was provided (see appendix 4.3).

Stage 2 (Rehabilitation) - Contacting the Present Moment, Committed Action and Cognitive Defusion. The rehabilitation stage is process of slow improvement often defined by feelings of boredom, frustration, loss, anger and discomfort (Heijne et al., 2008; Clement et al., 2015; Tracey, 2003). Rehabilitation adherence is often impacted by the psychological response to injury (Podlog et al., 2014), therefore at this stage, it was suggested that committed action is introduced to facilitate rehabilitation adherence. Cognitive fusion produces behavioural responses to uncomfortable thoughts and feelings without conscious awareness (Hayes, 2004), which hinders committed action. It is fusion to difficult thoughts and feelings that leads behavioural patterns to becomes rigid or narrow, and what leads athletes to choose behaviours which are unhelpful in the long-term. Thus, ACT practitioners aim to de-fuse clients from their thoughts and emotions and help them move towards workable behaviours. Cognitive defusion broadens the behavioural repertoire (Wilson et al., 2004) and makes committed action more likely to be successful. In order to enact defusion, athletes need to be aware of the thoughts and feelings that are impacting their behaviour, thus contacting the present moment is also an essential skill (Smith et al., 2019). Therefore, to help athletes with committed action, it was suggested that defusion skills and contacting the present moment skills are prioritised by practitioners in the early stages of rehabilitation. Practitioners need to be competent in helping athletes develop these skills in the service of the goal of improving psychological flexibility.

The rehabilitation stage varies in duration depending on injury, but it is usually the longest stage of the injury journey, providing practitioners with ample opportunity to introduce multiple different skills. Tools for practitioners were provided to help them work on each of these ACT processes with athletes. These included the 'Choice Point' (Harris, 2019a) to explore committed action (see appendix 4.4), the 'Sushi Train' metaphor (Harris, 2019b) to illustrate defusion, and 'Mindful Movement' practices (Clark, Schumann & Mostofsky, 2015) to cultivate mind-body connection, introduce mindfulness skills, and improve rehabilitation quality.

Setbacks - Acceptance and Self-As-Context. Acceptance and Self-as Context were both introduced as they relate to setbacks during rehabilitation. While this stage is addressed between stages 2 and 3, setbacks can happen at any time during the rehabilitation journey, and are linked to similar emotional responses as the acute stage. Practitioners were made aware that setbacks are also a time of increased psychological vulnerability, with decreased athletic performance,

depression, and loss of athletic identity, which are all increased risk factors for suicide in athletes (Datoc, Horne & Goldne, 2020). Self-as-context creates a distinction between thoughts, feelings, and the self, a remedy to the conceptualised self and fusion with self-descriptors such as 'I am a failure' (Blackledge & Barnes-Holmes, 2009; Hayes, Pistorello & Levin, 2012). Acceptance allows for the approach, rather than avoidance of situations which trigger difficult thoughts and feelings, and is a key process facilitating committed action (Blackledge & Barnes-Holmes, 2009; Hayes, Pistorello & Levin, 2012). Acceptance is particularly relevant for practitioners to facilitate for athletes at the setbacks stage, as it allows the awareness of thoughts and feelings without the attempts to change their form or frequency, reducing experiential avoidance and the need for disputation of difficult thoughts about an objectively difficult situation (Hayes, 2004; Richardson, 2020). Practitioners were introduced to the 'compassionate hand' practice (Harris, 2012) to facilitate acceptance and self-compassion in their clients, and several self-as-context metaphors were provided to help practitioners explore this concept with athletes (Harris, 2017).

Stage 3 (Return to Training) - Mindful Movement and Visualisation. The return to training stage is a time of increased fear of reinjury (Tripp et al., 2007). In order to both assess and remedy fear of reinjury, mindful movement and visualisation practices are suggested at this stage. While not an ACT process itself, visualisation practices present-moment awareness in the attention to physical and emotional responses to an imagined (or practiced) action. It is a useful tool to improve athlete attitudes to returning to training (Borg, Falzon & Muscat, 2021), and is facilitated by mindfulness skills previously introduced in the rehabilitation stage.

Stage 4 (Return to Competition) – Values. At the return to competition stage, fear of reinjury remains an important consideration for practitioners, but competitive anxiety and comparison to pre-injury performance are also likely to occur (Bianco, 2001; Clement et al., 2015; Heil, 1993; Hsu et al., 2017; Podlog & Eklund, 2006). At this stage, practitioners are encouraged to introduce values, as these provide a stable source of motivation and positive reinforcement for athletes (Blackledge & Barnes-Holmes, 2009). Helping athletes identify their personal values, and how these values might help them pursue committed action in the face of anxiety and comparison to both pre-injury self and competitors, are key skills for practitioners at this stage.

4.4.2 Development Workshop Pilot 2 Overview

Following the feedback from workshop pilot 1, the second iteration of the workshop (pilot 2) was designed and run with a group of practitioners. An overview of workshop pilot 2 can be found in table 4.5. This section will go on to describe the content, delivery, data collection and evaluation of practitioner feedback in detail.

Table 4.5: Overview of Development Workshop Pilot 2

Design	Delivery	Feedback
<p>Content:</p> <ul style="list-style-type: none"> Interactive and practical exercises Explored the ‘how’ of psychological intervention with injured athletes 	<p>Participants:</p> <ul style="list-style-type: none"> Four of the original eight attendees of pilot 1 <p>Duration:</p> <ul style="list-style-type: none"> Approximately 3 hours 	<ul style="list-style-type: none"> Addressed concerns from pilot 1 regarding lack of applicable skills Delivered in a clear and coherent structure Provided valuable opportunities to practice skills

In response to the feedback from the first development workshop (pilot 1), all practitioners who attended pilot 1 were invited to attend a follow-up workshop specifically focussing on building the practical ACT therapeutic skills. The purpose of this pilot was to enhance the development of practitioner skills using the therapeutic modality of ACT with injured athletes. Each of the ACT skills was presented in line with the stages of rehabilitation in order to address the key psychological challenges that commonly present in each stage, and included both a demonstration of the skill by facilitators and the opportunity for practitioners to practice skills themselves in pairs. This provided an opportunity for experiential learning with feedback from expert facilitators and peers (Hutter et al., 2017; Wadsworth et al., 2024).

The table below (4.6) provides an overview of the content of the second pilot workshop and the interactive activities included. As the practitioners from workshop pilot 1 were invited to attend the second pilot, background information was not covered. The aim of this workshop was specifically to pilot therapeutic skills content.

Table 4.6: Development Workshop Pilot 2 Content

Slides	Topic	Activity	Approximate Proportion
1-79	As in Development Workshop 1 (see table 4.1)		37.5%
80-86	Rationale for Intervention		60%
87- 92	Stage 1 Intervention	Case Formulation	
93-111	Stage 2 Intervention	Mindfulness Demonstration Mindful Movement Practice in Pairs Committed Action Demonstration & Practice Defusion Demonstration & Practice	
112-116	Setbacks Intervention	Acceptance Demonstration & Practice	
117-125	Stage 3 Intervention	Visualisation Demonstration & Practice Unhooking Skills Practice	
126-130	Stage 4 Intervention	Values Demonstration & Practice	
131-133	Conclusions		2.5%

Delivery. Workshop pilot 2 mirrored the structure of the latter half of pilot 1, but with an additional six interactive practitioner skills tasks, to facilitate the development of ACT congruent therapeutic skills. Practitioners were provided with case study frameworks in order to guide roleplays (see appendix 4.8), and suggestions of different ACT skills to be practiced. This workshop took place one week after workshop pilot 1 and lasted approximately 3 hours.

Participants. Four of the original eight practitioners attended pilot 2. The presenter was assisted by an experienced facilitator, therefore the practitioner to facilitator ratio was 2:1.

Data Collection. A short focus-group style interview was conducted immediately following the workshop. The interview was semi-structured and used the same prompting questions as workshop pilot 1 (see section 3.4.3.2 for more details). The pre- and post- workshop questionnaire was not used therefore no additional quantitative data were collected.

4.4.3 Development Workshop Pilot 2 Evaluation

4.4.3.2 Development Workshop Pilot 2 Focus Group Feedback

A focus group interview lasting approximately 20 minutes was conducted with three of the four practitioners (the fourth was unable to take part in the interview due to personal commitments), the findings of which are explored below. The general dimensions of ‘Knowledge’ and ‘Skills’ were again created from this data and are explored in tables 4.7 and 4.8 below.

Table 4.7: Development Workshop Pilot 2, General Dimension – Skills

General Dimension: Skills		
First Order Theme	Sub Theme	Quotation
Practitioner Skills	Navigating Conversations	<i>‘... it was really good to sort of navigate the conversations and then sort of start to implement where the metaphors come in, the why the metaphor and then the skill ... having like- like a semi structure ... sort of knowing how to navigate a one-to-one and case formulation so it was really useful’ D2P1</i>
	Skills in Practice	<i>‘...implementing it into like a case study and sort of understanding right this is where it goesand it's that how it all links up and I think going through each stage as well and what you would do in each stage and obviously other examples was really useful’ D2P2</i>
	Applied Knowledge	<i>‘...I think it has so much value...I think this level of kind of engagement is so so useful even if you've been doing it already just to kind of revisit things’ D2P3</i>
Learning	Exposure to New Situations	<i>‘...like coming out of your comfort zone a little bit’ D2P1</i>
		<i>‘...I could do this loads of times and each time I'd get something else out</i>

	<i>of it' D2P2</i>
Perceived Impact	<i>'I think after the first one... now that we've done this bit I would probably say ... [confidence] would have been about a five or a six I understood why... from the psychoeducation stuff...but like now doing the practitioner skills I would say like maybe a seven...eight like because just because we've done the roleplaying and gone through the skills and the metaphors... and the case study...and joined everything up' D2P1</i>

Table 4.7 explores the general dimension of 'Skills', with the first order themes of 'Practitioner Skills' and 'Learning'. Sub-themes derived from the focus group data included the navigation of conversations, the application and practice of practitioner skills, exposure to new situations and a perceived impact on their practical skills and confidence in their ability to apply those skills. As reported by practitioners:

'I think it's really really valuable and an opportunity that a lot of people don't have so I think anybody who attends, a lot of- a lot of learning will come from it especially on the skills side of things' (D2P3)

'...I think doing the skills and understanding where you sort of segue into erm it makes sense knowing ACT and sort of how it all relates [to injury] ... the theory was really good and really useful but then this has just like taken it up a notch for me' (D2P1)

This feedback suggests that the workshop was successful in improving the practical skills of the practitioners who attended, contributing to the workshop meeting recommendations for CPD (Neimeyer, Taylor & Cox, 2012; Quartiroli & Wagstaff, 2024). This evidence supports the value of the practical exercises and practitioner roleplay work that was included in this iteration of the workshop. Again, there was support for the lived experience of the researcher and research supervisor having been useful to practitioners;

'...on the paper and the courses I've done they literally tell you what you want to hear ... but then the reality is that's not how it works and if we don't have the exposure to having these ... scenarios where you can act it out then and you guys being here to help us you're not going to be able to get any further' D2P2

The feedback on the benefits of this additional practical content were areas that were reported to be missing from the first iteration of the workshop. When asked whether the second iteration of the workshop addressed practitioners' concerns raised after the first workshop, the response was positive; *'Yeah definitely' (D2P1), 'Yeah definitely' (D2P2)*. Practitioners felt the workshop allowed them to not only practice navigating conversations with injured athletes, but also to apply ACT skills flexibly and effectively. Practitioners reported that the tasks were useful and fitted well with the material covered in the first pilot workshop.

Practitioners in this second workshop felt they may have been overconfident in their previous assessment of their confidence in being able to support injured athletes, but that following this supplementary workshop they felt their skills had improved. As reported by one practitioner:

'...I think the psychoeducation stuff and just learning about the stages of injury last week I scored it maybe higher than I thought I should have looking back... now this week although I've got so much information about how to navigate it' D2P2

This may provide some insight into the high scores for confidence supporting athletes following the first workshop, which were unexpected given the perceived lack of practical skills practice.

Table 4.8 explores the general dimension of 'Knowledge', and the first order themes 'Presentation of Information', 'Workshop Materials', and 'Practical Considerations'.

Table 4.8: Development Workshop Pilot 2, General Dimension – Knowledge

General Dimension: Knowledge		
First Order Theme	Sub Theme	Quotation
Presentation of Information	Intervention Framework	<i>... I think having the clear stages and what is incorporated in each stage but also understand the flexibility ... it was really beneficial' D2P1</i>
Workshop Materials	Case Studies Provided	<i>'yeah I think it's sometimes difficult when you're on the spot and you're trying to roleplay so when we had some key sort of points for each stage...was really useful and I think then the person who was being the practitioner got more out of it...' D2P1</i>
	Suggestions for Take-Home Materials	<i>'something like the sushi train [skill] it's kind of within the workbook the link to the sushi train to like watch it again maybe also a script for the sushi train' D2P3</i>
Practical Considerations	Facilitator Involvement	<i>'...people who are like at the top end of the field like overseeing so having that and having eyes on you and getting the sort of the navigation and the advice it was really helpful' D2P1</i> <i>'[facilitator presence] was helpful' D2P2</i>
	Workshop Length	<i>'...although you could maybe do it in one day it would be a lot easier and beneficial for trainees if it was over two days just 'cause it is quite a lot' D2P2</i>

As with the first pilot workshop, the material was structured and presented in line with the stages of injury, which practitioners reported made content easy to follow and helped them build a picture of how intervention would develop throughout the injury journey; *'...I think the way it's set out ... going through each stage as well and is really clear' (D2P2)*. Practitioners reported that the feedback on the practical exercises from the researcher and research supervisor were helpful in their

learning (Hutter et al., 2009; Wylleman et al., 2009), and expressed concern that in a larger group this would be lost;

'...if you want to keep the actual skills practice in if you also have people in the room that are doing it for the first time ... there was a huge component of [facilitators] being able to walk you through things' (D2P3)

This demonstrates the value of the workshop being presented by experienced practitioners (Wylleman et al., 2009), but also brought the researcher's attention to the ratio of facilitators to practitioners, which had not previously been considered. Practitioners also suggested that a 'take home' resource including some of the workshop content would be helpful for them moving forward. As requested by one practitioner: *'...how I'd navigate a conversation if we were doing this metaphor with this skill ...you're not going to follow that exactly but it sort of gives you [a guide]'* (D2P1). This resource was subsequently created and disseminated (see appendix 4.6).

One concern which was raised was the length of the workshop, once the theory and practitioner skills were combined. Two practitioners suggested the material be delivered over two sessions, rather than the planned one-day workshop; *'you might need two six-hour days...'* (D2P3). This was thought to represent a significant additional demand on both practitioners and researchers, and could possibly present a barrier to recruitment, due to the time involved. The feasibility of the one-day workshop format was therefore investigated in development pilot 3.

4.4.4 Development Workshop 2 Practitioner Reflections

This workshop was substantially different from the first workshop, which was very much information-based, and felt more like a lecture. The purpose of this second development iteration was to run the applied tasks 'live' to make sure they were suitable and gauge what timings would be appropriate for each task. This involved roleplays, task explanation, guiding practitioners, and feeding back on their practice. Again, this presented a new challenge for me, as my first experience of giving feedback to other practitioners in a formal setting. My previous experiences of giving other practitioners feedback during my supervised practice peer-support had been more informal, though I feel I took on this challenge with confidence, and with the support of my research supervisor. The feedback from practitioner was again positive, and there were several comments that while the workshop may have pushed them out of their comfort zone, it had also helped them feel more prepared to use some of the skills taught in the workshop in their own practice.

My research supervisor and I roleplayed two of the tasks before asking practitioners to try it themselves in pairs. However, it became clear over the course of the workshop that all exercises would need a roleplay example before practitioners tried it themselves. While some practitioners were clearly comfortable with the ACT interventions and used them fluently, others struggled to

grasp the task and as discussed with my supervisor, examples would help this process. This also raised the question of how many facilitators would be needed to provide a meaningful level of feedback in a larger group, something that may also be dependent on the experience levels of practitioners attending. With all this considered, the question of whether the workshop was suitable for practitioners who had never encountered ACT was an important one. After further discussion with one of the practitioners who had attended, my supervisor and I agreed that if all the practical tasks were demonstrated, and there were appropriate facilitator numbers (approximately a 1:6 ratio), that most practitioners would be able to try the tasks and gain valuable learning experiences.

On a practical level, the tasks took longer than expected. In hindsight, it would have been useful to time each individual task to guide future workshop timings, but this was not considered beforehand. The key question remaining is whether the workshop is possible as a one-day event. I feel very strongly that a one-day workshop is preferable to a two-day event, both in terms of practitioner time commitment, the potential for practitioner drop-out, and my own time commitment. The next iteration of the development workshop will therefore combine both the information focussed development workshop 1, with the more task focussed development workshop 2, in a full-day workshop to ascertain whether a one-day format is possible.

4.4.5 Development Workshop Pilot 2 Critical Takeaways

- This workshop was created in response to feedback from pilot 1 to address the reported lack of time to practice ACT skills. Practitioners felt that pilot 2 addressed these concerns and facilitated development of practitioner skills and understanding of the application of those skills with an injured athlete population.
- As this was a follow-up workshop with the same practitioners as pilot 1, no quantitative pre- or post-test data were collected. However, practitioners discussed during the focus group that they felt pilot 2 had increased their awareness of their own ability to apply skills in supporting injured athletes. While they reported pilot 2 had increased their confidence in this regard, it also made them re-assess how they scored their confidence in applying skills following pilot 1. This may provide an explanation as to why scores for confidence in supporting injured athletes increased in line with scores for understanding of processes of injury, despite the perceived lack of practical skills in pilot 1.
- Pilot 2 was again structured in line with the stages of injury, which practitioners reported was clear and easy to follow.
- In response to feedback, information on concussion was added to the injury background and theory, and the concussion case study replaced by a different scenario.

- Practitioners requested that a resource was created for them to take away and use as a reference in future practice.
- Practitioners were unsure whether a workshop combining pilot 1 and 2 was achievable as a one-day workshop. There was support for a two-day workshop format, however this would increase the demand on both researcher and practitioner time commitment.
- In order to ascertain whether a one-day format was feasible, a third pilot (pilot 3) was conducted.

4.5 Development Workshop Pilot 3

4.5.1 Development Workshop Pilot 3 Overview

Following the feedback from workshop pilots 1 and 2, the third iteration of the workshop (pilot 3) was designed and run with a group of practitioners. An overview of pilot 3 can be found in table 4.9. This section will go on to describe the content, delivery, data collection and evaluation of participant feedback in detail.

Table 4.9: Overview of Development Workshop Pilot 3

Design	Delivery	Feedback
Content: <ul style="list-style-type: none"> • Combined 'Knowledge' delivery from Pilot 1 with 'Skills' Delivery from Pilot 2 • Additional content on Concussion and Trauma included Design: <ul style="list-style-type: none"> • Checked structure worked and was feasible for a one-day delivery 	Participants: <ul style="list-style-type: none"> • 5 practitioners, of whom 4 were trainees and one experienced practitioner Duration: <ul style="list-style-type: none"> • Full Day (Approximately 6 hours) 	<ul style="list-style-type: none"> • Improved both understanding and confidence in supporting injured athletes • Provided valuable opportunities to practice skills • Follow-up feedback collected from one practitioner at 3 months post-pilot

4.5.2 Development Workshop Pilot 3 Content Design

4.5.2.1 Additional Content for Development Workshop Pilot 3

The background of models of injury, stages of injury, mental health impact of injury, and ACT basics remained unchanged from pilot 1. In response to feedback, additional content covering concussion was added at the end of the 'Stages of injury' section, and information on trauma responses was added to the psychoeducation content, and integrated with pain theory (see below for details). The application of ACT congruent therapeutic skills to the stages of injury and interactive practitioner skills tasks from pilot 2 was integrated into the second half of pilot 1 to create pilot 3.

There was an increased emphasis on the practical skills section and therefore the balance of content was adjusted.

Concussion. Concussion is an important topic to have awareness of as a sport psychologist, but does not follow the same ‘stages of injury’ as musculoskeletal injuries. Concussion injuries progress differently from musculoskeletal injuries, with uncertain prognosis, huge variety in presentation and few visible signals of injury (Covassin et al., 2017). Concussion is associated with neurological challenges which are not associated with musculoskeletal injuries such as decreased cognitive performance (Kontos et al., 2012), and can cause mood disturbances such as increased depression and anxiety (Yang et al., 2015). There is some evidence that concussions are associated with increased suicidal ideation (Ellis et al. 2015). Repeated concussions are associated with the degenerative brain condition chronic traumatic encephalopathy (CTE), though the evidence is not yet clear about the strength of this association (Barr, 2020).

Trauma. Trauma-informed care has been shown to improve patient outcomes in clinical settings (Williamson & Kautz, 2018), and therefore an understanding of the physical and psychological impacts of trauma is crucial for psychologists working in injury rehabilitation. Not all sports injuries are traumatic, but previous experience of trauma can impact coping responses, and even incidence of injury; adverse childhood experiences (ACE) are associated with higher occurrences of traumatic brain injury in later life (Ma et al., 2019). Trauma (including vicarious trauma) has been associated with re-experiencing and avoidant coping (Day, Bond & Smith, 2013), both symptoms of PTSD and clearly relevant for injured athlete rehabilitation.

Practical Skills. In order to guide practitioners for practical activities, ‘case guides’ were created and given to practitioners before the interactive activities (see appendix 4.8). These provided fictional case outlines which practitioners could use to inform roleplays, however all practitioners were also given the option of creating their own ‘persona’ for role plays. Researcher notes to guide roleplay demonstrations can be found in appendix 4.5.

4.5.2.2 Development Workshop Pilot 3 Content Overview

This third pilot comprised a one-day workshop lasting approximately 6 hours and combining the content of pilots 1 and 2. The table below (4.10) provides an overview of the content of the third pilot workshop and the interactive activities included.

Table 4.10: Development Workshop Pilot 3 Content

Slides	Topic	Activity	Approximate Proportion
1-3	Introduction		2.5%
4-12	Injury Overview		
13-20	Stages of Injury	Stages of Injury Worksheet	15%
21-33	Psychological Impact of Injury	Case Studies	
34-35	Concussion		
36-51	Trauma & Pain		20%
52-65	ACT Overview		
66-75	Understanding Behaviour	Role Play (Demonstrated)	
76-80	Rationale for Intervention		60%
81-87	Stage 1 Intervention	Case Formulation	
88-107	Stage 2 Intervention	Mindfulness Demonstration Mindful movement in Pairs Committed Action Roleplay Committed Action in Pairs Defusion Roleplay Defusion in Pairs	
108-114	Stage 3 Intervention	Visualisation Demonstration Visualisation in Pairs Unhooking Skills in Pairs	
115-119	Stage 4 Intervention	Values Roleplay Values in Pairs	
120-124	Setbacks Intervention	Acceptance Demonstration Acceptance in Pairs	
125-127	Conclusions		2.5%

Delivery. A break for lunch was included following slide 75, and other breaks were included as needed through the day. The workshop lasted approximately 6 hours.

Participants. Practitioner recruitment for workshop pilot 3 included both trainees and experts in the field of sport psychology. This pilot had 5 attendees, of whom four were trainee practitioners (mean experience 2.25 months) and one was an expert, with a professional doctorate in sport psychology. One of the practitioners had attended pilot 1, but not pilot 2. The assistant facilitator had been a practitioner in pilots 1 and 2 and volunteered to assist with pilot 3. The feedback from the assistant facilitator was included in the focus group as they had valuable insight into the evolution of the workshop, having attended all iterations. The practitioner to facilitator ratio was 5:3.

Data Collection. Pre- and post-workshop questionnaires were completed in the same way as pilot 1 (see section 3.4.3.1 for details). No questions were removed, but one question was added for pilot 3, asking practitioners to rate their understanding of ACT on a scale of 1-10 (1 being 'no understanding', 10 being 'full understanding'). A focus group interview was conducted immediately following the workshop, following the same interview guide as in pilots 1 and 2 (see appendix 3.6).

4.5.3 Development Workshop Pilot 3 Evaluation

4.5.3.2 Development Workshop Pilot 3 Focus Group Feedback

Following workshop pilot 3, practitioners took part in a focus group style interview lasting approximately 25 minutes. The key feedback from the focus group for pilot 3 was organised into two general dimensions, that which ‘Addressed Previous Concerns’ and that which built on and ‘Agreed with Previous Feedback’. These are explored in tables 4.11 and 4.12 below. The first general dimension ‘Addressed Previous Feedback’ is explored in table 4.11 below, including the two first order themes ‘Practical Considerations’ and ‘Workshop Content’.

Table 4.11: Development Workshop Pilot 3, General Dimension - Addressed Previous Feedback

General Dimension: Addressed Previous Feedback		
First Order Theme	Sub Theme	Quotation
Practical Considerations	Workshop Length	<i>‘It hasn’t felt long’</i> D3P2
		<i>‘It doesn’t feel long I thought...’</i> D3P4
Workshop Content	Role Plays	<i>‘I felt like this session was less overwhelming because of the roleplays’</i> D3P3
	Videos	<i>‘The role plays [were memorable] ...like oh I remember when RS and PR discussed that and then ask [an athlete] about that kind of thing’</i> D3P4
		<i>‘I liked the videos though...I thought they were quite useful’</i> D3P4

The feedback regarding workshop structure from practitioners following workshop pilot 3 suggests that the changes to the workshop content and structure were helpful. Practitioners reported that the workshop was not too long; *‘It worked to put them both [pilots 1 and 2] together ... I think the way that you’ve dialled it in it flows really nicely’* (D3AF). This quotation was from the assistant workshop facilitator, who had attended both of the previous workshop iterations as a practitioner, and had previously raised concerns about the length of the workshop. Having seen the workshop presented as a one-day CPD, they were confident that the one-day format was appropriate. Practitioners also reported that the addition of the roleplays and practical exercises helped make the information more engaging and memorable; *‘I feel like I was more engaged...because you just done the role plays with RS and then went back onto more knowledge ... it just helped me stay more into it’* (D3P3). This suggests that the roleplay exercises not only helped improve practitioners’ therapeutic skills, but also made the workshop more engaging and broke up presented material.

Table 4.12 explores the second general dimension ‘Agreements with Previous Feedback’. This general dimension encompassed two first order themes, ‘Knowledge’ and ‘Recruitment’

Table 4.12: *Development Workshop Pilot 3, General Dimension - Agreements with Previous Feedback*

General Dimension: Agreements with Previous Feedback		
First Order Theme	Sub Theme	Quotation
Knowledge	Clearly presented	<i>‘I think you explained [the core processes of] ACT quite well yourself...it was split up quite easily to follow ... you explained it in like a simple way... yeah easy to follow’</i> D3P4
	Join the dots	<i>‘...it just brings it to life a lot more...I guess more of the flow to it ... with the way you’ve broken it up it’s quite easy to work out like where the stumbling blocks might be...and like linked it up better’</i> D3P1
	Information	<i>‘I think you had a good amount of information that wasn’t too overwhelming’</i> D3P2
Recruitment	Target Audience	<i>‘still think there needs to be a disclaimer that you have to have some existing knowledge of ACT’</i> D3AF

The feedback from practitioners following workshop pilot 3 aligned with feedback following previous pilot workshops. Several practitioners reported that the workshop was effective at presenting the therapeutic framework (ACT) in an accessible way:

‘...relational frame theory...I have never had anyone explain it better than you have explained it...honestly like I have always found that really difficult to wrap my head around...like the philosophy of it and the way you explained it I think is so...good especially for a beginner’ D3P2

While it was not a specific aim of the workshop to teach ACT as a therapeutic method in itself, it was encouraging that the workshop presented the underlying theory in an accessible way that allowed practitioners with various levels of experience working with ACT to engage with the practical skills.

Practitioners reported that the content was clearly presented, and appropriate for the level of practitioner in the room, while helping practitioners ‘join the dots’ between theory and practice and helping them feel more able to apply the information in their work. As reported by one practitioner; *‘it’s not necessarily a massive difference in like how I view it but ... I maybe feel far more equipped to go and action it with others...’* (D3P1). This suggests the practical exercises were effective in helping practitioners feel ready to incorporate the knowledge into their practice. The consideration of how to ‘market’ the workshop was also discussed, again to ensure that

practitioners attending did not expect the workshop to teach ACT as a therapy, but rather to apply existing ACT skills in a new way.

4.5.3.3 Development Workshop Pilot 3 Questionnaire Feedback

The pre- and post-test questionnaires were administered in the same way in pilot 3 as pilot 1. As the sample is small no tests of power or significance are appropriate, but the results are nonetheless interesting to consider in conjunction with the qualitative feedback.

The purpose of the intervention is to improve practitioners' understanding of the psychology of injury, and equip them with skills to apply that knowledge to their practice to enable them to effectively support injured athletes. In order to gauge understanding practitioners were asked to rate their overall understanding of the psychology of injury on a scale from 0-10. Average scores at pre-test were 4.8, and 8.0 at post-test, an increase of 66.67%. Similarly, in order to understand whether the workshop equipped practitioners with the skills to effectively support athletes, practitioners were asked to rate their overall confidence in working with injured athletes on a scale from 0-10. Average scores at pre-test were 4.8, and 7 at post-test, an increase of 45.83%.

Table 4.13: Percentage Change of Self-Rated Understanding Pre- to Post-test for Pilots 1 and 3

Question	Pilot 1			Pilot 3		
	Pre-Test Average (0-10)	Post-Test Average (0-10)	Percentage Change (%)	Pre-Test Average (0-10)	Post-Test Average (0-10)	Percentage Change (%)
Overall Understanding of Injury	5.375	8.286	154.15	4.8	8.0	66.67
Confidence in Supporting Athletes	4.625	7	151.35	4.8	7	45.83
Understanding of Stages of Injury	5.75	9	156.52	4.8	8.2	70.83
Understanding of Psychological Impact	7.125	8.571	120.30	5.8	8.4	44.83
Understanding of Pain	5.875	8.286	141.03	4	7.8	95.00
Understanding of Adherence	5.625	8.286	147.30	5.4	8.2	51.85
Understanding of ACT				6.2	7.6	22.58

Five of the six repeated measures showed higher percentage increase for pilot 3 than pilot 1 (see table 4.13). Practitioners in pilot 3 were less experienced on average, with 9.8 months of experience (including the 'expert' practitioner) compared to 13.75 months average experience for practitioners in pilot 1. This may have contributed to the increased scores for pilot 3, as practitioners

with less experience reporting generally lower scores at pre-test might be expected to gain more understanding from a workshop of this nature than more experienced practitioners.

The one measure that showed more of an increase in pilot 1 than 3 was confidence in supporting injured athletes. This might seem unexpected, as pilot 3 included the therapeutic skills training that were absent from pilot 1. However, the feedback from pilot 2 suggested that those practitioners who attended the additional practical skills training re-assessed their confidence levels and reported that they felt their post-test rating following pilot 1 was 'overconfident'. The fact that pilot 3 included the practical skills training may have helped those practitioners have a more 'realistic' understanding of their abilities.

The question '*How would you rate your understanding of Acceptance and Commitment Therapy (ACT)?*' was added to pilot 3 in response to feedback from pilots 1 and 2. The purpose of the workshop is to help practitioners who already have an understanding of ACT as a framework to understand how they might work with injured athletes using that framework. The purpose of the workshop is not to teach practitioners ACT. It is therefore in line with the purpose of the workshop that the scores for ACT understanding increased to a lesser extent than all other scores.

The biggest difference in percentage change from pilot 1 to pilot 3 came in understanding of pain for injured athletes. The average scores overall were lower in pilot 3 than 1 but showed an increase of 95%, compared to 41% in pilot 1. This may be attributed to the lower starting scores, but the addition of the 'trauma' section including polyvagal theory linked to pain science is another possible source of the increase. Dedicating more time to the topic overall and also linking it to other theories may have led to greater improvements in understanding. When considered in combination with the qualitative feedback that the workshop '*linked it up better*' (D3P1), this suggests that the addition of the trauma section was helpful for practitioners' understanding of pain.

4.5.4 Development Workshop 3 Practitioner Reflections

This third workshop was the third time I had presented to peers, and I found myself much more comfortable in my delivery, better able to judge the pace of delivery, and more confident in explaining and feeding back on practical tasks. The case guides I had created as prompts for practitioner roleplays appeared to be helpful in giving practitioners a starting point for their roleplay, and this helped the tasks to work more smoothly and within a shorter timeframe than in the second development workshop. While it felt from my point of view like a very long (and tiring) day, the feedback from practitioners was that they hadn't found it 'too much', and that they were able to take on all the information and enjoyed the practical exercises. This was aided by the final structure of the workshop in line with the stages of injury – these were first covered in the morning, to frame

the different psychological challenges of the different stages. This structure was repeated in the afternoon with the practical tasks and roleplays, which helped to tie information together, emphasise the story and the process of injury and make the workshop coherent.

My supervisor and I roleplaying each task before asking practitioners to try it themselves appeared to be really beneficial for practitioner understanding and therefore the quality of the experiential tasks was better than in the second development workshop. This third workshop also gave me the confidence that I am the best person to deliver the workshop, as both my theoretical and practical knowledge of injury and the realities of supporting injured athletes as an integrated part of an MDT were vital in answering practitioner questions and providing context.

I feel confident that the workshop had positive reactions from practitioners, resulted in meaningful learning (both of knowledge and skills) and has the potential to change practitioner behaviour and deliver results in the future. Both the data collected during the development workshops and the informal feedback from being in the room and chatting to practitioners reinforces that the final workshop will be fit for purpose and receive positive evaluation in both practitioner reaction and learning.

4.6 Iterative Codesign Process: Conclusions

4.6.1 Key Lessons from Design and Development Process

4.6.1.1 Content

- The slides, teaching materials and exercises were all well received by practitioners and well understood. These same slides and exercises were therefore taken forwards into the workshops with only minor changes where necessary.
- A resource was developed to summarise the key information from the workshop and provide practitioners with a 'take home' reference (see appendix 4.6).
- The addition and prioritisation of practical exercises such as the practitioner roleplays was a key addition to the pilot and was seen by practitioners as a valuable part of the workshop which facilitated learning and engagement.
- Feedback on perceived understanding and practitioner reflections both suggested that including more theoretical information around polyvagal theory and trauma both improved understanding of pain theory and how the information may be used in practice to support athlete understanding of the topic. While the aim initially was to keep the workshop as focussed as possible on the topic of injury, providing brief overviews of the theory of these related topics helped practitioners develop a more holistic understanding of the athlete

experience, and how those experiences might impact work moving forward. These additions to the content were well received and carried forward into the subsequent IACT workshops.

4.6.1.2 Delivery

- A key question going in to the piloting process was whether it was practical to cover all the necessary material in a single day without it being an overwhelming amount of information and/or length of time for practitioners to be able to engage with. Following the development process, the decision was made that a full day workshop was both practical for delivery and appropriate for practitioners.
- There was due consideration given to the delivery of the workshop. There was some concern that having the primary researcher deliver the workshop could compromise the quality of the research given the potential for ‘researcher effects’. In addition, the primary researcher had limited experience of leading CPD level workshops prior to the piloting process. However, the feedback from practitioners during the development process was that the delivery was appropriate, engaging and clear. Practitioners also felt that the professional experiences of the researcher were helpful in providing context around topics such as working within an MDT. This aligns with the recommendations of previous research (Wylleman et al., 2009). This personal experience, as well as the researcher’s experiences of both injury and working with injured athletes, was considered to outweigh the potential disadvantages, however reflexivity was a key consideration and will be revisited when considering the analysis process (Berger, 2015).
- Delivery of the three subsequent IACT workshops was guided by the slide deck, presentation notes made during the development process, and a role-play guide which can be seen in appendix 4.5. These ensure all IACT workshops follow the same format, and that the experience is broadly similar across dates and venues. The recruitment process did not control for the experience level of practitioners attending each workshop, and the different practitioners attending each workshop may impact the experience as a whole (based on interactions, questions, etc.). This was reflected on following each workshop and the data collected were analysed to ascertain whether the practitioners’ training can be considered to be of the same quality across workshops.

4.6.1.3 Recruitment

- A significant talking point in the focus groups was how to advertise the workshop appropriately to ensure the practitioners who attend get the most out of the workshop and that the content is pitched appropriately. A key point is that ACT is clearly referenced in the title, and it is clear from the outset that the workshop does not aim to teach ACT as a

practice framework in a single day, but rather help practitioners apply their existing knowledge of ACT to a new population. The title of the workshop was therefore 'Using ACT with injured athletes', and it was stated in the recruitment information that '*Experience using ACT is useful, but not essential*'. This was intended to make it clear to practitioners that the workshop focussed on using ACT skills with a specific population, rather than teaching ACT as a skill itself.

- The small group sizes and low facilitator to practitioner ratio in the piloting process were an advantage in being able to respond to individual questions and provide personal feedback during practical exercises. Attendance at the workshops was therefore capped at 15 practitioners, and if more than 10 practitioners were to attend, there would be three facilitators in order to achieve a good standard of interaction and feedback. A minimum of two facilitators were present at all workshops in order to demonstrate practical exercises and provide feedback, and the maximum practitioner to facilitator ratio was set at 5:1.

4.6.1.4 Data Collection

- There were minor changes to the pre- and post-workshop questionnaire throughout the piloting process. The question '*How would you rate your understanding of ACT?*' was added for pilot 3, to not only assess any changes in understanding (though this is not the primary purpose of the workshop) but also collect data on collective understanding of ACT in the event that this is significantly different between workshops. To align the questionnaire with the content of the workshop, the question '*How would you rate your understanding of Trauma?*' was added to the questionnaires for the main study.
- Due to the inherently individual nature of psychological interventions and each practitioners' personal approach to their work with clients, it was not practical to provide a standardised intervention plan for practitioners' work with injured athletes moving forwards. Instead, the focus was on how practitioners used the information and skills learned from the workshop and integrated them into their work, and how they felt that work subsequently impacted athletes. All practitioners received follow-up emails with a 'take home' resource including key information from the workshop, and a case formulation template. This resource can be found in appendix 4.6.

4.7 Iterative Design and Development Summary

The first research objective was to design and develop a CPD training that was fit-for-purpose and met the needs of practitioners. This chapter has detailed the iterative development process of the workshop, which took into account both the expertise of the researcher and research

supervisor, and the feedback of end-user practitioners to coproduce an effective training workshop. This rigorous design and development process resulted in a CPD workshop which meets the needs of practitioners by covering therapeutic skills, mental health and evidence-based practice (Quartiroli & Wagstaff, 2024). It delivered relevant training to facilitate best practice and encouraged accountability for maintaining professional competence and protecting service users (Neimeyer, Taylor & Cox, 2012). The feedback from all development workshops indicates that practitioners had a positive reaction to attending the workshop, finding it engaging and worthwhile. While data from the first development workshop showed increases in practitioners self-reported understanding and confidence measures, the focus-group feedback highlighted that this learning was knowledge-based, and that skill development was lacking. The second development workshop addressed this deficit, and the data collected around the third development workshop highlighted practitioner perception of both knowledge and skill development. This feedback and self-reported improvements in confidence and understanding prepared practitioners to use the information provided. This makes behaviour changes more likely at follow-up and provides evidence that the developed workshop has the potential to be effective in contributing to closing the research-practice gap in the psychological support of injured athletes (Evans & Brewer, 2022).

The final workshop resulting from the design and development process is titled 'Using ACT with injured athletes', however for simplicity is referred to as Injury informed ACT (IACT) from this point onwards. The slides for the final IACT workshop can be found in appendix 4.7.

Chapter 5: IACT Workshop Evaluation

5.1 Introduction

This chapter focusses on the second research objective, the evaluation of the IACT workshop as professional training for sport psychologists, and practitioner perceptions of the immediate impacts of the workshop on the practitioners who attended. The aim of this evaluation is to ascertain whether the IACT workshop was delivered appropriately and whether it achieved the workshop aim of equipping practitioners with the necessary skills and knowledge to be able to better support long-term injured athletes. This chapter will therefore consider the data in terms of skills and knowledge. The process of designing and developing the IACT workshop can be found in Chapter 4. The long-term application and perceived impact of the IACT workshop will be considered in Chapter 6.

5.1.1 IACT Workshop Delivery & Participants

The same IACT workshop was delivered three times, across two different locations. Participants at all IACT workshops were qualified sport and exercise psychology practitioners, or on accredited training routes, and will be referred to as 'practitioners' throughout. The IACT workshop was first conducted at Brunel University London and had a total of 5 practitioners, with a mean practice experience of 3.7 years (44.4 months) ($SD = 5.3$ years, 63.44 months). The IACT workshop was also conducted at the University of Glasgow, in collaboration with the Scottish Sport and Exercise Psychology Network, and had a total of 5 practitioners, with a mean practice experience of 3.1 years (37.2 months) ($SD = 3.1$ years, 37.08 months). The IACT workshop was finally conducted again at Brunel University London and had a total of 7 practitioners, with a mean practice experience of 1.3 years (16.1 months) ($SD = 1.2$ years, 14.61 months). The mean practice experience across all three workshops was 2.6 years (30.6 months) ($SD = 3.3$ years, 39.94 months), for further participant information see Chapter 3 section 3.4.2.

5.1.2 Data Collection & Analysis

Evaluative feedback on the IACT workshop was collected in several different ways, each of which are considered in turn, with full details of data collection methods in Chapter 3 section 3.4.3. Practitioners were given details of the study at the point of recruitment (see appendix 3.2 for participant information sheet), were provided with a participant information sheet and brief overview of the project verbally on arrival and gave informed consent before contributing any data. First, pre- and post-workshop questionnaires were completed (see section 3.4.3.1), second, focus group interviews were conducted at the end of each workshop (see section 3.4.3.2), third,

practitioner notes were recorded following each workshop (see section 5.3.4). Additional feedback was collected incidentally in the follow-up interviews 3- and 6-months post-workshop (see section 3.4.3.3). All of these sources are considered in turn in order to evaluate the IACT workshop as a CPD for sport and exercise psychologists.

Data for IACT workshops one, two and three were combined and analysed as one dataset. There was not considered to be a significant difference in the quality of the workshops or the demographic of practitioners attending the different workshops to necessitate differentiation between the workshops (see section 3.4.2). There was no significant difference in changes in understanding or confidence between the three workshops, as determined by one-way ANOVA for both overall understanding of the psychology of injury ($F(2,30)=1.542, p=.230$), and confidence in supporting injured athletes ($F(2,30)=.623, p=.543$). This data confirms that the delivery was consistent across the three workshops, as supported by researcher reflections (see section 5.2.4) and demonstrates rigour in the methodological delivery. Quantitative data were analysed using independent samples t-test. Qualitative data were analysed using Reflexive Thematic Analysis (for further details on analytic process see Chapter 3 section 3.4.4).

5.2 IACT Workshop Evaluation: Results

5.2.1 *Questionnaire data*

In this section, the data from pre- and post- questionnaires are explored, starting with the expectations of the training, followed by self-reported confidence and understanding measures, and finally the key learnings from the workshop.

5.2.1.1 Questionnaire: IACT Workshop Expectations

The pre-workshop questionnaire asked practitioners what they were hoping to gain from the session. While there was insufficient data from the open-ended questions in the questionnaires to conduct a full analysis using RTA, data were organised in a similar way for the sake of consistency. Responses were organised into the first order themes of 'Knowledge' and 'Skills', as outlined in table 5.1.

Table 5.1: Questionnaire Data - IACT Workshop Expectations

First Order Theme	Sub Theme	Raw Data
Knowledge	Current Empirical Evidence	<i>'up-to-date empirical & theoretical knowledge'</i> W2 <i>'To refresh my knowledge of injury literature'</i> W3
	Psychological Impacts of Injury for Athletes	<i>'Upskill on the psychology of injury and injury rehabilitation - I have read up on it to some extent but was not covered in my MSc.'</i> W3 <i>'strategies to identify early warning signs, red flags, education around fear of reinjury'</i> W2
	A Specific Protocol to Support Injured Athletes	<i>'A better understanding of ACT specific to injury and a protocol for working with injured athletes'</i> W2 <i>'a comprehensive protocol (or foundations of) to help work with injured athletes'</i> W3
Skills	Improved Support for Injured Athletes	<i>'How better to support the injured athletes I am currently working with'</i> W1 <i>'Understand more about how I can better utilise my support and adapt how to support certain situations and individuals'</i> W3
	Applying ACT Techniques with Injured Athletes	<i>'To learn about how to support injured athletes using ACT specifically.'</i> W3 <i>'Practical understanding of how to apply ACT with injured athletes during and after rehab'</i> W1 <i>'Furthering my knowledge of ACT through application to the context of injury'</i> W3

These responses fell broadly in line with the content of the IACT workshop, suggesting practitioner expectations were aligned with the planned aims, and that the workshop had been advertised appropriately and connected with an appropriate audience. This was a significant concern raised in the piloting stages, and the title and advertising of the workshop had been amended to address this. These responses also align with what the research suggests sport psychologists need from professional development; specifically, therapeutic skills and relevant, up to date information to deliver evidence-based practice (Neimeyer, Taylor & Cox, 2012; Quartiroli & Wagstaff, 2024).

5.2.1.2 Questionnaire: Understanding and Confidence

The evaluative workshop questionnaire asked practitioners to rate their understanding of injury and related topics, and their confidence in being able to support injured athletes and

recognise some of the psychological issues which commonly impact them. Descriptive statistics for understanding (knowledge) and confidence (skills) can be found in tables 5.2 and 5.3 below.

Table 5.2: Understanding Items (Descriptive Statistics)

Item	Pre			Post			Percentage change (%)
	<i>n</i>	Mean	SD	<i>n</i>	Mean	SD	
Understanding of injury overall	16	5.63	1.586	17	7.94	1.144	41.18
Understanding of Stages of Injury	16	5.00	2.129	17	8.24	1.251	64.71
Understanding of psychological impacts of injury	16	6.50	2.000	17	8.41	1.372	29.41
Understanding of issues affecting Rehabilitation Adherence	16	5.75	1.983	17	7.65	1.057	32.99
Understanding of Pain	16	5.13	1.996	17	7.59	1.278	48.06
Understanding of Trauma	16	4.56	2.128	12	6.92	1.379	51.60
Understanding of ACT	16	5.94	1.879	17	7.59	1.326	27.80

Practitioners were asked to rate their understanding of injury overall, and of specific topics relevant to injury, on a scale of 0-10 (0 being ‘no understanding’, 10 ‘full understanding’). All measures showed an increase in practitioner understanding, with the largest increase in understanding of the stages of injury (64.7%) (see figure 5.1). The workshop was structured according to the stages of injury, with both empirical evidence and practical exercises linked to the stages of injury for which they were most relevant. This emphasis on the changing landscape of the injury journey may have contributed to practitioner understanding of this area.

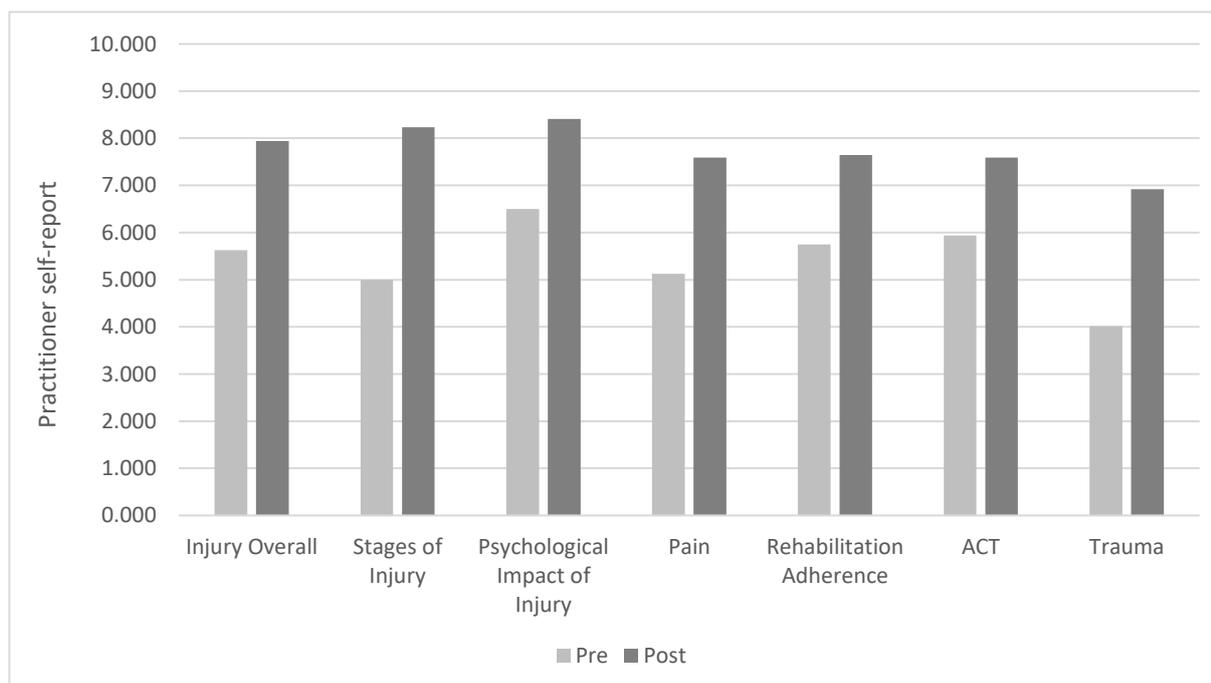


Figure 5.1: Changes in Understanding

The smallest increase was found in the scores for understanding of ACT (27.8%). Increasing understanding of ACT as a therapeutic modality was not an explicit aim of the workshop, but rather the application of practitioners' existing understanding to the specific context of injury rehabilitation, which may account for the lower increase in this area. Understanding the psychological impacts for athletes had the highest average score both before (6.5) and after (8.41) the workshop, with a percentage increase of 29.41%.

Table 5.3: Confidence Items (Descriptive Statistics)

Item	Pre			Post			Percentage change (%)
	<i>n</i>	Mean	SD	<i>n</i>	Mean	SD	
Confidence in supporting injured athletes	16	5.44	2.190	17	7.35	1.801	35.23
Confidence in Identifying Anxiety	16	6.38	1.893	17	7.82	1.334	22.72
Confidence in Identifying Depression	16	6.13	2.062	17	7.76	1.751	26.77
Confidence in Identifying Disordered Eating	16	5.44	2.056	17	7.29	1.759	34.14
Confidence in Identifying Fear of Re-Injury	16	6.69	2.056	17	8.06	1.519	20.51
Confidence in Identifying Avoidant Behaviour	16	6.19	1.797	17	7.88	1.409	27.39

Practitioners were asked to rate their confidence in being able to identify athletes struggling with specific psychological issues relevant to injury, and their confidence in being able to effectively support an injured athlete on a scale of 0-10 (0 being 'no confidence, 10 'full confidence). The largest percentage increase came in the confidence to effectively support an injured athlete (35.23%), which was one of the central aims of the workshop (see figure 5.2). The smallest percentage change came in confidence of identifying fear of reinjury (20.5%), though this measure had the highest mean scores before (6.69) and after (8.06) the workshop.

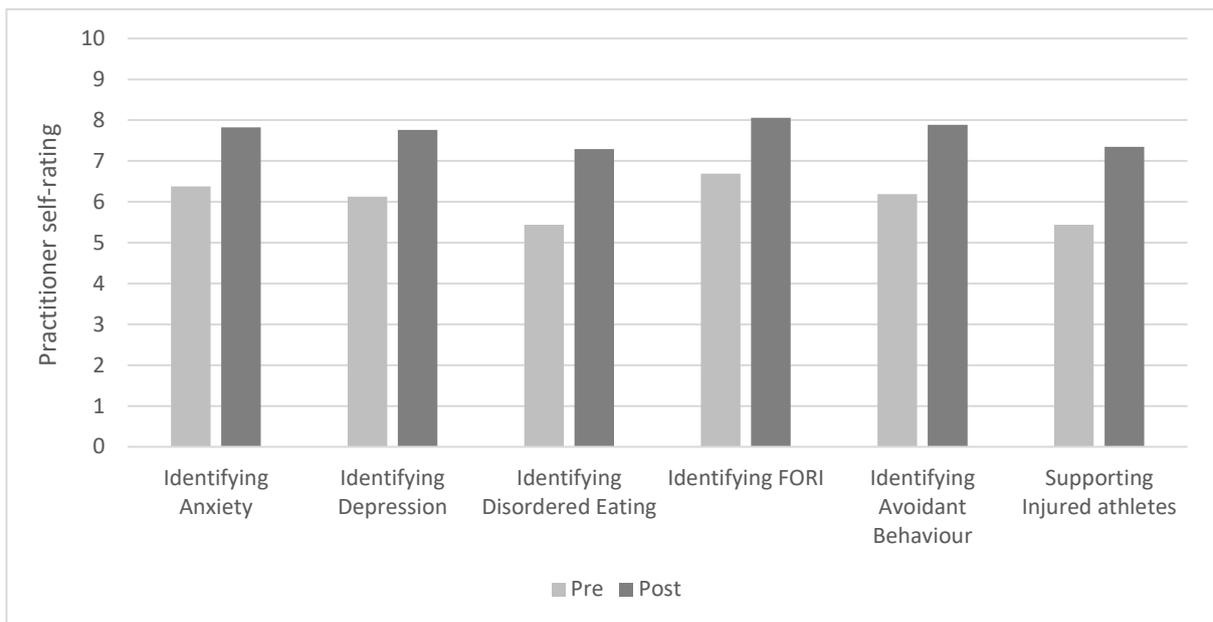


Figure 5.2: Confidence in Identifying Common Issues and Supporting Injured Athletes

The percentage increases for confidence measures were lower than understanding measures on the whole, which speaks to the difference between having the knowledge of an issue and being able to apply that knowledge in a practical setting.

An independent samples T-Test was performed to compare the means of the responses to practitioner confidence and understanding questions asked pre- and post- workshop (see table 5.4). A paired samples T-test could not be performed as data was provided anonymously and one practitioner completed only the post-test questionnaire.

Table 5.4: Changes in Understanding and Confidence - Effect Size

Item		<i>n</i>	Mean	SD	Levene's test Sig	t-statistic	Df	p-value	Effect size (Cohen's d)
Understanding of injury overall	Pre	16	5.63	1.586	.240	-4.833	31	<.001	-1.683
	Post	17	7.94	1.144					
Understanding of Stages of Injury	Pre	16	5.00	2.129	.019	-5.280	23.965	<.001	
	Post	17	8.24	1.251					
Understanding of psychological impacts of injury	Pre	16	6.50	2.000	.157	-3.219	31	.003	-1.121
	Post	17	8.41	1.372					
Understanding of Rehabilitation Adherence	Pre	16	5.75	1.983	.069	-3.458	31	.002	-1.205
	Post	17	7.65	1.057					
Understanding of Pain	Pre	16	5.13	1.996	.044	-4.194	25.277	<.001	
	Post	17	7.59	1.278					
Understanding of Trauma	Pre	16	4.56	2.128	.155	-3.335	26	.003	-1.273
	Post	12	6.92	1.379					
Understanding of ACT	Pre	16	5.94	1.879	.177	-2.931	31	.006	-1.021
	Post	17	7.59	1.326					
Confidence in supporting injured athletes	Pre	16	5.44	2.190	.439	-2.752	31	.010	-.958
	Post	17	7.35	1.801					
Confidence in Identifying Anxiety	Pre	16	6.38	1.893	.275	-2.554	31	.016	-.889
	Post	17	7.82	1.334					
Confidence in Identifying Depression	Pre	16	6.13	2.062	.460	-2.468	31	.019	-.860
	Post	17	7.76	1.751					
Confidence in Identifying Disordered Eating	Pre	16	5.44	2.056	.127	-2.786	31	.009	-.970
	Post	17	7.29	1.759					
Confidence in Identifying Fear of Re-Injury	Pre	16	6.69	2.056	.295	-2.188	31	.036	-.762
	Post	17	8.06	1.519					
Confidence in Identifying Avoidant Behaviour	Pre	16	6.19	1.797	.322	-3.025	31	.005	-1.054
	Post	17	7.88	1.409					

There was a significant difference in practitioners' rating of their confidence and understanding on all items ($p < 0.05$) between pre- and post-workshop measures. Cohen's *d* effect size was calculated by hand for the 11 of 13 items that met the threshold for Levene's test of homogeneity of variance (> 0.05). There were large effect sizes (≥ 0.8) for all items except 'Confidence in identifying fear of reinjury', which showed a medium effect size (≥ 0.5), though as discussed, this item also had the highest confidence on the pre-test scores. Practitioners' reported understanding of

the psychological impacts of injury had the second smallest percentage increase (29.4%), however this item received the highest ratings in the ‘understanding’ measures both before (6.5) and after (8.41) the workshop. Practitioners who already have an interest in the psychological impacts of injury would have self-selected to attend the workshop, therefore the high scores in this area might be expected, and the scores still showed a significant increase, suggesting the workshop succeeded in improving understanding in this area, even for practitioners with an existing interest.

5.2.1.3 Questionnaire: Key Lessons

In the post-workshop questionnaire, practitioners were asked what they had taken away from the IACT workshop. Responses fell into the first order themes of ‘Knowledge’ and ‘Skills’ outlined in table 5.5.

Table 5.5: Questionnaire Data - Key Lessons

First Order Theme	Sub Theme	Raw Data
Knowledge	Current Empirical Evidence	<i>‘Up to date evidence & theory, practical exercises’ W2</i>
	Importance of Support	<i>‘The huge mental health impacts of injury really hit home for me through this workshop. It’s something you know by common sense, but when you see those numbers it really is shocking.’ W1</i>
	Understanding Aspects of Injury	<i>‘education in pain and trauma’ W2</i> <i>‘Broadening my awareness of psych challenges of injury beyond what I knew before (e.g. more in-depth understanding of trauma & pain)’ W3</i>
Skills	Applying ACT to Injury	<i>‘Learning about ACT and practical applications on and off the pitch’ W1</i> <i>‘Understanding specific approaches embedded in ACT how to help athletes’ W3</i> <i>‘effectively applying ACT as a framework for working with injured athletes, learning skills and techniques to break ‘walls’ down with athletes and to gain trust and rapport.’ W1</i>
	Therapeutic Skills Development	<i>‘The role-playing opportunities and the opportunity to view and ask questions around session delivery.’ W3</i> <i>‘Being able to practice supporting an athlete in role plays.’ W3</i> <i>‘Time to practice in a safe space’ W3</i>

These key lessons are broadly aligned with the expectations of the workshop discussed above. There was a significant emphasis on the roleplays and practical sections of the day, which was mentioned by eleven of the 17 respondents to the post-workshop questionnaire. Data collected

from the focus group interview expanded on the answers provided in the questionnaires, and is discussed below.

5.2.2 Immediate Focus Group Data

Semi-structured focus group style interviews were conducted immediately following each IACT workshop. The data from these interviews were analysed using RTA (see section 3.4.4) and three general dimensions were created; ‘Knowledge’, ‘Therapeutic Skill Development’ and ‘Future Application’. These general dimensions are discussed below.

5.2.2.1 Focus Groups: Knowledge

In the focus group interviews, practitioners discussed the knowledge they had gained from attending the workshop. The general dimension of ‘Knowledge’ contained two first order themes of ‘Specific Topics’ and ‘Linking Material’. These are explored in table 5.6 below.

Table 5.6: Focus Group General Dimension - Knowledge

General Dimension: Knowledge		
First Order Theme	Sub Theme	Quotation
Specific Topics	Injury-Related	<i>‘I thought the pain and trauma stuff was really interesting and probably- ‘cause it was the most complex information it was really accessible like I didn’t feel lost in it, I thought the videos as well were really explanatory so yeah that was really interesting’ W3P3</i>
	Mental Health	<i>‘I think the [injury and mental health] stats at the start was really good showing like the studies, and like prevalence of like risk factors, kind of sets the stage a little bit for why it’s important in the first place’ W1P1</i>
	Empirical Evidence	<i>‘I liked covering that [empirical evidence] stuff first, I think it was the right-right way round to do it ‘cause I think like you said those numbers are, higher than I think any of us thought so having that context adds a weight into what you then go on to do next and why it matters’ W1P3</i>
Linking Material	Linking ACT and Injury	<i>‘It’s very clear the different stages [of injury] and then the different [ACT] techniques you can use in those different stages.’ W1P2</i> <i>‘I think you did well to link everything to injury obviously that’s like the whole point of the workshop but sometimes just ler- like learning my craft as a practitioner it’s been hard to see where everything fits erm under ACT as in like injuries ... I think everything was well tied back to how to navigate through injuries if that makes sense’ W1P6</i>
	Signposting Stages	<i>‘The specifics of those stages [of injury] was something I was less familiar with... you’re aware of some parts of working with injured athletes but I didn’t have as much of that specific knowledge so having that first and then linking that all the way through I found really helpful’ W1P3</i>

‘also, just getting a bit of signposting as to like what parts of the hexaflex are relevant for different stages of injury’ W2P5

Integrating Performance *‘then actually the bits when they [athletes] are returning on the pitch more from that performance side ... sport psych skills and actually showing that side of when you work with athletes as well’ W1P2*

Practitioners found background information on injury, including pain and trauma theories, particularly useful. The empirical evidence included recent studies on the prevalence of different forms of psychological and behavioural disruptions experienced by injured athletes, and some of the different models which have been used to understand the injury experience for athletes (see section 4.2.1.1). Several practitioners also highlighted the linking of ACT skills to the stages of injury, and how that might help them navigate both the injury journey for athletes and also ACT as a therapeutic modality, as one practitioner discussed:

‘...I like ACT but I think the one that catches for a trainee an- ‘cause, ‘cause you can use it in any order really there isn't a right way or a wrong way that can sometimes be quite, erm... not intimidating but like a concern for trainees cause we're looking for like structure sometimes ...which is a good thing about ACT cause its very flexible but sometimes I'm like oh I dunno which way- which way round to do it or what order to do it ...but I, In that- in this work I didn't think that was an issue I think it was quite easily explained where things could be put in and- and why it was justified’ W1P1

Improved confidence in using ACT itself was not an explicit aim of the workshop, but it is interesting to see that for trainee practitioners providing a ‘roadmap’ of what skills might be useful at different stages of injury may help them navigate both the client journey and the therapeutic framework. This aligns with previous research suggesting that more training is needed for sport psychologists on both therapeutic skills and mental health (Quartiroli & Wagstaff, 2024; Winter & Collins, 2024).

5.2.2.2 Focus Groups: Therapeutic Skill Development

The second general dimension of ‘Therapeutic Skills Development’ contained three first order themes of ‘Observing’, ‘Practicing’ and ‘Practical Considerations’, which are explored in table 5.7.

Table 5.7: Focus Group General Dimension - Therapeutic Skill Development

General Dimension: Therapeutic Skill Development		
First Order Theme	Sub Theme	Quotation
Observing	Expert-Led Examples	<i>'... seeing you two work together and it was just really useful as you're the people with the experience and it helped I guess kind of place a lot of things in my mind... that it kind of gave me like that- that- almost like that 4D image of where they all fit together which was quite helpful' W1P4</i>
		<i>'I think watching [the facilitators] go through it helps a lot to actually see it done like in practice gives you some ideas of like how you could start to do it yourself' W3P1</i>
Practicing	Learning	<i>'It's useful to get that hands-on experience and also to see where other people are at with that as well because we are all just learning and it is, it is a useful experience to err to have so I did value that a lot' W1P4</i>
		<i>'This was a good um little taster to applying it you know specifically the role play exercises um and I think very helpful for me ... now having done those tasters to go away and actually just sort of practice it myself and then be ready to go with clients' W3P5</i>
	Linking Practice to Stages	<i>'Also really enjoyed like how we talked through and we did- like you did a little demonstration of the activity we got a chance to do- I think that just really consolidated ... so in terms of learning and taking it away, really helpful' W2P2</i> <i>'Also liked just like the space to practice was like really useful like you don't normally get like one topic and then be able to like practice all the way through I really like that and the fact that we didn't do it all at once we'd do it in like little sections was really helpful ... like I really appreciated like the space' W3P2</i>
Considerations	Timing	<i>'Maybe a little more time for it [roleplays] would be beneficial though... more time to like properly get into it cause you're almost just getting over the ...awkward stage then you're like right ok on to the next person and you're like ah I was just kinda getting a bit of a feel for it so I just wish there was more time to do some of the experiential stuff could be- could be beneficial I think as well' W2P1</i>
	Collaboration	<i>'...I liked working like col- collaboratively with one person 'cause it was more comfortable when we were doing the roleplays whereas [in a previous workshop] I think we- we swapped around a little bit where I felt less comfortable because I was having to kind of build rapport with each person where with [P4] like we were kind of working together so it was nicer?' W1P6</i>

Feedback from practitioners in all focus groups included discussion of the roleplays in the second half of the workshop; both the example roleplays conducted by the workshop facilitators,

and the roleplays which practitioners themselves practiced in pairs or threes. Feedback on the roleplay and interactive elements of the workshop was extremely positive, and one practitioner suggested at the end of IACT workshop 2 that they would have liked even more time dedicated to practicing with other practitioners. The combination of watching a roleplay between experienced practitioners and then having the opportunity to practice various skills in a roleplay format was thought to be crucial for learning and ‘bringing to life’ the ideas discussed earlier in the workshop. This supports the findings of previous research that both peer support and supervision are crucial to the development of neophyte practitioners, and connection with peers is an important process in professional development (Fogaça, Quartiroli & Wagstaff, 2024; Sharp, Hodge & Danish, 2021). This suggests that the changes made for the second pilot were valuable, and the large proportion of time dedicated to these practical exercises warranted on the basis of perceived practitioner impact and therapeutic skill development. In this regard the workshop was effective in cultivating competence in delivering ACT skills in practice, as recommended by Neimeyer, Taylor and Cox (2012).

5.2.2.3 Focus Groups: Future Application

Practitioners were asked what they had found most useful in the workshop, and how they felt they might take the information and skills from the workshop forwards into their work. The general dimension of ‘Future Application’ contained three first order themes; ‘Using Knowledge’, ‘Using Therapeutic Skills’, and ‘Working Collaboratively’. These themes are explored in table 5.8.

Table 5.8: Focus Group General Dimension - Future Application

General Dimension: Future Application		
First Order Theme	Sub Theme	Quotation
Using Knowledge	Injury	<i>‘I will use stages of injury as a conceptual framework to like kind of talk athletes through what they can expect um the pain psychoeducation piece as well erm and then also ...a lot of the good empirical data you gave earlier on like mental health outcomes that are associated with- with injury I think that is invaluable data to have and to like make reference to like if you’re working with coaches or an MDT for example’ W2P5</i>
	Information	
Using Therapeutic Skills	ACT Techniques	<i>‘I think the choice point will be really useful just to unpick things and like so doing it with them writing it down as they’re explaining things’ W1P2</i>
	Injury Specific ACT	<i>‘I like, the training in more specific applied context... ACT is really flexible where you kind of build up this like repertoire of stuff that you can kind of draw from ... so this, gave me some specific uses for ones I already knew or like new situations and some new activities new yeah new things to add to that repertoire that I have I think it’s great yeah’ W1P3</i>

		<i>'...also just getting a bit of signposting as to like what parts of the hexaflex are relevant for different stages of injury' W2P5</i>
		<i>'...and I work with injured athletes every day ... but there's definitely, there's a couple of players I'm already thinking of that some of this stuff would be u- really useful to work with and it's not stuff that I've done before or would have thought about applying with injured athletes so ... this is actually some good stuff that I can go away now and- and see how how they erm get on with it' W1P2</i>
Working Collaboratively	MDT Integration	<i>'Stuff like the mindful movement visualisation piece and you know going in to physio sessions with them and just helping educate the physios that way and do that could be a really easy way to make quite a lot of difference' W2P2</i>
		<i>'If you're doing that [visualisation and discussing pain] with S&C out there then actually they get to see that side of things as well and link the two and then be able to use some of those things as well with the athletes' W1P2</i>

Practitioners felt further training on both injury and ACT would be useful to them in their future practice, and also discussed how they felt better prepared to use ACT with injury. The training was therefore relevant to their practice, fulfilling a second recommendation for CPD (Neimeyer, Taylor & Cox, 2012). These were anticipated as being key learnings from the workshop. However, it is interesting that information regarding working more effectively with a multi-disciplinary team was also widely discussed as being a key take-away for several practitioners. Practitioners reported feeling 'armed' with more information and empirical knowledge;

'yeah there's a lot of good like actual scientific educational content there that had never even crossed my mind so to almost be like armed with that now or at least knowing that that's there I can go away and read up a bit more you know feel more informed have that conversation' W2P2

Practitioners felt this information would help them have different conversations with various MDT staff and be able to contribute more effectively to the MDT. The decision to have the researcher deliver the workshop was primarily due to the lived experience of the practitioner, and aligned with the use of the applied interpretive method and an integrated knowledge translation approach. The extensive experience of the researcher having practiced in MDT settings brought an authenticity to the importance of working with MDT professionals to support injured athletes. One practitioner reported that they had plans for working more collaboratively with other professionals:

'I think on that as well for me it made me think about so upskilling the physio but them actually upskilling me right what- what are they doing for rehab what are the exercises and how I can actually bring some of that into- so I know what the movements are which- and I- I- that can be part of the conversation' W2P1

Practitioners felt MDT information was a useful take-home from the workshop and reported that they found this personal from the researcher's experience valuable. This finding aligns with the recommendations of previous research (Haluch, Radcliffe & Rowley, 2022; Wylleman et al., 2009), and supports the assertion that a consideration of the practice context, including the MDT, is important for effective CPD.

Practitioners also discussed potential barriers to applying the information and skills from the IACT workshop in their future practice, including personal confidence, professional boundaries, and power imbalances. These barriers were all discussed in the second workshop's focus group, and barriers were not a significant theme in the other focus groups. The points raised by practitioners of the second workshop however are interesting to consider. None of the barriers discussed were specific to the content under discussion with regards to either injury or ACT, but may be more widely representative of barriers to sport psychology in general. Both professional boundaries and power imbalances are common sticking points in MDT working (McDougall, Nesti & Richardson, 2015), and feeling held back by a lack of confidence is a shared experience of many neophyte practitioners (Martin, Quartiroli & Wagstaff, 2021). The follow-up interviews ascertain that while professional relationships and boundaries had the potential to be barriers in practice (see Chapter 6 section 6.4.2.4), practitioner confidence was not a barrier to applying the new skills and knowledge in practice (see Chapter 6 section 6.2).

5.2.2.4 Focus Groups: Immediate Feedback Summary

There is congruence between research suggestions for practitioner CPD (Neimeyer, Taylor & Cox, 2012; Quartiroli & Wagstaff, 2024), pre-workshop expectations, self-report measures, and key learnings post-workshop, both anonymous and provided in the focus-group interviews. Subsequent reflection on the data suggests that meaningful learning resulted from the workshop in the short-term (Kirkpatrick & Kirkpatrick, 2006). This suggests that the workshop delivered on its aims, and provided useful training to practitioners working with injured athletes.

5.2.3 Practitioner Reflections on the IACT workshop at follow-up

The following data was collected during the follow-up interviews conducted 3- and 6-month post-workshop. The data pertinent to the evaluation of the workshop itself is included in this chapter as it contributes to understanding the second research objective of the delivery and evaluation of the IACT workshop as a professional training for sport psychologists. Practitioners discussed the training during follow-up interviews at 3- and 6-months post workshop. These reflections on the CPD day are discussed below, while other themes from the follow-up interviews are discussed in Chapter 6. Feedback on the workshops at follow-up interview was organised into

three general dimensions: ‘Knowledge’, ‘Therapeutic Skill Development’, and ‘Workshop Experience’. These are explored in tables 5.9-5.11 below.

5.2.3.1 Follow-Up: Knowledge

The first general dimension derived from the data was ‘Knowledge’ gained. Within this general dimension there are two first order themes; ‘Specific Topics’ and ‘Integrated Understanding’. These themes are explored in table 5.9 below.

Table 5.9: Follow-Up General Dimension - Knowledge

General Dimension: Knowledge		
First Order Theme	Sub Theme	Quotation
Specific Topics	Stages of Injury	<i>‘Um for me, it was knowing. Like what to see and what to practice during the different stages. Like I knew they existed, but I didn't know the amount of detail... That was quite informative and nice to know, like understand the athlete better in terms of their journey with it.’ W3P4FU1</i>
		<i>‘...like which kind of feelings are common in which area of or like what part of the like rehabilitation process as well... if I’m working with an athlete like all the way through... we're now in this stage like these are normal to feel in this stage like this is what we'll be dealing with... heads up...’ W3P3FU2</i>
	Empirical Evidence	<i>‘The main one that I use regularly is the the stats that you gave out cause like I think the ones that stick in head, but it's more just like to kind of assure people that are injured like this is normal that you're feeling like this like 80% of people like have the same feeling. So like it'd be weird if you didn't feel like this...’ W3P3FU2</i>
	Trauma & Pain	<i>‘... well the pain theory bit that definitely stuck out. The whole idea of like, yeah, you know, pain is kind of like a thing that's created in the brain. Whereas yeah, it's not- nothing is in like inherently painful in a weird way that definitely stuck out, and I thought was really helpful to understand.’ W3P6FU1</i> <i>‘Um I think one of the one of the things that's kind of stuck with me is the discussions around pain and actually the importance of acknowledging that that's a conversation that needs to be had and not all pain's the same... quite often I think it's overlooked and as well, especially as thinking of some of the athletes I've worked with that. They're just like oh suck it up and crack on.’ W2P2FU2</i>
	FORI	<i>‘...the fear of re injury stuff actually has definitely been quite a big deal ... I spend a lot of time speaking to the injured players ... and there's been a couple of instances already where ... coaches have kind of asked me to speak to a player because they feel like the players not quite ready to return, even though they might be physically ready... the fear of re injury stuff is really. Yeah. Yeah, I guess. Stuck in my</i>

		<i>mind because it's like it like brought it out when I had those experiences.'</i> W3P6FU2
Integrated Understanding	Visualisation	<i>'I hadn't actually made the connection to using visualization in an ACT based. Umm, sort of therapeutic approach which makes perfect sense. And I guess I was predisposed to it anyway, but I hadn't actually seen it. That combination written down anywhere. So I thought that was really helpful'</i> W3P1FU1
	Injury/ACT Combination	<i>'I think it's really good to have them together because it's like, you know, here's the theory and the empirical evidence around injury. And then here's a framework to deal with it. Essentially, so I think they go together very naturally and I wouldn't change that.'</i> W2P3FU2
	Aligned with Previous Experience	<i>'... we covered the concepts and the empirical evidence around athlete injury and recovery from injury and then the practical element of it was more focused around using ACT to as an intervention framework for that. So I don't remember many specifics around the. Actual conceptual and empirical stuff around injury. What I do recall is that it kind of reaffirmed what I already knew...'</i> W2P3FU1

This data suggests that the key information that stayed with practitioners was information around the stages of injury and pain. Links between injury, ACT and skills such as visualisation were reported as being helpful in integrating the information into practitioners' existing skillset. While the exact information delivered may not have been remembered, practitioners had assimilated the information into their practice, as discussed by one practitioner:

'...then I think just the way that you went through each stage and like what aspects of ACT would be maybe like typically more beneficial or like maybe more important to focus on at each stage that kind of structure has stayed with me? Well, I can't necessarily remember the exact detail, but I remember I have the thing of like, OK, I need to understand what stage this person is at because potentially we need to emphasize different things.' W3P6FU1

The follow-up interviews were conducted up to six months after practitioners had attended the workshop itself. These topics had been memorable for practitioners, and in several cases, practitioners explicitly discussed how the information had informed their practice with athletes. In one case, the practitioner was using materials from the workshop (sent out in the reference information) directly in their work with clients:

'See the videos we watched the explained like that kind of fight flight freeze, but then also the one about pain with the, with the wolves and that was one of the ones that kind of stood out. And when I've been working with clients, whether it's actually an injured athlete or someone else who's talking about like pain that that's something I've used a lot to understand what they are- and what they mean by what their understanding is and have actually shared a shared it with client who is going through a ACL Rehab and as well. And she found it like so useful. And she actually then had a discussion with her physio off the back of

it and as well. So I think that's what I like. The main that's really kind of stood out from it.'
W2P2FU1

This reinforces the findings from the focus-group interviews that the IACT workshop provided information that was relevant for practitioners and that they found useful for guiding their practice. There were some explicit discussion of the workshop having validity for practice, as practitioners felt it reaffirmed what they already knew, and that they could see how they themselves would have found the information useful when dealing with previous injuries. The information that was recalled at follow-up represented major topics in the workshop, and this suggests that the topics had a lasting impact on practitioners and their practice, though this will be explored further in Chapter 6. This data supports the findings of the focus group interviews that the format was effective in providing relevant lasting knowledge (Hutter et al., 2017, Neimeyer, Taylor & Cox, 2012).

5.2.3.2 Follow-Up: Therapeutic Skill Development

The second general dimension to be derived from the follow-up interviews was that of 'Therapeutic Skill Development'. This included the three first order themes of; 'Observing Roleplays', 'Practicing Roleplays', and 'Expert Feedback'. These themes are explored in table 5.10 below.

Table 5.10: Follow-Up General Dimension - Therapeutic Skill Development

General Dimension: Therapeutic Skill Development		
First Order Theme	Sub Theme	Quotation
Observing Roleplays	Best Practice	<i>'...I think the demonstrations as well from [the facilitators] was really, really useful because I think practising it. Is awesome, but ...there's the self-consciousness, isn't there a little bit with role plays ... Sometimes difficult to have the depth that you would in an actual session, but I think watching you two do it and show how it could be done was really, really valuable. And it helped me. Kind of. Just sit back and not think too much about myself and just pay attention to what you guys were actually doing and saying and how you were using the skills.'</i> W1P1FU1
	Different Examples	<i>'... it's the only real way to like check your practice as well...you're like, oh, I feel like I do it similar way or like, that's a nice way. I'll steal that one.... but then you do it and it just like every person's individual, and it works really well with the one person. Then it doesn't hit quite as well with the next and then you need to change it up. So it's good to like see loads of different ways of doing it. Then you have options.'</i> W3P3FU2
Practicing Roleplays	Experience of Roleplays	<i>'... yours is the only [CPD] I've been to in person, so it's probably the only time I've actually sat in a room with role play and I feel like it's a bit different...that's one of the things that I probably took away as well because that was my first experience of like doing role play with other psychs outside of like the masters' setup. But even then, I think it was only once.'</i> W3P3FU2

Bringing ACT Skills to Life	<p><i>'... I think a a big, big, thing with the role play ... you're gonna be uncomfortable. Like you could bring in some acceptance and and diffusion really couldn't you, you know, you're gonna be uncomfortable. You're having thoughts like, that's really awkward. You just gotta kind of just just focus on what what you do in the session with a normal client because I get nowhere near the same anxiety as I've done [when] I'm speaking in a roleplay with with another practitioner.'</i> W3P5FU2</p>
Imperfect Uses	<p><i>'...ACT is quite difficult to read case studies for, I would say because ...it's not necessarily something that you kind of see an application where it doesn't go as well... So there's a lack of understanding how someone would do it in 15 minutes... rather than these perfect sessions that you can guarantee. So I think getting that kind of hands on experience of- even in the five-minute kind of triad work is really useful and helpful to just get it wrong, but you're getting it wrong in a safe place that then you're like ohh I know what I'm doing now...'</i> W2P4FU1</p>
Expert Feedback	<p><i>'And I think what really made it stand out compared to others, I liked that it was in person. A lot of the CPD now isn't, which I really don't like... like being able to chat to the other trainees, the other and Psychologists in the room obviously have a you there walking around and giving advice when we're doing the role play and really, really did help. And I think it's made me more confident going forward like I do know what I'm doing ... having [two workshop facilitators] there was really, really beneficial to sort of really sort of underpin those sort of skills and the role play elements that we did.'</i> W3P7FU2</p>

Practitioners reported a variety of impacts of having taken part in the interactive exercises and roleplays, including having multiple examples of practice, a way of checking their own practice, and seeing examples of practice that were imperfect, and not the 'textbook' examples often described in case studies. Practitioners reported feeling as though these experiences helped them feel more confident applying the content in their own practice and gave them a 'safe space' to try new techniques. This is consistent with feedback received immediately following the workshop. This suggests practitioners were moving into the 'exploration phase' of the SPPD model (Fogaça, Quartiroli & Wagstaff, 2024), beginning to integrate feedback and practical, workable examples into their own practice. This does raise a question regarding previous training practitioners had received. For several practitioners this was the first time they had taken part in training of this kind, suggesting roleplays and peer feedback are not a standard feature of their professional training. Therefore, we must question what training practitioners are taking part in during their supervised practice.

Input from the facilitators during roleplays was appreciated, as were the practice examples. These facets of the workshop were possible due to the facilitators' practical experience, and expert

knowledge of the sports environment, supporting previous recommendations for CPD design (Hutter et al., 2017, Ward et al., 2005, Wylleman et al., 2009).

5.2.3.3 Follow-Up: Workshop Experience

The third general dimension derived from the follow-up data was ‘Workshop Experience’. This is further broken down into two first order themes: ‘Structure’ and ‘Peer Input’, these are explored in table 5.11 below.

Table 5.11: Follow-Up General Dimension: Workshop Experience

General Dimension: Workshop Experience		
First Order Theme	Sub Theme	Quotation
Structure	In Person	<i>‘I think that’s probably the first in-person CPD I’ve done in years and I like the convenience of doing stuff online, so much so that I think I forgot how useful it can be to be in person and what a difference it can make. And it’s really the workshop stood out to me for that. It has kind of stuck in my brain longer than I think maybe the virtual stuff does.’ W1P1FU1</i>
	Full Day	<i>‘...I loved it ‘cause I don’t do many like long, long CPD’s. Like if I do CPD, it’s like half a day or normally like an hour or like something where it’s just like a little dip into it. But they’re like, not actually like, just really getting in it for a day. So I actually really enjoyed that ...and then, yeah, obviously I’ve done a lot of reflecting on it afterwards.’ W3P2FU1</i>
	Volume of Information	<i>‘Yeah, I think what I really liked about the the sort of the training program that you ran, it was very informative without being like too much, if that makes sense. I think I could- the information that you were given us was a sort of in bite size sort of chunks so that we could sort that really relate with it.’ W3P7FU2</i>
	Interest to Learn More	<i>‘I liked all of it. ...If anything, it gave me more... Interest to learn more which shows like there was a lot of good information, but I just wanted to learn as much as I can on it. So it excited me in the right way. It wasn’t like I didn’t get the information so I went away and learn more, it was more oh that is really interesting.’ W3P4FU1</i>
Peer Input	Group Differences	<i>‘I thought it was interesting cause everyone’s like I said, different learning point. So they had interesting questions to bring... yeah, because it [was in person] it gave interesting discussion points, but I think you’d- you got more out of it than you would if it was literally like a video, for example, of information.’ W3P4FU1</i>
	Peer Support	<i>‘...I hadn’t start group supervision by that point, but even then, like our group supervision’s online, like, it’s so nice to ... Talk obviously sport psych, but also just like just sharing like experiences and and hearing that there’s people going through similar challenges to you. That was really nice. It was good to meet everyone and then you’ve got those connections... overall the</i>

the being able to to spend time with the practitioners, pick each other's brains. And just have a general general chat anyway. Was really nice.'
W3P5FU2

This feedback suggests that the workshop was designed in such a way that it was engaging for practitioners and helped them synthesize the information and improve their understanding. Practitioners commented on the fact that the in-person nature of the workshop had made it particularly memorable, and that they appreciated both the facilitator input and the peer support throughout the day. As discussed by one practitioner:

'I think the thing that stuck out to me though is that it was done in person... Getting to discuss the concepts with other practitioners and also getting to engage in some like role play so appreciated that part of it with regards to content... The stuff that did stick more in my memory was some of the actual ACT exercises and seeing how other people implement them as well. So those are the bits that stick more freshly in my mind.' W2P3FU1

Peer support is an important aspect of practitioner development (Hutter et al., 2017; Rønnestad & Skovholt, 2013; Wadsworth et al., 2024), and attendees appreciated the opportunity to make new connections. It is important to note that the workshops were held in the spring and summer of 2023, directly following a period of several years where the vast majority of CPD and supervision for practitioners was conducted online out of necessity during the Coronavirus pandemic. Holding the workshop in-person was therefore a more novel experience for practitioners than might be expected, and this would have contributed to how memorable they found the CPD as a whole.

This feedback supports the decision to hold the workshop in-person rather than online. While an online workshop may have been more accessible and attracted more attendees, having everyone in the room together appears to have been an integral part of the experience for practitioners. While role-play activities can be conducted in an online format, it is less realistic for the majority of practitioners who work in-person, and also offers fewer opportunities for facilitator input. Being in-person also provides greater opportunity for peer support, networking, and building relationships through incidental conversations, discussions over lunch, and interactions during workshop tasks. As mentioned by practitioners, the work of sport psychologists can often be isolated from other psychologists, and these types of events often provide much needed peer support which is not always a feature of practitioners' regular workplaces (Feddersen, Champ & Littlewood, 2025).

5.2.3.4 Follow-up Reflections Summary

The practitioner perceptions of the workshop's longer-term impact on practice will be discussed further in Chapter 6. With regards to retained knowledge, the fact that the major topics of

the workshop including stages of injury, trauma and pain, and linking ACT to the injury journey were key topics that had been retained by practitioners six months later suggests that attending the workshop resulted in meaningful learning. The process of developing practical skills in the workshop included demonstrating roleplays, practitioners participating in roleplays, and receiving expert feedback on those roleplays. Each of these were reported by practitioners to have been meaningful for their learning, and supports the design of the practitioner skills section of the workshop. Practitioners reported that the experience of attending the workshop was memorable, and provided a meaningful volume of information without being overwhelming. Subsequent reflection suggests that this is evidence that the workshop was effective in providing a positive practitioner experience and meaningful learning (Kirkpatrick & Kirkpatrick, 2006). Practitioners also reported that attending in-person was a valuable opportunity for them to build peer networks and practice therapeutic skills in a supportive environment. This was not a regular part of most practitioners' training or practice. While this is evidence that the workshop design and delivery provided a positive experience for practitioners, it is concerning that these opportunities are not more widely available to support practitioners' professional development.

5.2.4 Researcher Reflections

The three IACT workshops were conducted across two sites, two IACT workshops at Brunel University London and one at the University of Glasgow, run in conjunction with the SSEPN. Researcher reflections of these workshops were noted and are summarised below using Driscoll's model of reflection (2000, cited in Driscoll & Teh, 2001); 'What? So What? Now What?'.

5.2.4.1 Researcher Reflections Brunel (IACT Workshop 1):

What? I was initially concerned about small numbers and lower than expected practitioner turnout, with several cancellations on the day. Practitioners represented a range of experience levels and contributed a lot to the workshop. Research supervisor was present, acting as the second facilitator. Initially felt very nervous to present all day, as this is the longest workshop I have presented myself. The activities went well, and all material appeared to be well understood, with the exception of the 'case formulation' information, which I did not explain clearly enough,

So What? The smaller attendance was helpful to be able to provide additional feedback to practitioners individually and be able to respond to all their questions and individual circumstances. The practitioners' contributions and those of the research supervisor provided helpful context. Having a second facilitator in the room allowed for practitioners to be managed well, particularly during interactive exercises. Enjoyed presenting, and managed to stay to time through the day. The

case formulation exercise was initially misunderstood, but was redirected effectively without detriment to the activity.

Now What? This workshop has shown that small groups of participants can be effective, making the requirement for future workshops a minimum of 4 practitioners. Having a second person to assist with roleplays and feedback during interactive activities was helpful, and therefore this will be put into place for the Glasgow Workshop. The case formulation exercise will be explained more carefully at future workshops.

5.2.4.2 Researcher Reflections Glasgow (IACT Workshop 2):

What? This workshop felt more intimidating to present, being in a new place with completely different people. Research supervisor was not present at this workshop, so a previous pilot practitioner (also a fully qualified psychologist) was enlisted to assist as a second facilitator, and helped with roleplays and demonstrations. Some of the practitioners were more challenging, and asked more 'difficult' questions. One practitioner needed 'managing' to try to stay on task and not make the workshop entirely about their challenging professional situation. The case formulation task worked a lot better with more detailed explanation. Feedback at the end of the workshop was better than expected, though practitioners voiced that the roleplay timings felt a little rushed and they would have liked more time to be able to practice these.

So What? Having the second facilitator present worked well, and the roleplay demonstrations received good feedback. While the questions from practitioners were more challenging, I was able to answer them comfortably, giving me more confidence throughout the day. While one practitioner did need some managing, this did not appear to disrupt others or the learning throughout the day, though it did take up a significant amount of the focus group discussion.

Now What? At the next workshop, care will be taken to allow as much time as possible for practitioners to practice the roleplays. The case formulation task will be explained in the same way in workshop 3.

5.2.4.3 Researcher Reflections Brunel (IACT Workshop 3):

What? I felt most confident going into this workshop, having presented the same material several times now. Practitioners were really engaged and again represented a range of experiences, but collectively had less practice experience, though several had worked in MDT contexts. Research supervisor was present again to assist. Responding to the feedback from Glasgow, allowed longer for roleplays.

So What? Practitioners' work experiences and their openness to share made the discussions interesting, and allowed for vicarious learning. Research Supervisor was helpful in providing

individual feedback and commenting on practitioner roleplays. Allowing longer for practice of roleplays was valuable, but did mean that the end of the workshop was somewhat rushed, as we were close to going over time and this may have contributed to why the focus group discussion at the end was short and lacked detail.

Now What? Having reached a total of seventeen practitioners, I feel confident in being able to shift focus to the follow-up interviews and will not plan any further workshops unless there is significant attrition at follow-up.

5.2.4.4 Researcher Reflections: Summary

In summary, the reflections from each IACT workshop noted similar levels of practitioner engagement, minor changes in timings between workshops, and improved clarity on tasks as the workshops went on. Practitioner experience of each workshop was very similar, and the content delivered was the same. The only major difference was the presence of the Research Supervisor at both of the London workshops, but not at the Glasgow workshop. While the Research Supervisor is a very experienced practitioner, who provided valuable contributions, the same workshop content and practice insights were delivered in a similar way across locations, and this is not considered to be a variable which would significantly impact the quality of training provided.

The assumption, as this workshop was being designed and developed, was that practitioners would already have a basic awareness of the psychological impacts of injury, and an understanding of ACT skills, and that the workshop would bring those two things together to inform practice with injured athletes. Surprisingly, the workshop appeared to be providing new information, but more concerningly, for a significant number of practitioners, there was a lack of understanding of how to deliver basic therapeutic skills, as if this was the first time these had been encountered. For example, for some practitioners it was 'groundbreaking' to normalise and validate client emotions. This should be a core skill for practitioners, and highlights wider issues with training and supervision processes for these working practitioners.

5.3 IACT Workshop Evaluation: Conclusions

The evaluation is structured with reference to the MRC guidelines (Craig et al., 2013) and includes reference to Neimeyer, Taylor and Cox's (2012) recommendations for effective CPD and the Kirkpatrick model of training evaluation (Kirkpatrick & Kirkpatrick, 2006), (see section 4.1.1 & 3.4 for more details). The three IACT workshops will be considered collectively, given that the evidence showed that there was no significant difference in practitioner experience across the three workshops. This evidence includes the practice notes from the researcher (see section 5.2.4), the fact that there was no significant difference in the changes in understanding between the three

workshops (see section 5.2.1), and the qualitative feedback provided by practitioners after all three workshops.

‘Effectiveness’ in this context was assessed based practitioners’ reactions to the workshop, and how well practitioners perceived the workshop imparted up-to-date information and practical skills, learning which will be useful to practitioners’ professional practice, (Kirkpatrick & Kirkpatrick, 2006; Neimeyer, Taylor & Cox, 2012) and contribute to bridging the research-practice gap identified in this area (Evans & Brewer, 2022). The workshop aims were to use current research and practice insights around working with injured athletes in order to upskill practitioners working in sport to enable them to appropriately support this population. The feedback on the content of the workshops suggests that this information was delivered effectively, with practitioners reporting improved understanding of the key topics including injury and mental health impacts of injury, as evidenced in both the self-reported understanding (see section 5.2.1) and qualitative feedback (see section 5.2.2). The workshop therefore responds to the need for more training for practitioners in this area to allow them to work effectively in modern practice environments (Prior, Papathomas & Rhind, 2025; Quartiroli & Wagstaff, 2024).

In order to bridge the research-practice gap in this area, the workshop was designed to provide practitioners with ideas about how they might use the knowledge of injury, its impacts on mental health, and related topics in combination with ACT skills in order to help athletes respond flexibly to the challenges presented by injury. This was reflected in practitioners’ feedback on their improved understanding of how to apply ACT with this population and their appreciation of how ACT could be used throughout the injury journey (see section 5.2.2.2). Finally, the workshop provided the opportunity to practice using those ACT skills in different ways in a safe space, and receive feedback on that practice from other practitioners, both workshop facilitators and peers. The workshop therefore provided the necessary environment for practitioner development, including peer support and expert feedback (Rønnestad & Skovholt, 2013; Sharp, Hodge & Danish, 2021; Tod, Hutter & Eubank, 2019). There was a significant amount of evidence from practitioners about how helpful they found this aspect of the workshop (see section 5.2.3.2), and this is reflected in practitioners’ increased ratings of confidence in supporting injured athletes (see section 5.2.1.2). Practitioners reported that the discussions of MDT work, and the emphasis on intervention in MDT environments was helpful in preparing them to practice effectively in their interdisciplinary environments, suggesting the workshop provided important training which acknowledged the practice context and responds to the identified need for training of this kind (Rowley et al., 2020). While practitioner perceptions of the impact of the workshop on their practice is explored further in Chapter 6, the feedback on the workshop itself suggests it fulfilled the aims of using up-to-date information to

provide practical skills to practitioners which will be useful to them in their work, and was appropriately designed in this regard to bridge the research-practice gap (Evans & Brewer, 2022; Gainforth et al., 2021).

With regards the SPPD model (Fogaça, Quartiroli & Wagstaff, 2024), the processes of professional development include reflection, supervision, connections and networking with peers, and learning by doing. There is evidence from the IACT workshop evaluation that practitioners had engaged in some reflection before, during and immediately following the workshop, (though this is discussed in more detail in Chapter 6). This reflection is important for practitioner individuation (McEwan, Tod & Eubank, 2019). Practitioners discussed the impacts of feedback in the therapeutic skills practice, which is evidence of supervision, and the value they had found in attending the workshop in person, through their connection and networking with peers (Rønnestad & Skovholt, 2013; Sharp, Hodge & Danish, 2021; Tod, Hutter & Eubank, 2019). As was found in the development process, the practical exercises and roleplays (learning by doing) were particularly important to the practitioners who attended. Chapter 6 includes further discussion of both reflection, and learning by doing, as processes of professional development, but this evaluation of the workshop concludes that all four of these necessary processes for professional development were included and were perceived to be impactful for practitioners. Therefore, this meets the second research objective, and the evaluation of the IACT workshop concludes it is fit for purpose as professional training for sport psychologists.

Chapter 6: Practitioner Perceptions of Impact - Discussion of Results

6.1 Introduction

This chapter focusses on the third research objective, understanding the long-term impacts of the IACT workshop for practitioners and their work with injured athletes. This chapter presents the findings of the 3- and 6-month interviews, specifically exploring the perceived impact of the IACT workshop on the practitioners who attended, their practice, and the context in which they were practicing, following the workshop. The evaluation of the workshop itself can be found in Chapter 5.

The process of reflexive thematic analysis resulted in five general dimensions with associated first- and second-order themes. The general dimensions are illustrated below as a 'ripple effect' (see figure 6.1) and reflect the wide-ranging perceived impacts of the IACT workshop on practitioners, their work, and the organizations in which they work. This model is akin to an ecological approach for the athlete rehabilitation system (Brady, 2022). An ecological approach in psychology considers the individual and their actions in the context of their environment (Heft, 2013). Bronfenbrenner (1994) conceptualises human development in relation to the ecological system in which it occurs. These systems interact and overlap, starting with the microsystem, the immediate interaction of an individual and the environment. The next layer is the mesosystem, the interaction of the individual and two or more settings in which the individual interacts, such as home and the sports environment. This is followed by exosystems, the interaction between two or more environments, at least one of which does not contain the individual. An example in sport might include the relationship between the individual athlete, who interacts with the sports environment, and the home environment, but is not directly involved with the MDT staff network. The macrosystem is the network of micro- meso- and exosystems that make up a culture, e.g. the wider culture of sport. Finally, there is the chronosystem, which considers the environment over time, in the case of sport the evolving culture of a sport or the athletes' career as it develops (Bronfenbrenner, 1994). As in relational frame theory and functional contextualism, an ecological approach asserts that individual characteristics and behaviours are best understood in relation to their changing environment, including sociocultural change (Heft, 2013). Sports environments are unique cultures with varied and complex micropolitical climates, and there is an established base of research in sport psychology which takes an ecological approach (Beek, 2009; Haluch, Radcliffe & Rowley, 2022). This research did not set out to investigate the impact of training from an ecological

perspective, however there are echoes of the ecological systems approach in the way the themes have been constructed, and the findings of the 'ripple effect' which is often referenced in ecological systems research (Smith et al., 2012; Trickett & Beehler, 2017). Whilst the findings may appear to mirror ecological systems research, this was not the intention of the current study, and while the similarities are acknowledged, it is important to note that this was not the underlying theoretical approach.



Figure 6.1: The 'Ripple Effect' in the Practice of Sport Psychologists following the IACT Workshop

This chapter examines each of these general dimensions in turn. First, practitioners' reflections on changes to their own knowledge and perspectives (Self), followed by impacts on their professional practice (Therapeutic Alliance), their working relationships with other professionals (Working Alliance), impacts on process, organization and culture (Process and Organisation), and finally, impacts beyond the context of sport psychology practice (Beyond). Each of these general dimensions are interconnected, and represent changes brought about by the IACT training for practitioners. After discussion of the five general dimensions, three illustrative cases are presented to provide greater insight into the interconnectedness of the dimensions, and demonstrate significant changes in practitioner understanding, and how that changed understanding was perceived to have impacted each of their individual contexts.

6.2 Self

The first general dimension, titled 'Self', encompasses the direct impacts of the IACT workshop on the practitioners who attended, their professional philosophies, and personal understanding of the concepts covered in the IACT workshops.



Figure 6.2: 'Self' in the 'Ripple Effect' in the Practice of Sport Psychologists following a the IACT Workshop

Table 6.1 illustrates the general dimension 'Self' and provides an overview of the two first order themes which were derived from the data and the associated second-order themes. This table gives a broad overview of the dimension as a whole and illustrates the varied perceived impacts of the IACT workshop on the attendees themselves. All practitioners reported evidence which contributed to the development of themes under the general dimension of 'Self'. To provide a more in-depth exploration of the first order themes and associated second order themes, the thematic analysis is presented in separate tables (6.2 & 6.3) below.

Table 6.1: General Dimension Overview - Self

General Dimension: Self		
First Order Theme	Second Order Theme	Section
Retained Knowledge and Skills	Injury Journey	6.2.1
	Mental Health Risks	
	Confidence Using ACT	
	Relatable Examples	
ACT Therapy Across the Rehabilitation Journey	Professional Philosophy	6.2.2
	Competency	
	Changed Understanding of Personal Injury	

There were two first order themes derived from the analysis; 'Retained Knowledge and Skills', and 'Self-Reflection' (see tables 6.2 & 6.3).

6.2.1 Retained Knowledge and Skills

Four second-order themes were developed under the first order theme of ‘Retained Knowledge and Skills’. These were; ‘Injury Journey’, ‘Mental Health Risks’, ‘Confidence using ACT’, and ‘Relatable Examples’. These second-order themes are explored in more detail in sections 6.2.1.1-6.2.1.2 below.

Table 6.2: First Order Theme - Retained Knowledge and Skills

General Dimension: Self		
First Order Theme	Second Order Theme	Quotation
Retained Knowledge and Skills	Injury Journey	<i>‘...I didn't necessarily think of it in those discrete stages in my mind before, whereas now. That's part of what I would be able to recognise if someone came to me with an injury, one of the first things I'd sort of be able to establish in my mind is OK, where are we in all this?... it's blank slate to me and my job is to kind of go through and explore and work out what the landscape is.... It's it's sort of part of the map structure if that makes sense.’ W1P1FU1</i>
	Mental Health Risks	<i>‘...when he shifted back into that setback stage. That was when I kind of like, OK, now we'll need to really focus on his mental health here and ensure that I'm safeguarding that as well as prioritising this, how we can help his recovery.’ W3P5FU1</i> <i>‘...I suppose one of the big ‘ah-has’ for me over the last three to six months, including on your training was the general impact of trauma in all kinds of different situations, umm, and the consequences of that are far, far wider and play into far more behaviours than I would have ever believed ... It's opened my eyes. opened my eyes.’ W3P1FU1</i>
	Confidence Using ACT	<i>‘...I think ACT is a very flexible framework. It fits very well with. Um, you know, addressing injury... It was quite easy I think even before the workshop to apply it naturally to injury settings. But attending the workshop built my confidence in doing it.’ W2P3FU1</i> <i>‘...like the confidence to use [ACT] seeing its utility especially like in injury. I've probably used it. Yeah, the most in injury now than any other kind of context, but. Yeah, that's yeah, that's what I'd say.’ W3P2FU2</i>
	Relatable Examples	<i>‘...I think there's quite often a very large disconnect between the evidence base and then anyone who's actually working in, like Pro or performance sport and some of these things work great, if I've got nine months ... But actually like that's not real life ...knowing that no like I- I can do [shorter interventions] as well. This isn't something that is frowned upon or is kind of I should shy away from...’ W2P4FU1</i>

The themes of ‘Injury Journey’ and ‘Mental Health Risks’ will be discussed together, followed by discussion of the third and fourth themes ‘Confidence Using ACT’ and ‘Relatable Examples’.

6.2.1.1 Injury Journey & Mental Health Risks

It is essential for practitioners to have knowledge and awareness of both the injury journey and mental health risks to be able to work effectively with injured athletes and safeguard wellbeing (Pickford & Gervis, in press), therefore these second-order themes will be discussed collectively. Practitioners reported the knowledge and skills taught in the IACT workshop that had been retained, they felt were useful, and had been integrated into their practice at follow-up. The findings reveal that for the practitioners, critical new knowledge was acquired through attending the workshop. This included awareness and understanding of; the stages of injury, risks to mental health, and the impacts of trauma, which were all important additions to practitioners' knowledge. As reported by one practitioner, their new knowledge of the stages of injury and the likely psychological impacts at each of those stages not only reflected their client's experiences, but also helped them understand how they might be able to work with their client through the injury journey. It also helped the practitioners understand what other psychological and behavioural factors they might need to be aware of, as was illustrated by one practitioner who stated:

'...the phases of injury or stages of injury... [a client] was kind of in the setback rehab and a bit in the return to training, phase for like a week. And the the kind of emotions, and thoughts and things that you said would show up- or the research shown would show up were showing up. So I get it that it maps quite nicely onto that and I could see the link in like the you know, the fear of reinjury was showing up at the stages where it said it would and- and like the boredom and the the tediousness of it, of the rehab was shown up in that place and things like that. So I think you know it, there was a clear mapping of that on to the intervention on to the clients presentation. So again that was, yeah, that was useful to constantly refer back to and go OK, is that is that showing up and what can I do about it based on what was suggested on the on the slides and things like that, what do I need to be aware of was another big thing.' W3P5FU1

This finding supports the validity of the information provided in the IACT workshop, and that the workshop provided information which aligned with practitioners' experiences of the psychological challenges of injury for athletes. This new understanding of the injury journey clearly helped practitioners to navigate more effectively the psychological support they offered to long term injured athletes. Specifically, we cannot underestimate the power for a practitioner of knowing where and how to apply a psychological intervention. This is reiterated by another practitioner who stated:

'...I think what you've done really nicely with this module... what you've actually done is packaged together um, the whole injury process and these are some bits and pieces that you need to know, terminologies that people will use but then a bit of a road map in terms of from a psychology standpoint, this is how you can help... This is a whole step further in terms

of um just being a really practical, useful uh resource in terms of, um, yeah, not only do you need to know this and this, but this is kind of the process they're gonna go through end to end and then from a psych perspective, this is how you can add value in that process. Umm. In a way that's not only purely psych, but is also, you know, really helps enable in terms of them being in that that, that multidisciplinary environment. So I think you've done a really nice job with that actually.' W3P1FU1

Understanding the psychological challenges faced by injured athletes, and how these manifest in athlete behaviour as they move through rehabilitation was essential for practitioners. This awareness, and being alert to the signs and symptoms, increases the likelihood that practitioners will offer the right support at the right time. This is vital for the holistic care of injured athletes, to support their rehabilitation journey and to safeguard their wellbeing through the rehabilitation process, and contributes to practitioner confidence as discussed later in this section and in 'Working Alliance' (section 6.4).

Findings demonstrated there was an improved awareness of trauma and mental health which helped practitioners ask themselves different questions regarding their clients' behaviours and experiences, and the behaviours of the MDT around them. One practitioner described how understanding trauma had led to a reassessment of clients' behaviour:

'...I think there's probably- there's probably a reasonable chance that certain lads have just been perceived as difficult and disengaged. And um, yeah, there are... certain reactions that probably be labelled and slightly dismissed. And yeah, I would. I would view them differently, I think ...' W3P1FU1

This demonstrates an important change in the practitioner's understanding of athlete behaviour. Being able to reconsider behaviour previously perceived as 'difficult and disengaged' through a trauma-informed lens altered their practice. This 'new awareness' highlighted a gap in practitioners' previous training, as trauma and the behavioural consequences (Appaneal, Perna & Larkin, 2007; Meyer et al., 2016) had not been taught. An understanding of trauma is essential for psychologists working with injury to mitigate risk, and safeguard athlete mental health, and therefore this 'gap' in training is a significant concern.

Improving knowledge, awareness and teaching therapeutic skills in both injury and mental health, was a specific goal of the IACT workshop, as discussed in Chapter 5. The feedback received at three- and six-months post workshop supports the data collected pre- and immediately post-workshop, that knowledge of injury and confidence in supporting injured athletes had both improved, and that these improvements were sustained over the follow-up period. Practitioners' discussions of their improved awareness and understanding in practice suggests that the IACT

workshop was effective in improving practitioner knowledge and changing practice in this area. The evidence from practitioners suggests that this was useful training, supporting previous research calling for more CPD on mental health for sport psychologists (Aoyagi et al., 2012; Quartiroli & Wagstaff, 2024).

6.2.1.2 Confidence Using ACT & Relatable Examples

The third second-order theme was 'Confidence Using ACT', which is discussed below in conjunction with the theme of 'Relatable Examples'. The IACT workshop presented ACT as a therapeutic framework through which to work to support injured athletes. The majority of practitioners already had some working knowledge of ACT, and their reflections on the impact of the ACT information and skills taught in the workshop are organised under this theme as shown in table 6.2.

The workshop helped practitioners be more comfortable with using ACT in general, which speaks to the need for more CPD opportunities of this kind for practitioners, particularly in their training and early stages of their career, in order to develop the necessary therapeutic skills. As one practitioner reported, the IACT workshop helped them bridge the gap between theoretical understanding and practical application:

'... if I hadn't attended your workshop, I probably wouldn't have really, like I probably wouldn't have been able to make the link between the research on the different stages and the practical application of ACT like so nicely... I think I would have been aware of it and but I would have struggled to like at this point in time with my kind of capability. I think I would have struggled to link the like research on like stages of injury and stuff like that to OK how do I actually use that to my advantage? So your workshop, like, really made that clear. And yeah, how you can use that research and be like, OK, this is helping me in this way.'
W3P6FU1

Understanding the theory of a therapeutic modality and being able to apply it 'live' in sessions with clients are two different facets of practice. Particularly with ACT, which is a flexible modality which responds to the dynamic needs of the client moment-to-moment (Harris, 2019a), having a 'safe space' to practice therapeutic skills is vital. Practitioners reported immediately following the IACT workshop that they felt 'confidence' may be a barrier to implementing the intervention in their practice (see section 5.2.2.3). However, the findings demonstrate that practitioners were more confident, not only in their understanding of the challenges of injury, but also in their application of ACT in practice. Importantly, the workshop expanded and built upon practitioners' repertoire of ACT therapeutic skills when working within the context of injury:

'...I quite like ACT in general right, but I think it fits really well within an injury context... and maybe actually this is just how you presented it, as much as anything else, rather than necessarily like as a modality, but just like sits a lot cleaner within an injury journey, if that makes sense. And I, yeah, part- part of that is actually probably perhaps just how like you structured it ...Yeah, I guess you've almost provided like a framework within a framework, haven't you? And I think that's quite useful just in terms of, for like us as psychologists, to then clean up that process a little bit. Umm, not to say that- That's not obviously flexible based on whatever the persons coming to you with, but um certainly for me, I find that I find structure helpful and- and I think the way that you've explored that and explained that sits in a way that just seems to make sense...' W2P5FU2

Practitioners were better able to understand the injury journey, when specific ACT skills would be useful, and how to best deliver those skills to the athletes. This practitioner reported how a flexible framework was helpful to them in their practice, demonstrating how the workshop had helped them start to learn to work more flexibly, and suggests their practice was developing by moving from the 'introduction phase' to the 'exploration phase' of the SPPD element of 'adaptability' (Fogaça, Quartiroli & Wagstaff, 2024). This understanding and experience of practicing ACT therapeutic skills as a therapeutic modality can work in the structure of an injury journey was an explicit aim of the workshop. The findings from 3- and 6-month follow up interviews supports the data collected pre- and immediately post-workshop, that the IACT training had improved practitioners' understanding of ACT as a therapeutic modality (see Chapter 5). Again, this speaks to the need for more CPD of this kind, enabling practitioners to understand how their theoretical knowledge of a therapeutic modality might be applied in practice, and providing opportunities to practice skills with 'live' expert feedback, supporting the efficacy of the 'professional skills' CPD format (Wylleman et al., 2009).

One barrier to implementing the specific ACT techniques from the workshop was discussed by one practitioner who had no previous experience of using ACT as a framework:

'It's difficult to cover all of it like I think it was important to cover the, the, the. The trauma the pain injury part, but also obviously with the Hexaflex I probably I think for me because it was all new to me, if there if it was possible- Again, it's difficult on one day, but to spend more time on the different elements within the Hexaflex for me would have been... Like, more useful because that was a bit I didn't have as much knowledge on, whereas I know obviously some people had a bit of a basic understanding, so it wasn't as sort of new to them... And so I think that's probably the bit and that's the bit I still don't feel completely confident with all of those elements and the full understanding. So that's where I feel like I need to do more reading behind it and understanding. To feel really confident when doing it with [athletes].' W1P2FU1

This was considered early in the piloting process, and the advertising of the workshop was intended to mitigate this, as discussed (section 4.6.1.3). However, this feedback does suggest that the workshop maintained its intended focus of considering new applications of ACT skills, rather than

focussing on ACT as a framework in itself. As discussed in section 6.2.1.2, and as is discussed further in section 6.3.2.1, the application of ACT skills was only one aspect of what practitioners took away from the workshop, and therefore the practitioner felt there was a benefit in their attendance regardless.

Practitioners reported that the IACT workshop had given them a structure to start to understand the journey of an injured athlete, as previously discussed, and that this knowledge combined with ACT skills had given them a 'map' to intervention. Practitioners also reported they had gained skills that would work in 'real world' contexts rather than simply examples of 'textbook' interventions. While some practitioners stated this had enabled them to be more confident in starting to get more involved with athlete rehabilitation, others who were already working in this area reported that they had broadened their repertoire which would help them impact more, or different athletes:

'I find it really useful cause I haven't really actually used ACT, so for me it was like all new so parts of it was like... Overwhelming in terms of ohh my god this is all new information, but equally quite exciting cause I was like obviously working a lot with injured players. Sometimes you get a bit stuck with some of the bits that you're already doing. So I think actually this now opens up like other avenues to kind of work like with them...'

W1P2FU1

This data demonstrates that the IACT workshop gave practitioners both critical insight into the application of ACT with injured athletes, and the opportunity to practice these skills in a supportive environment within the workshop. This is further evidence of practitioner development in adaptability, as they are able to understand how to apply theory in a dynamic and flexible way, without relying on 'textbook' methods, moving from a 'rigid' approach in the introduction phase of the SPPD and 'learning to be flexible' in the exploration phase of professional development (Fogaça, Quartiroli & Wagstaff, 2024). The overall result of this was practitioners described themselves as being more capable and prepared to work with injured athletes, suggesting the workshop had delivered effective learning (Kirkpatrick & Kirkpatrick, 2006). The IACT workshop therefore responded to previous calls to bridge the research-practice gap, and understand how exactly theoretical knowledge may be integrated into professional practice (Evans & Brewer, 2022; Hess, Gnacinski & Meyer, 2019).

6.2.2 Self-Reflection

The second theme in the general dimension of 'Self' is 'Self-Reflection', and is illustrated further in table 6.3 below. This first order theme encompasses four second order themes; 'Professional Philosophy', 'Competence', 'Purpose' and 'Changed Understanding of Personal Injury'.

Table 6.3: First Order Theme - Self-Reflection

General Dimension: Self		
First Order Theme	Second Order Theme	Quotation
Self-Reflection	Professional Philosophy	<i>'I think there's the trauma stuff. I feel like at the at present, I need to upskill and develop there... But I do foresee it being a big part of my work... When [a client] told me about [their trauma], it made everything make so much sense... I saw from that straight away the value of actually understanding their trauma. And it's not something I want to neglect in my practise. So you know that that, that workshop at least acts as the kind of catalyst to. To go OK, this is a really important part of my work that I'd probably hadn't thought of because it's got very clinical connotations. But you know you can't ignore it. People have- People are everywhere, and people have trauma...'</i> W3P5FU2
	Competence	<i>'...I feel like I'm more confident about it now after having done that that day's course... so it has impacted my practice in the sense of kind of I suppose reinforcing the areas that I feel like I can confidently and competently support an individual with.'</i> W2P3FU2
	Purpose	<i>'...I think in the past I've maybe been apprehensive when they're when they're talking about kind of medicalised things and physio things of I don't really know much about that. So just you tell me it from your perspective and I'll kind of listen and be very person centred and and as you say emotional support and reflect back. OK. What was that like? Whereas now. It's like actually the tools that I would use in normal practice with a not injured athlete...'</i> W2P1FU1
	Changed Understanding of Personal Injury	<i>'...it was really actually quite eye opening when we were doing the workshop that I could relate to a lot of the stuff- ... how, if I'd known that with previous injuries, how that could have helped in the recovery process for sure... sort of that the behaviours if I was sort of a little bit more self-aware why these were coming up while I was feeling this way, I could have helped myself a lot more.... I think if I'd had this knowledge previously, I could have sort of kept myself on a on a better sort of path with all- with that makes sense... and now I see it.'</i> W3P7FU2

The second-order themes of 'Professional Philosophy', 'Competence' and 'Purpose' are closely linked, and will be discussed collectively.

6.2.2.1 Professional Philosophy, Competence & Purpose

As discussed in section 6.2.1.1, having more awareness of the injury journey and mental health helped practitioners feel more confident in talking about injury, asking about pain, and feeling reassured that the work was within their professional competence; *'I feel more comfortable talking around that subject [injury]... not being like ohh that's not for me and feeling like it's a no-go area... So that's something I think kind of changed erm a little bit.'* W2P2FU1. This is vital to enable practitioners to be competent and confident in working with injured athletes, and understanding that their role extends to injury rehabilitation as a form of 'performance'. Practitioners reported that the IACT workshop had given them a clearer understanding of the importance of their role in the injury rehabilitation process and how they could work proactively to support injured athletes:

'...the knowledge base like I've felt OK about and I think I had a decent understanding, but actually. The. Um, maybe readiness of it and being shown that like ohh this is what like we are doing within this space... And the role that psychology maybe has in the rehab rather than just being- the kind of feeling like you could be involved, like, actually thinking that I do have a place and I belong in this conversation of holistic rehabilitation for the players and getting them back on the pitch and things... the kind of opportunity of it and actually like that I deserve an involvement or have a skill set to offer rather than. Just players with an hour to kill are sent to you because they've got nothing better to do...' W2P4FU1

This quotation illustrates how the IACT workshop changed practitioners' professional perspectives and re-evaluated the importance of their role in rehabilitation, when previously they perceived this to just be the domain of physiotherapists. Furthermore, the workshop facilitated a different application of practitioner knowledge with injured athletes and enhanced their confidence to be more proactive in this space, acknowledging that they had important contributions to make to the recovery of injured athletes. With regards to the SPPD this could be considered a shift in the 'purpose' and 'confidence' elements of professional practice (Fogaça, Quartiroli & Wagstaff, 2024). These perceived changes in competency and purpose were foundational for the shift in agency demonstrated through changes in therapeutic and working alliances discussed in sections 6.3 and 6.4. This is a significant step to bridge the research-practice gap and provide better care for athletes as an integrated part of the MDT.

Practitioners reported their thoughts on how the knowledge and skills from the IACT workshop might be applied in their future practice, and that the workshop had helped them feel prepared to work with injured athletes in the future:

'... I can see there's, you know, there's a couple of potential cases that that, that are coming up as well that I'm probably going to end up spending quite a lot of time with and I

think in that respect I think I said this last time, I'll be in a very different- ... I just remember the feeling last year I sort of knew in general terms what you might be able to do, but it was all a bit vague. And this is just- this is very different. [I feel more prepared], definitely.'
W3P1FU2

Practitioners reported not only feeling more prepared to work with injured athletes, but also enjoying the work they had done and looking forward to doing more of it. The work one practitioner had done with an injured athlete had not only received positive feedback from the athlete, but had also been professionally gratifying for the practitioner:

'... [working with injured athletes] it's definitely something I'd like to do. Like I said, I enjoy this. The intervention. I enjoyed working with it with an injured athlete because you feel like you're kind of part of their their recovery journey. And to play a part and at the end of the intervention, you know, and he gave me his feedback. It was really complimentary. And it felt, you know, gratifying for me personally to be a part of his recovery, and know I've contributed positively to that. And I hope that he is able to take those skills and get to where he wants to be. That'd be brilliant. So I'd definitely like to get to go through similar process again...' W3P5FU1

While the IACT workshop provided a 'framework' for working with injured athletes, there is also a recognition that this work will look different depending on the individual practice contexts. Practitioners discussed a change of professional perspective, including their thoughts on what best practice might look like for them in their own professional contexts:

'I [would like to] actually just spend more time with [athletes] in terms of like setting rehab targets and having a clear focus and purpose of doing that work with them in addition to obviously the checking in and the readiness bits. But just spending time working through those bits and actually especially in those offload periods where they feel like they're not making much progress or actually they're not really doing much and struggling with like their time... I think that would be good, just actually spending more time with the player rather than just checking in, but actually still doing like valued work with them I think.' W1P2FU2

This practitioner discussed wanting to spend more time in rehabilitation environments, and being able to spend more time with players rather than just 'checking in'. This presence in rehabilitation environments improves athlete care and aligns with previous recommendations (Gervis, 2022). Again, this represents a shift on the SPPD elements of 'purpose', and 'professional identity' (Fogaça, Quartirolí & Wagstaff, 2024), and a shift in how practitioners might approach their work with injured athletes.

Practitioners had not only re-assessed their competence and purpose in working with injured athletes following the workshop, but had also reflected on their professional philosophies, and what therapeutic skills they wanted to develop further. This is evidence of ongoing practitioner

individuation, and developing professional philosophy, both elements of professional development (Fogaça, Quartiroli & Wagstaff, 2024; Tod, Hutter & Eubank, 2019). Trauma was a significant theme in the retained knowledge and skills that practitioners identified at follow-up, however several practitioners reported that more training on trauma would be useful, not only for working with injured athletes, but for athletes in general. Practitioners understood that trauma-informed care was important for their practice more broadly, and in that respect, the workshop had an impact on their practice beyond the scope of injury. One practitioner reported an understanding of the value of trauma-informed practice, and the widespread applications of understanding trauma. This was echoed by another practitioner, who also stated that a trauma-informed approach was vital for working in sport:

'... I want those [trauma informed] skills. I want to be able to work in that space because again, this is what I keep coming up against is that hey presto, humans are humans. Their sports life isn't separate from their human life and their potentially traumatic experiences. And actually sport can be really traumatic... I want to be able to work in that space and I find it very. I don't know. Frustrating. I'd rather upskill and keep developing than, say, you know, we're almost definitely gonna make a mistake if no one will ever talk about how to avoid the mistakes. If no one will ever- [they] just say you can't, you can't go anywhere near that, just run a mile if anyone talks about anything traumatic, you're almost definitely going to cause issues. At least if you have the baseline and the ballpark, you kind of know what the signposts are and who to go to... I want those skills... And we're complicated like humans aren't, they can't really separate from those traumatic experiences, even if they happen in different parts of your life. And I don't know many people who haven't had some form of traumatic experience. So what does that leave us? Who are we able to work with like sport automatons who haven't really gone through anything? Do you know what I mean? ... If we say we can't touch anyone with trauma, well, that's everyone... And I want to be a psychologist. That's what I'm saying. Like I want those skills. I wanna be able to help those people... frustrating.' W1P1FU2

The practitioner reports a desire for an understanding of trauma because of how common trauma is in their practice, whether the traumatic experiences were within sport or external to it. Both this practitioner and others reported that they do not believe that the person is separate from the performer (Brady, 2022; Garner, McEwan & Whitehead, 2023). Therefore, as a psychologist, a practitioner working in sport should have a basic understanding of trauma in order to provide appropriate care within their professional boundaries, and better understand when referral is needed. This practitioner reported the difficulties they had found with some sport psychology lecturers having an opinion that trauma isn't something that sits within the remit of sport psychology, which made accessing training more difficult:

'...but they talk about, OK, what do you want to learn about this year? If we could get in any guest speakers and all this kind of stuff will cover any topics, what do you wanna know? ... I think I hesitated because I knew what the reaction was gonna be, but I sort of said, you know, I would like to do more about this sort of mind, body holistic approach. You know, some of the. Like maybe a brief intro to polyvagal theory and all these kinds of things I was like, I would be really interested in something like that. And the supervisor was like... we couldn't cover that in an hour. And I'm like, obviously, I'm not expecting to be an expert and all this kind of maybe trauma informed stuff I thought would be really useful... I'm not saying that I'm gonna claim that we can work with trauma because I know some people are funny about it. But I think an understanding of what that can look like and what to look out for. I would really like to learn about and I knew he didn't want to touch it with a barge pole, but he asked us for what we wanted to learn... I think maybe actually feeding that back to you is probably useful because that is the the environment that's out there potentially in that some are really interested in this, but some are resistant. And I think that causes that's gonna cause issues for the kind of stuff that you guys are trying to put out there, I think.' W1P1FU2

This represents a barrier to continued professional development, both for the individual and the discipline as a whole, and is an example of how the differing 'schools' of sport psychology practice approach topics of trauma and mental health, with some seeing it as a vital part of the role, while others view it as extraneous (Roberts, Faull, & Tod, 2016). While the IACT workshop gave a brief overview of both pain psychology and the impacts of trauma as they relate to injury, these are complex topics and it was not possible to cover either in great detail due to time constraints. However, the material that was covered evidently raised awareness of both of these important topics, and prompted several practitioners to seek additional training in these areas (see also section 6.6.2). As highlighted by recent research, the landscape of sport psychology is changing (Sly, Mellalieu & Wagstaff, 2020). Mental health and trauma are now thought to be in the domain of sport and exercise psychologists, and it is vital that contemporary practitioners have the appropriate therapeutic skills in these areas (Quartiroli & Wagstaff, 2024). If there is not appropriate education and training on these topics both at Postgraduate level and in professional training routes, athletes, and the reputation of the profession as a whole, are being put at risk (Prior, Papathomas & Rhind, 2025).

6.2.2.3 Changed Understanding of Personal Injury

The final theme under the first order theme of 'Self-Reflection' is 'Changed Understanding of Personal Injury'. In addition to reflecting on their professional practice, practitioners who had themselves experienced injury found the workshop content aligned with their personal experiences. Given that the vast majority of sport psychologists are either ex-athletes, or currently participate in sport and/or exercise, it is to be expected that they have personally had an injury experience. One participant reported how the understanding gained from the IACT workshop helped them reflect on

their own previous injury experiences and consider how those might be re-evaluated. While this practitioner had thankfully not been injured in the time since the workshop, they could see how the knowledge and skills covered in the workshop would have helped them be more aware of their own behaviour and make different choices if they were in the same situation again. This highlighted changes in understanding of behaviour and lived experience, and therefore improved self-awareness that is indicative of professional development (Fogaça, Quartiroli & Wagstaff, 2024, Cropley, Hanton, Miles, Niven & Dohme, 2020). Being able to relate experiences to behaviours retrospectively is clearly an important step towards reacting differently when confronted with a similar situation in the future. This also speaks to the validity of the workshop in accurately reflecting the experience of injury for athletes. Moreover, these findings seem to highlight the lack of knowledge of the psychological process of injury, even for those who have experienced this as an athlete, and have been through both a postgraduate degree and professional training in sport psychology (Pickford & Gervis, in press), further highlighting this gap in training that should be addressed.

6.2.4 Self Summary

The interviews conducted 3- and 6- months following the IACT workshop found that practitioners had retained knowledge and skills taught in the workshop. Information relating to the injury journey, mental health, pain, trauma, and the application of ACT were reported to have been helpful, enabling practitioners to feel more confident and competent working purposefully with injured athletes. The understanding of trauma was particularly significant, and led several practitioners to reflect on their practice philosophy, and was a catalyst for those practitioners to seek further training and understanding of trauma. This represented a shift in their view of themselves as practitioners, showing they were taking a more holistic approach and approaching athletes as people, not only performers (Brady, 2022; Garner, McEwan & Whitehead, 2023). This is evidence of practitioner learning and is the foundation for changed practitioner behaviour (Kirkpatrick & Kirkpatrick, 2006). In this respect, the workshop went beyond its original aims of empowering practitioners to work more effectively with injured athletes. This is important evidence of professional development, both through practitioner individuation (Wadsworth et al., 2021, Tod, Hutter & Eubank, 2019) and important changes in awareness, adaptability, and professional identity (Fogaça, Quartiroli & Wagstaff, 2024; Cropley et al., 2020).

6.3 Therapeutic Alliance

The second general dimension has been titled ‘Therapeutic Alliance’. The therapeutic alliance refers to the practitioner-client relationship which is essential for effective practice (Sharp, Hodge & Danish, 2015). This theme includes the essential ability of the practitioner to create therapeutic alliance through core therapeutic skills, and the application of ACT specific therapeutic skills. All practitioners reported evidence which contributed to the development of themes under the general dimension of ‘Therapeutic Alliance’.



Figure 6.3: ‘Therapeutic Alliance’ in the ‘Ripple Effect’ in the Practice of Sport Psychologists following the IACT Workshop

Table 6.4 gives an overview of the general dimension as a whole, while a more detailed interrogation of the data for each of the first order themes can be found below. Data will be presented as tables, with a separate table for each first order theme within the dimension.

Table 6.4: General Dimension Overview - Therapeutic Alliance

General Dimension: Therapeutic Alliance			
First Order Theme	Second Order Theme	Section	Sub-Section
Therapeutic Skills	Normalising	6.3.1	6.3.1.1
	Facilitating Acceptance		
	Education		
	Addressing Isolation		
	Understanding Space		6.3.1.2
ACT Therapy Across the Rehabilitation Journey	Understanding the Person	6.3.2	
	Stage 1 – Acute		6.3.2.1
	Stage 2 – Rehabilitation		
	Stage 3 – Return to Training		
	Stage 4 – Return to Competition		
	Setbacks		
	Transferrable Skills		6.3.2.2

Within this general dimension there are two First Order themes; 'Therapeutic Skills' and 'ACT Therapy Across the Rehabilitation Journey', as shown in table 6.4. The first order theme of 'Therapeutic Skills' will be explored (see table 6.5 below), followed by more discussion under the theme of 'ACT Therapy Across the Rehabilitation Journey' (see table 6.6).

6.3.1 Therapeutic Skills

The first theme in the general dimension of 'Therapeutic Alliance' is 'Therapeutic Skills', and is illustrated further in table 6.5 below. This first order theme encompasses six second order themes; 'Normalising', 'Facilitating Acceptance', 'Education', 'Addressing Isolation', 'Understanding Space' and 'Understanding the Person'.

Table 6.5: First Order Theme - Therapeutic Skills

General Dimension: Therapeutic Alliance		
First Order Theme	Second Order Theme	Quotation
Therapeutic Skills	Normalising	<i>'...like I want like try yeah trying to make the kids feel like they're not the only ones to do this because ... to them it's very much like it's only ever happened to them and it's so unfair because it's happened to them rather than ...If you're gonna be a professional athlete like this is part of the journey. And it'll come up again. It won't be the last thing you're injured...'</i> W3P3FU2
	Facilitating Acceptance	<i>'...Definitely acceptance, because you know big thing for him is. It's looking back on the last couple of seasons ... He hasn't been able to play. Can't do anything about it. And then he hasn't been able to get a clear diagnosis either. So a lot of our work has been about kind of coming to terms with that...'</i> W1P3FU2
	Education	<i>'...the trauma video that you showed like we had a guy that was like he was in a car crash... So we referred him out, but ... you can even just like, see, like, physically him holding his body [differently]. And I was like trying to explain it to him. And I was like, just watch this video and then you'll understand And he was like ohh my God, this is so good. Like I understand now...'</i> W3P2FU1
	Addressing Isolation	<i>'... I think it's vital to understand because it is part of performance they're performing, but it's more isolated, which they're probably not used to if they're in a team sport... So I think... [athletes are invited on camp because] it's kind of like... to keep them involved, which is nice... I think it's mainly to get like the psych support as well 'cause. They won't offer that at club, so... Yeah. I I just think psychology is vital'</i> W3P4FU2
	Understanding Space	<i>'...you said about like the safe spaces, that kind of thing... I've thought about a bit more, just OK, where am I speaking to them? Where do they actually feel safe to talk? ... I've like probably been in the physio room more than I ever have... but I've also been like, oh, can we go do this upstairs in this room rather than doing it down here in front of, like, loads of people just walking by...'</i> W3P2FU2
	Understanding the Person	

Understanding
the Person

'...a bit more appreciation for ACT and like how it could work in sport... And yeah, just generally just to get to know people on a nicer level. I feel like I was unlocking it kind of, but then ACT has really allowed me to, like, really get to know who I'm working with, which has been like, really, really nice.' W3P2FU2

The discussion of these themes will be in two parts; 'Normalisation, education, acceptance and addressing isolation' followed by 'understanding space and the person'.

6.3.1.1 Normalisation, education, acceptance and addressing isolation

Practitioners reported using many different therapeutic skills in their work with injured athletes, from normalising the challenges of injury, providing psychoeducation to improve athlete understanding of pain and trauma, and empathy. These therapeutic skills all represent important components of holistic athlete care and are examples of core skills in the work of all psychologists. Some practitioners reported how the IACT workshop had helped them understand basic therapeutic skills, such as empathy and normalising emotions:

'One thing we did in the workshop that stood out to me, the small but significant for me was... in relation to the initial part injury. When you get injured and and kind of as a Sport Psych not being afraid to say, this is shit like this sucks... I've had definitely had those conversations multiple times with clients where they had a bad competition or. Or set back... where you say like yeah, I- like it, it does suck. Uhh, and I'm not- not sugar coating it so much I suppose you know the the cliché example of a psychologist is trying to butter it up a little bit and you know it's not that bad and it's gonna be OK. But yeah, I haven't refrained so much from being like. Yeah, that that sounds tough. So I've definitely taken that on.' W1P3FU1

This is an example of empathy, the philosophy of non-disputation in ACT and the skill of acceptance being integrated into general psychological practice. It is interesting to note that validating clients' emotions and experiences came as new information to a practitioner in training, as this would be considered a foundational skill, but demonstrates the need for training on counselling skills and mental health to be further integrated into practitioner training (Aoyagi et al., 2012; Quartiroli & Wagstaff, 2024).

As reported by one practitioner, normalising the emotions associated with injury can help to provide a language for discussing emotions more broadly:

'...I think with with [young client], it was a case of, you know, really getting into the sort of normalising, making space for different emotions explain to him that he might be feeling a bit off colour talking to him a little bit about, you know, sensing for whether he was feeling nervous when he was coming back. As we've talked about before, he's one that puts a brave face on it, so he won't admit to it till afterwards. You know he broke his arm last year,

so it's taken about a year for him to admit that he was a bit nervous coming back after that. So yeah, we we we talked about things... I was able to explain a little bit about the process they're likely to go through and it's and it's OK.' W3P1FU2

This may be particularly useful with younger athletes or those with limited emotional literacy, helping to understand and express emotions in a constructive way, and understand how those emotions may be impacting behaviour. Psychoeducation around the concepts of pain and trauma for the athletes can help normalise their difficult experiences, and remove some of the fear attached to pain, particularly at the return to training stage:

'...the pain theory stuff that actually was really prominent with one player, the player who, like everything was like, fine. She was cleared to go back to play, but she was like really worried and she was actually having, she said. Like the first pass she did. She felt pain. She felt like really bad pain where her injury was. But then after that she felt nothing and it's fine. And there was no pain after the match as well. And so that was like a moment for me, where I was like, OK, so most likely that was like, her brain was responding to the action and movement, that it hasn't been doing for so long. And it's only been used to, like, creating pain from that area. So, like, yeah, I sort of spoke to her a little bit about pain theory at that point. So that was what another element of the training that was really impactful...'
W3P6FU2

After attending the IACT workshop, this practitioner had a better understanding of the challenges of returning to training following an injury, and was able to effectively support an athlete through that process. Practitioners reported that educating athletes on pain also empowered athletes themselves to have different conversations with other MDT staff:

'...she wants to push herself and she was struggling to know what pain is OK and when is she actually doing more harm than good and everything? ... And I got [the athlete] to watch the video [on pain] and then. Well like, we spoke around bringing that conversation to to physio as well. ... She said that from that like they've changed the way they how they talk about the exercises and what she should and shouldn't expect ... she's felt more confident of when she's helping by pushing herself and actually when I'm being a bit silly here I need to just be patient.' W2P2FU1

Being able to understand some of the processes of pain, and normalising the experience helps athletes feel safer, and may in turn reduce the amount of pain they experience, or the disruption that pain causes (Moseley & Butler, 2015). This in turn helps to reduce some of the fear of reinjury often attached to the return-to-play process, and helps to facilitate acceptance. Facilitating acceptance was a significant part of practitioners work with injured athletes, and was reported as crucial for helping athletes to fully engage with the rehabilitation process, and manage return to training and competition:

'...For me, I think that the elements of the ACT, kinda framework are really useful, especially around that actually acceptance part I think is really big in injury that that can sometimes be the blockage for... rehab and trying to come back from or- even deal with at all as well.' W2P2FU1

These core therapeutic skills are vital for practitioners to understand and develop, and while the IACT workshop facilitated this professional development, the question remains why these skills aren't being taught as a routine part of practitioner training. This was a surprising finding, as it highlights the limitations of current training and education, if these skills are not already understood and practiced.

6.3.1.2 Understanding space and the person

Practitioners reported how they had changed the physical spaces in which they worked to better suit intervention with injured athletes. Being present in different contexts such as medical meetings and on-pitch rehabilitation had allowed different conversations, and practitioners had a new awareness of how the space they were working in may impact on their therapeutic alliance with athletes (Goldman, Gervis & Griffiths, 2022). Where changing the physical practice space was not possible, for example with online delivery, practitioners discussed how they were adapting their delivery in order to overcome barriers associated with not being in the same space as their clients. This idea of changing spaces is illustrated by the below example from one practitioner who in the three-month follow-up interview described their intentions to change the space in which they practiced:

'...I will plan on changing. So I think definitely on more on the return to play, especially when they're outside would like pitch conditioning and things...me being out there with them as well, because I think it's different when they're out there and engaging in certain things as opposed to maybe when you might discussing some of their anxieties in the room. So I think that's again something I'm gonna start to do more this season... And you know, if there are particular anxieties or things that they are finding a bit- oh not sure about, actually being pitch side and being able to do things with them, like with the visualisation of things out there as opposed to only in the room... I'll be looking to try and do a bit more out there, so linking in both the bits we'll work on together inside, but also outside... And probably could probably do some of that with in- Um in the gym as well... you know, in celebrating the small achievements and things, I think actually. I think that's something they struggle with cause they- they only look at that the long-term improvements or the bigger things and actually... I find when you have the conversations with them, they're- Ohh yeah, but that's just a that's just a small thing or that's a given. So I think actually there's more work to be done around that. And if you can do that in the moment of when it's happening, I think that will have more of an impact.' W1P2FU1

This practitioner felt that being on-pitch with the athletes as they were moving to more sport-specific stages of rehabilitation, or being present in the gym when athletes were actually doing their rehabilitation exercises might facilitate different conversations. This was highlighted again in the six-month follow-up:

'...bits I've taken a bit more away from is actually when they are back out doing the pitch conditioning to try and get out there a bit more and then asking them in the moment how things are feeling and all of those things and then trying to get them to focus on different things. That's probably the bit I've done a bit more of rather than the sit down and working on those things. But actually, I found that stuff's really useful, because sometimes when you have the conversations with them in here, they can't fully because they're not in the moment and it's not happening, it's sometimes hard to recall or yeah, this was going on or I felt this or I was worried about this, whereas actually on the pitch when you have this conversations. It's like completely different. And also they're in that environment that they want to be in sometimes and they sat in here and you're across the table like just isn't natural as well anyway for them... And then just having that conversation with the, like, the rehab guy that's out there as well is quite useful... Although I haven't done that as much, I would like to do more of that and get out more to do that, but I think definitely that's something I've taken away from it more that actually it doesn't necessarily just have to be in here actually you can go out and have a role to play outside as part of the rehab as well. It's not just the physical rehab bit's out there.' W1P2FU2

The practitioner in this case reported that changing the space in which they were practicing changed the conversations they were having with the athletes and staff. They also explained they had a role to play “on the grass” and that their practice shouldn’t be confined to an office space. This change in location was something they adopted into their practice as a result of the IACT workshop between the three- and six-month follow-ups and planned on continuing in the future.

The ability to be present in the gym or in performance environments (‘on-pitch’, in the case of this practitioner working in football) is one of the opportunities available to practitioners who are embedded within large sports teams. This option is not always available to practitioners working independently, or working across multiple sports from a central support hub away from practice and competition environments. Where this option is available, it allows practitioners to observe athlete skills and behaviours in the performance context. As reported by practitioners, this facilitates different conversations with athletes, and often improves athlete buy-in as they can more easily understand the connection between the psychological skills and concepts discussed and the associated performance outcomes. A strong understanding of sports performance is one of the defining skills of the sport psychologist as compared to other psychological practitioners (Ward et al., 2005). Therefore, it is an important outcome of the IACT workshop that practitioners who attended developed a new understanding of how and where to use this skill to benefit athletes.

The IACT workshop was designed and delivered by practitioners with experience working with injured athletes in high performance environments. This was specifically because practitioners with experience 'on the ground' would be able to provide tailored suggestions for practice that were useful to other practitioners (Wylleman et al., 2009). This evidence on practitioners' understanding of space supports this aspect of the IACT workshop design, and aligns with previous recommendations that CPD is most effective when delivered by experienced practitioners (Hutter et al., 2017; Wylleman et al., 2009). The findings also highlight that both more experienced and early career practitioners benefitted from the IACT training in similar ways. While W1P2 was an experienced practitioner, and W3P2 was a trainee, both reported the workshop inspired them to be present in different environments and found that this change in practice facilitated different, more meaningful, conversations with athletes.

The ability to have different conversations with athletes also enabled practitioners to gain a greater understanding of the athletes' and their perspectives, which in some cases was the first time the athletes felt centred in discussion about their rehabilitation:

'...when [the athlete] was speaking to me and I said to him "well, what do you want?" He was like, well, I've not actually been asked that before... and like kinda feeling that [the athlete] had that kind advocate there for them to help bring everyone together...'
W2P2FU1

Being able to act as an advocate for the athlete is an important aspect of the psychologists' role, and empowering athletes to have a voice in their own rehabilitation will be discussed again in the next general dimension (see section 6.4.2). 'Player centred' care is often cited as 'best practice' in multidisciplinary support teams (Moesch et al., 2018; Gervis, 2022), but this is only possible when the athlete is understood as a person. This is an important aspect of holistic practice and a significant concern for contemporary practitioners (Wadsworth, McEwan, Lafferty, Eubank & Tod, 2024). Athlete empowerment therefore speaks to important professional development that matches the current practice demands (Sly, Mellalieu & Wagstaff, 2020). The theme of 'understanding the person' is closely linked to ideas discussed in section 6.2.2, regarding practitioners' changing perspectives on practice following education on trauma and its impact on behaviour. Understanding the person, not only the performer, is an important change in professional understanding, which has been enacted in changes in practice.

6.3.2 ACT Therapy Across the Rehabilitation Journey

The second theme in the general dimension of ‘Therapeutic Alliance’ is ‘Doing ACT Therapy Across the Rehabilitation Journey’, and is illustrated further in table 6.6 below. This first order theme encompasses six second order themes; ‘Stage 1 (Acute)’, ‘Stage 2 (Rehabilitation)’, ‘Stage 3 (Return to Training)’, ‘Stage 4 (Return to Competition)’, ‘Setbacks’, and ‘Transferrable Skills’.

Table 6.6: First Order theme - Doing ACT Therapy Across the Rehabilitation Journey

General Dimension: Therapeutic Alliance		
First Order Theme	Second Order Theme	Quotation
Doing ACT Therapy Across the Rehabilitation Journey	Stage 1 - Acute	<i>‘...sometimes with physios who are like ohh, it's nine months out but they'll come back better... there's like a real denial that this is gonna be really sucky for like 9 months ... that's when ACT really comes into its own of like, being in those emotions and feelings and acknowledging it there like. You are like in a bad way... I feel that you could be crying. That's fair. I'm not going to tell you to see a bright side.’ W2P4FU1</i>
	Stage 2 - Rehabilitation	<i>‘...the client's message me since and gone. Yeah, that's still doing it in the gym, still doing, mindful movement and focusing on it. And he feels like his rehabs improved as a result of it. As well as the fact that obviously is, since doing defusion and acceptance as well, his understanding of his emotions and his thoughts he's having is far better and he feels better able to manage them...’ W3P5FU1</i>
	Stage 3 – Return to Training	<i>‘...[after two setbacks] We did something like the imagery of like, OK, can you actually see yourself like the movement going well ...I think especially that like reintroduction setback stage, I think that was really, really useful to like be more aware of ... he basically had like mini trauma of like going back on the grass like the grass was so scary for him ...that stage where, like reinjury fear of reinjury...that bit was like, really, really super helpful.’ W3P2FU1</i>
	Stage 4 – Return to Competition	<i>‘...this player that everyone on the medical side of it seemed to think he was fit to play. I was like, well, has anyone actually like asked him if he thinks he's pulling out of tackles and like not doing these things ... We don't follow the player's lead very much with these things and actually don't get their feedback on stuff weirdly, which you think would just be like the number one step with these things, but it clearly is not.’ W2P4FU1</i>
	Setbacks	<i>‘... I would have obviously recognised that a setback was a really significant experience in the injury recovery ...But to that extent, where I'd be aware of, you know, the prominence of depression and the prominence of suicidal ideation ... the prevalence of depression and anxiety and things like that when you're injured, that awareness of that and ... how high it was. Motivated me to- and made me aware that I needed to to touch on those those issues...’ W3P5FU1</i>

Transferrable Skills

'...[ACT] takes away from the the kind of medicalized side of things ... it doesn't just apply to the injury, they could do that, the athlete can then take it forward into kind of other elements and and I feel like kinda empowers them quite a lot as well... having those experiential exercises and helping them understand ... Like working through it and building that understanding.' W2P2FU2

The first five themes will be discussed collectively under the heading 'Doing ACT therapy across the rehabilitation journey', followed by discussion of the final theme 'Transferrable skills'.

6.3.2.1 Doing ACT Therapy Across Rehabilitation Journey

The rationale for psychological intervention during injury rehabilitation is to help safeguard the wellbeing of injured athletes and improve rehabilitation outcomes for those athletes. Practitioners reported that since attending the IACT workshop they were more involved at all stages of rehabilitation, from the acute stages offering empathy and facilitating acceptance, through to the return to training and competition stages. As illustrated by one practitioner:

'Like I've been there when... they've had to deliver the news to the boys about the surgery, stuff like that. Like, I've been present in the room. 'cause... I'm like, I'm a safe person, they feel... I don't even think I would have like [been in the room before attending the workshop] I don't even think I would have like thought about being in them ... But yeah, [the training] definitely has encouraged me to be more part of like, the process of their injury, to be honest. ...all their first sessions out on the grass I've been to, I've been there... just more like, OK, let me be part of it because the more you're part of it, the more they're willing to talk to you... you end up. Yeah. And getting to know them way better. So. But that's probably been a nice take away from the course, like natural evolution of like. How I'm progressing? But also like the course has definitely encouraged me just to. Yeah, be more confident and being part of that really.' W3P2FU2

This practitioner reported how they would now make an effort to be present with injured athletes for important milestones in the rehabilitation process, such as discussions about surgical intervention and the early stages of returning to training environments. This change illustrated better holistic athlete care, reduced athlete isolation, and facilitated understanding of the athletes' rehabilitation progress. This enabled ACT interventions to be tailored to the athlete and their progress, as well as helping to reinforce ACT skills in changing contexts. Beyond being part of the emotional support system for injured athletes, practitioners reported how ACT processes, particularly acceptance, helped injured athletes move forwards with their rehabilitation. One practitioner describes the process of using a 'choice point' (Harris, 2019a) to help athletes understand different behaviours, a new skill they were beginning to integrate into their practice:

'[the choice point] breaks it down in terms of the the current, the thoughts and feelings that they're dealing with, but it actually breaks it down into the unworkable actions, the avoidance and the towards moves. So that's something that I wouldn't have done previously...I think it gives scope to kind of go into a bit more detail about things... And I think that's quite useful because especially in those, those the stages where. Like it's a long it's a long rehab and then you know there that initial period where is quite repetitive things or really restricted in terms of what they can do, that's the bit I think is a lot of the times where they really struggle... just like they they might be in the gym and they're seeing other players who are maybe with different injuries and progressing and stuff and actually they're in there doing like really- or what they feel is really basic stuff. ... So I think it's really good to actually really break that down. And I found that bit quite useful... So not only you know what, what are they like the behaviours within the gym, but also outside of the gym in terms of how they might be avoiding to go in there or like it kind of is an opportunity to break that down. I need to I think use that a bit more though in terms of the you know with the choice points and the towards and that I think that would link in a bit more with that but that that that's the bit I don't feel as confident with yet. So I need to build on it. But I think identifying that initially will then help with with that bit of work as well.' W1P2FU1

This practitioner reported that using the 'choice point' (see appendix 4.4) helped them and the athletes they worked with identify avoidant behaviours both in the rehabilitation environment and outside of it, and understand the thoughts and feelings that were giving rise to those behaviours. Identifying avoidant behaviours helps athletes to be more aware of their choices, and their agency in choosing different behaviours which facilitated better physical outcomes. This is an example of the ACT skills taught in the IACT workshop being applied directly and demonstrates that practitioners adopted workshop learnings into their regular practice. Practitioners reported the work they had undertaken with injured athletes impacted favourably on the outcomes of physical rehabilitation, particularly in stages 2 and 3. They had used ideas discussed in the workshop to work on mindful movement which impacted movement quality, strategies which enhanced return to play, and how improved communication had influenced athletes' adherence to rehabilitation. As illustrated by one practitioner:

'...he felt more supported ... and kinda heard a little bit as well in that his needs actually mattered and stuff and it gave him a bit of autonomy as well... instead of him being told 'right, this is- we need you back for this game and this is how it's gonna happen'. erm as well. So once that kind of shifted a bit more they found he actually adhered to his- his kinda rehab and a little bit more erm as well, that's just from the physios perspective...' W2P2FU1

These factors can all be vital building blocks contributing to successful return to pre-injury levels of competition, which for many athletes and rehabilitation teams is the ultimate goal of injury rehabilitation. The recognition of this by physiotherapy staff is important, as they are often best placed to judge the physical progress of rehabilitation (Gervis, 2022). Having an impact on athletes

that can be recognised by physiotherapists is therefore an important indication of the efficacy of psychological intervention.

Returning to training environments can be a difficult experience for athletes and is often accompanied by a change of staff point of contact. Several practitioners describe how being present with the athlete throughout the rehabilitation journey helped the athlete feel supported, and as will be discussed in the next general dimension, improved information sharing across the MDT. Practitioners provided examples of how they were able to add value to the return to training stage for athletes, for example one practitioner reported how an athlete had appreciated the work on movement quality and visualisation:

'... like once they've been on the grass, I think I found really helpful was like the kind of visualisation stuff. Like when they go back on the pitch... one boy that like ... when we got back on the pitch, we did like a little bit of like, OK, can I see myself flowing properly that kind of thing? And then we even did some like, we videoed him like doing some movements, that kind of thing got him to watch it back and like, review it and see like, OK, I actually do this quite well and then kind of like building up that like, OK. The movements actually flowing, which was really cool... and he really enjoyed it. He kept like asking for the videos ...like, I want to show my mum and dad like what I'm doing so yeah. No, that part like that kind of like little nugget of like, OK, this is actually really helpful. Like, even. Yeah, just that skill I've been able to actually go out and do now, which has been quite nice.' W3P2FU2

This is an example of how psychologists can help make transitions in the injury journey more positive for athletes. Visualization has been shown to be helpful for athletes returning to training, and is a transferrable skill with other benefits for sports performance after recovery (Borg, Falzon & Muscat, 2021). From an ACT perspective, visualization uses mindful movement and contacting the present moment to understand not only the sensations, but also the thoughts and emotions connected with the movement. Using mindful movement techniques can help facilitate committed action, and reinforce helpful performance behaviours while defusing from difficult thoughts about reinjury or comparisons with pre-injury performance. Another participant stated the differences between athletes who had been supported through their rehabilitation and those who hadn't:

'...Feedback has been pretty positive in terms of the the impact, especially the uh, the return to play stuff um ... I think we're doing a lot better now ...some they were like [long term injured] before and then they were back so it had been like an unsupported long term injury experience versus a supported one um and they spoke far more positively about [the supported injury] which was nice to see just in terms of even like their confidence to return um which is something we always talk about, but maybe ... weren't necessarily actioning, just in terms of a lot of the time they'd get to the point where, like, physiologically they were [ready to return] and it was like, right, you're off the sheet, off you go. Um whereas actually, we know that that's probably a time where they need more support, not less. So that's been

quite good... the theme would just be that like athlete empowerment in terms of like ability to vocalize, and ability to understand um which are always are always a good aims to be meeting.' W2P5FU2

In this case the practitioner reports that both they, and the athletes they supported, felt that psychological support was helpful in making the injury journey more positive, and reiterated that intervention contributed to athlete empowerment in the injury process (see section 6.4.2). Athletes who had previously had an 'unsupported' injury experience felt they had a better experience when supported by the trained psychologists. While this is a small sample, and anecdotal evidence, nevertheless it supports the rationale for psychological intervention, and suggests that the IACT training has contributed to improving the injury and rehabilitation experience for athletes, thus supporting previous recommendations of the literature (Gervis, 2022, Moesch et al., 2018).

6.3.2.2 Transferrable Skills

The final second order theme under the first order theme of 'ACT Therapy Across the Rehabilitation Journey' was 'Transferrable skills'. Practitioners talked about the application of ACT skills more broadly, and the fact that the intervention took the whole person into account, rather than just the athlete and the athletic identity. Practitioners reported that using ACT had lasting impacts, and helped athletes with their lives beyond the injury journey. In particular the flexible application of ACT and the experiential elements allowed the athletes they had worked with to apply the skills in different settings, and helped them to understand their thoughts and behaviours in a different way moving forwards:

'...I'm seeing the big thing for me... it aligns in in terms of my philosophy ... with the fact that we're not disputing, thoughts or feelings? ... We don't have to fight them. I think that is actually quite reassuring or comforting in a way ... the idea that you can make room for them. Create space for them. And they can still be there and you can still play your best football or golf or whatever. I think from- from an athlete's perspective is- is reassuring. ... I think the focus on behaviour and action is great 'cause. You can always relate it to how they can then refocus on playing their best football and what actions go into playing their best games. So it's all very controllable, focused on the controllables, ...at some point you bring in- the values side of things and it kind of, broadens that perspective ...We know from the literature we can look at them as a person rather than just just an athlete in broaden their identity in that way. So it's just a really well-rounded modality.' W3P5FU2

The non-disputation of difficult thoughts and feelings is one important distinction between the ACT approach and other cognitive behavioural approaches such as CBT and speaks to the unique benefits of using an ACT approach with injured athletes. As reported by this practitioner, sport is a challenging environment and being able perform in the moment despite difficult thoughts and

feelings is a helpful skill for athletes in their careers more generally. Specific ACT skills such as the 'choice point' (Harris 2019a) and 'Sushi Train' (Harris 2019b) were also popular with practitioners:

'...we did the choice point in the workshop, didn't we?... Yeah, I use the choice point pretty much with every client, even if I'm not doing ACT necessarily I use it in my intake. Because I just think it, it maps that link out between experiences, thoughts and feelings and subsequent behaviours so well. Then identified helpful and unhelpful behaviours away and towards moves. And then you can already get the client looking at OK what can help them stay unhooked. You know any values they already have, goals which we can set in that session. You know, any helpers they already have. And it also helps then with goal setting OK what what do you want to learn? You know, have they, do they have any of these, these kind of techniques and skills that involve in ACT or is that a potential focus for intervention. So I think it's a great basis for the tools using the intake and then refer back to as well like what's- has this choice point changed since we since we last spoke. Are there any new towards or away moves you know, I think it's a great way to track. And and you can also use it to kind of to to plan and formulate I guess as well. So I think it's a really, really useful tool. The choice point and like I said, it's not necessarily siloed in ACT for me. I think you know it could be used in an integrated approach if if you've had that type of philosophy.' W3P5FU2

Practitioners found the skills from the IACT workshop useful and transferrable to contexts outside of work with injured athletes. Several practitioners mentioned integrating these skills into their practice more broadly and how they found those skills helpful in their work. This is not unexpected, as ACT is a very broad modality and can be used to address a wide variety of issues, but the application of these skills in different situations does suggest that the workshop added value for the practitioners in a broader context, expanding their therapeutic repertoire. This is also evidence of professional development through adaptability and practitioners being able to flexibly apply techniques to different contexts (Fogaça, Quartiroli & Wagstaff, 2024). Another example of this is using mindful movement and education on pain:

'I used the mindful erm kind of movement part, and I've used that not even just for people who are injured as such if theres- I've had one person and they spoke about like the kind of they actually felt pain in their body as such and things from an experience that they'd had. And then I felt more able to talk around like ohh about what pain is and then the impact it could be hav- like having on them and how they understand their own pain and everything like that.' W2P2FU1

This practitioner combined a trauma-informed approach with the mindful movement (Clark, Schumann & Mostofsky, 2015) and understanding of pain from the workshop and applied those skills in a new way. In this regard the IACT workshop provided skills to the practitioners which could be used in a wide variety of contexts, and is further evidence of professional development in adaptability and professional identity (Fogaça, Quartiroli & Wagstaff, 2024). The IACT training

allowed them to provide their clients with skills that would help them throughout the rehabilitation journey, but also more broadly through their careers and life outside of sport.

These examples of applications beyond the specific context of injury suggest that practitioners' professional practice was influenced by the IACT workshop on a more fundamental level, and supports the data in section 6.2. This is an example of how practitioner self-reflection and consideration of practice philosophy impacted their work with athletes, and evidence of professional development through more flexible applications of skills and theory (Fogaça, Quartiroli & Wagstaff, 2024).

6.3.3 Therapeutic Alliance Summary

The overarching goal of psychological intervention for injured athletes is to improve outcomes for those athletes in a broad sense. Every athlete will have individual goals and the outcomes for athletes are difficult to standardise. However, the evidence suggests that practitioners used the information and skills from the IACT workshop to change the way they worked with athletes, contributing to athlete empowerment, holistic care, and effective rehabilitation outcomes. Practitioners also demonstrated improved therapeutic skills and an expanded therapeutic repertoire. In particular, they changed their work in different ways, and found different ways to apply ACT according to their individual professional contexts. There is important evidence of professional development under the general dimension of 'Therapeutic Alliance', including the integration of new therapeutic skills into practice, more holistic understanding of the athletes, and new ways of working in different practice environments.

Moreover, the development of core therapeutic skills not only adds weight to the recommendations of previous research (Aoyagi et al., 2012; Quartiroli & Wagstaff, 2024), but also begs the question why practitioners are not receiving training on these core skills before engaging in practice. While more than half the practitioners were trainees, trainee practitioners are regularly encouraged to take on clients early in their training. These findings suggest that they are not always equipped with the necessary basic therapeutic skills to be practicing effectively at this stage. An understanding of therapeutic modalities are a requirement in postgraduate degrees certified by CASES (CASES, 2023), however delivering therapeutic skills is a SEPAR requirement. Neither therapeutic approaches nor skills are required for BPS accreditation of postgraduate degrees (BPS, 2019). While programs are encouraged to support students to develop these skills, the accreditation documentation emphasises that this is a responsibility of 'stage two' supervised practice rather than 'stage one' education. Current practices leave trainee practitioners and their clients vulnerable.

While independent practice is necessary to build experience, trainees are currently falling through a gap in the training requirements. While the skills are not required at MSc level, trainees are expected to practice early in their supervised practice journey. Either these training requirements need to be updated or more should be required of professional training supervisors to ensure their trainees are trained in these core skills before starting work with 'live' clients.

The evidence in this general dimension supports the earlier conclusions that the workshop delivered effective learning, empowered practitioners to change their behaviour, and suggests that this changed behaviour delivered results in the experiences of the athletes supported by practitioners (Kirkpatrick & Kirkpatrick, 2006). These findings further support the need for more practice-based evidence as a route to enhance and develop the profession. A reliance solely on research-based evidence overlooks the impact of training on practitioners and their contextual experience of practice, which influences all aspects of their work. Not knowing this is problematic and is holding the research-practice gap in place.

6.4 Working Alliance

The third general dimension has been titled 'Working Alliance' and covers interactions and relationships which although outside of the practitioner-athlete relationship, are within the remit of practitioners working in multi-disciplinary teams and can have both direct and indirect implications for the athletes. The majority of practitioners reported evidence which contributed to the development of themes under the general dimension of 'Working Alliance'.



Figure 6.4: 'Working Alliance' in the 'Ripple Effect' in the Practice of Sport Psychologists following the IACT Workshop

Table 6.7 gives an overview of the general dimension as a whole, while a more detailed interrogation of the data for each of the first order themes can be found below. Data will be presented as tables, with a separate table for each first order theme within the dimension.

Table 6.7: General Dimension Overview - Working Alliance

General Dimension: Working Alliance			
First Order Theme	Second Order Theme	Section	Sub-Section
Influencing MDT	Knowledge & Understanding	6.4.1	6.4.1.1
	Information Sharing		
	Changing Perspectives		
	Upskilling		
Creating New Collaborations	Athlete Empowerment	6.4.2	6.4.2.1
	MDT Communication		6.4.2.2
	Joining the Dots		
	Collaborative Intervention		6.4.2.3
	Role Conflict		6.4.2.4

This general dimension has two first order themes of; ‘Influencing MDT’ and ‘Creating New Collaborations’. These first order themes are further explored in tables 6.8 and 6.9.

6.4.1 Influencing the MDT

The first theme under the general dimension of ‘Working Alliance’ is ‘Influencing the MDT’. This in turn encompasses the second order themes; ‘Knowledge and Understanding’, ‘Information Sharing’, ‘Changing Perspectives’, and ‘Upskilling’, which are expanded further in table 6.8 below.

Table 6.8: First Order Theme - Influencing the MDT

General Dimension: Working Alliance		
First Order Theme	Second Order Theme	Quotation
Influencing MDT	Knowledge & Understanding	<i>‘[physios] maybe seeing behaviours and not being able to understand it in the same way that we might... opening the doors to those conversations [with physios], I think it's been really helpful in terms of that like not just taking behaviour at face value. And I think they're now like having better conversations and getting involved more.’ W2P5FU2</i>
	Information Sharing	<i>‘... since the course I've like sat in way more with the rehab kind of stage. And yeah, I think letting the physio know more.... sharing a bit with more with the physio so they know what we're doing. So, like explaining I've explained like ACT to the physio... getting him to remind [players]... And if you try and help educate [physios] as well, then they can continue your message. And like, yeah, understand what you're actually doing with the player as well.’ W3P2FU1</i>

Changing Perspectives	<i>'I think it's maybe normalised the actual conversations that we're having in that like the awareness that we can't just treat them like robots ... I think we can still get quite disconnected in performance sport from like, rather than treating people like assets all the time and these commodities that must be put back together and put onto the pitch to perform. There's just like a real human element lacking at times...'</i> W2P4FU1
Upskilling	<i>'...so I've tried to support physios a bit better with like what they should- not witness, but what the things they might see. And so I've tried to do more like, more personality kind of psychometrics. So the physios know exactly. OK, this behaviour is a bit different from the norm and get them to understand the player a bit more... educating the physios more than anything, because ... I can't be there all the time so, so it's important to educate physios on how they can best support...'</i> W3P4FU1

The four second order themes under the first order theme of 'Influencing the MDT' are interconnected, and will be discussed collectively in section 6.4.1.1 below.

6.4.1.1 Knowledge and Information Sharing, Changing Perspectives and Upskilling MDT

Practitioners reported that they had been able to change the perspectives of the MDT and improve understanding of athlete behaviour, while also upskilling other disciplines and making other staff more aware of athlete behaviours and how they could be interpreted. Practitioners stated that it was 'part of the job' to upskill other professionals on the psychological aspects of injury, and how to understand changes in athlete behaviour. Several practitioners reported that empowering others to understand behaviour was useful, given psychology practitioners' limited contact time with players. Having more staff trained sufficiently in this area meant that the psychology practitioners received more relevant feedback from other MDT staff, and practitioners' perceptions were that this resulted in a better level of player support. One practitioner reported helping MDT staff gauge what was 'normal' behaviour from individual athletes, and in turn recognise what behaviour was unusual and share this with the psychologist, thus allowing the practitioner to better prioritise their limited contact time. Practitioners also reported how they had spent time humanising the athlete and providing additional context on athlete emotions and behaviours during MDT discussions. As illustrated by one practitioner:

'... Like even speaking to like S&C coaches. They're like, "they're just not motivated", and all this, and then I'm- kind of remind them that they're still in school... Because yeah, I think they get treated like full time professionals, but they really aren't- even full-time professionals won't be fully motivated all the time. So it's just, get them to see a different perspective, which can be quite challenging... And it's quite reactive too depending on the staff member... So it's. Yeah, I feel like I'm working more with the staff to try and get them to

understand a different perspective than always working with the athlete... And like there's just more more to it than just the injury or them being motivated. So yeah, everyone's got different challenges. It's not always the same...' W3P4FU2

This advocacy is an example of how psychologists within an MDT can help 'humanise' the athlete, an aspect which can be lost in the environment of high-performance sport (Brady, 2022; Küttel, 2022). Practitioners gaining a better understanding of the injured athletes themselves (section 6.3.1.2) facilitated this process and helped the other MDT staff understand the athlete as a person, not just a performer. This supports the recommendations that including psychology practitioners within the MDT provides better holistic care for injured athletes (Reardon et al., 2019), not just through the care provided directly to the athlete (as discussed in section 6.3) but also through changing perspectives of other professionals.

The involvement of the psychology practitioners in the MDT prompted other practitioners to have different conversations with athletes, and better understand injured athlete behaviour. One practitioner described how they felt their interventions with a physiotherapist colleague had a part to play in improving rehabilitation times for athletes:

*'... it's always really hard to tell, right? But like anecdotally, it looks like it's having an impact on rehab times. So a couple of the like. Common injuries that they have certainly in like my region, the. Like rehabilitation time has come down a little bit. On average, you can never obviously attribute that really, really clearly to anything, because it's people's bodies and all sorts of stuff happening but like. **I wouldn't be surprised if part of that is that the physio that just getting better at talking**, which sounds really simple, right? But like actually being able to to have a conversation of OK where's the athlete at? Can this be speed up a bit? Does this bit need to be slowed down? And yeah, I think that's probably been one of the biggest strengths that they've said in terms of having me around.'* W2P5FU2

This is a clear example of how upskilling the MDT, changing perspectives and improving knowledge and understanding of the injured athlete journey can help MDT staff work more supportively with athletes, and demonstrates the indirect impact that psychology practitioners can have on rehabilitation outcomes.

Improving the MDT understanding of mental health risks was reported:

'And I also think as well, it was a bit like of an eye opener for them to be like the [mental health impact] numbers are so high here and we don't know anything about like helping people with these things. And we're gonna see them everyday. So then it was about like, OK, like we probably should look into doing something about this and then it's quite easy. Cause You're just there, offering at the same time, yeah.' W3P3FU2

Raising awareness of the prevalence of mental health risks for injured athletes helped to convey the importance of support for injured athletes and was the basis for much of the organisational and process change that will be discussed further in section 6.5. Given that there has been significant emphasis on mental health in sport in recent years (Poucher, Tamminen, Kerr & Cairney, 2021), psychology practitioners should be a significant resource for mental health information in the environments in which they work. In terms of working alliance, practitioners reported they were able to raise the awareness of staff, contributing to psychologically informed sport environments (Breslin et al., 2019; Purcell et al., 2022). Sport psychology practitioners are likely to be the most knowledgeable people in the room in many of these organizations with regards to mental health, and therefore it is vital that they are appropriately trained to avoid misinformation and to be able to appropriately support and triage athletes in the system (Prior, Papathomas & Rhind, 2025).

6.4.2 New Collaborations

The second theme under the general dimension of ‘Working Alliance’ is ‘New Collaborations’. This in turn encompasses the second order themes; ‘Athlete Empowerment’, ‘Communication’, ‘Joining the Dots’, ‘Collaborative Intervention’ and ‘Role Conflict’, which are expanded further in table 6.9 below.

Table 6.9: First Order Theme - New Collaborations

General Dimension: Working Alliance		
First Order Theme	Second Order Theme	Quotation
New Collaborations	Athlete Empowerment	<i>‘...she just felt more confident to... take more of an active role in her recovery instead of just “the physio knows everything what she says I’ll do” ... Having those conversations to understand, like herself within the physio and ... how she even experiences pain might be different for her than another person with the same injury ...I think that allowed her to, understand her own journey...’ W2P2FU1</i>
	MDT Communication	<i>‘...I think [physios] do appreciate the information coming in terms of the like the return to play bits and feeding back more... it depends. Some physios are really good at like feeding back ... whereas others won't necessarily share that information. Um. So I think it again it it depends on the certain people that you're working with. But I think definitely like in terms of. Um, things to look out for ...or things to follow up on or in terms of behaviour. So I think it has got better, but that I think definitely is probably more scope around that as well.’ W1P2FU1</i>

Joining the dots	<i>'...I feel like people can get caught up in departments when you're in, like big organizations... [as the sport psychologist] I have quite like a nice way to like go across all the departments. So I can kind of be the one who's constant while [athletes] move through all these and then see them back to pitch... even just having the basics of, like some of the language ... just let you have those conversations with, like the medics and the and the physios...'</i> W3P3FU2
Collaborative Working	<i>'So it's more like DE disordered eating. Rather than eating disorder. But it's like kids that have just got the attitude of, like oh now I'm injured. I'm not gonna eat because if I eat, I'll get fat. And then I won't be able to like when I come back, I'll be in horrible shape ... So just being like working with [the nutritionist] ...maybe like a few five kids at once and get like a big workshop and they go where we talk about like psych like injury psych plus nutrition.'</i> W3P3FU2
Role conflict	<i>'...Sometimes I can't be as present for them just 'cause I'm stretched. But then there's lots going on with the player care, if I'm honest, that's muddied the water a bit more because now they're checking in on the rehab players... The thing is, I'm used to doing that myself, and I wasn't aware that that was now part of [player care's] responsibility... it's very frustrating if I'm honest.'</i> W3P4FU2

The theme of 'Athlete Empowerment' will be discussed first, followed by 'MDT Communication' and 'Joining the Dots', which will be discussed collectively, as will 'Collaborative Working' and 'Role Conflict'.

6.4.2.1 Athlete Empowerment

The findings showed that practitioners felt they were improving athlete autonomy through delivering psychoeducation informed by IACT. This is an example of athlete education through the therapeutic alliance, which lead to changes in the athlete's interactions with other practitioners, giving injured athletes a voice and more autonomy within their rehabilitation process. This in turn was thought to improve adherence, buy-in and ultimately provided better conditions for desired rehabilitation outcomes.

Within the theme of 'Athlete Empowerment', practitioners discussed their work in helping athletes become active participants in their own rehabilitation. One practitioner reported how athletes were able to have different conversations with the rehabilitation MDT:

'[The impact for athletes has been] Probably more voice like greater empowerment in the process, I think like. The level of interaction and conversation I'm hearing, because change, can be just in terms of athlete willingness to challenge to ask questions to understand and uh, both in terms of like a physical sense in terms of like why am I doing this? Uh and. And also just in terms of like a more personal sense in terms of understanding, I am feeling this right now, this is why I might be feeling this. What can we do about it and and

just having them feel more empowered in the process? So that would probably be one big one just in terms of like the the level and depth of conversation is a lot better...' W2P5FU2

Giving athletes a voice and agency in their rehabilitation process contributes to engagement in rehabilitation, and athletes feeling they have more control over a largely uncontrollable situation.

As illustrated by one practitioner:

'...for this one athlete in particular I'm thinking of it's something that she does have control over there like how much effort she can put into the psychological process. She's had too many setbacks in her like rehab journey that, you know, that's the tearing your hair out type thing ... But we can keep building on the psychological parts of it. So, you know, like the imagery [has] gone from like it was- actually began at the point of walking down to the squash courts like that's where we had to begin with... Like it was not where I thought we were gonna start. And like now, we're imagining being on the squash court and like playing a rally in a training session type thing. So there is, she can still progress that way, even though she's not necessarily made huge amounts of progress in the gym. And that's really nice to give her something else to focus on rather than just maybe how hard the rehab journey is being.' W2P1FU1

Fostering athlete autonomy during rehabilitation may be a way to proactively safeguard athlete wellbeing, during a time when athletes may otherwise feel they have very little control over their circumstances and feel helpless (Dindo, Van Liew & Arch, 2017). Athlete autonomy promotes wellbeing, reduces athlete distress and burnout, and is closely linked to self-determined motivation, which may improve rehabilitation adherence (Lonsdale, Hodge & Rose, 2009; Mossman, Slemper, Lewis, Colla & O'Halloran, 2024). In high-performance sport, athletes have limited autonomy and often exist in a power-over culture, impacting negatively on wellbeing (Gervis & Dunn, 2004). Athlete empowerment is therefore to be encouraged as it can significantly contribute to recovery from long-term injury.

6.4.2.2 MDT Communication and Joining the Dots

Communication in the MDT is multi-directional, and practitioners reported changes in communication both from themselves to members of the MDT, and also how they changed their interpretations of communications from the MDT. Several practitioners reported that the CPD workshop had helped them feel more confident and allowed them to speak to the MDT (particularly physiotherapists) feeling that they had more to offer on the topic of injury. This is closely related to the themes of 'Competence' and 'Purpose' as discussed in section 6.2.2. For example, one practitioner reported how the CPD had helped their confidence in engaging with the physiotherapy staff:

'...There's two physios and they are quite different. One is very cautious and one is very not cautious. So the one that's really cautious is really good because like he, he's also quite interested in all the psychology side of it. And like we talk about things and and like the risk of fear of re injury and things like that and like, are they ready to come back and he he's he often like I guess it's definitely given me like more confidence speaking to them and being like, yeah, I I kind of know. Like, I'm not just kind of like talking from experience or intuition or something like that. I'm like, I've had training on this like, I've read about- it has good, like backing to what I'm saying here... I think that is something that you mentioned in the workshop anyways, like like learning about specific terms like medical terms and things like that. So you can actually like communicate with the physios in on level terms. Yeah.'
W3P6FU2

Equipping practitioners with a vocabulary and the confidence to engage effectively with professionals with different expertise was considered in the design of the IACT workshop, and practitioners reported that the 'injury glossary' had helped them gain greater understanding and feel more at home in 'medical' conversations. This is a small, and easily deliverable aspect of training which was perceived to have had a significant impact and could easily be integrated into practitioner training, particularly for those practitioners who have not previously been exposed to sports injury in other ways (for example, experience of injury themselves). Practitioners reported that the IACT workshop was significantly different to previous training they had received, and was tailored to the professional environments they were now working in:

'As a result of the protocol ... I'm trying I using this as an opportunity to help explain to different MDT members why a particular player might be off, or why they might be, you know, showing shock, anger, sadness... I think I'm much better equipped to help the MDT interpret how different lads might be reacting at different points over and above some of the more obvious stuff... I mean there are certain very obvious things with injury, what you've put here is more nuanced... I think another thing with the MDT members is it it would immediately- it has immediately given me the opportunity to just feel a bit more authoritative when it comes to this area and what it means psychologically... And that's really and in a way that's congruent with, you know, the core approach that I'm looking to continue to develop my use of... so that's that's really, really helpful, really helpful... in the future I can see it'd be more and more useful... it's of a level that in that kind of environment with those very experienced practitioners of other disciplines- it's ready to go of a level that that, that you can add value with them as opposed to, you know, come out with something blindingly obvious and basic. Which doesn't particularly help.' W3P1FU2

This practitioner articulated that they were better able to contribute to the MDT, and speak with more confidence on the behaviour of injured athletes. Importantly, practitioners reported being better prepared to act on information provided by other members of the MDT:

'I've got two athletes, for example, and I've had a physio come and say, you know, they're stopping themselves. They're talking about pain and it's- they can physically do the

movement. They're just reluctant to because it might be a little bit sore and kind of been able to have that conversation around them and think OK, that pain? What's that like? And yeah, it just gave me more confidence having those conversations, that's for sure.' W2P1FU1

This practitioner reported that the workshop had equipped them with the skills and knowledge to be able to react to information coming in from the MDT, and adjust their practice with athletes accordingly. This not only contributed to the holistic care of the athletes, but also helped MDT staff understand how the psychology practitioner can be a useful resource throughout the injury journey, and increased the likelihood of future information sharing. The bi-directional nature of communication with the MDT was also considered. While some practitioners found they were better able to pick up on information coming in from the other MDT staff, others had identified that there was still work to do to ensure communication was happening early enough:

'...I guess the younger players where it's long term injuries, but not a lot of contact time it's a lot harder because the staff there are pretty much part time as well. So I think they're better at giving me nuggets of like, what's going on... But there's been moments where, like. Some coaches have added the rehabbers into their session, but for me I'm not aware of that, so they could be terrified of turning, etcetera. But I wouldn't know. So there's moments where. I just, I think the coaches think they're doing good, but in my opinion, like just a little heads up so I can prepare the athlete and prepare the coach would be really good.' W3P4FU2

This example shows how effective and timely communication is essential to allow the MDT to work cohesively and highlights the need for more education of staff both in the rehabilitation MDT, and also in the wider MDT, including coaches, supporting recent research (King, Yiannaki, Kiely, Rhodes & Alexander, 2024).

Several practitioners reported that since attending the workshop they had been able to communicate differently across departments and 'join the dots' between MDT professionals, or between athletes and staff, to facilitate better athlete care. One practitioner reported how, at the return to training stage, they were able to help coaches understand that just because players were medically fit, didn't mean they were psychologically ready to be back in training:

'So the minute that physios done with them and they're physically fit, they're then on games, so the coach gets notification. This player's back on games and the coach just takes that as like 100% fit to do everything and mentally prepared to do everything. So then having someone else at the side of the pitch who's like 'they are on games, but they're worried about this, this and this. Like can we try to keep him on the side of this box just now? Just so he can get like used to it, not like throw him right back into full training' or like 'he's a bit nervous about like this. Can we just give him 10 minutes at the end of the game to see what it goes like?' It's a bit easier for the player rather than just being like back on games, 100% coach- and ready to go.' W3P3FU2

This example demonstrates how practitioners felt they were able to improve coach awareness and also reinforce the messages of other professionals who may have set limits on playing time, but are not present themselves to ensure those limits are being upheld. This practitioner similarly reported improved communication at the return to competition stage:

'... It's just so hard for the coaches to have, like, details on every player, so it's easier because I can be there ... so if they're only signed off for 10 minutes and then the coach turns round has been like, right, someone needs to go in ...[the athlete is] always gonna say yeah, even though it's five minutes in and they'll play 85 and then they'll end up back in physio office. But like for me to be there and be like [athlete]'s not actually OK to play 85...'

W3P3FU2

This can play an important role in a successful return to training and competition environments, particularly for athletes in team sports who may otherwise be 'lost' in the larger group. Practitioners also reported being able to sit between the athletes and MDT staff, and facilitate communication between them, joining the dots between athlete and staff expectations:

'And I think with one of the guys ... what he was expecting and wanting and what the organisation were, were kind of different and it wasn't communicated... and I'm in the middle going. You guys need to talk. So what I did was actually kind of bring both parties to the table and be like what are your expectations? What are you wanting from this athlete and actually this is kinda what he's hoping and stuff like that? So it was a lot more around those kind of things... [translating between people] that was a lot of what I was doing 'cause they were like "ohh, hes not interested in coming back. He's not even brought his trainers to do some testing". And I spoke to him and he's like he because of the pain he was feeling, didn't think he was ready and he was concerned it would get worse and that would have an impact for things he was hoping to do in the coming months. But no one had- He hadn't spoke to [the other staff] ... "I've got these other things as well, and actually, I'm still in pain. Is that OK?" And the physio's going? "You should be OK. You need to come and do this" and cause he's never there, like "doesn't care" and he's desperate to get back. So yeah.' W2P2FU1

In this case the practitioner felt they were able to find and understand the disconnect between athlete and MDT, and facilitate a better understanding on both sides of the conversation. The ability to intervene in this way is again a benefit of having a sport psychology practitioner embedded in the environment, and an example of practitioner impact beyond the therapeutic alliance, which often goes unnoticed. This role of practitioners being able to 'join the dots' was described on both an individual level, as above, but also on a departmental level. One practitioner describes their role as being across the whole process of rehabilitation and return to play, where otherwise an athlete might be 'passed' between one department and the next. Being a constant presence through the rehabilitation journey allowed them to use consistent language to reinforce messages, liaise between coaching, physiotherapy and sport science departments, and safeguard athlete mental health.

6.4.2.3 Collaborative Working and Role Conflict

As has been discussed, practitioners reported that improved communication and ‘joining the dots’ between different MDT disciplines resulted from their attendance at the IACT workshop. There were also examples of collaborative working being taken a step further, with interventions being co-delivered by practitioners and other MDT professionals. In this sense, working practices had progressed from being multidisciplinary to interdisciplinary (Gervis, 2022).

There is a clear progression in several of these examples from the impact on individual practitioners stating they were more purposeful in their work with injured athletes, (as discussed in the general dimension ‘Self’) to then feeling they have more authority within the MDT and being able to take a more active role within that group to support injured athletes. For example, one practitioner reported how they were now included in significant meetings with athletes:

‘I feel like the better my relationship has got with the physio like the more he wants me to be in those conversations anyway and obviously like I’m two seasons in like I know the boys really well now, so it’s kind of like been a natural evolution of like oh, if we’re having an important conversation, probably it’s best that I like sit in there...’ W3P2FU2

This represents a cultural change that has allowed the practitioner to be more involved in significant conversations. As reported by the same practitioner in table 6.9 above, this is an example of how athletes can view a variety of practitioners as their ‘safe person’ and making efforts to include that person in significant discussions is one way to enact an ‘athlete-centred approach’ (Brady, 2022; Garner, McEwan & Whitehead, 2023; Küttel, 2022) and acknowledge the importance of the therapeutic alliance.

This inclusion is part of a wider cultural shift of the gradual acceptance and inclusion of sport psychology as a discipline in MDTs, as discussed by one participant:

‘...I feel like it is just in terms of like when you see like the schedule, there’s dedicated time for everything else, like even education. But there’s no dedicated time [for psychology] that’s really thought about. Unless you really push you need this slot in the schedule, it’s not. It’s just not thought about that we need to put time in... it’s seen as you arrange a time to see the player around everything else, which obviously still isn’t that easy when you’re trying to juggle everything. ... I think it has started to get better. Um. But that’s I think that’s just the constant battle of trying to get trying to get time with the players. Around like everything else ... I think [psychology is] still winning some [of the MDT] over. I think there is buy in from a lot, there’s still a few more that have ideas of how psychology should be in as well where you’re not actually the expert on that... So that that’s a bit of a, a bit again another battle, but I I think it definitely is better than it was a few years ago. I think there’s more of an understanding of how that, how it fits in and the importance of it.’ W1P2FU1

This is supported by recent research (Feddersen, Champ & Littlewood, 2025) that finds psychology in a lot of environments is still viewed with a certain amount of dismissal by other disciplines. However, this practitioner reported that this was gradually improving in their context. Practitioners reported how attending the IACT workshop had helped them take a more proactive role in the rehabilitation MDT rather than waiting to be invited to work with players. This is further illustrated by one practitioner:

'...I think maybe in the past there's a tendency to, at least from my experience, to be just quite passive and person centred maybe with ... Whereas yeah, it's maybe kind of enhanced that repertoire a bit and give me more confidence to be like ohh... I'll be involved and be more hands on and give stuff rather than just sitting back and kind of working with what they give... Because it- it seems to be that there's kind of that expectation of like we just- the physio makes them cry a bit and they come to us 'cause they've had a hard rehab session and they know they're like in trouble still. And you're like, OK well. What about if we actually primed for that and you do the other way round? And it's funny how just like the order of operations with these things would make a massive difference, probably to the outcome of it... But maybe as a resource thing, but it's also just a status quo thing of- I think maybe [psychologists] tend to be the afterthought of it or the follow up rather than the first contact.' W2P4FU1

This practitioner reported how they were now able to be involved and contribute proactively to rehabilitation, rather than simply acting as an emotional support when players were already struggling. This is an example of early intervention, and proactive support to help mitigate distress, rather than remedy it once it has already occurred (Purcell, Gwyther & Rice, 2019), and an example of how practitioners perceived their new understanding of purpose was put into practice. While psychology is a relative newcomer to many MDT environments, there is evidence that the practitioners felt the workshop empowered them to make steps towards being more accepted and integrated into the MDT, as evidenced by the changes in communication discussed above, and will be discussed further below.

Practitioners gave examples of how information sharing practices impacted their working relationships with other members of the MDT, how they implemented multi-disciplinary interventions for athletes and also examples of where a lack of clarity in roles and responsibilities within the MDT had become a barrier. This is in line with previous research suggesting that the MDT can be both a facilitator and a barrier to best practice, particularly when supporting injured athletes (Pickford & Gervis, in press, King et al., 2024). One practitioner reported feeling 'spread thin' as the only psychologist available, and while the practitioner wanted other staff to be able to support athletes, there were some concerns that conversations were being had multiple times, or that

differently qualified staff were having conversations that might be more appropriately handled by a qualified psychologist:

'...So at times I can't be impactful of what I want to do because I have no clue what's going on. I feel sometimes there's too many cooks so can't be as effective as I want to be... The thing is, they're not. They're not psychologists either...I'm just trying to obviously focus on the player. But also making sure staff also can support, but it is very difficult. There's a lot of plates to spin and they're going at different speeds I feel.' W3P4FU2

This speaks to a need for improved communication and clarity of role and responsibilities in this environment in order for the MDT to work effectively, in line with the findings of previous research (King et al., 2024). Another practitioner also reported the barriers that stood in the way of implementing their idea of best practice:

'...sometimes it's not as structured or not as regular as you might like because actually you can't then fit it in in the week... I think it's a bit of both [buy in from MDT and buy in from players]. I think, I think it's. A yeah, the schedule because I'm sort of across the whole [football] Academy. So I mean that brings it's challenges anyway. Trying to fit that in, but also I think it's just the culture of like... well, the prep, the gym work is important and the medical time medics need their time and the physios need their time and all of this and it's actually well, this time is also needed. But because it's not scheduled and structured, I think it's almost seen as it's like it's an extra thing. Um, whereas we need to make it still more actually that this is just the normal process and this is a big part of the injury rehab as well. It's not, it's not an additional thing. And I think it's still seen as an additional thing.' W1P2FU1

Being the sole psychologist in an organisation such as a football academy means the practitioner is responsible for a large number of individual athletes, which can result in limited impact. The practitioner also considered buy-in from both staff and players, and psychology still being seen as an 'add on' rather than an integral part of the high-performance athlete support team. Both of these are common experiences in the industry (Feddersen, Champ & Littlewood, 2025), and an example of a barrier to change in the culture of an organisation, and sport system as a whole (Henriksen et al., 2024). Being able to spend more time in the rehabilitation environments, and making psychology a routine part of the rehabilitation process would be working to normalise psychological support in that space, in line with previous recommendations (Gervis, 2022).

6.4.3 Working Alliance Summary

The general dimension of 'Working Alliance' encompasses changes in the professional relationships of practitioners and the way that they work within their professional teams. Not all practitioners work in teams, but those that do reported that the IACT workshop had had an impact on their communication and influence within the MDT. These relationships are vital to many sport

psychology practitioners because of the culture of many sports organizations. Sport psychology is often a more recent addition to MDTs and there is still evidence of the stigmatisation and dismissal of the discipline in many contexts (Feddersen, Champ & Littlewood, 2025). Working relationships with other professionals who may have more of a 'voice' in the MDT are therefore critical, and while the power dynamics are unique to each professional team, the establishing of different working relationships is likely to be critical to effecting change in the following general dimension of 'Process and Organization'. This is a significant strength of the workshop, and again reinforces the benefits of training provided by practitioners with relevant experience (Wylleman et al., 2009). Previous research has suggested that the presence of psychologists, and the education of other professions on the role of sport psychologists, is essential not only in physiotherapists' use of psychologically informed strategies, but in their appreciation of sport psychologists and their role in rehabilitation (Annear, Sole & Devan, 2019; Heaney, 2017). The evidence from this general dimension supports this previous research, and offers insight into how practitioners might use training to achieve more interdisciplinary work that benefits professionals of different disciplines and the athletes they support.

The evidence from this general dimension supports the previous conclusion that the learning from the workshop facilitated changes in practitioners' behaviour and these changes had impacts for practitioners working relationships. While the results of the behaviour change were mediated in some cases by the working relationships and the culture of the practitioners' professional settings, this is important evidence that the training was effective (Kirkpatrick & Kirkpatrick, 2006).

There is clearly a need for more education on the psychological aspects of injury for other professionals, particularly physiotherapists, who receive very little psychoeducation through the UK training system. This has long been suggested (Driver et al., 2017; Heaney, 2006; Tracey, 2008) but it does not seem that these recommendations have yet been adopted into the British training programs in a broad enough way to upskill the profession as a whole. While it is beyond the scope of this thesis, it would be an interesting direction for future research to ascertain what the impacts of improved psychoeducation on the psychological impacts of injury throughout the MDT disciplines might be. The limited evidence available in this study suggests that it would be beneficial for injured athletes.

6.5 Process and Organisation

The fourth general dimension is titled 'Process and Organisation'. With regards to the 'ripple effect' of the workshop, this general dimension represents one of the outer 'ripples' and while there are fewer examples, the examples that did come to light during the interviews were unexpected impacts of the workshop and represent significant changes in organisational practice.



Figure 6.5: 'Process and Organisation' in the 'Ripple Effect' in the Practice of Sport Psychologists following the IACT Workshop

Table 6.10 gives an overview of the general dimension as a whole, while a more detailed interrogation of the data for each of the first order themes can be found below. Data will be presented as tables, with a separate table for each first order theme within the dimension.

Table 6.10: General Dimension Overview - Process & Organisation

General Dimension: Therapeutic Alliance		
First Order Theme	Second Order Theme	Section
Process	Referral Pathways	6.5.1
	Holistic Care	
	Earlier Intervention	
Organisation	Organisational support	6.5.2
	Cultural Change	
	Protocol Change	
	Barriers	

There are two first order themes encompassed in this general dimension, 'Process' and 'Organisation' (see table 6.11 and 6.12) which are explored below.

6.5.1 Process Change

The first theme in the general dimension of process and organisation is 'Process Change'. This theme encompasses three second order themes; 'Referral Pathways', 'Holistic Care' and 'Earlier Intervention', which are expanded in table 6.11 below.

Table 6.11: First Order Theme - Process change

General Dimension: Therapeutic Alliance		
First Order Theme	Second Order Theme	Quotation
Process Change	Referral Pathways	<i>'...the biggest thing that came from this workshop was ... I ran like the workshop [with the physio team], passing the information on and then suggested a referral pathway should be put in place between physios and S&C staff to me and then from me to the counselling team if it went further... so that was kinda like the best thing that came out of it. So that referral pathways been really good... like right off the bat straight after the session like there was like 3 just passed on immediately' W3P3FU2</i>
	Holistic Care	<i>'...Being able to kind of walk with them in that process, I think it's quite nice and something that we maybe don't do enough of or isn't kind of a- yeah, a part that we focus on... I think I've been able to coordinate its- slightly more holistic rehabilitation programmes, maybe that are, joining the dots slightly...'</i> W2P4FU1
	Earlier Intervention	<i>'... [another practitioner] manages all the athletes that come from different sports so if there's an injured athlete in my sport I get alerted to them quicker and but yeah, I don't think necessarily see them more frequently than before. Thankfully, that's maybe more just a time that I have thing.'</i> W2P1FU1

The second order themes of 'Referral Pathways', 'Holistic Care' and 'Earlier Intervention' are interconnected and will be discussed collectively.

6.5.1.1 Referral Pathways, Holistic Care and Early Intervention

There are several examples of practitioners returning to their workplaces and changing their organisational processes for injured athletes as a consequence of attending the IACT workshop. One practitioner explained how they gave a presentation based on their learning from the workshop to staff at their organisation and suggested a new internal referral pathway between the physiotherapy team and the psychologists. Immediately following the presentation from the practitioner, the physiotherapy team referred three athletes for psychological support. This suggests that the physiotherapists were aware the athletes may be in need of psychological support, but despite the psychology practitioner being present in the organisation, they had not taken steps to refer those

athletes previously. However, as soon as the practitioner educated the physiotherapy team on the mental health risks of injury, they both recognised the need, and took actions to refer athletes. This speaks to how improved education in the organisational system can help athletes access support (Sebbens, Hassmén, Crisp & Wensley, 2016). The same practitioner expanded on how this process worked in practice:

'...I think it's almost changed- maybe not that they look [for psychological symptoms], I think they were noticing anyway. Like, oh, this person's definitely at risk... I think they were noticing anyway like this is like they're at risk, but I think they were almost like too busy to do anything about it. And we're just now it's quite easy just being like I even some of them, they sent me a message being like I'm actually not sure if this person's struggling or not. I just get the vibe that they might be like, do you mind just like coming in quickly and having a chat? So they know who you are and like where to find you... So it's just like I just gave them like a tool that they can just send someone my way and then it's like kind of done off them rather than worrying about them but not have like the time to do anything. I think they felt a little bit helpless with some of them, just been- like trying to almost do like the social corner or the social psych corner when they didn't have time to.' W3P3FU2

The practitioner reported the medical staff had awareness that athletes were at risk, but not having the time or resources to act on that awareness. Once the internal referral process was implemented, staff were able to take advantage of the process to refer athletes directly to psychologists, and the practitioner reported that this benefitted not only the athletes, but alleviated stress for the staff in question. Furthermore, this demonstrated a recognition that psychology practitioners had value in supporting injured athletes. This awareness of risk, and the steps taken once the referral process was in place, demonstrated the need for such systems to safeguard athlete mental health. The practitioner reported an additional benefit for the return to play phase of athletes being referred for psychological support:

'... So once they refer to me like, I can make the effort to go pitch side, whereas the physios only stay in the physios office like they only do the medical appointments all day... and then the S&C staff only stay in the gym. So like I'm the only one with the freedom to really go pitchside and make sure that they are OK to return to play ...and like see the like return ... it's probably been good like because I think when the physios do see them... it's all just like physical and the S&C staff are getting are the same like. Oh do you feel fit is it strong blah blah blah? But no one actually asked them if they're right with, like, return.' W3P3FU2

The practitioner reported that the internal referral process facilitated continuity of care for athletes through the rehabilitation process, as discussed in section 6.4.2.2 under the theme of 'New Collaborations'. This data also highlights the fact that psychology practitioners will ask different questions of athletes than other professionals involved in rehabilitation, as previously discussed in section 6.3. While these internal referral pathways are useful tools in large organisations with

limited practitioner time, in a system that was better resourced and psychological support was normalised, all athletes would see a psychology practitioner as a matter of course (Gervis, 2022). This would remove the need for non-expert practitioners to ‘triage’ athletes and make decisions on who to refer for support, and further safeguard athlete mental health and wellbeing.

In a different setting, a practitioner had changed MDT processes in an informal way, and felt they had become more a ‘coordinator’ of support for injured athletes. Again, this practitioner reported that the change in their process had led to improved communication and more holistic player care:

‘... I guess in the previous placements I'd had [injury] was something that psychology didn't really touch or you did only when it was had really like gone off the rails ... So actually. Trying to be proactive in those kind of conversations has made a big difference ... now it's actually much more kind of mandated process ... I weirdly find that it's not something that's done very well in the MDT ... I found myself coordinating that quite often...’ W2P4FU1

Previous research found that accessing psychological support in sport is often difficult and poorly signposted (Chang et al., 2020; Gulliver, Griffiths and Christensen, 2012), therefore any improvements in this area should be welcomed.

Practitioners reported that the new process had resulted in earlier intervention for injured athletes, that the change had been supported within the organisation and ultimately that athletes were receiving a better service. Earlier intervention was also an impact arising from the changes to referral pathways:

‘I think also like the thing that made the huge difference is like where the referrals are coming from. So, like the counselling teams, referrals are like Housemaster, pastoral team, counselling team. And then so like I think then it's like very out of sport like the problems even if they originate in sport, it's like by the time they get to the counselling team it's all like “ohh your Housemaster said this” and “the pastoral team said you’re struggling with this”, but it's not anything sports related by that point. Whereas I feel like you can almost get to it earlier if you go to the sports route cause normally this- the problem starts with them not performing well at sport... And then it's like you catch it at the start rather than like miles into it... but the physio route has been part of that as well... the other ones that have been a big help from, like, this workshop that I've started to pick up is like, ED, or DE normally it's like ‘cause ED would be passed straight onto the counselling team.’ W3P3FU2

This practitioner provided an excellent example of how they felt earlier intervention can safeguard athlete wellbeing in their particular context. Early intervention is a facilitator of sport-injury related

growth (Roy-Davis, Wadey & Evans, 2017), and allows for intervention in mental health at a subclinical stage, thus preventing issues escalating to clinical levels.

6.5.2 Organisational Change

The second theme in the general dimension of process and organisation is ‘Organisational Change’. This theme encompasses three second order themes; ‘Protocol Change’, ‘Organisational Support’ and ‘Cultural Change’, which are expanded in table 6.12 below. A specific case which illustrates this theme is explored in further detail in section 6.7.3.

Table 6.12: First Order Theme - Organisational Change

General Dimension: Process & Organisation		
First Order Theme	Second Order Theme	Quotation
Organisational Change	Protocol Change	<i>‘I think we now have this lovely system in place and our set up whereby injured athletes get sent through a protocol and they get seen what they’re supposed to be seen within, however, many days ... and they get kind of triaged out quite quickly. So I suppose that’s off the back of [Psych B] doing the workshop with you putting that process in place...’ W2P1FU1</i>
	Organisational support	<i>‘As an organization [there has been support], yes, and some individuals more than others. And I think like there’s some physios that really, like, appreciate the process and are so like supportive of it. There’s maybe others that are not so interested in it. If I’m speculating. I think that’s also probably due to their own insecurities and not wanting to kind of embrace that challenge...’ W2P1FU1</i>
	Cultural Change	<i>‘... I think I was like one of the biggest things that we had here was [the counselling building] like felt like it was a bit stigma of like, that’s for students who are, like, struggling... But I think since me and the other sports psych like moved into that hub and started doing sport sessions in there. It’s kind of like lost that stigma...’ W3P3FU2</i>

The three second order themes will be discussed collectively under the heading ‘Organisational and Cultural Change’ below.

6.5.2.1 Organisational and Cultural Change

The impacts resulting from the change in process go beyond the injured athletes themselves. As discussed by one practitioner, having sport psychologists working in the same building as counsellors had reduced the stigma attached to the counselling building. The practitioner goes on to expand on this, and reported how supporting injured athletes had led to a greater uptake of psychology more generally:

'So like we have like all the top tennis players ... What has happened now is that, like I spoke to them once about their injury, but then later on after they were rehabilitated, they then like popped up and asked questions like on other sports psych matters. So it's more just like they knew now where? Who to ask and like where to find it? And that we're there... you probably don't even know this sport psych's available apart from these injured athletes now are starting to like get there through the physio route... They never had a sports psychologist at all before I like I got here... They offered psych support and counselling so the counselling team were doing all of that, but I think the counselling team are quite glad because they didn't know anything about sport. ... And I think like some of your more like hardcore like athletes who are very like strong identity of athletes were just like not working well with the types of therapy as well...' W3P3FU2

The practitioner felt their attendance at the IACT workshop resulted in a change in process in this context and subsequently wider cultural shift. As illustrated in table 6.12, offering support to all injured athletes led to more awareness of sport psychology, and sport psychology's presence in a space previously reserved for more general counselling had helped to challenge the stigma around psychological support, representing a shift in the culture of this particular environment. The practitioner perceived that injury support had also acted as a 'gateway' for athletes to access sport psychology, and the practitioner reported that several athletes returned to the sport psychologist when facing other difficulties. By introducing athletes to psychological support in injury, it gave them greater awareness of how they might utilise sport psychology, and enabled further help-seeking (Chang et al., 2020; Walton et al., 2024). This is important, as it contributes to the destigmatisation of psychological support, and improved help seeking, overcoming some of the barriers that currently exist (Delenardo & Terrion, 2014; Poucher et al., 2021).

6.5.3 Process and Organisation Summary

Changes in process on an organisational level was not something specifically targeted by the IACT workshop. However, it is important to acknowledge the reach of the workshop. Practitioners who attended evidently felt confident in the value of psychological support for injured athletes and empowered themselves to return to their organisations and create change. There are clear links between this general dimension and the general dimensions of both 'Self' and 'Working Alliance'. Practitioners reported effecting changes in organisations at a policy level and reported associated impacts on the organisational structures and culture. This suggests that in some contexts, the behavioural changes resulting from practitioner learning had profound results at an organisational level (Kirkpatrick & Kirkpatrick, 2006). Mental health in elite sport is dependent upon the context, and the environment not only of the team, but the organisation and the sporting system as a whole (Henrikson et al., 2024; Walton et al., 2024). Therefore, the IACT workshop made a significant

contribution to moving organisations towards a more supportive and safer environment where injured athletes' mental health is front and centre in their rehabilitation, and that holistic care is delivered through the cooperation of physiotherapists, strength and conditioning coaches, and psychologists. Furthermore, this represents a development in the perception of the profession by other MDT staff and policy makers such that psychology now has a significant role in contexts where it was previously overlooked.

6.6 Beyond

The final general dimension has been titled 'Beyond', and considers impacts and changes which have occurred beyond practitioners' immediate working contexts as sport psychologists.



Figure 6.6: 'Beyond' in the 'Ripple Effect' in the Practice of Sport Psychologists following the IACT Workshop

Table 6.13 gives an overview of the general dimension as a whole, while a more detailed interrogation of the data for each of the first order themes can be found below. Data will be presented as tables, with a separate table for each first order theme within the dimension.

Table 6.13: General Dimension Overview- Beyond

General Dimension: Beyond		
First Order Theme	Second Order Theme	Section
Dissemination	Lecturing	Section 6.6.1
	Professional Development	
Future Directions	Personal Development	Section 6.6.2
	Training for MDT Professions	
	Training for Other Stakeholders	
	Practice in New Contexts	

Within the general dimension of 'Beyond', there are two first order themes of 'Dissemination' and 'Future Directions' (see table 6.13). These are illustrated further in tables 6.14 and 6.15 below.

6.6.1 Dissemination

The first theme in the general dimension of 'Beyond' is 'Dissemination', which encompasses the second order themes of 'Lecturing' and 'Peer Development', as illustrated in table 6.14 below.

Table 6.14: First Order Theme - Dissemination

General Dimension: Beyond		
First Order Theme	Second Order Theme	Quotation
Dissemination	Teaching	<i>'I got hired as sport psych lecturer... [I'm] plugging in a little bits of sports psychology like with the sports therapist and stuff at the moment... I think that's where I've used [the workshop content] the most.'</i> W1P1FU2
	Peer Development	<i>'And then just with other psychs I've spoken to ... I think it's just made them think a little bit more about what they currently do with an injured athlete. ... I think it's made them think about upskilling themselves or how they can change their approach erm a little bit... it's just got them thinking a little bit about how they can actually improve, how they work with erm their clients.'</i> W2P2FU1

The second order theme of 'Teaching' will be discussed first, followed by 'Peer Development'.

6.6.1.1 Teaching

While there are examples of dissemination in the general dimensions of 'Working Alliance' and 'Process and Organisation', the examples which form this theme of 'Dissemination' represent contexts beyond the role of a practicing sport psychologist. Lecturing physical therapy students, providing CPD for coaches in external organisations and encouraging peers to learn more on the subject are all examples of impact beyond the expected scope of the IACT workshop. Practitioners reported how the psychology of injury was a topic that was missing from physiotherapy training in the UK (Sommerville, 2022):

'Cause some of the physios at [club name] they like have done [training on psychology of injury] in other countries. So, like, one of them's done it in, like India and they were like, 'yeah, we do like a year on, like, psychology of injury'. And then you talk to English physios and like they've never had any, any kind of, like psych training at all... we try and do CPD for them or like even just like conversations about certain players and why they're acting certain ways, stuff like that. I feel like, yeah, if they have more training, it would be like

brilliant. But I I guess maybe that's kind of part of our job as well. Like we've kind of just taken it upon ourselves like, OK, let's try and educate them. But yeah, if it had some formal training as well, that would be. That would be helpful...' W3P2FU1

This practitioner reports the lack of training on the psychology of injury for physiotherapy students in the UK, in contrast with other countries, where it is taught in equivalent qualifications. While this practitioner identified that it is part of the role of psychology practitioners in clubs to upskill their colleagues, this would only improve awareness and understanding in contexts where psychologists with these skills and knowledge are present, which is not currently the norm. The example in table 6.14 above, of including injury psychoeducation for physical therapy students is therefore encouraging, as this was a need identified both by practitioners in this study and in previous research (Heaney et al., 2015; Synnott, O'Keeffe, Bunzli, Dankaerts, O'Sullivan, & O'Sullivan, 2015). The intended impact of this training for physical therapy students was reported by the practitioner in question:

'...I think I was able to draw on being someone who sees clients and saying you guys are going to be seeing clients even if you don't get... I was like, do this stuff like be empathetic do- 'cause we did like a week on like communication skills or week on, like the psychological impacts of being injured... If you take nothing else, just take that out like you need to show up, be a human being.... So it's sort of laying the foundation... I used [the workshop] as like my framework for it basically and, and I set the scene I- I sort of gave them a reference to one of your research papers, kind of setting the scene that this is the the psychological impact is sort of neglected. So we all have a responsibility to think about it... Then we talked a little bit about some of the yeah, the sort of again light touch on like the pain theory and perception and all that kind of stuff of just like how they're feeling affects, how the success of all this is gonna go. That was the message I wanted them to kind of sink in with, but yes I did. It was. It was really useful. It definitely gave me... your workshop was obviously the first thing that came to mind when I saw this is what we wanted to talk about was like, Oh yeah, I've got loads of can use for this. Let's go.' W1P1FU2

As was discussed in 'Working Alliance' (section 6.4) and 'Processes and Organisation' (section 6.5), improved education for other members of the rehabilitation MDT can have numerous benefits, such as; more autonomy for athletes, more staff awareness and understanding of the psychological challenges of injury, better communication with psychology practitioners, earlier referral for psychological support, and more opportunities for collaborative working. All of these have the potential to safeguard athlete wellbeing and improve rehabilitation outcomes. In this instance, the IACT workshop has provided the basis for one practitioner to better educate a cohort of the next generation of physical therapists. This was not an intended impact of the IACT training, but one that demonstrates the wide-reaching effects of the workshop.

6.6.1.2 Peer Development

Practitioners recognised that the knowledge and skills they had gained from the IACT workshop would be useful to other practitioners. Practitioners who had attended the workshop engaged with their professional network and spoke of the benefits of the training, which in turn caused their colleagues to reflect on their own professional practice and scope of knowledge. This was not an expected outcome of the workshop, but this does speak to the value of the training for the practitioners who attended, and supports the call for more training of this kind to be made available to practitioners, particularly in their early career. The example in table 6.14 above highlights that raising awareness of the research-practice gap may cause practitioners to assess their own competencies in this area. However, in order for this to improve practitioner skills across the profession, more training of this kind needs to be available.

6.6.2 Future Directions

The second theme in the general dimension of ‘Beyond’ is ‘Future Directions’, which encompasses the second order themes of ‘Personal Development’, ‘Training for MDT Practitioners’, ‘Training for Other Stakeholders’, and ‘Practice in New Contexts’, as illustrated in table 6.15 below.

Table 6.15: First Order Theme - Future Directions

General Dimension: Beyond		
First Order Theme	Second Order Theme	Quotation
Future Directions	Professional Development	<i>‘...it’s definitely an area where ... I could definitely go down like a deep hole of, like learning about pain psychology and... this. Yeah, this would be so cool... So definitely sparks areas of interest. But like, yeah, definitely would like to have more time to do that.’ W3P2FU2</i>
	Training for MDT Professions	<i>‘I’ve got like creative license to be honest [in the focus of the CPD] and it’s just about like introducing them to psychology topics and trying to be more psychologically informed coaching and, essentially, so we might talk about the psychology of injury.’ W2P3FU2</i>
	Training for Other Stakeholders	<i>‘... I was thinking like support with parents. So I was gonna do a parent workshop on injury. That’s what I came away with after the workshop. But I haven’t got round to doing anything with it, but it was quite useful like how it can impact different areas of the sport, not just the athlete.’ W3P4FU1</i>
	Practice in New Contexts	<i>‘...I’m also looking at a kind of prehab rehab and within the NHS and stuff like that as well... especially thinking on erm the prehab side of things so the persons somewhere on that injury journey and they’re waiting for the surgery and that’s often where if you managed to erm do a lot of the work there with them, then outcomes in the other side of it, were gonna be better as well... I think that stuff that would be really useful and just kind of normalizes a lot of what the persons kind of going through.’ W2P2FU2</i>

The second order theme of 'Professional Development' will first be considered, followed by discussion of both training for the MDT and other stakeholders. Finally, the second order theme of 'Practice in New Contexts' will be discussed.

6.6.2.1 Future Professional Development

Two areas which practitioners reported being interested in pursuing training in more depth were pain and trauma. One practitioner reported that the IACT workshop had sparked a new interest in pain psychology (see table 6.15), while others reported a desire for more education on trauma and trauma informed approaches (see section 6.2.2). As discussed under the theme of 'Self-Reflection' practitioners recognised that this was an important area for them to be more skilled in moving forwards in their career. As one practitioner stated: *'You know, when you go through masters, you learn lots of stuff. And often it's not particularly- it is applied, but it's not sort of ready to go... This is ready to go... There's a clear difference there...'* (W3P1FU2). The desire for this training on trauma, and the lack of training currently available for trainee and qualified practitioners, represents a disconnect between sport psychology as it was, focussing primarily on performance through CBT informed psychological skills, and more modern approaches to the practice of sport psychology which reject the distinction between person and performer, and take a more holistic view of performance, wellbeing and mental health (Wadsworth et al., 2024). From the evidence of this study, it does not appear that all training programmes (be those taught programmes at MSc or Professional Doctorate level, or the supervised practice experience) are currently providing the necessary training to meet the needs of these practitioners.

6.6.2.2 Future Training for MDT and Other Stakeholders

Two of the themes under the first order theme of 'Future Directions' include practitioners' intentions to provide training in the future, both for members of the rehabilitation MDT and for other stakeholders in athlete support systems. Several practitioners expressed an intention of providing further training for the MDT themselves:

'I do think it would be something that would be really useful and actual um kind of training or offered as a kind of CPD type thing as well, because from speaking to different physios that sometimes that psychology element is lacking a little bit as well and they quite often have a lot of contact time and because a lot of the stuff they do is hands on, I think they build their relationship quite quickly as well... And if they are able to have those conversations, and even during when they're talking pick up on some of those almost cues... I'm thinking S&C is another one that it could be helpful with um as well. It definitely would add to what they've already got, especially when they've got the knowledge of all the actual

mechanical stuff that's going on and and to be able to really have those conversations around um, the pain and what to accept and others and and other things like that. Um I think it would be really, really beneficial... and probably allow the athlete to feel more, kinda heard and actually the whole person dealt with rather than just the injury as well.' W2P2FU2

Practitioners felt that more psychologically informed MDT staff would improve holistic athlete care and could help to address the time pressures experienced by some practitioners working alone in large organisations. This was reported by several different practitioners:

'...I guess it's just about prioritising. I think if I can work with the coaches first, I'd still like to do a lot of the injury support anyway, but then it might be actually once the coaches are a bit more educated on that side and can do a bit more, then maybe that it will, the focus can shift to across the board, but then it's gonna be, there will be elements I think not just in terms of injury but other elements that physios and other MDT can also support with as well... So I think that MDT does become really important within it as well.' W1P2FU1

This practitioner identified the need to prioritise their time when looking at upskilling other professionals. Educating coaches, both in understanding injury and other topics, was seen as a priority for practitioners and speaks to the varied responsibilities of the lone practitioner in a club or organisation (Feddersen, Champ & Littlewood, 2025). There were also plans to educate other stakeholders including parents, which would again be a step towards improving the holistic care for injured athletes. Time pressure remains a barrier for practitioners wanting to provide training for others, and this is likely to remain an issue while lone practitioners in sports organisations are responsible for such a large number of athletes across multiple squads.

6.6.2.3 Future Practice Contexts

Finally, there were suggestions of how the knowledge and skills from the IACT workshop might be applied to populations outside of professional sport. Supporting people waiting for surgery in the NHS, and working with people who had received transplants were two suggestions:

'I think even if they're not an athlete, there's some people who just identify with being like a physical active person ...it could be any kind of form of identity that's then um impacted through those kind of injuries... Also looking at a- I've been speaking to someone about doing research with transplant-ees and actually think some of this do that actually be beneficial for for them because it is there can be quite a shift in identity and things with that and a lot that population- there are athletes in there and there are also people who have just generally always been kinda exercisers um in whatever shape or form that may look like and there's not a lot of research around their journey as such and then also what they should and shouldn't be doing afterwards because sometimes we're told to exercise, but they're given a blanket statement of that is what it looks like whereas. Someone could have been a professional athlete beforehand, so what is it your daily exercise looks like compared to

someone who never did anything? It's totally different um as well. So I think it's something that could be quite useful with those kind of populations um as well...' W2P2FU2

Both of these examples of applying the information from the IACT workshop in new practice contexts come from the same practitioner. However, both provide interesting examples of how the skills and knowledge from the workshop could be taken further and applied to new populations. ACT has been found to be effective in many different populations, including military personnel and chronic pain populations (Udell, Ruddy and Procento, 2018; Veehofs et al., 2016), and therefore the understanding gained from the workshop is likely to be helpful in a practitioners' work outside of sport.

6.6.3 Beyond Summary

Similar to the general dimension of 'Process and Organisation', these perceived impacts arising from the workshop were not explicit aims of the IACT training. They do however demonstrate that practitioners identified that the information could benefit a wider audience, and in the future the dissemination work described above could clearly have indirect benefits for injured athletes. Similarly, the intention to take the skills into new contexts could be of benefit to new populations or applied in different ways, but ultimately still a practitioner using the knowledge and skills to help a person struggling with physical injury manage the psychological impacts of that injury. These examples of dissemination represent professional development in both independence and purpose, with examples of practitioners taking information in new directions and feeding back in to the development of psychology practitioners and other key disciplines in the athlete support network (Fogaça, Quartiroli & Wagstaff, 2024).

6.7 Interconnected Themes and Dimensions: Illustrative Cases

It is clear from the analysis that the five general dimensions were interconnected and interdependent. In order to illustrate the interconnected nature of the five general dimensions, three illustrative cases will be explored in greater detail. These three cases each intersect two or more general dimensions and represent many of the first and second order themes that are discussed above. In each case, these themes will be highlighted, and the contribution of each case to the understanding of the perceived impact of training for practitioners will be discussed.

6.7.1 Self/Therapeutic Alliance: Illustrative Case

The data below demonstrates how one practitioner applied the therapeutic ACT skills taught in the IACT workshop to their own rehabilitation journey. This data is illustrative not only of critical

change and growth as a practitioner, but also of the ACT therapeutic skills in action. This practitioner reported the impact the workshop had on their experiences in both the 3- and 6-month follow-ups:

'I would say it actually probably used it more personally than I have with my, with my athletes right now... I realised through some of this stuff that we talked about, I kind of noticed I have a bit of a story myself that I tell myself when these things happen about "my body just can't do these things" and "everything always ends up painful". "I'm never gonna move forward from this cycle that I'm in" and I thought, hmm, how would I have this conversation if someone else is saying this to me? This is all sounding a little bit familiar. So actually, it really helped me personally... it helped me stick to rehab and recognise the steps on the journey in a way that I haven't really been able to whenever I've gone through this before... So for whatever that's worth for me personally, it's been really helpful.' W1P1FU1

This practitioner had recently had surgery and some set-backs in their rehabilitation, and went into more detail about how they used the ACT skills taught in the workshop to help manage their ongoing rehabilitation process: *'...this time in, I think having this I was able to just separate from that thought a little bit and look at it, which I've never been able to do before...'* (W1P1FU1). This is in line with the ACT process of defusion, which they described as being useful to give them more perspective on their injury journey, and the thoughts and behaviours that were unhelpful.

'...and I think what it started to recognise is, whatever the start, whatever I thought the start point was that I'm beginning, I'm actually further back than that, but that doesn't mean I'm not moving forward. It just means I've got more work to do. We've just gotta break it down. ...I can kind of understand that the commitment that I need to put into all this stuff has to start at rehab, not at training... And there's just a little bit more, peace, in my mind about that fact now of just like okay. Progress is still progress. I could still celebrate those little things and just commit to doing the rehab first and just, just be on the journey. It's longer than I want it to be. But you don't get to control those kinds of things. So we're just, we're gonna go for it... Because I can also see the pattern from before a little bit clearer than I could... And when I look back over the course of those years, I think. Yeah, I never really got past that initial stage' W1P1FU1

This quote exemplifies all of the six core process of ACT therapy, as discussed in 'ACT Skills across the Rehabilitation Journey'. In particular, this example speaks to 'acceptance', allowing the practitioner to be realistic about their situation, look at the controllable factors and allow the uncontrollable factors to 'be' without trying to fight them.

'... whereas I feel now much more committed to. Okay, that first bump has happened. What can I do differently other than just stop? ... now it's like, no, we've gotta there's different choices we can make to make this stronger and move forward...' W1P1FU1

Here the practitioner is describing 'committed action', and making active decisions to work within their limitations and move forwards with their rehabilitation process (Stage 2). This self-reflection had been triggered by the follow-up interview process:

'Yeah, it it honestly does [help]. It's funny because I- it wasn't really until I was thinking about doing this [interview] a couple of days ago. That I kind of thought Ohh yeah. Like actually this is making a big difference... So when I have those moments of noticing... To actually have a moment where you go "ohh, I'm doing it right now". Like I managed to not go down that road. It's very like wow, this is really cool... sometimes choosing that is a really good- that's a big step. Yeah. It counts.' W1P1FU1

This practitioner reported using several different ACT skills including 'defusion', 'acceptance' and 'committed action' to change their behaviours around rehabilitation, and these processes ultimately led to a change in how they thought about their health challenges and their progress. This aligns with previous research that shows acceptance and committed action are key factors in mitigating distress and pain interference (Baranoff, Hanrahan & Connor, 2015; Veehofs et al., 2016). These skills were not consciously applied in the beginning, but upon reflection the practitioner noticed they had significantly changed their behaviours with positive outcomes for their health. This was touched upon again in the six-month follow-up:

'That was so funny, talking through all that actually like having that all land at home and thinking ohh yeah... Like this is really working... the work, the sort of prep and trying to recover from everything is working and I really felt the difference. It was like a real payoff moment... So yeah, I feel good at the moment... So the next obvious thing then is I wonder what what happens when the setbacks inevitably come, and I don't know how I will feel at that point. Actually, it's interesting to think about... [less catastrophizing], that's what I'm hoping for, because I think if I get that, that will be new and that will be a sign of growth for me cause what where I usually have sat before in my mind is a bit, I go a bit to that place in my head that's a bit like "my body just betrays me". "It doesn't wanna do the right things". "I'm trying my best and I'm always gonna end up back here", so I think if I can have a bit more of like, no, we could cope with this. This is how, like I say, the [health condition] isn't going anywhere. That is how my body is, so if we can just sit and work with it, that will be a big step forward...' W1P1FU2

This case illustrates not only some of the longer-term benefits of ACT and behaviour change, but also recognises that previous patterns of thought might re-occur. However, the practitioner was hopeful about being able to manage those in the future. The practitioner also reported that having understood it in their own context and applied the skills themselves and seen a benefit, it gave them more confidence in sharing those same skills in professional practice:

'It is amazing. It's so funny thinking about like, I feel like I have learned I've gone through it... even by learning to do it as a practitioner like I feel like I've learned so much

about how my own brain does this, and I imagine everybody that did the workshop probably or works on this stuff with you guys probably goes through that. It's funny... I think it has also highlighted that that the preaching side of it in a sense of like the education makes a difference like understanding how these things work for me has made a difference. So if I can sort of share that I have a bit more of the the money where my mouth is and thinking "I know it works because it worked for me". It changes how- it changed how I thought about it, obviously everybody's a little bit different all that stuff, but it's it's just having felt it makes a difference. I think in my own conviction in talking about it... We are actually here and it does work.' W1P1FU2

This practitioner reported that now they had first-hand experience that the protocol discussed in the IACT workshop was useful and effective for injured athletes and potential future clients. This demonstrates the significance of the contribution of practice-based evidence in professional development. While applying the workshop skills to their own personal lives was not an intended impact of the workshops, this does speak to the validity of the material and the potential real-world benefits of this type of training for practitioners. The practitioner's understanding of their application of these skills sits across the themes of 'Self-Reflection' and 'Application of ACT Skills Throughout Rehabilitation', and while an unexpected outcome, provides an insight into how a person working through their rehabilitation journey might use ACT skills in the absence of direct feedback from athletes, which is beyond the scope of this thesis. This is an example of a process of integration of the personal self with the professional self (Wadsworth et al., 2024), and clear changes in self-awareness, purpose, and professional identity that are indicative of professional development (Fogaça, Quartiroli & Wagstaff, 2024). Indeed, in the case of this practitioner understanding that they themselves are evidence of the efficacy of ACT intervention post- injury, there is evidence of progression from the 'exploration stage' to the 'consolidation stage' of professional identity, as their lived experience is integrated authentically with their professional practice (Fogaça, Quartiroli & Wagstaff, 2024).

6.7.2 Therapeutic Alliance/Working Alliance: Illustrative Case

The second illustrative case explores the impacts of upskilling other professionals, beyond allowing better recognition of athlete behaviour and 'triage' for the psychology practitioner. It is clear from previous research that a practitioner may have many different 'clients' when working within a large organisation (Watson II, Way & Hilliard, 2017). This practitioner shared an example of how their work (Therapeutic Alliance) with a member of the MDT had influenced the other staff member's professional practice (Working Alliance):

'... the physio, like at [club], has really liked it. So he, he really liked the values stuff that we actually sat and did it with him because he was like, I wanna know what it's like... I wanna know what my values are. Am I committing to my actions, that kind of thing. So it's been really helpful because the players I've worked with also are really keen to share stuff with the physio... not with everybody else but like the physio, they've been like, Oh yeah, actually I really want them to know who I am and what I value and it's then they've been able to like adapt a bit. So like we one of the boys like really, really liked excitement and like literally, the rehab was the most boring thing he was doing, so we were like, OK, you make your programme, you make it as exciting as you want ... Yeah, in that way, like the physios, got to know ... his players a little bit better as well, which is- before I could give him a certain amount of information, but yeah, just allow him to get to know them on a deeper level has been really, really helpful... [and it's given the players] a little bit more control over- autonomy. We'll call it autonomy over what they're doing... But yeah, I know it's definitely given them- the players a bit more autonomy and also like. The physio, just knowing them a bit better...' W3P2FU2

This is an example of a psychological practitioner having an indirect impact on athletes through a working alliance (bordering on therapeutic alliance) with another professional within their team. The practitioner goes on to explain the impact they thought their work with the physiotherapist had had:

'... Like I see now like [the physio] just giving his players more autonomy like before, like I said, like it was very much like, OK, this is a programme I'm gonna give them. They need to go do that. Where like, definitely a bit more like, oh, OK, actually they are 16, 17, 18. Like they do have a bit- they're quite- got a lot of knowledge by that point as well. ... Like actually if you give them a bit of like, OK, design this programme you need to hit this, this and this things. So yeah, I've definitely seen that change in like, OK, I can give a bit more responsibility or autonomy over like what they're doing. So yeah, that is genuinely probably changed the way he works.' W3P2FU2

In addition to changing the practice of this colleague, the practitioner reported how they had also changed their colleague's relationship with their own role:

'And then on like a level of like working with him as well, like, even just in what he wants from work and stuff like that as well. Like obviously when you do the values I feel like it's just so useful in being like, OK, is this job actually like hitting on everything? I want it to do? Am I like, actually living how I want to do 'cause you kinda get into routine of things at work where sometimes you like, fall out of like, actually being your genuine self. So I think on his level as well like I know it's like probably not what the direct thing of the workshop was, but it's been quite nice for like him as well to do it. I never really thought about the fact that like actually probably all the staff would quite like it as well. Although I think some of them would be like, OK, I don't want to work in football anymore, but because it doesn't align with my values and what I want to do. But like it's been quite nice for him and he went for a little bit of stage of burnout and it was really good, 'cause 'cause we could refer back to, like, OK, this is what we value still like here are some actions that we can do that gonna help us boost us back up and live more genuinely and stuff like that so. To be honest, it's really been a nice

like frame of like helping a staff member alongside yeah, the players as well. And just the way he works as well.' W3P2FU2

This example demonstrates the impact psychologists can have when included in an MDT. In this case the practitioner felt their work had impacted on both the physiotherapist themselves but also the way that physiotherapist worked and therefore the impacts on the athletes they worked with. This also highlights the changing perceptions of the profession, and a growing appreciation for the purpose and contribution of psychology practitioners within the rehabilitation MDT. This was not a directly intended impact of the workshop, but is an encouraging sign that education in this area will 'trickle down' to other professionals in the right conditions. It also highlights the benefit of and need for more psychoeducation of other professionals who work with injured athletes, as suggested in previous research (Sebbens et al., 2016). This example highlights how practitioner learning and changes in behaviour can have significant results on an individual level, and contributes towards an understanding of how the training was effective in bridging the research-practice gap (Evans & Brewer, 2022; Kirkpatrick & Kirkpatrick, 2006).

6.7.3 Working Alliance/Organisational Change: Illustrative Case

The most significant example of process and organisational change came from two practitioners who worked in the same national organisation, and is clearly explained by one of those practitioners below. While an excellent illustration of the general dimension 'Process and Organisation', there are also references to themes of 'Working Alliance', including 'MDT Communication' and 'Influencing the MDT'. Furthermore, much of the change was initiated by the practitioners' new understanding of their purpose and competence, which encouraged them to step into a more active role in the rehabilitation team. Moreover, their improved awareness of the mental health impacts of injury transformed their understanding of themselves as practitioners and their responsibility in the organisation. These themes are all previously discussed in the general dimension of 'Self'. This example of organisational change will be examined in detail below. The practitioner was asked how attending the IACT workshop allowed them to make such a significant change to the processes and protocols of a national organisation:

'I think one thing that [the CPD workshop] really helped me with was like my organizational change. So it's like something that I've always thought was important ... but it's probably something like that, maybe wasn't getting the traction with- within the [workplace] as a whole and whereas kind of after [the workshop] I then- Did I feel more able to argue it hard? Maybe in terms of going like actually, no, this is something that we're doing really poorly and we need to be better at and and not just talk about and. Getting stuff changed in the [workplace] is slow.' W2P5FU2

This practitioner reported that attending the IACT workshop empowered them to push for the change they felt was necessary in their workplace to safeguard the wellbeing of injured athletes. Before attending the workshop, they already had an awareness that their processes were inadequate, but were able to make clear arguments for the need for change when armed with the information they had gained from the IACT training. The practitioner outlined the process in the organisation before the changes were implemented:

'... Where we were at then versus where we were at now, like at the time, there was nothing really. So like if athletes were referred... basically a referral can happen however, so either an athlete can just come to you and go [name] can I speak to you or like coach, physio, whoever can go, we need you to pick up with whoever the athlete is. At that point, nothing was really happening in terms of injury. So like if an injured athlete came to speak to you that then obviously worked with them, um very rarely- and I'm talking like typically when it was like major surgery gone wrong type, would Physio pull us in um but broadly speaking if someone said what do you do with injured athletes like all of us as members of the team would have looked very different then like institutionally it would have been nothing. Um whereas now we have, like an injury process in place...' W2P5FU2

The existing process in their workplace was one of self-referral for injured athletes, with occasional referrals from other MDT staff involved in the program. They explained that athletes were only referred by physiotherapists in extreme circumstances, when athletes were likely to already be experiencing severe psychological disruption. As discussed under the theme of 'Early Intervention' and in 'Process Change', clear referral processes are a facilitator of help-seeking (Sebbens et al., 2016). The practitioner goes on to explain the changes they had implemented in working practice:

'...so they- they have like team meetings with those physios every week and we're like why don't we [the psychologists] pull into that? So basically everyone that gets added to the long-term rehab list automatically gets a psych referral and and then there's a process within that ... it's not necessarily perfect yet, but it's moving.' W2P5FU2

This practitioner had implemented a change in process and policy whereby injured athletes were automatically referred for psychological support, making the referral a normalised part of rehabilitation, in line with recommendations by Gervis (2022). In addition, the psychology practitioners were involved in the physiotherapy meetings, providing more opportunities for information sharing and collaborative working, and helping the psychologists become a more integrated part of the rehabilitation MDT, as discussed in 'Working Alliance'. The practitioner described the new process they had implemented in further detail:

'So I guess what that looks like is so every athlete gets like an initial like one-to-one with whoever it might be. It's typically me that picks up a lot of them ... and then from that point they basically go under two pathways, a little bit dictated by them as much as anything

else. So the the more intense version is they basically just get one to one support throughout their rehab journey, which is probably the the ideal. um but it doesn't happen all the time. The second version is that they basically get a psychoeducation type um package, which is a mixture of like information and activities. And then there's touch points that happen when there's about to be a significant change in like training program in terms of like increasing what they're doing and a touch point when they're approaching return to play and- and then a touch point at the end. So like at minimum, they're looking at like 4 touch points with a psych and some educational resources...' W2P5FU2

The new process put in place by the psychology practitioners involved a minimum of four touch points for all injured athletes, one at each phase of their rehabilitation, and access to psychoeducation resources specific to injury. The practitioner explained how further involvement of the psychologists in rehabilitation was at the discretion of the athlete, but that they felt more significant psychological intervention was '*probably the ideal*' (W2P5FU2). This is in line with previous research, which suggests that mental health surveillance by appropriately trained professionals helps to prevent minor psychological issues escalating into more serious issues over time (Lynch, 2021; Mountjoy et al., 2023). These changes were made possible by changes in working practice within their organisation:

'... and then we're way more integrated and the MDT. So we're like, involved in all the LTR [long term rehabilitation] meetings now...and like there's now quite a lot of buy in from physios like some of whom were maybe not all that enthusiastic at the start. So, like organizationally I'd say it's changed quite a lot in terms of this is what the support looks like for injured athletes. And then that like the creation of that I guess has been like heavily influenced by the work that you guys have done and either just in terms of what that looks like. But also just in terms of giving me a bit more confidence to go and bat for it, I guess. And and then in terms of how I practice, ohh, like individually. Probably just like aware of a bit more now like I said, like I use a lot of the stuff that we've done in those workshops that I maybe hadn't thought of in that way before. So and probably just added a little bit more, I dunno, creativity to how I do that...' W2P5FU2

Finally, the practitioner reported how, as a result of attending the IACT workshop and the subsequent changes they had made, they had more involvement with the process for long term rehabilitation and more buy-in from the physiotherapy team in the organisation. This example illustrates how a change in working processes lead to wider organisational changes, and cultural change which supported the changed processes and was perceived to have improved support for injured athletes. Furthermore, this example illustrates that the training provided effective learning, resulting in practitioner behaviour change, which had significant results not only for the organisational processes, but also for the athletes supported by the organisation (Kirkpatrick & Kirkpatrick, 2006).

6.8 Evaluation

The intervention design and protocols, and evaluation of the intervention training can be found in greater detail in Chapter 5, however the evaluation of the training concluded that it addressed all four processes of professional development of the SPPD model (Fogaça, Quartiroli & Wagstaff, 2024). The training was effective in improving practitioner skill and knowledge, and met the needs of those who attended. Monitoring of intervention and delivery was not possible through direct means, and therefore the only information available to assess this is the accounts of the practitioners themselves (see section 6.3.2). A follow-up resource was distributed to all practitioners following attendance of the IACT training, but due to the flexibility of the ACT approach, this cannot be considered an ‘intervention manual’. While it is possible to conclude that practitioners were using ACT skills, it is not possible to ascertain the quality of this therapeutic work. There is anecdotal evidence that the IACT skills were well received by athletes, but intervention receipt cannot be fully assessed.

This chapter does however provide evidence of ‘translation of learning into practice’, and some of the perceived impacts of that translation (Neimeyer, Taylor & Cox, 2012). This translation of learning into practice demonstrates that the training was effective, broadly aligning with the ‘Learning’, ‘Behaviour’ and ‘Results’ levels of the Kirkpatrick model of training evaluation (Kirkpatrick & Kirkpatrick, 2006). It is evident from the data above that the learning produced changes in practice in wide a variety of ways, and that those changes impacted on the athletes and others in those practice environments. While it is beyond the scope of this research to assess athlete outcomes, the impacts on practice and practitioners’ professional development is well established.

6.9 Discussion of Results Summary

The above discussion of results organized the data into five general dimensions, conceptualised as a ‘ripple effect’. This effectively represents the concept of various levels of perceived impact, acknowledges the professional context of practitioners, and also demonstrates that changes in professional practice always start with changes to the self. Section 6.2 details the varied changes to professional identity, professional philosophy, confidence, and purpose that resulted from practitioners attending IACT training. If training does not impact practitioners themselves in at least one of these ways, it is impossible to go on to subsequently impact their therapeutic work, their relationships with other professionals, or the organizations in which they practice.

While changes in the general dimension of ‘Working Alliance’ were discussed by the majority of practitioners, the bulk of the evidence for this general dimension was discussed by practitioners

working as part of larger sports organizations, rather than as independent practitioners. Impact in this general dimension is dependent on the practice context. However, for those who were engaged in work in larger organizations the changes in this area represent a significant development in their practice, and it is hoped these will help to address the stigmatization of psychology as a discipline and improve the integration of psychology practitioners in those environments (Feddersen, Champ & Littlewood, 2025; Purcell et al., 2022). Whilst this impact was outside of the expected scope of the workshop, it is nonetheless important to report, as it demonstrates the significance of this professional development.

The fourth and fifth general dimensions, 'Process and Organization' and 'Beyond' were unexpected impacts of the professional skills workshop, but are nonetheless indicative of both the professional development of practitioners and the impact of the workshop more broadly. The longitudinal study design allowed for an understanding of these longer-term impacts, and was effective in establishing that the professional skills workshop had a lasting impact on practitioners themselves, but this impact was also borne out in changes to their practice in the months following the workshop.

With regards the SPPD (Fogaça, Quartiroli & Wagstaff, 2024), the processes of professional development include reflection, supervision, connections and networking with peers, and learning by doing. There is clear evidence that practitioners had reflected on their own practice and the workshop content, and that they had put the concepts discussed in the IACT workshop into practice and learned by doing. As discussed in Chapter 5, the professional skills workshop included both supervision, networking and connection with peers, and learning by doing. Therefore, the evidence from Chapter 6 reinforces the conclusions of Chapter 5 that the workshop facilitated all four processes that the SPPD model sets out for professional development. Every practitioner reported significant changes in knowledge, understanding, therapeutic skills and their understanding of their professional role. Furthermore, the practitioner experience of the workshop and the learning the workshop provided (as discussed in Chapter 5) translated into changed practitioner behaviour and resulting impacts on therapeutic alliance, working relationships, and organisational processes and culture.

Chapter 7: Conclusions

This chapter summarises the research including the key findings and reflections for each research objective, the strengths and limitations of the research, future directions, and final conclusions. The chapter will begin by discussing each of the three research aims in turn (section 7.1), followed by discussion of the strengths and limitations of the research (section 7.2 & 7.3), possible future directions for research and practice (7.4) and finally a summary of the research conclusions (section 7.5).

7.1 Research Aims and Objectives

This section outlines how the research met the three objectives, which support the research aim of investigating the professional development of sport psychologists in supporting injured athletes. Each objective will be discussed in turn.

7.1.1 Objective One

The first research objective was to design and develop a workshop to provide training for sport psychologists in supporting injured athletes using ACT, using principles of Integrated Knowledge Translation (IKT) to inform the evolution of the workshop.

As described in Chapter 5 section 1, a need was identified for professional training for sport psychologists working with injured athletes. The IACT workshop was designed with consideration given to existing recommendations for CPD design (Hutter et al., 2017; Neimeyer, Taylor & Cox, 2012; Wylleman et al., 2009). The initial design of the workshop was informed by both the researcher and research supervisor's experience of practice, and professional knowledge gained from working both as independent practitioners and as part of larger sports organisations as members of multidisciplinary teams. The design process was initially driven by the expert knowledge of the researchers, followed by an iterative development process informed by the feedback of training users (sport psychology practitioners and trainees) at every stage. In this regard, the process brought together the expertise of academic researchers and knowledge users and created a CPD workshop that provided peer-to-peer learning of essential knowledge combined with vital experiential learning (Hutter et al., 2017, Smith et al., 2022, Wylleman et al., 2009). A critical reflection from the researcher during the design and development process highlighted the need for experiential learning in this professional training. The workshop was adapted to meet this need, and the final iteration included significantly more opportunities for practitioners to actively experience delivering ACT techniques. This process was instrumental in meeting the first research objective and

the successful design of a professional skills workshop that met the needs of practitioners and would not have been achieved without this coproduction approach (Williams, Sarre et al., 2020).

7.1.2 Objective Two

The second research objective was to deliver the workshop to practitioners and collect data to evaluate the workshop as professional training. The purpose of the IACT training workshop was to equip practitioners with the following;

- Knowledge and understanding of the injury rehabilitation journey for athletes
- Knowledge and understanding of the psychological consequences of injury for athletes
- ACT therapeutic skills to be able to effectively work with injured athletes
- The opportunity to practice those ACT therapeutic skills to gain confidence to be able to effectively support injured athletes
- Understanding of how both the knowledge of injury and the ACT therapeutic skills may be used as a psychological practitioner working as part of a multidisciplinary team.

The IACT workshop was delivered to three groups of practitioners, with a total of 17 practitioners attending. The workshop was evaluated through researcher reflections, practitioner feedback in the form of a pre- and post- workshop questionnaire to gauge self-reported changes in practitioner understanding and confidence, focus-group interviews immediately following the workshop, and relevant data from the follow-up interviews conducted at 3- and 6-months post-workshop. Analysis of these data revealed that the workshop was effective at delivering knowledge in a way that was relevant to the work of practitioners, and in improving practitioners' therapeutic skills and their confidence in being able to use those skills to effectively support long-term injured athletes. Practitioners' self-reported scores of understanding and confidence improved significantly ($p < 0.05$) for all items. Cohen's d effect size was calculated for 11 items which met Levene's test of homogeneity of variance (> 0.05), with a large effect size (≥ 0.8) for all items except 'Confidence in identifying fear of reinjury', which showed a medium effect size (≥ 0.5). Key findings reported in both post-workshop questionnaires and focus group interviews included knowledge of stages of injury, mental health risks, and understanding of pain and trauma. Practitioners reported therapeutic skills development including using ACT, understanding how to use their knowledge of injury in conversations with athletes and other professionals, and that the opportunity to both observe and practice therapeutic skills were valuable in improving their confidence. At follow-up, practitioners reflected that they had used their new knowledge in varied ways, particularly the understanding of the stages of injury, pain, trauma, and fear of reinjury, suggesting that the improvements in

knowledge resulting from the workshop were sustained over the follow-up period and integrated into practice. In this regard, there is evidence that the workshop provided important learning, (Kirkpatrick & Kirkpartick, 2006). The feedback from practitioners on their therapeutic skill development showed that many of them had found the workshop to be a 'safe space' to practice, and the experience of attending the workshop had helped them move from the 'introduction phase' to the 'exploration phase' of practice development (Fogaça, Quartiroli & Wagstaff, 2024). Researcher reflections during the delivery process (Chapter 5, section 5.2.4) highlighted the importance of the experiential learning embedded in the workshop, and the value in providing the space and opportunity for practitioners to try new skills in a supportive environment. Practitioners reflected at follow-up that the experience of attending the IACT workshop in person facilitated peer-support, which was an important factor in their learning, supporting the findings of previous research (Hutter et al., 2017; Wadsworth et al., 2024). Practitioners had an overwhelmingly positive view of the workshop and found attending in-person to be a valuable experience for their professional development (Kirkpatrick & Kirkpartick, 2006).

7.1.3 Objective Three

The third research objective was to explore the practitioners' perceptions of the training's ongoing impact on their professional practice through follow-up interviews conducted 3- and 6-months following practitioner attendance at the IACT workshop.

The perceived impact of training on professional practice was explored through the follow-up interviews conducted with practitioners at 3- and 6-months post-workshop. Through a process of Reflexive Thematic Analysis, five general dimensions were created; 'Self', 'Therapeutic Alliance', 'Working Alliance', 'Process and Organisation' and 'Beyond'. These five general dimensions represent a 'ripple effect' (see figure 7.1) of change, which starts with the practitioner themselves and moves outwards through their professional practice, relationships with other professionals, and the changes made in their organisations.



Figure 7.1: The 'Ripple Effect'

These general dimensions will be discussed briefly below, and how each one represents development in various elements of the SPPD (Fogaça, Quartirolí & Wagstaff, 2024).

7.1.3.1 Self

The general dimension of 'Self' encompassed impacts of attending the IACT workshop directly on the practitioner themselves. The first order themes were 'Retained Knowledge and Skills' and 'Self-Reflection'. The data supported the conclusions of Chapter 5, that the workshop was effective in improving practitioner knowledge of the stages of injury, trauma, pain, and the psychological impacts of injury for athletes. However, beyond the retained knowledge, the data showed that this improved knowledge had allowed practitioners to develop an understanding of the importance of their role in the injury rehabilitation process, and several practitioners reported a new sense of purpose in their work. This new knowledge also resulted in self-reflection and a shift in practitioners' professional philosophies (Fogaça, Quartirolí & Wagstaff, 2024). Several practitioners reported their changed understanding of their own injury experiences and this was highlighted in the first illustrative case discussed in Chapter 6, section 6.7.1.

7.1.3.2 Therapeutic Alliance

The general dimension of 'Therapeutic Alliance' encompassed the changes reported by practitioners in their work with the athletes they supported since attending the IACT workshop. There were two first order themes; 'Therapeutic Skills' and 'ACT Therapy Across the Rehabilitation Journey'. The second-order themes under 'Therapeutic skills' demonstrate that the workshop was successful in helping practitioners to develop basic therapeutic skills such as normalising difficult emotions, facilitating acceptance, addressing isolation, and gave practitioners a new understanding of the spaces in which they practice and the impact of those spaces on the athletes they worked with. These represent basic therapeutic skills which had previously not been a part of these

practitioners' training, supporting calls for more training to be made available to practitioners (Quartiroli & Wagstaff, 2024), and demonstrating that the practitioner skills training approach taken in the workshop was effective in helping practitioners to develop these skills. Practitioners also reported how they had implemented ACT therapeutic skills across the rehabilitation journey, providing supporting evidence for the efficacy of ACT as a therapy in rehabilitation. These findings support the conclusion that the IACT workshop achieved its ultimate goal of improving the support available for vulnerable injured athletes.

7.1.3.3 Working Alliance

The general dimension of 'Working Alliance' included two first order themes of 'Influencing the MDT' and 'Creating New Collaborations'. This general dimension encompassed practitioners' perceptions of their working relationships with other MDT professionals, and demonstrated that upskilling psychological practitioners can have an impact beyond the practitioner themselves and their work directly with the athletes. There were examples of practitioners passing on their new knowledge and understanding to the other professionals in their team, changing the perspectives and understanding in the broader rehabilitation team. A significant theme in this general dimension was that of 'Athlete Within the MDT' with several practitioners discussing how, since attending the IACT training, they were able to give the athletes themselves more of a voice in the MDT, and facilitate greater athlete empowerment. There were several examples of new collaborative working practices, and movement from multidisciplinary to interdisciplinary styles of work. Several practitioners reported how their new understanding of the injury journey, and the confidence they had gained had enabled them to have different conversations with other MDT practitioners and 'join the dots' in the rehabilitation process, providing athletes with greater continuity of care. This general dimension, and its relationship with the general dimension of 'Therapeutic Alliance' are explored in the second illustrative case in Chapter 6, section 6.7.2. The findings of this general dimension highlight the importance of this aspect of training and support previous recommendations that practitioners receive training in working collaboratively in MDTs (Rowley et al., 2020; Haluch, Radcliffe & Rowley, 2022). It is clear that the lived experiences of the researchers were valuable additions to the training, supporting recommendations that training is designed and delivered by experts with practical experience in the field (Hutter et al., 2017; Wylleman et al., 2009).

7.1.3.4 Process and Organisation

The general dimension of 'Process and Organisation' encompassed the perceived impacts practitioners had made on the broader organisations in which they worked, and changes in process for injured athlete support that resulted from practitioners attending the IACT workshop. The

general dimension of 'Process and Organisation', and its relationship with the general dimension of 'Working Alliance' is demonstrated in the third illustrative case (Chapter 6, section 6.7.3). Several practitioners were empowered to implement organisational change as a result of their improved understanding of the importance of support for injured athletes, and this change was often facilitated by practitioners' improved relationships with other MDT staff as detailed in 'Working Alliance'. One practitioner described how the changes they had made to the internal referral process for injured athletes had contributed to the normalisation of psychological support, and ultimately the de-stigmatisation of psychological support more broadly, representing cultural change in their setting. The examples of changes to process and organisation had resulted in earlier intervention for injured athletes, psychological support as standard, and ultimately a better provision of care for athletes (Gorczyński et al., 2019; Henrikson et al., 2024; Moesch et al., 2018; Roy-Davis, Wadey & Evans, 2017). While unexpected, these impacts show the breadth of impact that practitioner training can have in settings where psychologists are integrated and respected.

7.1.3.5 Beyond

The general dimension of 'Beyond' encompassed perceived impacts of training beyond the traditional working practice of a sport psychologist. This general dimension included the dissemination of information to related disciplines, including training for physiotherapy students and encouraging peers to seek training of their own. Practitioners' plans for future impact in related fields such as working with 'prehab' teams in NHS settings and with recipients of organ transplants, and plans for disseminating their new knowledge to other stakeholders including parents and coaches were also reported. As with 'Process and Organisation', these impacts were unexpected, but speak to the practitioners' engagement with the subject, and how impactful the training had been, that practitioners not only recognised the value of the training to their own practice, but also felt it worth passing on.

These five general dimensions provide evidence of how the training was effective in impacting professional development and contributes to addressing the identified need for research in this area (Tod, Hutter & Eubank, 2017; Wylleman et al., 2009). There is evidence that the training impacted all elements of the SPPD, most notably purpose, confidence, awareness, philosophy, and professional identity (Fogaça, Quartiroli & Wagstaff, 2024).

7.2 Strengths of the Research

The strengths of this research are discussed in turn below. These are organised into the following areas: professional development, training gap, research-practice gap, ACT for injury, and practice-based evidence.

7.2.1 Professional Development

There is a need for more research into the professional development of sport psychologists (Tod, Hutter & Eubank, 2017; Wylleman et al., 2009), and this research provides important evidence which contributes to the understanding of this area. The 'ripple effect', as illustrated in the general dimensions described above, is evidence that the IACT workshop contributed in a meaningful way to the professional development of the practitioners who attended. The evidence shows that the training not only impacted on practitioners' knowledge and skills, but also on their professional philosophies, their work directly with clients, and on the work of the wider rehabilitation MDTs in which they worked. Unexpectedly, the training also prompted practitioners to influence wider organisational change, with new processes, which not only resulted in improved provision of support for injured athletes in the organisations, but also effected deeper cultural change in some instances. Beyond sports organisations, there was also evidence of practitioners using their training in work beyond the scope of 'normal' sport psychology practice, providing evidence of the far-reaching impact that training can have. These perceived impacts of training are aligned with the elements of Fogaça, Quartiroli and Wagstaff's SPPD (2024), and provide further evidence of how training might facilitate professional development and provide the necessary knowledge and skills for practitioners to progress through the phases of development.

7.2.2 Training Gap

The evaluation of the IACT workshop shows that this delivery of CPD is effective in improving practitioner knowledge and therapeutic skills. This supports the existing recommendations that training delivered by practitioners with real-world experience, combined with peer support, is an effective way to bridge the training gap for sport psychologists (Hutter et al., 2017; Wylleman et al., 2009). The IACT workshop delivered improvements in practitioner understanding, but also crucially in the therapeutic skills necessary to safeguard athlete mental health, and support injured athletes through their rehabilitation journey. Training of this type helps to address the need for practitioner CPD in both therapeutic skills and mental health awareness (Quartiroli & Wagstaff, 2024), and helps equip practitioners with the understanding necessary to implement those skills effectively in multidisciplinary practice environments (Rowley et al., 2020; Haluch, Radcliffe & Rowley, 2022). In

several instances, practitioners reported that the IACT workshop had inspired them to seek further training, particularly in complex topics such as pain and trauma.

7.2.3 Research-Practice Gap

The IACT training developed as part of this study goes some way to addressing the research-practice gap, detailed by Evans and Brewer (2022). It has long been known that injury presents significant psychological challenges for athletes, but professional training and practice has not responded sufficiently to this need. The IACT workshop not only improved practitioner awareness of the psychological risks faced by injured athletes, but also provided a therapeutic solution and produced significant changes in practice as reported by practitioners. The training and education provided has therefore helped to take the well-established evidence, educate and upskill practitioners, and provide a practice-based response. This has helped to address the paucity of evidence in how interventions may be implemented in the field of psychology of injury research (Evans & Brewer, 2022; Hess, Gnacinski & Meyer, 2019; Reese, Pittsinger & Yang, 2012). There is a clear need for more training of this kind, and it is hoped that the evidence provided will encourage training bodies to ensure their programmes are fit-for-purpose and promote the appropriate training of practitioners in the future.

7.2.4 ACT for Injury

This research adds to the growing body of evidence for the efficacy of ACT for injury. Previous research has established preliminary support for ACT interventions with injured athletes (Baranoff, Hanrahan & Connor, 2015; Mahoney & Hanrahan, 2011; Udell, Ruddy & Procento, 2018), and while this research did not directly examine the efficacy of ACT, the results provide supporting evidence that ACT may be an effective therapeutic modality in this context. Practitioners reported using all elements of the ACT Hexaflex, and the flexible and client-led nature of the therapy was beneficial in their work with injured athletes. This is illustrated through themes such as 'Facilitating Acceptance', and 'ACT Therapy Across the Rehabilitation Journey' (section 6.3). While it is not possible to ascertain direct impact of the therapy on athlete outcomes, practitioners reported on the suitability of ACT as an approach for this group, and the transferability of ACT skills to situations other than rehabilitation. In addition, one practitioner provides a detailed account of how using ACT processes themselves helped them navigate their own chronic health condition (section 6.7). While more research is needed in this area, this study concludes that ACT is a suitable therapeutic modality for working with injured athletes, and merits further investigation.

7.2.5 Practice Based Evidence

From the outset, this research has aimed to draw evidence from professional practice, with the express purpose of creating knowledge that is beneficial to practitioners, namely practice-based evidence. The research-practice gap evidences the need for more research in this area, and this study both responds to, and repeats the call for more research that has greater relevance for practitioners 'on the ground'. Sport psychology is a rapidly growing and changing profession, which holds evidence-based practice as the gold standard. However, evidence-based practice can (and should) include practice-based evidence (Barkham & Mellor-Clark, 2003). The use of Integrated Knowledge Translation (Smith et al., 2022) was effective in ensuring practitioners were consulted at every stage of design and delivery, and the outcome of this was a professional skills workshop that met the needs of practitioners, addressed both training and CPD needs, translated effectively into practice, and it is hoped that the evidence from that practice will help to inform other practitioners.

7.2.6 Study Design and Methodological Rigour

The iterative design and development process of the IACT workshop was informed by input from practitioners (end users) and researcher reflections at every stage (as discussed in Chapter 4, and section 7.1.1). This rigorous process ensured that the information and skills practices included in the workshop were relevant, meaningful and accessible to practitioners, and ensured that the delivery and practitioner experience was consistent across the three IACT workshops (as discussed in Chapter 5).

The effective design of the study as a whole is demonstrated by the coherence of the results at each stage. Feedback from practitioners at the delivery stage (Chapter 5) suggested that the workshop was valuable for practitioners, delivered important knowledge, and facilitated meaningful skill development through providing a supportive environment with expert feedback and peer-to-peer learning (Hutter et al., 2007; Wylleman et al., 2009). This aligned strongly with feedback from practitioners who participated in the design and development of the workshop (Chapter 4). Practitioners reported changes in understanding and confidence immediately following the workshop, which are mirrored in the practitioner accounts of changes to their professional understanding, working relationships, and therapeutic practices discussed at follow-up (Chapter 6). Practitioners reported fundamental changes in their personal and professional philosophies, which speak to the relevance of the theoretical and experiential learning gained from attending the workshop, and demonstrate that the IACT workshop was effective CPD (Hutter et al., 2017; Kirkpatrick & Kirkpatrick, 2006; Neimeyer, Taylor & Cox, 2012; Wylleman et al., 2009). The IKT approach taken in the coproduction of this training (Smith et al., 2022), the reflections of the

researcher, and reflective conversations between the researcher and the research supervisor, were crucial to the success of this process, and a strength of the study design.

7.3 Limitations

The most significant limitation of this study is that it did not include the perspectives of injured athletes. Practitioners were asked to pass the details of the study on to any athletes they had supported who may have been interested in participating, but there were no responses, and due to the time constraints of the research it was not possible to pursue other avenues. A clear goal of the research was to provide better support for injured athletes. While it was possible to ascertain that practitioners were better informed, more aware of the risks to athletes, working more collaboratively with the MDT, and changing processes to facilitate earlier intervention, it is not possible to draw any conclusions regarding how that support was received by the athletes. From a professional standards perspective, the provision of support was improved, however without the athlete perspective, the efficacy of that support is unknown.

Further evaluation of the workshop itself may have been possible had the workshop been recorded. However, this may also have impacted the workshop experience for both the practitioners and the researcher. For practitioners to practice new skills in a peer-to-peer setting, they must perceive the environment as a 'safe space' in which to try new things and be supported in the face of potential success or failure. This can be a vulnerable experience for practitioners, particularly those with less experience of such settings. Several practitioners reported that this was their first such experiences, and the added pressure of being aware that the process was being filmed may have hindered the creation of a 'safe space' in which to try new skills. Therefore, while further evaluation of the workshop was not possible, the practitioner experience was reported as positive, and the aim of providing an effective learning environment was prioritised over the additional evidence that filming may have provided.

While there is a good understanding of how the training impacted professional practice, it is not possible to draw conclusions about the implementation of the ACT interventions proposed in the IACT workshop. While practitioners were asked how they had used the skills and information, they were not asked to provide detailed accounts of practice in individual cases. Therefore, it is not possible to assess the quality of delivery as it related to the ACT therapy itself.

The final interview with practitioners was conducted six months after they had attended the IACT workshop. While this was long enough to see whether new knowledge and skills had been retained and integrated into professional practice, it is unknown how the changes to process and collaborative working impacted practice in the longer term. It would also be interesting to know

from an organisational perspective if the reported improvements in the psychological literacy of the organisation and the changes in process and culture were sustained beyond the employment of the practitioners.

7.4 Future directions

7.4.1 Implications for Training and Professional Development

The design of the IACT workshop was perceived by practitioners to be an effective method to deliver professional development, including both knowledge and professional skills. This workshop format may well be useful in delivering CPD on other topics for not only sport psychologists, but other practitioners in similar fields. This research has highlighted the fact that the current requirements for training are leaving practitioners ill-equipped for the roles that are required of them in sports organisations. As has been highlighted by previous research, the landscape of sport psychology practice is changing (Sly, Mellalieu & Wagstaff, 2020; Wadsworth et al., 2024), and if the training guidelines do not evolve with the profession, practitioners and the athletes they support are being put at risk. Mental health and therapeutic skills are essential knowledge for any practitioner with 'psychologist' in their professional title, and while these topics are covered in CASES SEPAR training, the BPS Stage 2 route does not stipulate these as core skills. Trauma was explored in the IACT workshop as a consequence of injury, but was a meaningful topic for practitioners, and several practitioners reported a desire for further training on this topic. Trauma-informed approaches are increasingly being recognised as important for healthcare (Williamson et al., 2015; Williamson & Kautz, 2018), and are useful avenues to improve holistic athlete care, centring the person, not just the performer (Brady, 2022; Garner, McEwan & Whitehead, 2023). While this topic was of significant interest to practitioners, it was reported that one educational institution was not eager to facilitate further practitioner training in this area. This is representative of the documented distinction between 'performance' and 'therapeutic' approaches to sport psychology (Herzog & Hays, 2012; Roberts, Faull, & Tod, 2016), and while this distinction is held in place, it restricts the development of the profession and puts athletes at risk.

It was alarming that this research was the introduction to basic therapeutic skills such as normalising difficult emotions and empathy for some practitioners. While it could be argued that the majority of practitioners in this study were trainees, and some were very early in their training journeys, these trainees are already working with athletes. Either the skills need to be introduced earlier in practitioner education (at MSc level), or supervisors overseeing practitioner training need to ensure these skills are taught to trainees before encouraging them to work independently with athletes. The system of supervised practice (including both training organisations and individual

supervisors) have a duty to ensure trainees are appropriately trained for the contemporary professional landscape. This supports recent research which also calls for training to be updated to meet the demands of mental health support in sport (Prior, Papathomas & Rhind, 2025).

Practitioners commented how much they appreciated having the opportunity to practice skills with peers, highlighting a need for more opportunities of this kind to be available to practitioners. The IACT format of 'professional skills workshop' was effective in improving practitioner knowledge and skills, and was valuable for the practitioners who attended. The process of training, supervised practice, and professional practice often leaves practitioners working in isolation, without the much-needed peer-support networks which are readily available to other disciplines who are employed in greater numbers in sports organisations, such as physiotherapists (Gervis et al., 2020). While it is the responsibility of the individual practitioner to cultivate these peer-support networks, in-person workshops provide valuable opportunities to build these networks, and online training (while often cheaper and more convenient) cannot be considered a replacement for 'live' opportunities.

This IACT workshop was designed and delivered with multidisciplinary practice environments in mind, and drew upon the lived experience of the researcher and research supervisor to equip practitioners with the necessary knowledge to be able to work effectively with other disciplines. Improvements in practitioner understanding, confidence and purpose were linked to practitioners' reporting greater engagement in interdisciplinary working, and perceived improvements in MDT working relationships. The confidence gained by practitioners attending the workshop played a significant role in the changes in working alliance reported throughout the follow-up interviews, but specific training in interdisciplinary working could also be considered a core skill for all MDT professionals. While not every practitioner is employed in a multi-disciplinary environment (many practitioners work independently as private consultants), training specifically in this area helps to prepare practitioners for different working environments, and helps to bridge the gap between psychologists and other disciplines and reduce the stigma that still surrounds psychology in sports organisations such as football clubs (Castaldelli-Maia et al., 2019; Dean, Kavanagh, Wilding & Rees, 2022). This supports the recommendations of previous research (Rowley et al., 2020; Haluch, Radcliffe & Rowley, 2022) suggesting that practitioners receive this training. Currently, limited opportunities for training are a barrier to professional development (Vázquez-Calatayud, Errasti-Ibarrondo & Choperena, 2021). This research therefore recommends that that IACT workshop should be included in the professional training of all sport psychologists, and that both CASES and the BPS should be aware of, and take steps to address, other research-practice gaps that would benefit from similar attention.

7.4.2 Implications for Practice

This research offers a significant contribution to the development of the profession in several ways. First, it offers insight into how impactful practitioner training may be designed and delivered. While the IACT workshop offered valuable CPD for the practitioners who attended, more opportunities of this kind need to be available, and deliver effective training in therapeutic skills, as stated by previous research (Quartiroli & Wagstaff, 2024). Current practitioners need to proactively seek out training in therapeutic skills and mental health, in order to both fulfil the HCPC CPD requirements, but also meet the demands of contemporary working environments. Without the necessary skill base, the profession is unable to meet the recommendations for holistic athlete care (Moesch et al., 2018, Reardon et al., 2019), and puts the health and wellbeing of athletes at risk (Winter & Collins, 2024; Prior, Papathomas & Rhind, 2025).

The research has demonstrated the multitude of ways in which practitioners can effect change. However, this change is predicated on developments in professional philosophy and practitioner self-reflection. Development of the self is crucial for development in practice, and only through upskilling and education will practitioners have the necessary skills to holistically support athletes, work in a truly collaborative way with other professionals, and make important changes to the organisations in which they work.

This research has demonstrated the unique skills of the sport psychologist in working with athletes and influencing other professionals when an embedded part of the multidisciplinary team. The themes under the general dimension of 'Working Alliance' demonstrate the breadth of ways that psychologists can contribute to the work of MDTs and the wellbeing of athletes. As found by an experienced psychologist looking at the work of sport psychologists in UK football, 'psychology isn't everything, but it's everywhere' (C. Daley, personal communication, 4th April, 2025). This permeation of psychology through an environment is demonstrated by the different working relationships, and the reports from practitioners that they were able to improve communication through rehabilitation teams and 'join the dots' for other professionals. However, this aspect of the psychologist's job role is often intangible, and is only possible when practitioners are embedded in the environment and empowered to be present in, and contribute to, the varied sub-environments within sports organisations. This professional empowerment was evident in the themes under the general dimension of 'Self' and represents a significant aspect of professional development. Both the professional empowerment of the practitioner, but also the empowerment of the athlete as an active participant in their own rehabilitation were significant themes in the data analysis. By accessing effective training, practitioners take steps to empower themselves in their roles, and in turn, help to empower the athletes they support. Upskilling practitioners in injury helped facilitate

different conversations with the rehabilitation MDT which improved buy-in and resulted in more cohesive support for injured athletes, and recognition of the value of psychology in such a setting (Heaney et al., 2017). There has been much research discussing how the discipline is still stigmatised and dismissed by other professions in sport (Feddersen, Champ & Littlewood, 2025). While the responsibility for addressing this does not lie solely with sport psychology, it is incumbent upon practitioners to find effective ways to work within the MDT, build meaningful connections with other professionals, and build the reputation of the profession as a whole in order to address this disconnect.

Practitioner empowerment and professional collaborations led to the upskilling and changes in practice for other professionals in the MDT, but this interdisciplinary educational role requires practitioner understanding, confidence, and an understanding of the cultural structures of the practice environment (Haluch, Radcliffe & Rowley, 2022; Ward et al., 2005). Practitioner efficacy is limited when working in isolation in a team-based environment, and therefore practitioners need to be fluent in the sporting contexts in which they work. Practitioners who are entering new professional contexts, and particularly trainee practitioners (and their supervisors), are therefore encouraged to invest time in understanding the interprofessional power dynamics, and cultural and structural forces of those contexts, in order to understand how to practice effectively in the environment.

7.4.3 Implications for Research

This research has concluded that the study design employed was effective in producing training that was fit-for-purpose, relevant, and perceived by practitioners to be impactful in practice contexts. The integrated knowledge translation approach employed to design and develop the training was critical in achieving this goal (Gainforth et al., 2021). The longitudinal design and follow-up period was sufficient to understand changes to practice and process in the medium term, and therefore the design of this study would be an effective way to conduct similar research. This also supports previous suggestions that practitioner skills workshop formats are effective in delivering meaningful professional training (Wylleman et al., 2009).

As previously discussed, sport psychology practitioners often work in sports organisations with varied MDTs, complex cultural norms, and varied micro-political challenges. For this reason, practice-based evidence is a necessary addition to the knowledge base, and more research of this kind is needed in sport psychology to provide relevant knowledge, guide professional development, and work to close the gap between research and practice.

The findings of this research offer some support to the validity of the SPPD model as a means of understanding the professional development of sport psychology practitioners (Fogaça, Quartiroli & Wagstaff, 2024). While the research was designed and developed before the publication of the model (and therefore was not designed specifically with the model in mind), the SPPD offered a useful framing of different aspects of professional development and the processes necessary to achieve it.

Finally, this study found an applied interpretive approach, underpinned by aspects of critical realism, to be an effective way of investigating the professional practice of sport psychologists. The approach allowed a rich understanding of the data in context, produced knowledge which is relevant for practitioners, and generated results with enough generalisability to produce new understandings which will be useful to a broad range of practitioners.

7.4.4 Future Research Directions

There are several suggestions for future research arising from this study. Firstly, and perhaps most critically, the impact of psychological support following injury for athletes should be more fully investigated. As was concluded in 2012, there is a 'significant lack of well designed intervention studies targeting this population' (Reese, Pittsinger & Yang, 2012, p. 76). This remains true, but it is hoped that this research provides the necessary intervention framework to be able to implement and evaluate a theoretically grounded intervention, and its impacts on athletes and their rehabilitation outcomes.

Future research could investigate the implementation of intervention frameworks such as IACT in context, looking at how skills are delivered in practice environment and gain a first-hand perspective on sport psychology practice. While this project was able to gather some information on the implementation of IACT, the data came retrospectively from practitioners, rather than being assessed directly. Such research may be able to shed light on which aspects of intervention are used most frequently, or most effectively, and serve to guide future training and research.

In the same vein, this research supports the appropriateness of ACT as an intervention for injured athletes, but has not directly measured psychological flexibility, or any of the six ACT processes which may be the mechanism of change for athletes. There is a growing evidence base for ACT as an intervention in other populations (Udell, Ruddy and Procento, 2018; Veehofs et al., 2016), and this study demonstrates that this would be a promising area for further investigation.

As discussed in Chapter 6, the general dimensions of the reflexive thematic analysis resemble an ecological approach to understanding the athlete rehabilitation system (Brady, 2022; Bronfenbrenner, 1994). While this resemblance was unintended, there is an established body of

research taking an ecological approach to research in sport (Beek, 2009; Haluch, Radcliffe & Rowley, 2022). Therefore, an ecological approach may be appropriate for future research examining the complexities of the rehabilitation system and the multifaceted impacts on injured athletes.

Another potential direction for research would be the impact of psychoeducation, or collaborative work with trained psychologists, for other MDT practitioners, particularly physiotherapists. While this has long been suggested (Driver et al., 2017; Heaney, 2006; Tracey, 2008), this research has found that working with an appropriately trained psychologist has the potential to be impactful for physiotherapists and have impacts for the athletes they support.

7.5 Conclusions

This research found that the current sport psychology training pathways do not always adequately prepare practitioners for work with injured athletes, or effective collaboration with MDT professionals. The training bodies place significant emphasis on the process of supervised practice as professional training, however there is little research to date which investigates effective supervision in sport psychology. This is an area that currently has limited oversight from professional bodies, and investigation would help to shed light on what constitutes 'effective' supervision, as suggested by Tod et al., (2020). This would contribute to the understanding of professional development, for which a need has previously been identified (Wylleman et al., 2009; Tod, Hutter & Eubank, 2017), and the 'ripple effect' may provide a useful model through which to understand the professional development of sport psychologists. Furthermore, better understanding of effective supervision in the light of the changing professional landscape of sport psychology would produce information which would help to 'quality assure' training processes. This would help to ensure future practitioners are appropriately trained to meet the needs of both contemporary and future roles and contribute to the development of the profession (Prior, Papathomas & Rhind, 2025; Quartiroli & Wagstaff, 2024).

The overarching aim of this research was to investigate the professional development of sport psychologists in supporting injured athletes. This final chapter has thus far established that the three objectives of the research were met. This research has shown that training and professional development should be evaluated using practice-based evidence in order to fully understand the impact of training on practitioners themselves, their practice, the culture and organisations in which they practice, and ultimately the provision of support for clients, in this case injured athletes. The coproduction approach taken by this research facilitated effective training and aided the development of practitioners in a way that contributes to bridging the research-practice gap in supporting injured athletes (Evans & Brewer, 2022). While there is a cultural shift towards wellbeing

support in sport psychology, there is a clear and urgent need for more training of the kind described in this thesis.

Chapter 8: References

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Appendices

Appendix 2.1: A systematic review of post-injury psychological interventions for athletes; 2010-2021

A systematic review of post-injury psychological interventions for athletes; 2010-2021

Systematic review

Introduction, Aims and Objectives

The body of literature was last reviewed in 2012, looking at studies published between 2000 and 2012 (Reese, Pittsinger & Yang, 2012). The strengths and limitations of this work have been discussed, and this review subsequently aims to assess the extant literature to ascertain whether the knowledge base has moved forward in the years since 2012. This review aims to understand whether psychological rehabilitation post injury is effective in improving outcomes for athletes. Improved outcomes may include mitigation of negative psychological consequences or improved rehabilitation outcomes such as improved adherence to rehabilitation programs or reduced fear of reinjury. The review will assess literature from 2010 to present, in order to evaluate the knowledge base produced in the years since the previous review.

Methods

Protocol and registration

This systematic review followed a peer reviewed protocol registered with PROSPERO (CRD42021244620, Pickford, Mansfield & Gervis 2021).

Eligibility Criteria

This systematic review is not a direct update of Reese, Pittsinger and Yang (2012), as the selection criteria have been modified. Studies were deemed eligible for inclusion if they met the following PICO criteria:

Participants

Elite athletes (including professional athletes, collegiate athletes, or Olympic athletes) of any sport over the age of 18 who had experienced an injury (soft tissue, musculoskeletal or concussion) which kept them from training or competing in their sport for a significant amount of time.

Intervention

Any psychological intervention based in a recognised theoretical framework delivered by an appropriately qualified mental health professional. This represents a more specific standard for the intervention than Reese, Pittsinger & Yang (2012), and also adds the caveat that the interventions should be delivered by qualified practitioners. The purpose of this is to focus the review on studies which apply rigorous interventions through appropriately trained practitioners, which should ensure interventions delivered to the athletes meet basic standards.

Comparison

For controlled study designs comparator should be to another intervention or no intervention. For other study designs this will not be relevant.

Outcome

Outcomes may include either rehabilitation outcomes or mitigation of negative consequences of injury. These may include; return to pre-injury level of performance, quality of life during rehabilitation, post traumatic growth, reinjury measures, adherence to physical rehabilitation, wellbeing measures including mood, self-esteem, reinjury anxiety, or any established measure of depression or anxiety.

This review will only include studies published since 2010. Finally, only studies published in English, or translated into English, will be included.

Information Sources

Searches of title, abstract, keywords and text were conducted on 26th April 2021 in the following databases: APA PsychArticles, SocINDEX, SPORTDiscus, CINHAL Plus, MEDLINE, APA PsychInfo, OpenDissertations & Scopus, within the parameters of 2010 - present.

Search

The search terms and strategy were developed by the first author in collaboration with an Academic Liaison Librarian. Pilot searches were conducted to scope key search terms, and were structured using the appropriate BOOLEAN operators, truncations, wildcard symbols and Medical Subject Headings (MeSH) as appropriate. Search terms were structured around four key themes: Psychology, rehabilitation, injury, and elite athletes. An example search for APA PsychInfo:

(Psychol* OR Mental N3 Health OR Psychiat* OR Counsel* OR Therapist AND Intervention OR Therapy OR Treatment OR Program* OR Counsel* OR Support AND Injur* OR Concussion OR Rehabilitation AND Elite N3 Athlete* OR Elite N3 perform* OR Professional N3

athlete* OR Professional N3 Football* OR Elite N3 Sportsp* OR Professional N3 Player* OR Professional N3 Dancer OR Olympic N3 Athlete)

Handsearching was conducted of key article reference lists.

Study Selection

The results of the searches were exported to an Excel spreadsheet, and duplicates removed. All titles and abstracts were screened independently by the lead author and a second reviewer. Relevant full texts were then reviewed independently by the corresponding author and second reviewer. Any discrepancies at either stage of the process were resolved through discussion between the lead author and second reviewer. There were no instances where a third reviewer was needed to resolve disagreements.

Data Collection Process

A bespoke data collection form was created for this review using existing data collection forms available on CASP. This form was piloted first to ensure it was appropriate.

Results

Study selection

Searches of APA PsychArticles, SocINDEX, SPORTDiscus, CINHAl Plus, MEDLINE, APA PsychInfo, OpenDissertations & Scopus yielded 1561 results. Two additional results were found from reference list handsearching. After removing duplicates 1194 studies remained. After screening of all titles 1106 were excluded leaving 88 results. Full abstracts for those results were screened, excluding 67 studies and leaving 21 results which went on to full text screening. Three studies were removed

because full text was not available, two were removed because no English translation was available. At this stage, none of the remaining 16 studies met all eligibility criteria.

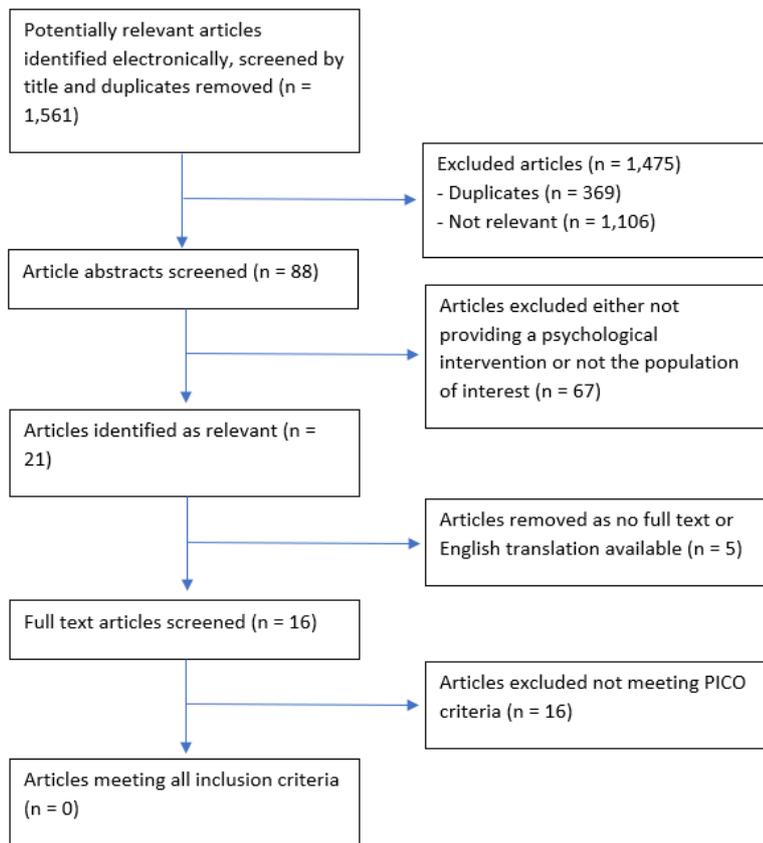


Figure X; Flowchart of article selection process

Discussion

Of the 16 studies which went on to full-text screening, eight were excluded as no relevant intervention was conducted. Two were case studies describing psychological intervention, but with no research question or results. The remaining studies met some of the eligibility criteria and warrant discussion. These will be considered below, followed by several relevant studies published after the searches were conducted, but before the publication of this thesis.

Ardern & Kvist, (2020). *BAck iN the Game (BANG)*—a smartphone application to help athletes return to sport following anterior cruciate ligament reconstruction: protocol for a multi-centre, randomised controlled trial.

The design of this study meets all eligibility criteria but at the time of searching did not yet have any results published. The study aims to recruit 222 participants and is a parallel group, two

arm superiority trial using Cognitive Behavioural Therapy as its theoretical basis. The intervention was designed by qualified psychologists, but is planned to be delivered through a smartphone application. The primary outcome measure is return to sport and pre-injury participation level within 12 months. Secondary outcome measures are return to sports participation, new knee injuries, patient-reported outcomes; psychological readiness to return to sport (ACL-RSI), self-efficacy (K-SES), motivation to return to sport, Quality of life (ACL-QoL), patient reported knee function (SANE and IKDC) and functional knee stability, Clinician-measured knee function; Quadriceps and hamstring strength, hopping performance and knee effusion, and finally adherence. This is a large-scale study using a theoretically-grounded intervention, and when results are available they will be a significant contribution to this area of research.

Mahoney & Hanrahan, (2011). A brief educational intervention using acceptance and commitment therapy: Four injured athletes' experiences.

This research used a case study design to understand the impact of a brief educational ACT intervention on four Australian athletes (2 male, 2 female). While included in Reese, Pittsinger & Yang (2012), this study was excluded as not all of the participants completed at an 'elite' level. Measures included the Acceptance and Action Questionnaire-II (AAQ-II), Mindfulness Attention Awareness Scale (MAAS), the Sports Injury Anxiety Scale (SIAS), and semi-structured interviews. There is no indication of what methods were used to analyse the semi-structured interviews. The intervention consisted of four weekly sessions delivered by a trainee therapist with ACT experience supervised by a qualified psychologist. While this intervention was thought to have helped the athletes understand and accept their internal experiences and commit to rehabilitation behaviours, the authors felt more could be done to address the needs of the athletes. However, the athletes found the skills they were taught useful and this study provides preliminary support for ACT as a useful method for working with an injured athlete population.

Mankad & Gordon, (2010). Psycholinguistic changes in athletes' grief response to injury after written emotional disclosure.

While included in Reese, Pittsinger & Yang, (2012), this study was excluded from this review. In this case the written emotional disclosure does not constitute a 'psychological intervention' delivered by a qualified professional, as participants were given written instructions for a writing task. While psychological measures were conducted, there is not a clear therapeutic framework underlying written emotional disclosure, and while this task might form a part of a psychological support program, it does not in itself constitute an intervention. Nine participants were given a writing task over three days conducted 12 to 14 weeks post-surgery. Outcomes were divided into psychological responses, Rehabilitation beliefs and Linguistic Analyses. Psychological responses were

measured using the 20 item Psychological Responses to Sport Injury Inventory (PRSII), which has five subscales; devastation, dispirited, feeling cheated, restlessness & reorganisation. Rehabilitation beliefs were measured using the 19-item Sport Injury Rehabilitation Beliefs Survey, measuring self-efficacy, treatment efficacy, susceptibility to reinjury, severity and rehabilitation value. Linguistic analyses used Linguistic Inquiry Word Count (LIWC 2007), in six categories of affect, positive emotion, negative emotion, cognition, insight and causation. This study found written emotional disclosure to be effective in enhancing athletes' personal understanding of the injury event, and '*attenuating athletes' grief-related response*'. The authors argue that the writing exercise helped athletes to 'mentally reorganise' shown through greater acceptance of their injury and improved motivation. They report that changes to cognitive, causal and insight words over the course of the study was indicative of athletes gaining a better understanding of their experiences and therefore reducing the trauma associated with those injuries in a similar way to psychotherapy.

Sheinbein, (2017). Return to Sport: Improving Athletes' Confidence and Mindset Post-ACL Surgery

This PhD thesis was excluded due to the mean age of participants (16.75 years). The outcome measures studied were pain (4-item Visual Analog Scale VAS), Stress (Two single items measured on a likert scale), Depression (CES-D-NLSCY, 2005, 12 item scale), Reinjury anxiety (28 item RIAI, 13 item RIAI-RR and 15 item RIAI-REC), Psychological readiness to return to sport (I-PRRS, 6 items), and Range of Motion (using standard goniometry procedures). There were 20 participants divided between three experimental conditions; Goal Setting only, Goal Setting plus Mindful Self Compassion (Germer & Neff 2013) and Goal Setting plus Imagery (Cupal & Brewer, 2001). No significant differences were found between intervention groups. The study was based on ACL rehabilitation but only took measurements for the first seven weeks of rehabilitation following surgery. For a rehabilitation which usually lasts 6-8 months this doesn't seem representative of the full rehabilitation journey. Also, measuring a psychological readiness to return to sport when that return may still be more than four months away is not necessarily valid.

Yoon & Yoon, (2014). Effect of psychological skill training as a psychological intervention for a successful rehabilitation of a professional soccer player: single case study.

This case study did not meet the inclusion criteria because it was not clear whether the intervention was delivered by an appropriately trained professional, and there is limited information on the theoretical justification for 'Psychological Skills Training' as an intervention. The intervention itself was Psychological Skills Training, including work on 'Goal Setting', 'Anxiety Control', 'Attention Concentration' and 'Confidence'. Outcome measures reported were the Korean version of the Psychological Skills Questionnaire (PSQ), the Profile of Mood States (POMS) and 'Interview'. The PSQ

and POMS were delivered on two occasions, once at the beginning of the intervention period and once at the end. It is unclear whether the POMS was delivered each day for a week, and then averaged, or whether the average mood of the week was reported. The interviews provided qualitative data regarding how the athlete felt about his rehabilitation. The results suggest the targeted psychological skills all showed improvements as measured by the PSQ, but there was no statistical analysis as to whether these results were significant. POMS results showed decreased tension, depression and fatigue, and increased anger and vigour, with no change in the confusion score. The authors make comparisons between the athlete's POMS and the 'iceberg profile' which has been proposed as the 'ideal' profile for athletic performance (Lochbaum, Zanatta, Kirschling & May, 2021), however, it is not known how this might compare with what is 'normal' for this particular athlete. With no POMS data from before the injury event, and only two sets of data, it doesn't seem reasonable to draw any conclusions from these results.

Perrett (2014). Can Acceptance and Commitment Therapy Increase Rehabilitation Adherence for the Treatment of Sport Injury?

In an unpublished PhD thesis, Perret looks at ACT as a therapeutic framework specifically for the purpose of improving rehabilitation adherence. The sample consisted of seven athletes and the intervention was delivered over six weeks with a four-week follow-up. This study was not included as two of the participants were under 18 years of age and the participants were not competitive athletes. Rehabilitation Adherence Measure for Athletic Training (RAdMAT) was used to assess adherence to rehabilitation, with Psychological Inflexibility in Pain Scale (PIPS), Cognitive Fusion Questionnaire (CFQ13), 5-Facet Mindfulness Questionnaire (FFMQ), and the Acceptance and Action Questionnaire-II (AAQ-II) were used to measure changes in psychological flexibility and mindfulness processes targeted through ACT. Five participants showed increases in rehabilitation adherence from baseline to the end of treatment, and four of those maintained these improvements to four-week follow-up. Measures of ACT skills such as decreases in cognitive fusion, increases in mindfulness skills and decreases in psychological inflexibility were partially supported.

Brewer, Van Raalte & Cornelius, (2022). An interactive cognitive-behavioural multimedia program favourably affects pain and kinesiophobia during rehabilitation after anterior cruciate ligament surgery: an effectiveness trial.

This study used a multimedia intervention to examine the effectiveness of psychological intervention in injury rehabilitation. There were 69 participants (30 female and 39 male) with a mean age of 35.01 years, of which 35% self-identified as competitive athletes. Participants were randomly assigned to experimental and control conditions. Surgery and rehabilitation process

variables were measured, including knee pain, assessed with a numerical rating scale (NRS), anxiety measured using State-Trait Anxiety Inventory (STAI), and kinesiophobia with the Tampa Scale for Kinesiophobia (TSK). Objective outcome variables included measures of range of motion and knee laxity, while subjective measures were assessed with the Knee Outcomes Survey – Sports Activities Scale (KOS-SAS). The multimedia intervention used a CBT approach, divided into three sections; general information, surgery and rehabilitation. The surgery section was further divided into; before surgery, day of surgery, and after surgery. Each subsection included three subdivisions of; overview, closer look, get practical. Therefore, there were a total of 15 subdivisions. These included education about ACL reconstruction, rehabilitation, and the likely progress of recovery, alongside practical relaxation and guided imagery sessions. Measures were repeated until six months post-surgery. There were medium effect sizes for confidence in ability to cope with surgery and rehabilitation, reduced levels of kinesiophobia, more engagement with education materials and greater perceived utility of education materials. These results suggest that psychoeducation interventions are helpful for confidence and kinesiophobia, but more research is needed, and longer follow-up durations should be considered for surgeries such as ACL reconstructions that have a lengthy rehabilitation.

Swettenham & Whitehead, (2022). Acting on Injury: Increasing Psychological Flexibility and Adherence to Rehabilitation.

This case study considered a single injured male football player and an ACT intervention. The aim of the intervention was to support the injured athlete through rehabilitation and to improve his adherence to the prescribed rehabilitation program. Psychological Flexibility was measured using the Acceptance and Action Questionnaire -II (AAQ-II) and the Cognitive Fusion Questionnaire (CFQ). Both of these measures suggested psychological flexibility increased over the duration of the intervention, though the interval between measures was not specified. No measures of rehabilitation adherence were specified, so it is not possible to conclude whether increased psychological flexibility had an impact on rehabilitation adherence in this case.

Discussion

While a formal data synthesis is not possible due to a lack of eligible studies, it is worth noting that a wide variety of outcome measures were used in the studies described above. The previous review found that intervention outcomes were intended to reduce negative psychological consequences, increase positive psychological coping and reduce re-injury anxiety (Reese, Pittsinger & Yang, 2012). Many of the outcomes detailed in this discussion would fit into these categories, however three studies also looked at physical measures of recovery including knee range of movement, knee laxity, hopping performance, hamstring & quadriceps strength and knee effusion (Brewer, Van Raalte & Cornelius, 2022; Ardern & Kvist, 2020; Sheinbein, 2017). Indeed, the intended

primary outcome measure of Ardern & Kvist's study is return to sport at pre-injury level within 12 months, and both Perret (2014) and Swettenham & Whitehead (2022) used an ACT intervention specifically to enhance injury rehabilitation. This could suggest a greater understanding that physical rehabilitation is linked to psychological factors and emphasises the importance of interdisciplinary collaboration to support athletes. The AAQ-II measure was used to assess psychological flexibility (the ACT mechanism of change) in the three studies using ACT, and a psychological skills measure for the case study taking the psychological skills approach, however Brewer, Van Raalte & Cornelius (2022) in their CBT study used outcome measures of state-trait anxiety, and Ardern & Kvist, (2020) used physical outcome measures, rehabilitation adherence, and psychological readiness to return to sport, but no other measures of psychological change. This is perhaps due to the less well understood mechanisms of change for CBT, but it is interesting that not all studies using psychological interventions are using psychological measures of change.

Conclusion & Next Steps

The results of this review demonstrate that the field has not made significant progress since 2012, when Reese, Pittsinger & Yang concluded there was a '*significant lack of well designed intervention studies targeting this population*' (p. 76). While there has been an abundance of recent research detailing the variety and prevalence of psychological consequences of injury, there has been little evidence that psychologists have been involved in trying to mitigate the negative consequences for athletes. As set out by Evans & Brewer (2022), there is a gap between what is known about the psychology of injury, and what is being done in practice to support athletes. Given recent research that psychologists are not routinely available in clubs (Gervis, Pickford, Hau & Fruth, 2020), and not fully trained in the psychology of injury (Pickford & Gervis, in press) this is perhaps not surprising.

The next step towards improving support for injured athletes across elite sport is to look at how that support might be implemented (Hess, Gnacinski & Meyer, 2019). Sport Psychology is a growing profession in the United Kingdom, and these practitioners need to be appropriately trained to address the needs of injured athletes (Pickford & Gervis, in press). This research will therefore implement a training intervention for Sport Psychology Practitioners, and explore how that intervention impacts on their practice, and on the athletes they support.

Appendix 3.1: Ethical Approval From Brunel Research Ethics Committee



College of Health, Medicine and Life Sciences Research Ethics Committee (DLS)
Brunel University London
Kingston Lane
Uxbridge
UB8 3PH
United Kingdom
www.brunel.ac.uk

25 February 2022

LETTER OF APPROVAL

APPROVAL HAS BEEN GRANTED FOR THIS STUDY TO BE CARRIED OUT BETWEEN 18/03/2022 AND 01/08/2022

Applicant (s): Miss Helen Pickford

Project Title: Pilot Intervention for Psychological Practitioners working with injured athletes

Reference: 35873-LR-Feb/2022- 38324-3

Dear Miss Helen Pickford

The Research Ethics Committee has considered the above application recently submitted by you.

The Chair, acting under delegated authority has agreed that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that the conditions of approval set out below are followed:

- A14 - We recommend that you use Teams for online interviews and discussions. If you do use Zoom, please do not post attachments in the chat.
- Please note, you must use the Bcc function to send emails to multiple recipients.
- PIS (section about confidentiality) - Please remove the following statement 'Data collected will only be used as part of research activities for the doctoral research of the primary researcher.' and replace with 'Any information about you which leaves the University will have all your identifying information removed. With your permission, anonymised data will be stored and may be used in future research – you can indicate whether or not you give permission for this by way of the Consent Form.'. Please include the following statement in your consent form, 'I agree that my anonymised data can be shared with other researchers for use in future projects.'
- J1 - Please ensure that you use your approved study dates (above) in all your study documentation.
- **The agreed protocol must be followed. Any changes to the protocol will require prior approval from the Committee by way of an application for an amendment.**
- **Please ensure that you monitor and adhere to all up-to-date local and national Government health advice for the duration of your project.**

Please note that:

- Research Participant Information Sheets and (where relevant) flyers, posters, and consent forms should include a clear statement that research ethics approval has been obtained from the relevant Research Ethics Committee.
- The Research Participant Information Sheets should include a clear statement that queries should be directed, in the first instance, to the Supervisor (where relevant), or the researcher. Complaints, on the other hand, should be directed, in the first instance, to the Chair of the relevant Research Ethics Committee.
- The Research Ethics Committee reserves the right to sample and review documentation, including raw data, relevant to the study.
- If your project has been approved to run for a duration longer than 12 months, you will be required to submit an annual progress report to the Research Ethics Committee. You will be contacted about submission of this report before it becomes due.
- You may not undertake any research activity if you are not a registered student of Brunel University or if you cease to become registered, including abeyance or temporary withdrawal. As a deregistered student you would not be insured to undertake research activity. Research activity includes the recruitment of participants, undertaking consent procedures and collection of data. Breach of this requirement constitutes research misconduct and is a disciplinary offence.

Professor Louise Mansfield

Chair of the College of Health, Medicine and Life Sciences Research Ethics Committee (DLS)

Brunel University London



3 August 2022

LETTER OF APPROVAL

APPROVAL HAS BEEN GRANTED FOR THIS STUDY TO BE CARRIED OUT BETWEEN 09/08/2022 AND 31/12/2022

Applicant (s): Miss Helen Pickford

Project Title: Developed Pilot Intervention for Psychological Practitioners working with injured athletes

Reference: 38278-LR-Aug/2022- 41083-2

Dear Miss Helen Pickford

The Research Ethics Committee has considered the above application recently submitted by you.

The Chair, acting under delegated authority has agreed that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that the conditions of approval set out below are followed:

- **A18 PIS - Agree, although confidential/sensitive information is unlikely to be shared and the focus group is focused on the intervention evaluation there may be conversations about the participants applied practice experience, in which confidentiality becomes important. Therefore, I would suggest two additional statements under confidentiality section, for example:**
- 1) All participants of the focus group are asked to keep the information confidential
- 2) Confidentiality will only be broken, and suitable steps taken, if the researcher suspects there is any risk of harm to a participant or anyone else. (There may be a BPS practitioner statement regarding harm that is more suitable).
- The agreed protocol must be followed. Any changes to the protocol will require prior approval from the Committee by way of an application for an amendment.
- Please ensure that you monitor and adhere to all up-to-date local and national Government health advice for the duration of your project.

Please note that:

- Research Participant Information Sheets and (where relevant) flyers, posters, and consent forms should include a clear statement that research ethics approval has been obtained from the relevant Research Ethics Committee.
- The Research Participant Information Sheets should include a clear statement that queries should be directed, in the first instance, to the Supervisor (where relevant), or the researcher. Complaints, on the other hand, should be directed, in the first instance, to the Chair of the relevant Research Ethics Committee.
- Approval to proceed with the study is granted subject to receipt by the Committee of satisfactory responses to any conditions that may appear above, in addition to any subsequent changes to the protocol.
- The Research Ethics Committee reserves the right to sample and review documentation, including raw data, relevant to the study.
- If your project has been approved to run for a duration longer than 12 months, you will be required to submit an annual progress report to the Research Ethics Committee. You will be contacted about submission of this report before it becomes due.
- You may not undertake any research activity if you are not a registered student of Brunel University or if you cease to become registered, including abeyance or temporary withdrawal. As a deregistered student you would not be insured to undertake research activity. Research activity includes the recruitment of participants, undertaking consent procedures and collection of data. Breach of this requirement constitutes research misconduct and is a disciplinary offence.

Professor Louise Mansfield

Chair of the College of Health, Medicine and Life Sciences Research Ethics Committee (DLS)

Brunel University London



30 May 2023

LETTER OF APPROVAL

APPROVAL HAS BEEN GRANTED FOR THIS STUDY TO BE CARRIED OUT BETWEEN 01/02/2023 AND 01/10/2025

Applicant (s): Miss Helen Pickford

Project Title: Educational intervention for Sport Psychologists working with Injured athletes

Reference: 39988-A-May/2023- 44935-2

Dear Miss Helen Pickford

The Research Ethics Committee has considered the above application recently submitted by you.

The Chair, acting under delegated authority has agreed that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that the conditions of approval set out below are followed:

- **B2 - Risk Assessment:**
 - Please familiarise yourself in advance with the location within the University of Glasgow in which you will conduct the workshop making sure you have appropriate emergency contact details and are aware of potential hazards, escape routes, refuge areas, etc and that your participants are properly briefed on applicable safety and emergency exit procedures before commencing the activity.
 - Please apply appropriate Covid-19 mitigations if travelling by public transport.
- **The agreed protocol must be followed. Any changes to the protocol will require prior approval from the Committee by way of an application for an amendment.**
- **Please ensure that you monitor and adhere to all up-to-date local and national Government health advice for the duration of your project.**

Please note that:

- Research Participant Information Sheets and (where relevant) flyers, posters, and consent forms should include a clear statement that research ethics approval has been obtained from the relevant Research Ethics Committee.
- The Research Participant Information Sheets should include a clear statement that queries should be directed, in the first instance, to the Supervisor (where relevant), or the researcher. Complaints, on the other hand, should be directed, in the first instance, to the Chair of the relevant Research Ethics Committee.
- Approval to proceed with the study is granted subject to any conditions that may appear above.
- The Research Ethics Committee reserves the right to sample and review documentation, including raw data, relevant to the study.
- If your project has been approved to run for a duration longer than 12 months, you will be required to submit an annual progress report to the Research Ethics Committee. You will be contacted about submission of this report before it becomes due.
- You may not undertake any research activity if you are not a registered student of Brunel University or if you cease to become registered, including abeyance or temporary withdrawal. As a deregistered student you would not be insured to undertake research activity. Research activity includes the recruitment of participants, undertaking consent procedures and collection of data. Breach of this requirement constitutes research misconduct and is a disciplinary offence.

Professor Louise Mansfield

Chair of the College of Health, Medicine and Life Sciences Research Ethics Committee (DLS)



College of Health, Medicine and Life Sciences
Department of Life Sciences

Educational intervention for Psychological Practitioners working with Injured Athletes.

Participant Information Sheet

You have been invited to participate in a study investigating the impact of an educational workshop on the knowledge and practice of psychological practitioners working in sport. This study is part of a doctoral research project investigating the impact of practitioner training on the support of long-term injured athletes.

What is the purpose of this study?

The purpose of this study is to investigate the impact of an educational workshop for Sport and Exercise Psychologists to improve their understanding of the psychology of long-term injury and provide a framework to effectively support long-term injured athletes. The information gathered from this study will be used to understand how additional training for sport psychologists in this area may impact injured athlete support.

Why have I been invited to participate?

You have been invited as a practicing or trainee Sport Psychologist who may benefit from the workshop and may go on to work with injured athletes in the future.

The participant eligibility criteria are as follows:

- Participants must be over 18 years of age
- The aim is to have a minimum of 10 and maximum of 20 participants
- Trainee Participants must have graduated from an MSc in Sport and Exercise Psychology (or equivalent)
- Trainee Participants must be on a supervised training pathway to become Sport and Exercise Psychologists through either BASES or BPS
- Qualified practitioners must have relevant professional accreditation as a Sport Psychologist, through BPS, BASES, or equivalent.
- Participants must be able to attend a one-day CPD workshop at Brunel University London, or University of Glasgow, Scotland
- Participants must be willing to take part in a short focus group interview immediately following the workshop, and individual follow-up interviews at three and six months following the workshop.

Do I have to take part?

Your participation in this study is completely voluntary. You are free to withdraw from the study at any time, until 31/12/23.

What will happen to me if I do take part?

The study will comprise a one-day CPD workshop and two follow-up interviews, designed to equip psychological practitioners with the knowledge and skills to effectively support long-term injured athletes. As a participant, you will be asked to:

- Attend the workshop,
- Complete a short questionnaire before and after the workshop,
- Participate in a short focus group immediately following the workshop (approximately 15 minutes),
- Participate in a follow-up interview (approximately 45-60 minutes) either in person or via Teams, three months and six months after the workshop takes place.

The workshop will be delivered by a qualified Sport and Exercise Psychologist. It will cover: stages of injury rehabilitation, the psychological consequences of injury for athletes, practitioner skills for identifying athlete symptoms of common psychological responses to injury, theoretical overviews of pain psychology and working effectively with injured athletes using an Acceptance and Commitment Therapy (ACT) framework.

Follow-up interviews will be arranged at mutually convenient times approximately 3 and 6 months after the workshop, via email communication between the researcher and individual participants.

Are there any lifestyle restrictions?

There are no lifestyle restrictions

What are the possible disadvantages and risks of taking part?

The workshop will cover common psychological responses to long-term injury. While all of the topics covered should be familiar to practicing and trainee psychologists, and within the bounds of their 'normal' work there is a risk that some of the information could be distressing.

Coronavirus is still circulating and poses a risk to the community at large. As such the following Covid 19 Risk mitigation will be followed:

- When combined with other safety measures, vaccination reduces the likelihood of transmission of Covid-19 and reduces the risk of serious illness.
- Participants are advised to wear face coverings during in-person workshop and interviews. Researchers will wear face coverings where appropriate.
- Hand sanitizer and surface wipes will be available throughout workshops and interviews.
- Workshops and in-person interviews will take place in a well-ventilated area.
- Please do not attend if you have tested positive for Coronavirus or are exhibiting symptoms suspected to be from a coronavirus infection.
- Please inform the research team using the contact details below if you test positive within 48 hours of in-person workshop or interview.

What are the possible benefits of taking part?

The workshop is designed to be informative and equip participants with a greater understanding of the psychological issues associated with long-term injury. In addition, the workshop aims to equip participants with additional skills and a practical framework to be able to effectively support injured athletes within the bounds of their practice.

What if something goes wrong?

The workshop will be designed and delivered by a qualified Sport and Exercise Psychologist, supervised by a second qualified Psychologist. Both have Mental Health First Aid training. If any distress is caused to participants during the course of the workshop they will be able to break away and discuss this with one of the qualified practitioners. There will be an opportunity for debriefing conversations following the workshop if needed.

Participants should contact the researcher if they have any queries or concerns, or the researcher's supervisor, and if they wished to make a complaint about the conduct of the research they should address this to the Chair of the College of Health, Medicine and Life Sciences Research Ethics Committee, Prof Louise Mansfield (contact details at the end of the document).

If during the course of the research evidence of harm or misconduct come to light, then it may be necessary to break confidentiality. In this case the primary researcher would contact the research supervisor and follow their advice on how to proceed. We will tell you at the time if we think we need to do this, and let you know what will happen next.

Will my taking part in this be kept confidential?

All participation is confidential. Your training supervisor (if applicable) will not be informed. Data will be held securely on the Brunel Network servers. Questionnaire data will be completed anonymously, and focus group/interview recordings will be transcribed, identifying information deleted, and the original recordings deleted. All participants will be asked to keep the comments made by others in the focus group discussion confidential, and agree to this by signing the consent form.

Non-attributable direct quotes may be used when the study is written up and/or published. The research team hope to publish results from the research which will involve storing the anonymised dataset in an open access repository. With participants permission, the anonymised data may be shared for use in future research.

Will I be recorded and how will the recording be used?

Audio of the focus group and audio and/or video of follow-up interviews will be recorded. These recordings will be transcribed and pseudonymised and the original recordings deleted. The transcripts will be used to identify what impact the workshop has had on practice and athlete support and outcomes. The data collected from these activities will be held securely in line with the university's data management policy. All responses will be anonymised and no identifiable details will be included in the analysis or dissemination of the data.

What will happen to the results of the research study?

The results of the research study will be used to understand the impact of CPD in this area for practitioners and athletes, as part of PhD research. Results may be written up and published in a peer-reviewed journal. Any participant information will be anonymised and any identifying

information removed. Participants can obtain a copy of any publication arising from this research by contacting the research team.

Who is organising and funding the research?

This research has been organised by Helen Pickford, Doctoral Researcher at Brunel University London. Researcher funded by an Economic and Social Research Council (ESRC) grant as part of the Grand Union Doctoral Training Partnership.

What are the indemnity arrangements?

Brunel University London provides appropriate insurance cover for research which has received ethical approval.

Who has reviewed the study?

This study has been reviewed by the College of Health, Medicine and Life Sciences Research Ethics Committee.

Research Integrity

Brunel University London is committed to compliance with the Universities UK Research Integrity Concordat. You are entitled to expect the highest level of integrity from the researchers during the course of this research

Contact for further information and complaints

For general information

Helen Pickford, Doctoral researcher, helen.pickford@brunel.ac.uk

Dr Misia Gervis, Supervisor, misia.gervis@brunel.ac.uk

For complaints and questions about the conduct of the research

Professor Louise Mansfield, Chair College of Health, Medicine and Life Sciences Research Ethics Committee Louise.Mansfield@brunel.ac.uk

Many Thanks

Helen Pickford

Doctoral Researcher



College of Health, Medicine and Life Sciences

Department of Life Sciences

Participant Consent Form

Study investigating the impact of an educational Intervention for Psychological Practitioners working with injured athletes.

15th Aug 2023

The participant should complete the whole of this sheet
Please tick the appropriate box:

YES	NO	
		I have read the Participant Information Sheet
		I have had an opportunity to ask questions and discuss this study
		I have received satisfactory answers to all my questions.
		Who have you spoken to? _____
		I understand that I will not be referred to by name in any report concerning the study.
		I understand that I am free to withdraw from the study: * at any time until 28.02.2024 * without having to give a reason for withdrawing * without suffering any adverse effects or affecting my future career
		I agree to keep the responses of other participants in the focus group confidential
		I agree to audio recording of my responses at the focus group following the workshop and in follow-up interviews conducted online at 3- and 6 months following the workshop
		I agree to video recording of my responses in follow-up interviews conducted online at 3- and 6 months following the workshop
		I understand that my data will be stored securely and anonymously in accordance with Brunel University London's data security guidelines
		I agree to the use of non-attributable direct quotes when the study is written up or published.
		I agree to take part in this study

Signature of participant:

Name:

Date:

Appendix 3.4: Pre- and Post- Workshop Questionnaires: Development Stage

Pre-Workshop Questionnaire: Development Stage

1. How long have you been working/training as a sport and exercise psychologist?

2. How would you rate your current understanding of the psychology of injury overall?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

3. How would you rate your current understanding of the stages of injury?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

4. How would you rate your current understanding of the psychological impact of injury for athletes?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

5. How would you rate your current understanding of pain?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

6. How would you rate your current understanding of issues affecting rehabilitation adherence?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

7. Do you currently have a specific protocol for working with injured athletes?

Yes

No

Unsure

If 'Yes' Please Specify:

8. How confident would you feel working with an injured athlete?

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

9. How confident are you that you would be able to recognise the symptoms of the following issues in injured athletes:

a. Anxiety

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

b. Depression

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

c. Disordered Eating

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

d. Fear of Re-Injury

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

e. Avoidant Behaviour

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

10. What are you hoping to learn/take away from the workshop?

Post-Workshop Questionnaire: Development Stage

1. How would you rate your current understanding of the psychology of injury overall?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

2. How would you rate your current understanding of the stages of injury?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

3. How would you rate your current understanding of the psychological impact of injury for athletes?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

4. How would you rate your current understanding of pain?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

5. How would you rate your current understanding of issues affecting rehabilitation adherence?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

6. Do you currently have a specific protocol for working with injured athletes?

Yes

No

Unsure

If 'Yes' Please Specify:

7. How confident would you feel working with an injured athlete?

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

8. How confident are you that you would be able to recognise the symptoms of the following issues in injured athletes:

a. Anxiety

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

b. Depression

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

c. Disordered Eating

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

d. Fear of Re-Injury

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

e. Avoidant Behaviour

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

9. What has been important for you in this workshop?

Pre-Workshop Questionnaire: IACT Workshop

1. What qualifications do you hold in Sport and Exercise Psychology (or what training pathway are you on)?

2. How long have you been working/training as a sport and exercise psychologist?

3. How would you rate your current understanding of the psychology of injury overall?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

4. How would you rate your current understanding of the stages of injury?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

5. How would you rate your current understanding of the psychological impact of injury for athletes?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

6. How would you rate your current understanding of pain?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

7. How would you rate your current understanding of issues affecting rehabilitation adherence?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

8. How would you rate your current understanding of trauma for athletes?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

9. How would you rate your current understanding of ACT?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

10. Do you currently have a specific protocol for working with injured athletes?

Yes

No

Unsure

If 'Yes' Please Specify:

11. How confident would you feel working with an injured athlete?

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

12. How confident are you that you would be able to recognise the symptoms of the following issues in injured athletes:

a. Anxiety

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

b. Depression

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

c. Disordered Eating

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

d. Fear of Re-Injury

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

e. Avoidant Behaviour

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

13. What are you hoping to learn/take away from the workshop?

Post-Workshop Questionnaire: Development Stage

1. How would you rate your current understanding of the psychology of injury overall?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

2. How would you rate your current understanding of the stages of injury?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

3. How would you rate your current understanding of the psychological impact of injury for athletes?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

4. How would you rate your current understanding of pain?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

5. How would you rate your current understanding of issues affecting rehabilitation adherence?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

6. How would you rate your current understanding of trauma for athletes?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

7. How would you rate your current understanding of ACT?

No Understanding

Full Understanding

0 1 2 3 4 5 6 7 8 9 10

8. Do you currently have a specific protocol for working with injured athletes?

Yes

No

Unsure

If 'Yes' Please Specify:

9. How confident would you feel working with an injured athlete?

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

10. How confident are you that you would be able to recognise the symptoms of the following issues in injured athletes:

a. Anxiety

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

b. Depression

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

c. Disordered Eating

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

d. Fear of Re-Injury

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

e. Avoidant Behaviour

Not at all confident

Extremely Confident

0 1 2 3 4 5 6 7 8 9 10

11. What has been important for you in this workshop?

Any Additional Comments:

Focus Group Questions: Development Workshops & IACT Workshops

1. What was meaningful for you from today's workshop?
Prompts: Were there any areas you thought were particularly relevant? Were there any areas you did not feel were relevant? Was there any information you were not expecting?

2. Which parts of the workshop worked well and why?
Prompts: Which parts were particularly memorable? Do you think the workshop flowed well?

3. Which parts of the workshop could be improved and how?
Prompts: Did you understand the philosophical foundation of intervention? Did you understand the rationale for intervention? Did you understand why the suggested techniques would be useful? Was there any information you did not feel was relevant?

4. Is there anything you feel is missing from the workshop?
Prompts: Do you have any specific questions you feel were not answered by the workshop? Was each topic covered in sufficient depth?

5. How do you think this will impact your practice in the future?
Prompts: Were there any techniques you think will be useful to you in the future? Do you think this workshop will change how you work with injured athletes? Do you think you will research the subject independently in the future? Do you think you will change your plans for the content of your professional training based on this workshop?

Follow-Up Interview Guide

1. What was meaningful for you from the workshop?
Example Prompts: Were there any areas you thought were particularly relevant? Were there any areas you did not feel were relevant?

2. Was there anything you would have liked more information on?
Example Prompts: Was each topic covered in sufficient depth? Did you understand the philosophical foundation of intervention? Did you understand the rationale for intervention? Did you understand why the suggested techniques would be useful?

3. Has attending the workshop impacted on your training?
Example Prompts: Have you done any independent research prompted by the workshop? Have you identified any areas in which you need additional training?

4. Has attending the workshop had any impact on your practice?
Example Prompts: Have you worked with any injured athletes since the workshop? Have you had any different conversations with clients due to the information in the workshop? Has your awareness of the issues changed and has that impacted your work?

5. How have you used aspects of the training in your work?
Example Prompts: How have you used ACT in your work with athletes? What information has been useful in your work? Have you changed the way you work with colleagues?

Supporting long-term injured athletes using ACT – A workshop for Sport Psychologists

In association with researchers at Brunel University London

As part of research into the impact of an educational workshop on the practice of sport psychologists.

This workshop aims to provide an overview of the psychology of long-term injury, and how practitioners might support injured athletes using Acceptance and Commitment Therapy (ACT). There will be education on the psychology of injury including mental health and wellbeing impacts, understanding pain, and how psychological challenges change in line with the stages of injury rehabilitation. This will be followed by a brief overview of ACT and practical examples of how ACT techniques can be applied to support injured athletes throughout their rehabilitation.

Suitable for Practicing Sport Psychologists and Trainee Sport Psychologists

A working knowledge of Acceptance and Commitment Therapy (ACT) is useful, but not essential.

Presented by qualified Sport and Exercise Psychologists, with experience of working with injured athletes.

An accompanying digital resource will be emailed to attendees following the workshop.

Invitation to Participate in research

Workshop attendees will be invited to participate in research investigating the impact of the workshop on professional practice supporting injured athletes. Participants will be asked to complete a brief pre- and post- workshop questionnaire, a short focus group interview after the workshop (lasting approx. 15 mins) and take part in two follow-up interviews either face to face or via zoom, 3 and 6 months after the workshop. These interviews are expected to last approximately 45mins-1 hour. Audio and/or video recording will be used, but participant responses will be transcribed and anonymised before being analysed. Original recordings will be deleted at this point. No identifying information will be published. Participation is completely voluntary, and participants are free to withdraw from the study until 31.03.24.

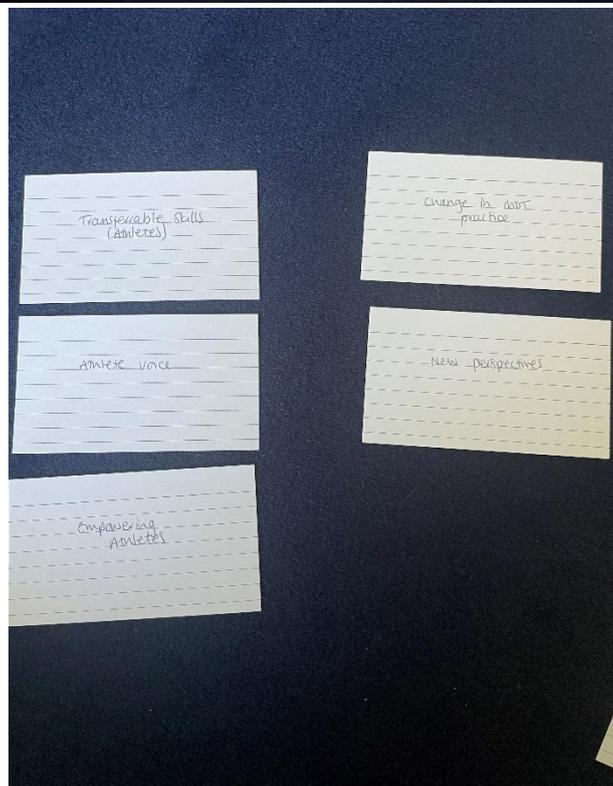
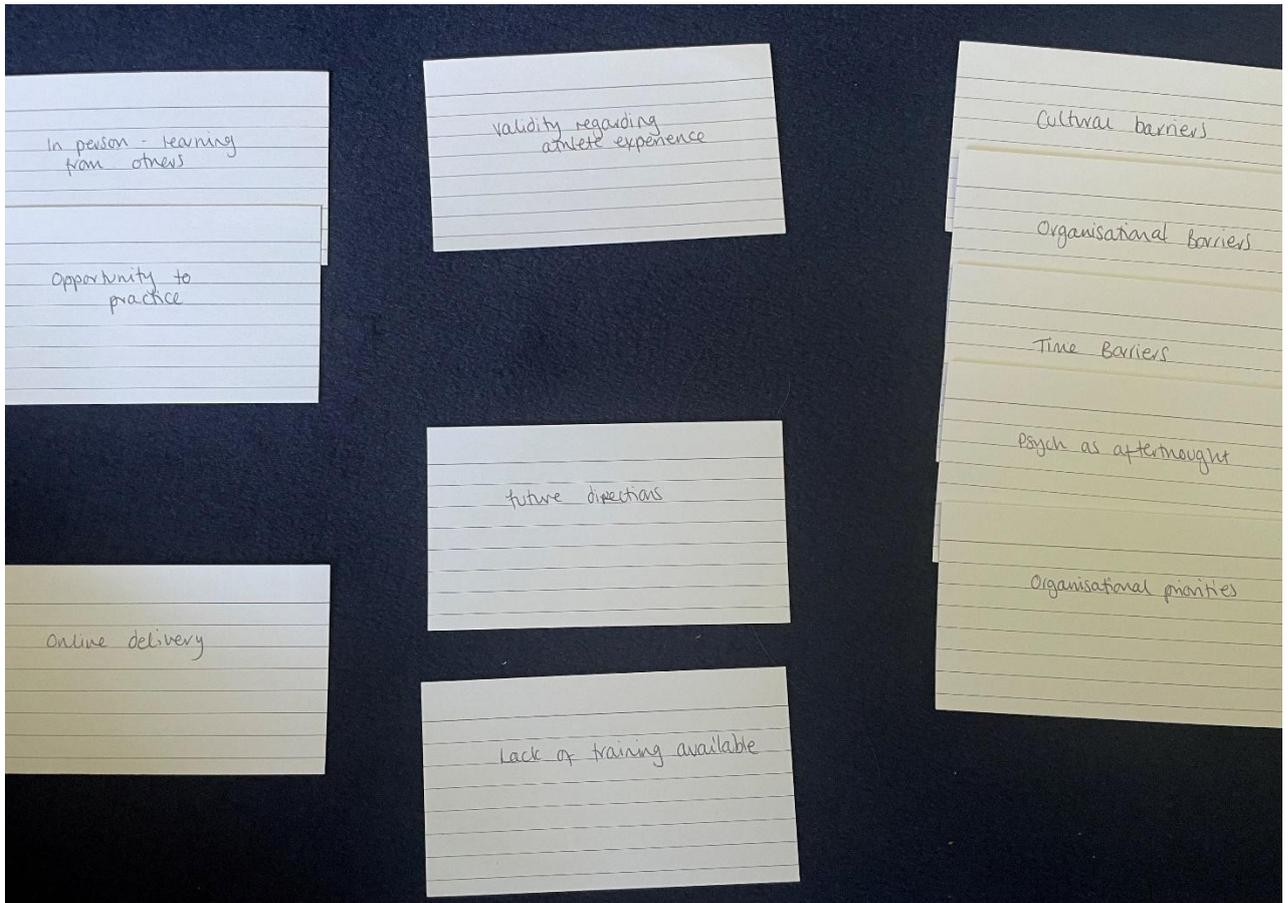
Workshop Date: Tuesday 15th August 2023 with online follow-up interviews for participants arranged at approximately 3- and 6-months following workshop date. The workshop will run from 10am until approximately 4pm.

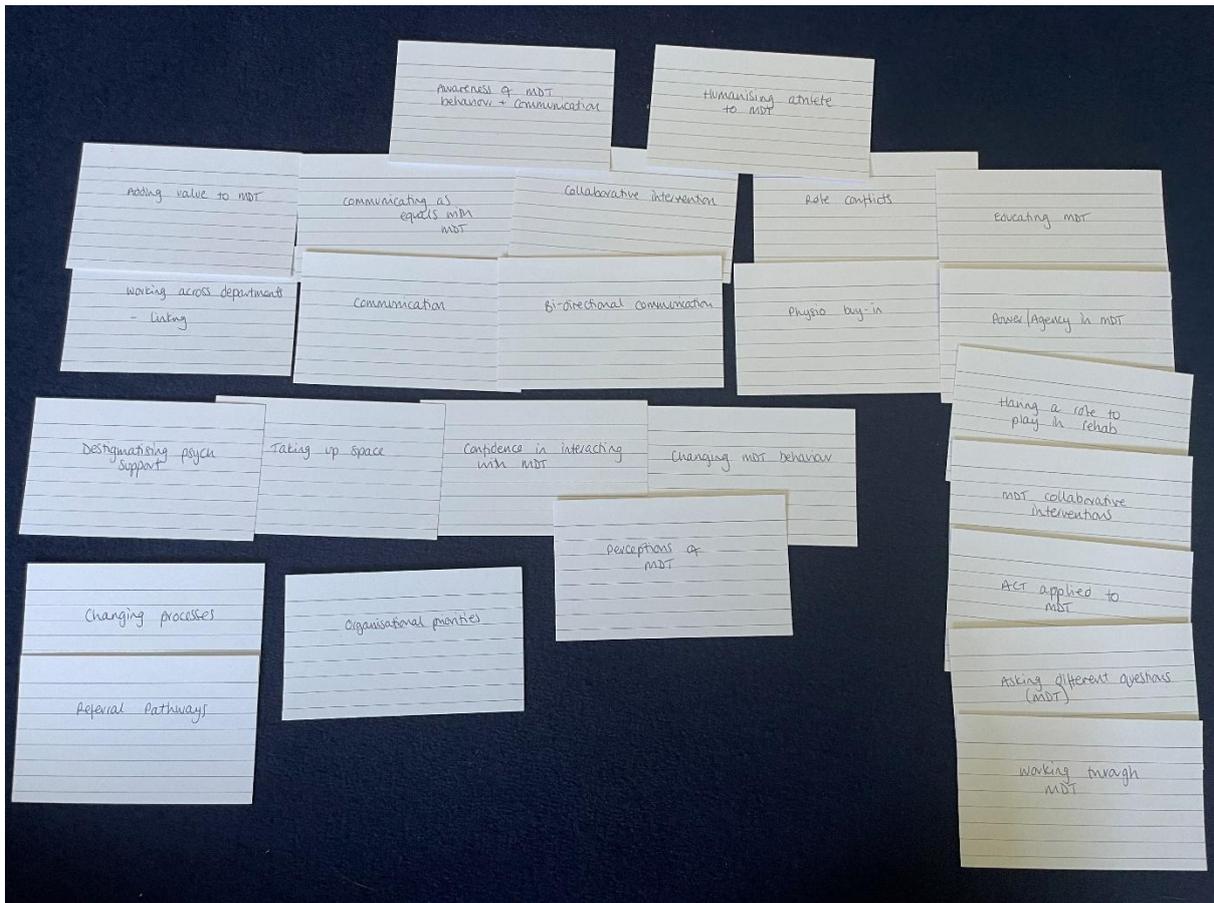
Workshops taking Place at Brunel University London, Kingston Lane, Uxbridge, Middlesex UB8 3PH

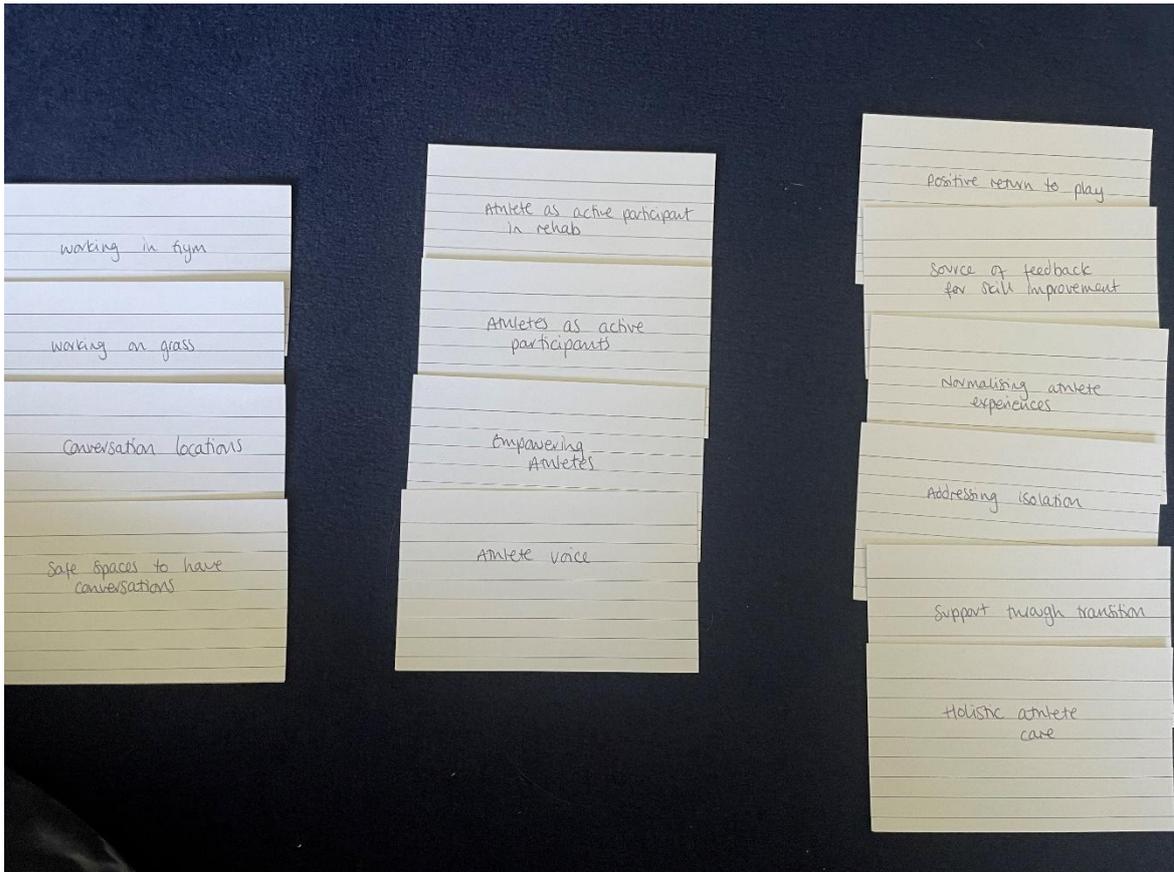
For further information please contact workshop organiser and Doctoral Researcher - Helen Pickford: helen.pickford@brunel.ac.uk

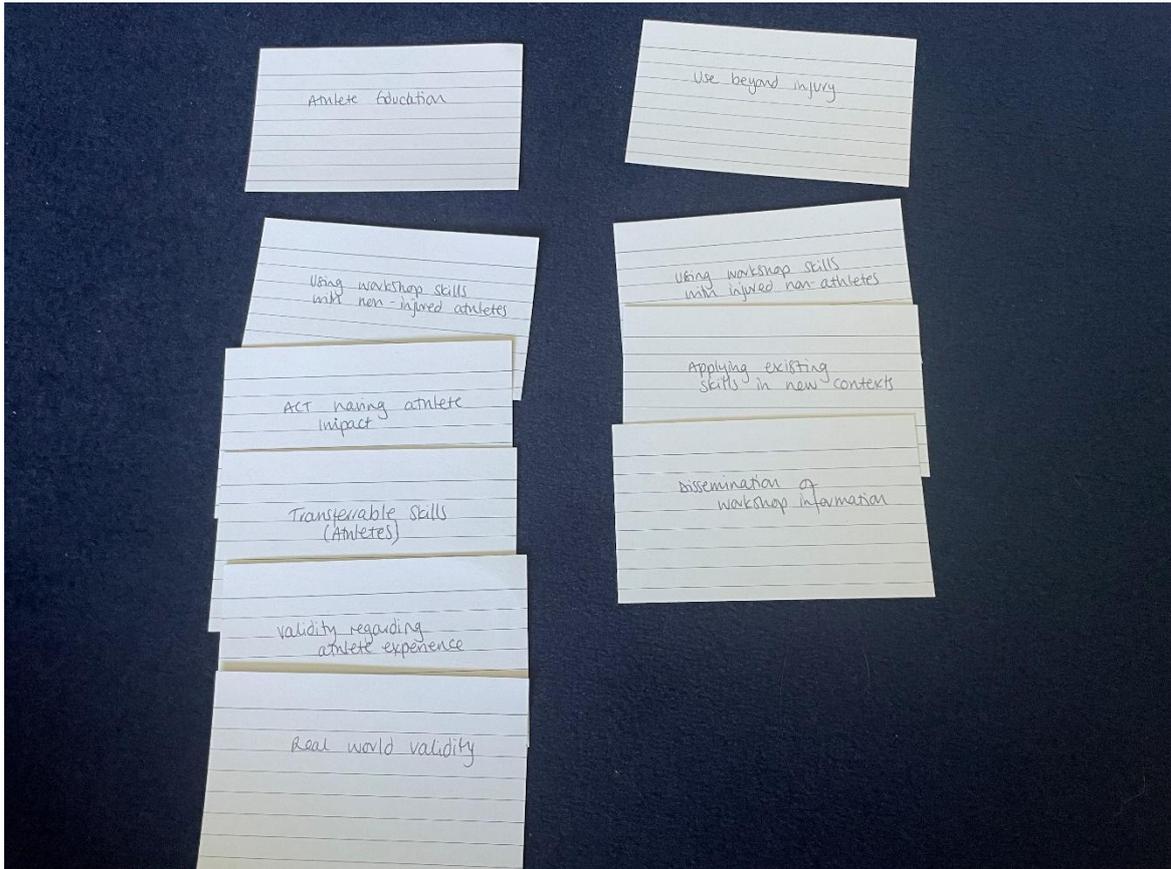
This study has received ethical approval from the College of Health, Medicine and Life Sciences Research Ethics Committee.

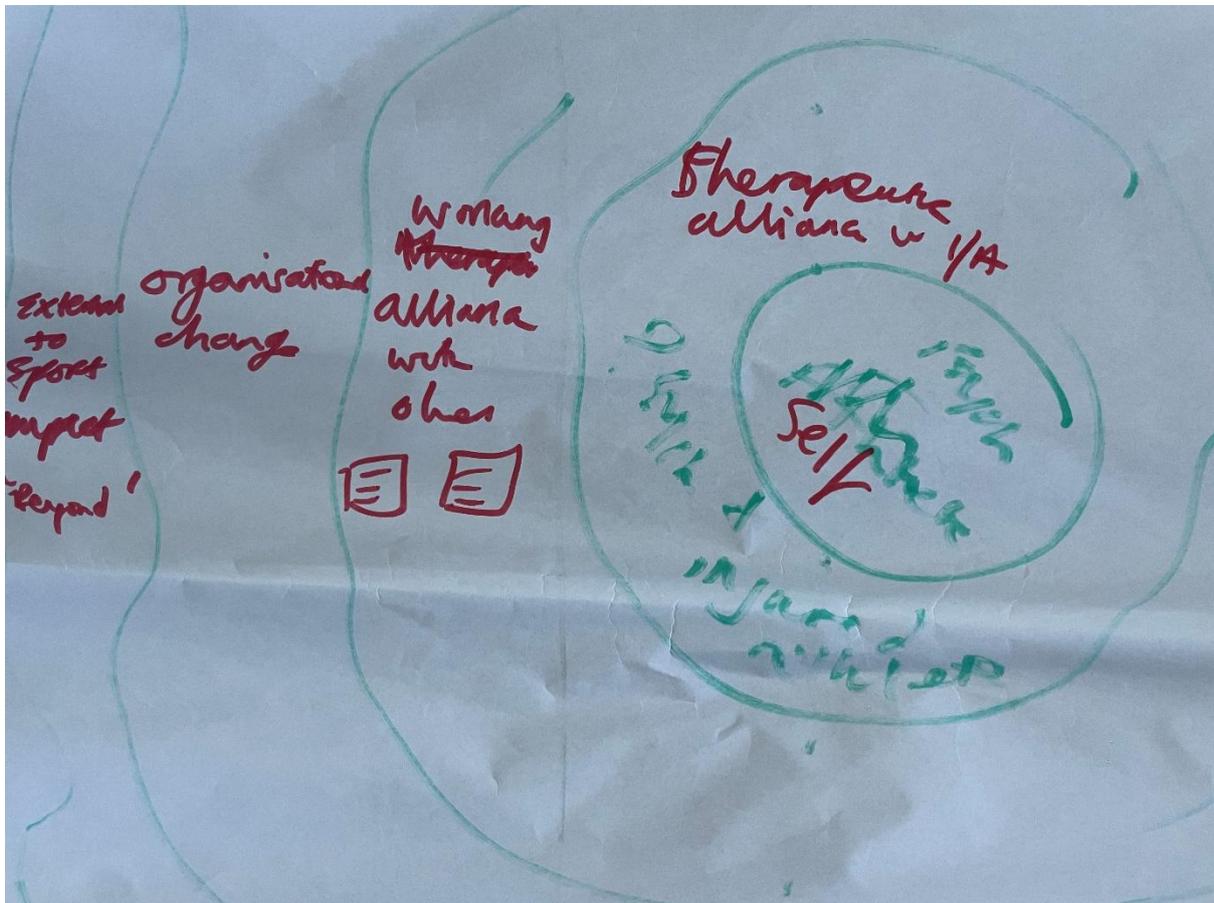
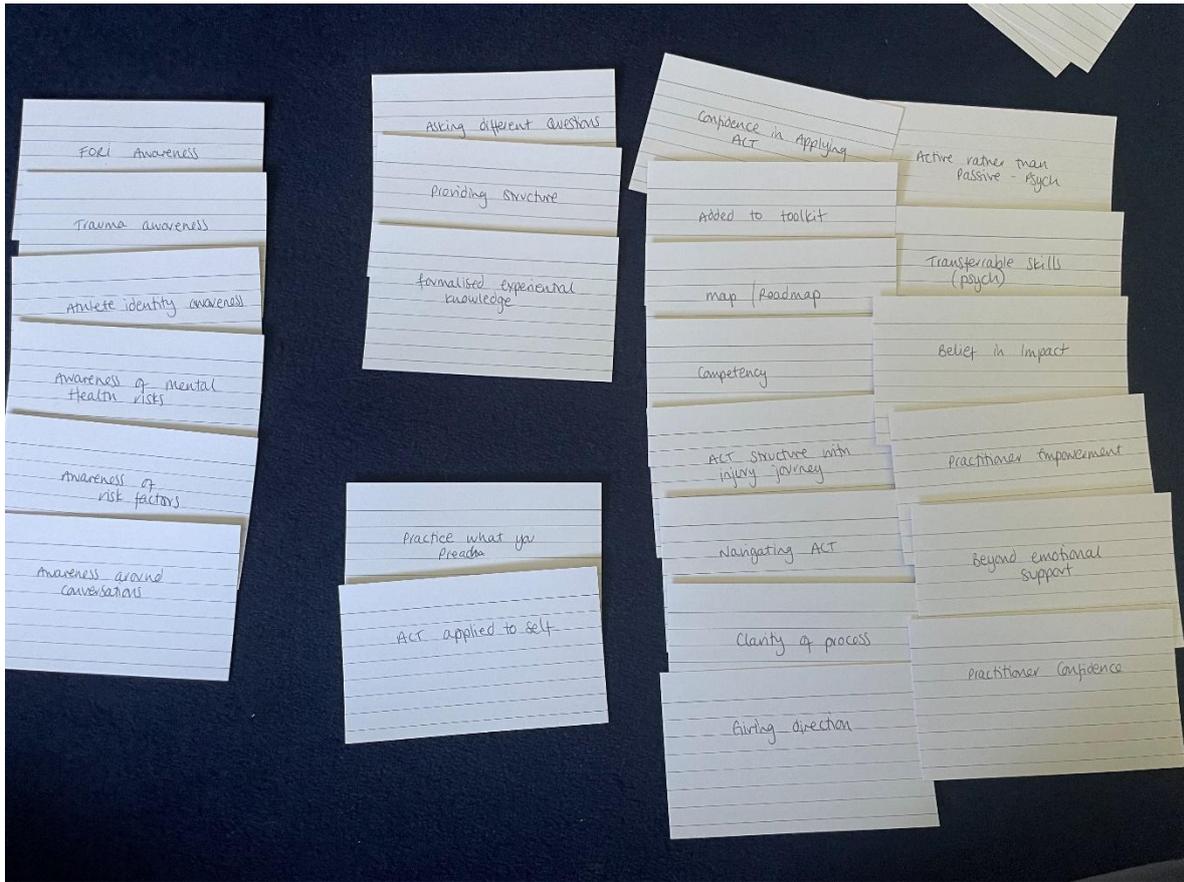
Appendix 3.9: Samples of Process of Theme and General Dimension Development











Appendix 4.1: Stages of Injury Worksheet

Stage	Duration	Psychological challenges	Emotional responses
Acute			
Rehabilitation			
Return to Training			
Return to Competition			
Setbacks			

Case Studies

Tom is an 18 year old academy rugby player. 3 weeks ago he fell on his outstretched arm whilst training and after an initial assessment from the pitch-side physio, was sent for an X-Ray at A&E. The results show a scaphoid fracture and Tom is now in a cast while the fracture unites. He is unable to participate in his normal rugby training and instead is completing rehabilitation daily. Recently, Tom appears to be withdrawn during physio sessions and less engaged in his rehabilitation. You ask Tom if he is okay and he responds with something like “yeah fine”. You hear him muttering “ I just can’t be bothered” or “I don’t see the point in anything”. When you ask Tom about his sleeping patterns Tom shares with you that he hasn’t been sleeping well at night and often feels tired in the day so takes long naps when he gets home. You notice Tom starts to show up to all of his physiotherapy appointments and rehab in long sleeve t shirts. You think this is strange as it gets very hot in the gym and physio rooms in the middle of summer and stretching long sleeve tops over his cast must be quite challenging .

20 year old Holly underwent an ACL reconstruction surgery 4 months ago after rupturing her ACL during a football game. You have regularly been seeing her through her rehabilitation and she has been progressing really well. She has managed running sessions well, and the physio begins to progress Holly’s rehab with some change of direction drills and drop her back into some regular training sessions. But when you are working pitch-side, you notice she is acting strangely in training. When on the pitch, Holly appears quite stiff in her movements and is avoiding using any kind of agility skills. Holly tends to run in a straight line with the ball and then pass it as soon as she can to another player. Holly says she isn’t experiencing any pain and on physio assessment, there are no physical issues. Holly speaks to you in private and asks if she may benefit from a few more weeks just doing rehab on her own before she starts training, just to “be on the safe side”. When you ask how her rehab is going at home Holly admits she hasn’t been doing it and she only feels comfortable doing her exercises at training when a physio is there.

Jake is a 19 year old long-jumper who has been suffering from ongoing hamstring strains due to muscle weakness. You have been working with Jake now for 4 months alongside the physio managing his injuries and rehabilitating him. Jake has previously always had a positive attitude to psychology and rehab however at the moment, Jake appears dis-engaged and non-interested in completing his exercises. You know that Jake’s dad has been quite unwell the past few weeks and Jake hasn’t been able to see him much being busy with training and work. Jake also reveals to you that he has failed all of his recent university exams and his girlfriend has broken up with him, he just doesn’t know how to cope. The physio tells you that in his recent assessment he has expressed how he sometimes feels like there’s “no point in trying anymore.” He says sometimes he has trouble

sleeping because of his thoughts and wonders whether “life would be easier for everyone else if he wasn’t around.”

Adam is 23 year old and plays American football for a semi-professional team. Adam is doing graduated training following a concussion in a game 3 weeks ago. The physio is doing regular neurological assessments and SCATS whilst he gradually returns to playing. As part of the assessments, they ask about Adam’s sleeping and daily activities to see if they cause any symptoms. Adam reveals he spends most of his spare time in the gym, he says he wants to make sure he’s strong for when he fully returns. They remind Adam that he is currently at a good, strong weight with more than adequate muscle mass and that it isn’t necessary or healthy for him to be doing extra sessions on-top of his training whilst recovering. They tell you that Adam replied he ‘knows he is skinny’ and feels smaller than others and that he needs to put on more muscle. He says he’s been doing lots of research in his spare time and ordered extra supplements and protein powder because he’s scared of loosing muscle mass. He says he doesn’t mind doing the extra sessions but he tends to go late in the evening so gets less sleep. He says there’s fewer people working out in the later evening hours so they won’t judge him for how he looks.

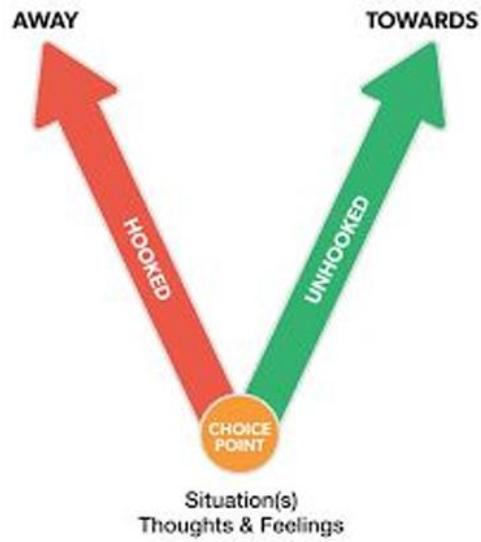
Appendix 4.3: Case Formulation Template

Case Formulation - Injured Athletes	
What is the injury and what stage of rehab are they at?	
What do they want from psych support?	
What thoughts/beliefs are they struggling with?	
Fixation on Injury? Compromised Athletic Identity? Self beliefs?	
How are they currently dealing with those thoughts and feelings?	
Unworkable action? Experiential avoidance? Towards moves?	
What values/skills do they already have?	
How do they refer to their injury/body? Trust? Pain?	
What is their previous experience of injury? Other previous trauma?	
What is their support network?	
Danger In Me (DIMs)	
Safety In Me (SIMs)	
What are your barriers?	

Choice Point

Hooks:

- DIMs
- Uncertainty
- Worries
- Thoughts/feelings to be avoided



Helpers:

- SIMs
- Values
- Knowing the 'why'
- Committed Action

Presentation notes – Role Play Demonstration Notes

Stage 1 - Acute	
Case Study: -	Case Formulation
Stage 2 - Rehabilitation pt 1	
Case study: <ul style="list-style-type: none"> - ACL early stage rehab - Boring - Like to listen to podcasts to distract - Get rehab done quickly - It's painful and difficult and I don't like to think about it - Regaining ROM is uncomfortable 	Hexaflex: <ul style="list-style-type: none"> - Contacting present moment Solution: <ul style="list-style-type: none"> - Mindfulness - Example - Mindful movement trainees
Stage 2 - Rehabilitation pt 2	
Case Study: <ul style="list-style-type: none"> - ACL mid stage rehab - Can't train - Never going to get better - Exercises are embarrassing - Don't like doing the rehab 	Hexaflex: <ul style="list-style-type: none"> - Committed action Solution: <ul style="list-style-type: none"> - Agreeing committed action
Stage 2 - Rehabilitation pt 3	
Case Study: <ul style="list-style-type: none"> - Mid Stage ACL, returning to hopping, but knee looks unstable - Don't like stability exercises - Pointless - Should be easy but keep losing balance 	Hexaflex: <ul style="list-style-type: none"> - Defusion Solution: <ul style="list-style-type: none"> - Unhooking skills - Urge surfing - 5Rs - ACE
Stage 3 - RTT	
Case Study: <ul style="list-style-type: none"> - Worried about contact - Concerned weight of other player will land on knee - Unpredictable. 	Solution: Visualisaton

Stage 4 - RTC	
<p>Case Study:</p> <ul style="list-style-type: none"> - Rugby player RTC - First match after shoulder injury - Want to go back out and win, score, win contacts - What will success look like for you? - If the team wins the match, If I don't look stupid, if i'm as good as i was before 	<p>Hexaflex:</p> <ul style="list-style-type: none"> - Values <p>Solution:</p> <ul style="list-style-type: none"> - Values guided action
Stage 5 - Setback	
<p>Case Study:</p> <ul style="list-style-type: none"> - Flare up knee injury at return to running - It's all happening again - Was I pushed too far too soon? - Is it my fault? - I can't go through all this again 	<p>Hexaflex:</p> <ul style="list-style-type: none"> - Acceptance - Self as context <p>Solution:</p> <ul style="list-style-type: none"> - Compassionate hand (James) - Struggle switch - Drop the rope - I'm noticing I'm having the thought that...

Using ACT to support injured athletes

Workshop Resource

Helen Pickford
Brunel University London

Contents

- Trauma, Pain and Injury
- Using ACT
- Stages Of Injury
- Injury Glossary
- References

Trauma, Pain & Injury

Understanding how an athlete has previously experienced trauma or injury can help us understand their current situation

Physical and psychological stress have cumulative consequences - cortisol is cortisol

If our nervous system detects a threat to safety, the SNS is activated

Helping athletes feel safe is a priority.

Serotonin and dopamine downregulate pain responses.

There are no 'pain' sensors, the body detects changes in environment and changes in the body, not pain.

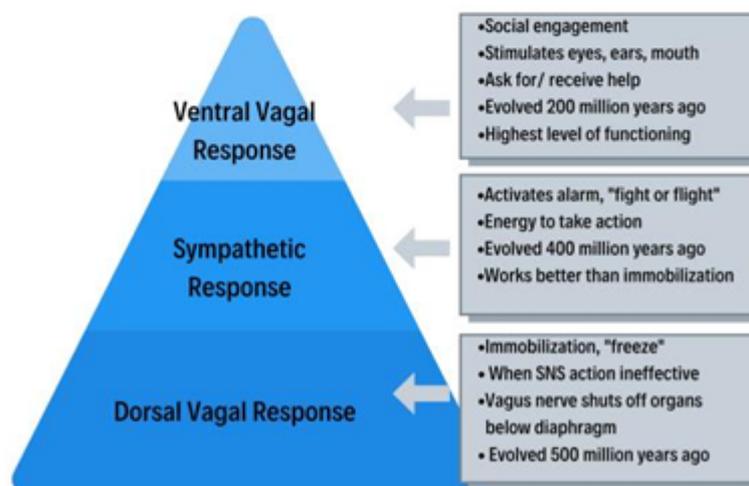
The brain receives these signals, interprets them with the contextual information available, and may or may not respond with pain.

Our individual circumstances affect how we interpret 'danger' and therefore pain.

Inflammation activates 'silent' nerves and increases cytokines

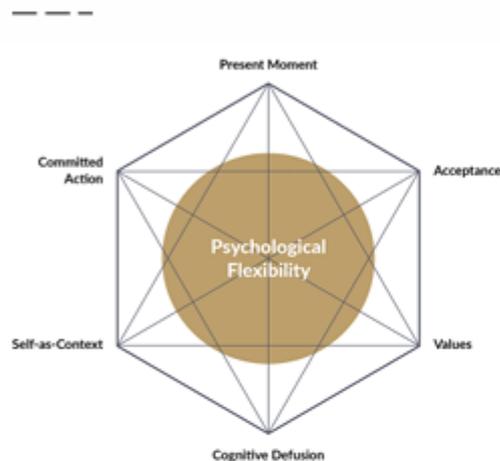
Cytokines downregulate reward circuits and upregulate anxiety and alarm circuits.

AUTONOMIC RESPONSE HIERARCHY



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Using ACT



There is no 'right' order to work in different areas of the hexaflex.

Listen to what your athlete is bringing to the session and respond to what they need

Metaphors are really useful to explain concepts, but they are not the whole skill

Open Up

Be Present

Do what matters

Avoidant behaviour

Brains send messages about actual and perceived threats, based on our past experiences.

We have evolved to pay attention to these messages and take action.

Identifying towards moves does not mean they will be chosen.

Don't vilify avoidant behaviour, it's serving a purpose

The purpose is probably working to achieve short term goals, but might not serve long term goals

Celebrate progress: **Choosing a towards move is always progress, regardless of the size**



Stages of injury

Stage 1: Acute

- **Emotional reactions:**
Shock, Anger, Sadness
- **Look out for:** Denial,
Catastrophizing
(particularly if not the first
serious injury), Uncertainty
- **Response:** Normalising,
Making space for different
emotions, Notice the
changing emotional
landscape,
Psychoeducation around
normal emotional
responses
- **ACT Starting points:**
Acceptance and Self-as-
Context
- **Education on:**
Inflammation and
Cytokines
- **Remember:** case
formulation template

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Stages of injury

Stage 2: Rehabilitation

- **Emotional reactions:**
Sadness, Boredom,
Isolation, Isolating
behaviour
- **Look out for:** Avoidant
behaviour, Low mood,
changes to eating
behaviour, sleep disruption
- **Response:**
Psychoeducation around
pain responses &
depression, Attention to
rehab, understanding the
journey
- **ACT Starting points:**
Contacting Present
Moment, Committed Action
- **Remember:** Understand
the 'why', Celebrate the
small victories and find the
opportunities

Stages of injury

Stage 3: Return to Training

- **Emotional reactions:** Anxiety, Fear, Excitement, Frustration
- **Look out for:** Fear of Re-injury, comparison to others or pre-injury self, pain responses and 'flare-ups'.
- **Response:** Visualisation to assess psychological readiness to return and for mental rehearsal, Preparing for, noticing and naming difficult thoughts and feelings arising, language around pain and ability.
- **ACT Starting points:** Defusion, Acceptance, Contacting the Present Moment, Values
- **Remember:** Hesitation or asymmetry in movements can be indicative of FORI. Make sure unhooking skills are ready and brief enough to be used in training.

Stages of injury

Stage 4: Return to Competition

- **Emotional reactions:**
Anxiety, Fear, Excitement,
Uncertainty
- **Look out for:** Fear of Re-
injury, comparison to others
or pre-injury self
- **Response:** Visualisation to
assess psychological
readiness to return and for
mental rehearsal, Preparing
for, noticing and naming
difficult thoughts and
feelings arising
- **ACT Starting points:**
Defusion, Acceptance,
Contacting the Present
Moment, Values
- **Remember:** Manage
expectations for return to
competition. Make sure
unhooking skills are ready
and brief enough to be used
in competition.

Stages of injury

Setbacks

- **Emotional reactions:**
Shock, Anger, Sadness
- **Look out for:** Anger, Catastrophising, Depression, Suicidal Ideation, Hopelessness
- **Response:** Making space for different emotions, Notice the changing emotional landscape, can be symptomatic of other issues in rehabilitation. What skills have already been learned that can help the athlete in this situation?
- **ACT Starting points:**
Defusion, Acceptance, Self-as-context
- **Remember:** Consider the impact on other members of the MDT and the athlete's relationship with them

Injury Glossary

Contusion - Bruising

Effusion - Swelling

Fracture - Broken bone

Stress Fracture - small cracks in bone often caused by repetitive overload

Ligaments - connect bone to bone

Tendons - connect muscle to bone

Sprain - Stretch or tear of a ligament (Grade 1, 2 or 3 dependent on severity)

Strain - Stretch or tear of a muscle or tendon (Grade 1, 2 or 3 dependent on severity)

Type of injury - Acute, Overuse, Chronic

Acute Injuries - Result of a single event

Overuse injuries - Occur slowly over time

Chronic Injuries - Reoccurring, Lasted three months or more

Mechanism of injury - How the injury occurred, what force or movement caused the injury, Contact or non-contact, training or competition or not sport related.

Rotator Cuff - Shoulder

ACL, PCL, MCL, LCL, Meniscus - Knee

CFL, ATFL, Deltoid Ligament, Syndesmosis - Ankle

Spondylolysis/Pars - Stress fracture in the back

'Osgood's' - Osgood-Schlatter, growth plate overload (apophysitis)

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Slide 7

Musculoskeletal Injuries - Glossary

- Contusion:** Bruising
- Etiology:** Swelling
- Fracture:** Broken bone
- Stress Fracture:** small cracks in bone often caused by repetitive overload
- Ligaments:** connect bone to bone
- Tendons:** connect muscle to bone
- Sprain:** Stretch or tear of a ligament (Grade 1, 2 or 3 dependent on severity)
- Strain:** Stretch or tear of a muscle or tendon (Grade 1, 2 or 3 dependent on severity)
- Osgood's:** Osgood-Schlatter, growth plate overload (adolescent)

- Type of injury:** Acute, Overuse, Chronic
- Acute Injuries:** Result of a single event
- Overuse Injuries:** Occur slowly over time
- Chronic Injuries:** Reoccurring, lasted three months or more
- Mechanism of injury:** How the injury occurred, what force or movement caused the injury, contact or noncontact, warning or competition or not sport related.
- Relevant:** Calf, Shoulder
- ACL, PCL, MCL, LCL, Meniscus:** Knee
- CFR, ATR, Distal Ligament, Syndesmosis:** Ankle
- Spinal/Shoulder/Neck:** Stress Fracture in the back (depression)

Slide 10

Sports Injury Related Growth (Roy-Davis, Wadey & Evans, 2017)

- Culture
- Availability of practical support
- Identity and life outside sport
- Social support
- Beliefs
- Previous Experiences
- Coping skills
- Perceived support

Figure 1. Conceptual theory of sport injury-related growth (SIRG).

Slide 8

Psychology of Injury: Research

Slide 11

Psychological and Behavioural Consequences of Injury (Gervis, Pickford, Nygard & Goldman, 2022)

Psychological	Behavioural
Clinical (or Sub-clinical) Mental Health Issues	Impaired Daily Functioning
Compromised Athletic Identity	Self-Sabotaging Behaviour
Faction on Injury	Addictive Behaviour

Slide 9

Models of injury - Weisse-Bjornstal (2010)

- Cognition:**
 - Injury-related cognitions
 - Injury-related appraisals
 - Injury-related expectations
 - Injury-related attributions
 - Injury-related self-efficacy
 - Injury-related coping strategies
 - Injury-related social support
 - Injury-related psychological distance
 - Injury-related psychological distance
 - Injury-related psychological distance
- Affect:**
 - Injury-related emotions
 - Injury-related moods
 - Injury-related stress
 - Injury-related anxiety
 - Injury-related depression
 - Injury-related anger
 - Injury-related guilt
 - Injury-related shame
 - Injury-related embarrassment
 - Injury-related embarrassment
 - Injury-related embarrassment
- Behavior:**
 - Injury-related actions
 - Injury-related activities
 - Injury-related coping strategies
 - Injury-related coping strategies
- Outcome:**
 - Injury-related consequences
 - Injury-related consequences

Slide 12

Psychological impact of injury: Research

- Injury is a significant risk factor for mental health issues in elite athletes (IOC consensus statement, Reardon et al., 2019)
- All long-term injured athletes will experience negative psychological consequences (Gervis, Pickford, Nygard & Goldman, 2022)
- Psychological impact of injury can last well beyond physical healing (Gervis, Pickford & Hau, 2019)
- Psychological growth is possible following injury if athletes are supported (Roy-Davis, Wadey & Evans, 2017)

Slide 13

Stages of Injury

Slide 16

Stage 1 - Acute

From injury event to start of rehabilitation

- Short-lived, Lasts Days to 1-2 weeks.
- Pain, inflammation, uncertainty
- Emotions include anger, shock, sadness, depression.

Slide 14

Stages of Injury

(Pondice & Ardiles, 2011; Clement, Davies-Brown, & Fray, 2015)

- Stage 1 - Acute
- Stage 2 - Rehabilitation
- Stage 3 - Remodelling (return to training)
- Stage 4 - Return to competition
- Stage X - Setbacks

Slide 17

Stage 2 - Rehabilitation

From start of rehabilitation to return to training

- Longest phase, Lasts 2 weeks to 6 months +
- Pain, discomfort, gradual improvement
- Emotions include sadness, depression, boredom, loneliness

Slide 15

Stages of Injury - Task

Slide 18

Stage 3 - Remodeling

From return to training to return to competition

- Duration depends on injury/sport, 2 weeks +
- Return to training environment and activities
- Emotions include Anxiety, fear, excitement, frustration

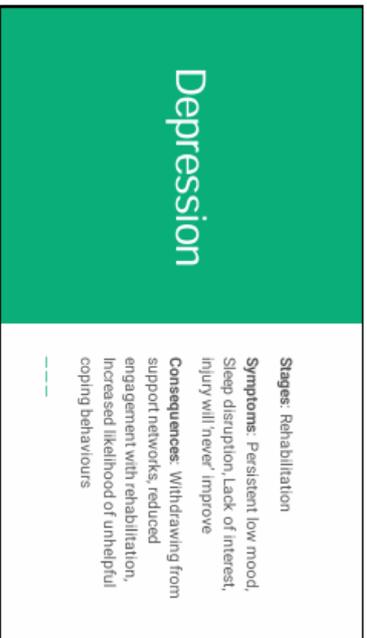
Slide 25



Slide 28



Slide 26



Slide 29



Slide 27



Slide 30



Slide 31

Reported symptoms of Suicidal Ideation
(Gervys, Pickford, Nygård & Goldman, 2022)

55%

Slide 34

Concussion

- Concussion does not follow 'Stages of injury' in the same way
- Most clubs will have a specific concussion protocol - but these usually do not allow optimal time for complete recovery
- Repeat concussions are very dangerous, particularly if they happen in close succession
- Repeated head trauma associated with Chronic Traumatic Encephalopathy (CTE)
- Anxiety and Depression are common in concussion cases
- Problems with attention, concentration and energy are also common
- These psychological symptoms often last much longer than other symptoms and can remain until well after RTC



Slide 32

Suicidal Ideation

Stages: Acute, Rehabilitation, following setbacks

Symptoms: Persistent low mood, Lack of interest, injury will 'never' improve, 'What's the point';

Consequences: Increased risk of suicide, Withdrawing from support networks, reduced engagement with rehabilitation, increased likelihood of unhelpful coping behaviours

Slide 35

Break

Slide 33

Task - Case Studies

Slide 36

Trauma

Slide 37

Introduction to the ANS

<https://www.youtube.com/watch?v=Zd1ORxwT10>

Slide 40

Pain Theory

Slide 38

Polyvagal TheoryAUTONOMIC RESPONSE HIERARCHY

- Our PNS is activated by the Vagus nerve
- If our nervous system detects a threat to safety, the SNS is activated
- If the SNS fails, we fall back on Dorsal Vagal Response

Ventral Vagal Response

- Distal vasodilation, vasodilation of the gut, increased heart rate, increased respiratory rate, increased salivary secretion, increased skin temperature
- "Rest and Digest"

Sympathetic Response

- Adrenaline, stress, "fight or flight"
- Increased heart rate, increased blood pressure, increased glucose release, increased fatty acid release, increased skin temperature
- "Fight or Flight"

Dorsal Vagal Response

- Decreased heart rate, decreased respiratory rate, decreased skin temperature, decreased salivary secretion, decreased gut motility
- "Collapse or Shutdown"

Image ©Gardner 2022

Slide 41

Lorimer Moseley - Tame the Beast

<https://youtu.be/kUzVSpht7Z4>

Slide 39

What does this mean for injury rehabilitation?

- If athletes are constantly in 'fight or flight' this will have serious consequences for their physical health, mental health & relationships
- Understanding how an athlete has previously experienced trauma or injury can help us understand their current situation
- Physical and psychological stress have cumulative consequences - cortisol is crucial!
- Helping athletes feel safe is a priority
- Do athletes feel safe in their relationships with other members of the MD?
- Do athletes feel safe in their position on a team/as an athlete?
- Particularly relevant when considering desecration/career-ending injuries
- What other threats might they be facing?

Slide 42

Pain

Injury ≠ Pain

The body does not send 'pain' messages, the body sends 'danger' messages (Nociceptors)

There are no 'pain' sensors, the body detects changes in environment and changes in the body, not pain.

The brain receives these signals, interprets them with the contextual information available, and may or may not respond with pain.

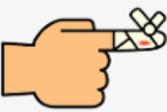
(Moseley & Butler, 2015)

We have to view each athlete and each injury in the context it occurs - no two injuries will have the same impact

From a medical point of view the treatment may be the same, but from a psychological view, approach might be different

Slide 43

Pain



Our nervous systems are there to protect us, including our brains.

The brain creates pain because it believes the body is in danger.

Our individual circumstances affect how we interpret 'danger' and therefore pain.

Identical finger injuries caused more pain in violinists than dancers (Moseley & Butler, 2015)

Slide 46

When there is more evidence of danger than safety, the brain creates pain.

SIM: Safety in Me

- I know other people who have recovered well from this
- I have a support team who I trust
- Last time this happened I recovered quickly
- I have things outside of sport that I can engage with
- I can take the time I need to recover fully
- I'm going to see the physiotherapist

DIM: Danger in Me

- The doctor says there's 'significant' loss of my ability to function in sport
- I'm not an athlete, who am I?
- If I'm not recovered soon, I might not make the team
- I'm going to see the physiotherapist

Slide 44

Our physical and mental health influences pain

- Increased endorphins and serotonin inhibit pain reactions from the brain (Descending inhibition)
- The brain can also amplify responses to stimuli
- The brain can go as far as to generate pain without injury, or after healing (Phantom limb pain)
- Injured joints/nerves are sensitised - silent nociceptors also sensitised
- Injured nerves can become hyperactive



Slide 47

Emotion Mapping



Physio Room

Gervis, Goldman & Griffin, 2021



Doctors Office

Slide 45

When there is more evidence of danger than safety, the brain creates pain.

This evidence can come from:

- Things you hear, see, smell, taste, touch
- Things you do
- Things you say
- Things you think and believe
- Places you go
- People in your life
- Things happening in your body

Evidence of Safety - Safety in Me - SIM

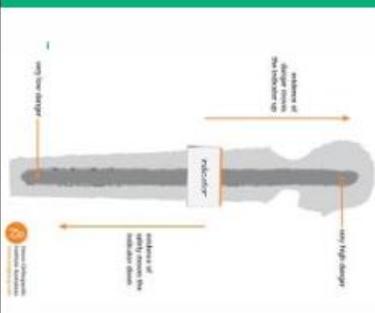
Evidence of Danger - Danger in Me - DIM



Slide 48

The Protectometer

Hunter (2016)



Slide 49

The Alert Zone

- 0-1 on the pain scale is the 'alert zone'
- Chronic pain or chronic stress puts people in (or close to) the alert zone
- For people in the 'alert zone' even small 'DIMs' can tip them into pain
- Function of brain is to protect us, pain is a signal that protects us from a perceived danger.
- SNS activation puts us higher on the scale and more alert to pain

Slide 52

Acceptance and Commitment Therapy ACT

Slide 50

Bioplasticity

- The longer the nervous system has been protecting the body from pain, the better it gets.
- Increased sensitivity means the protectorometer is more sensitive to DIMs.
- BUT Bioplasticity also allows us to learn how to be less protective.
- We can also train PNS response.
- Hurt ≠ Harm

Slide 53

What is ACT?

Acceptance and Commitment Therapy

ACT is a Behavioural Therapy

Aim is to help people lead a rich, full and meaningful life, in spite of challenges and difficulties

This is achieved through increased Psychological Flexibility

Slide 51

Trauma & Pain

- Not all injuries are traumatic
- BUT previous experience of trauma can have a huge impact on experience of injury
- How we feel in our surroundings and our relationships impacts ANS and our interpretation of DIMs/SMS
- Feeling safe is vital - in and out of sport context

Questions to consider:

- Have they ever had a serious injury before?
- How have they dealt with difficult situations before?
- Where do they feel safe?
- Where did they feel safe as a child?
- How is the relationship with the Physio/SA??

Slide 54

ACT - History

ACT is a Third Wave Behavioural Therapy

Wave 1 Behaviourism: Skinner (1935), Watson (1925), classical conditioning

Wave 2 Behaviourism: Cognitive therapy (Beck, 1976), REBT (Ellis, 1957)

Wave 3 Behaviourism: MBCT (Segal, Williams & Teasdale, 2002), DBT (Linehan, 1993), ACT (Hayes, Strosal & Wilson, 1999)

Slide 55

ACT - Philosophy

Has its philosophical roots in Functional Contextualism.

Functional contextualism holds that behaviour can only be judged based on the time and social context in which it occurs.

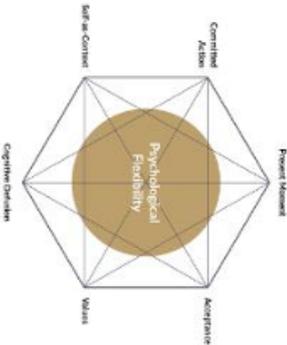
Behaviour may serve a different purpose, depending on its context.



Slide 58

ACT - Psychological Flexibility

Present Moment



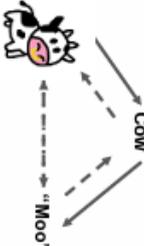
Slide 56

Relational Frame Theory

ACT is based on Relational Frame Theory which is a theory of learning and linguistics

Relational Frame Theory helps us understand how language is related to actions.

Our internal dialogue manifests behaviourally.



These learned relationships help us make sense of the world around us.

However, they can also guide our actions in ways which are not always helpful in the long term.

Slide 59

ACT - Contacting Present Moment

What is it?

Being present in the now, not thinking about the past or the future, paying attention to what's happening and surroundings

How do we do it?

Mindfulness practices, resetting, 5 R's, Dropping Anchor

Why is it relevant?

Getting 'hooked' often caused by worries about the future (anxiety) or judgements about the past (depression). Contacting the present moment helps to focus on the now and what actions can be taken in the present.

Slide 57

Why ACT?

ACT directly targets psychological flexibility.

Other behavioural therapies (CBT) target 'catastrophizing' but psychological flexibility improves earlier in interventions and indirectly improves 'catastrophizing' (Compton et al., 2015)

ACT can be effective in relatively small 'doses' (FACT - Arnold et al., 2021)

Improvements in psychological flexibility and commitment have long-lasting effects, beyond the period of 'treatment'

ACT does not pathologise normal responses to injury, and only targets behaviour which is perceived by the individual to be a problem. (Hayes, Pincus, & Latta, 2012)

ACT does not assume the practitioner is the expert.

The effects of ACT are not mediated by different socioeconomic or educational backgrounds.



Slide 60

ACT - Acceptance

What is it?

Accepting difficult or uncomfortable thoughts, feelings or sensations in service of doing what matters

How do we do it?

Noticing and naming, sitting with discomfort, struggle switch, dropping the rope, compassionate hand

Why is it relevant?

Acceptance of difficult thoughts and feelings is more effective than disputing them, and helps to reduce need for unhelpful behaviour to avoid those thoughts and feelings

Slide 61

ACT - Values

What is it?
 Understanding the 'why' for what people want to change

How do we do it?
 Asking 'how' people want to be, act, live, rather than focussing on goals

Why is it relevant?
 Values help to guide action, and can be enacted even in the face of adversity, setbacks and failures.
 Values give actions and goals their meaning

Slide 64

ACT - Committed Action

What is it?
 Doing what matters, taking towards moves

How do we do it?
 Identifying towards moves, making realistic goals that are achievable and meaningful

Why is it relevant?
 Committed action helps us choose actions that are helpful, move us towards our goals and are meaningful, even in the presence of difficult thoughts and feelings. Steps towards building a rich, full and meaningful life that might otherwise be avoided.

Slide 62

ACT - Cognitive Defusion

What is it?
 Taking the power out of thoughts and feelings, understanding that thoughts and feelings can be unpleasant or difficult but are not necessarily 'true', removing judgement

How do we do it?
 What is your brain telling you? Sushi Train, Tune in to the Radio, I'm having the thought that...

Why is it relevant?
 Defusing from difficult or unpleasant thoughts and feelings gives them less power over our actions. Helps to take action that is helpful, even in the presence of fear or discomfort.

Slide 65

ACT - Psychological Flexibility

Be Present
 Open Up
 Do what Matters

Slide 63

ACT - Self-as-Context

What is it?
 Differentiating between the thinking mind and the observing self

How do we do it?
 Chessboard or sky metaphors, understanding that the self is not the same as thoughts or emotions.

Why is it relevant?
 Understanding that the self is distinct from thoughts and feelings helps with acceptance and defusion, particularly in difficult circumstances

Slide 66

Avoidant Behaviour

Slide 67

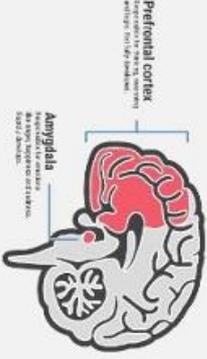
Scenario

Avoidance - noticing

Slide 70

Avoidant Behaviour

This is particularly true for teenagers...



Prefrontal cortex
Engaged in social norms
withers with age/pressure

Amygdala
Manages emotions
Always 'in charge of it' (Lewin, 2007, p. 206)

Slide 68

Reacting to threats



Our brains are there to protect us:
Brains send messages about actual and perceived threats, based on our past experiences.
We have evolved to pay attention to these messages and take action.
Whether the threat is 'real' is not the most important factor.
Applies to physical and psychological threats

Slide 71

Scenario

Avoidance- understanding behaviour

Slide 69

Avoidant Behaviour

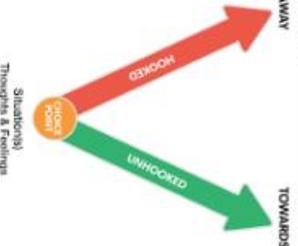
Our brains are also very good at protecting us from the immediate threat, without considering the long-term consequences.
Therefore if something is difficult or painful (physically or emotionally) our brains will automatically present us with a range of options to avoid that pain.
These options are attractive and often unconsciously taken because they avoid a perceived threat.



Slide 72

ACT - Choice Point

AWAY
TOWARDS



HOOKED (AWAY)
UNHOOKED (TOWARDS)

Choice Point
Situational Thoughts & Feelings

Slide 73



Slide 76



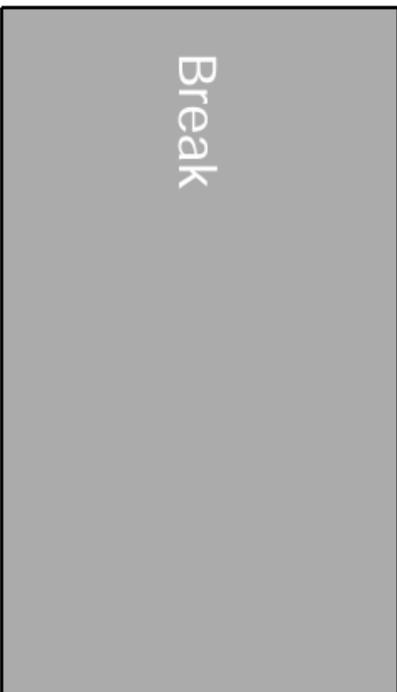
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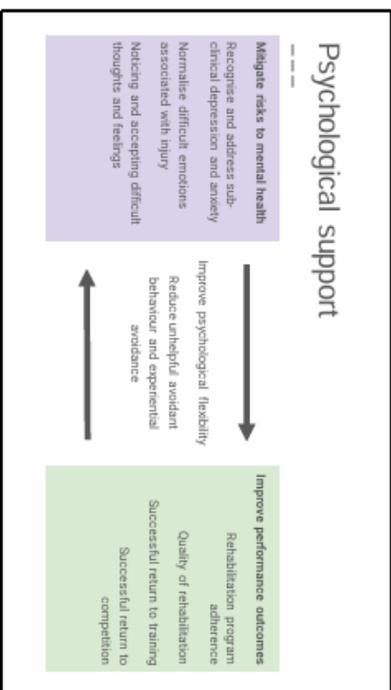
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Slide 75



Slide 78



Slide 79

Psychological support for injured athletes

How are we going to achieve this?

Slide 82

Psychological support throughout rehabilitation

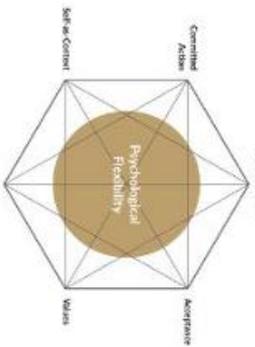
- Every rehabilitation journey is different
- Where your athlete is on their journey will change the support they need
- Their previous experience of injury might change how they approach this injury
- Support needs to be flexible and meet athletes where they are, not where they 'should' be



Slide 80

ACT Hexaflex & RETURN

Zimmer-Mann



RETURN (Germis, 2021)

- R - Physical Rehabilitation
- E - Emotional/ Psychological Recovery
- T - Team Based
- U - Unique to Each Player
- R - Readiness to return, Physical and Psychological
- N - Normalised

Slide 83

Stage 1 - Acute

From injury event to start of rehabilitation

- Emotions include anger, shock, sadness, depression.
- Psychoeducation - normalise emotional reaction, Role of Inflammation
- Acceptance
- Self-as-context

Slide 81

Psychological Support Throughout Rehabilitation

Slide 84

Inflammation

When there is inflammation, the body reacts. 'Silent' nerves in joints are activated when there is inflammation. These nerves send more information to the brain about that body part. This can lead to hyperfascination, obsessing over whether different sensations are 'good' or 'bad', and potentially increase pain.

Where there is inflammation, the body produces Cytokines. Cytokines act to downregulate reward circuits in the brain. They also upregulate anxiety and alarm circuits. This leads to anhedonia (feeling slow, sluggish, low mood) and anxiety. It is a neurochemical reason for feelings of anxiety and depression following injury.



Slide 85

Case Formulation

What do you need to know?

Slide 88

Stage 2 - Rehabilitation

From start of rehabilitation to return to training

- Emotions include sadness, depression, boredom, loneliness
- Protection/etor, understanding pain, mindfulness

Slide 86

Case Formulation

Talk to your athlete and complete a case formulation.

Slide 89

Early Stages of Rehabilitation

Case Study:

Slide 87

Case Formulation

What is the injury/stage?		What skills/values do they have?	
What do they want from psych support?		How do they refer to their injury? "Injury"? "Injured part"?	
What thoughts/beliefs are they struggling with?	Compromised athlete identity Frustration on injury Self beliefs	What is their previous experience of injury?	
How are they currently dealing with their thoughts/beliefs?	Unworkable action/ Self sabotaging behaviour Experiential avoidance/ addictive behaviour Towards moves	What is their support network?	
		DNMS	
		SNMS	
		What are your barriers?	

Slide 90

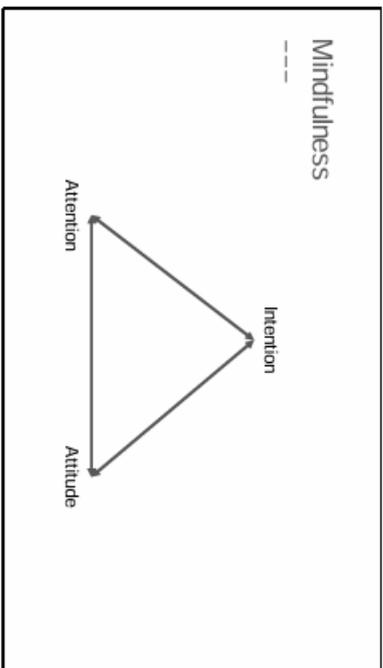
Early Stages of Rehabilitation

- Rehab is boring
- Encourage athletes to explore the 'why', and know the 'why' behind all of their rehab exercises - particularly painful or boring ones.
- Use contacting the present moment (mindfulness) to enhance the quality of rehab
- bits of athletes will try to distract

Most athletes will have more free time than they are used to, how is this an opportunity for them?

Particularly relevant for athletes with career ending injuries

Slide 91



Slide 94

Throughout Rehabilitation

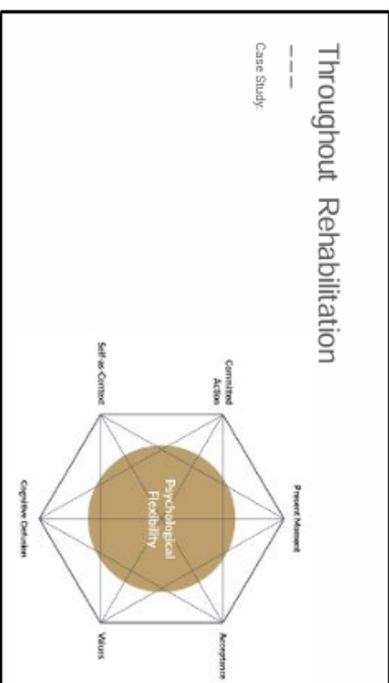
- Pay attention to narratives around body image and food
- Celebrate the small victories, encourage athletes to record all achievements

Slide 92

Mindfulness Practice

- Mindfulness practices help us to contact the present moment
- This is important for athletes in rehabilitation, as rehab is often difficult painful and boring, so the easiest option is to distract from what's happening
- Trying to distract from painful movements is a completely understandable tactic, but can lead to reduced quality of rehab, and plays into muscular guarding and avoidance in later stages of rehab

Slide 95



Slide 93

Task: Mindfulness practice

In pairs, try leading each other through a brief mindful movement or stretch

Slide 96

ACT - Choice Point

- Use to explore towards and away moves, hooks and helpers
- Can help explain 'unhooking' to return to the choice point
- Can be useful for case formulation

A diagram illustrating the ACT Choice Point. It features a central orange circle labeled 'CHOICE POINT' with the text 'Shut off Thoughts & Feelings' below it. Two arrows originate from this point: a red arrow pointing upwards and to the right, labeled 'AWAY' and 'HOOKED', and a green arrow pointing downwards and to the right, labeled 'TOWARDS' and 'UNHOOKED'.

Slide 97

Towards Moves

Goal Setting

- S - Specific
- M - Meaningful
- A - Achievable
- R - Realistic
- T - Time-Bound

Slide 100

Task: Committed Action

Talk to your athlete and agree a meaningful, achievable towards move

Slide 98

Meaningful Towards Moves

What do we need to consider when talking about committed action?

What goals are they moving the client towards?

What's the 'why'?

What values will the client be using?

What hooks are likely to show up?

Slide 101

Throughout Rehabilitation

Case Study:

Slide 99

Achievable

Slide 102

Avoidant Behaviour

Identifying towards moves does not mean they will be chosen.

Celebrate progress

Don't vilify avoidant behaviour, it's serving a purpose

The purpose is probably working to achieve short term goals, but might not serve long term goals

Choosing a towards move is always progress, regardless of the size

Slide 103

Identify 'Hooks'

Talk to your athlete to identify their hooks
What thoughts and feelings are leading to the avoidant behaviour?

Slide 106

Task: Talk to your athlete and create their Sushi Train

Here are some other common defusion exercises:

- Name the story**
What do you call the story? How old is the story?
- Leaves on a stream**
- Form and location**
What does that thought look like? How big is it? Is it moving?
- Problem Solving**
Your mind is a problem solving machine, but not all of it's solutions will work for you in the long run.

"That's an interesting thought"

Slide 104

Unhooking

- Unhooking from difficult thoughts and feelings is a process of defusion
- Defusion reduces the power that difficult thoughts and feeling have over our actions
- Examples include 'I'm having the thought that...', turning in to Radio (athlete), Sushi Train

Slide 107

Stage 3 - Remodeling

From return to training to return to competition

- Emotions include Anxiety, fear, excitement, frustration
- Ask about FOH before returning to training
- Defusion
- Acceptance
- Contacting present moment
- Values

Slide 105

Defusion

The Sushi Train

Slide 108

Returning to Training

Case Study:

Slide 109

Later Stages of Rehabilitation

- Athletes will be returning to more complex movements
- Ask about Fear of Re-injury
- Pay attention to any hesitation or asymmetry in movements, can be symptoms of muscular guarding
- If possible, work with physios to address new movements or progressions (eg. returning to running) before they are added into rehab

Fear of Re-injury
Is the fear of the injury itself happening again

Re-injury Anxiety
Is the worry about the consequences of being injured again

Slide 112

Task: Visualisation

Talk to your 'athlete' to find out what movements or situations they might struggle with in returning to training

Take them through a visualisation of that movement or situation

Slide 110

Visualisation

Example

Slide 113

Return to Training

- Ask about Fear of Re-injury
- Talk about realistic expectations for RTT, what will success look like in the first session/week/month
- Prepare for hooks - particularly comparisons with teammates/competitors/pre-injury self

Ensure 'unhooking' skills are ready, and brief enough to be used in a training environment



Slide 111

Visualisation for Fear of Re-Injury

- Visualisation can be helpful to 'prime' the brain for new or difficult movements
- The athlete can visualise the movement as if they are doing it (not watching it)
- Best to start slow with lots of detail and build up to a 'real time' speed.
- Visualisations that are faster than real time usually lack detail.

Visualisation primes the neural pathways for the movement and can help increase myelination of the pathways involved, letting signals 'travel' faster and the movement feel more like 'muscle memory'

Slide 114

Task: Unhooking

What hooks are going to show up for your athlete when they return to training?

What unhooking skills might help them?

Talk your athlete through what hooks might show up and how they might unhook.

Slide 115

Stage 4 - Return to Competition

From return to competition onwards

- Emotions include Anxiety, fear, excitement, uncertainty
- Emphasise lessons learnt from successful RTT
- Defusion
- Acceptance
- Contacting Present Moment
- Values

Slide 118

Expectations of RTC

Example:
Using values to define success

Slide 116

Return to Competition

Case Study:

Slide 119

Task: Expectations of RTC

Talk to your athlete about their return to competition and how they might define success using their values

In ten years, if you look back on this, how would you want to say you had approached this situation?

How would you want someone else to describe you?

What do you stand for?

How would you want to be/act if things didn't go to plan?

Slide 117

Return to Competition

- Ask about Fear of Re-injury - particularly if injury was sustained in competition
- Talk about realistic expectations for RTC, what will success look like in the first match/competition
- Prepare for hooks - particularly comparisons with teammates/competitors/'pre-injury' self

Ensure unhooking skills are ready, and brief enough to be used in a competition environment

Slide 120

Setbacks

- Emotions include Anger, depression, suicidal ideation, hopelessness
- Time of increased psych vulnerability, can be symptomatic of other issues in rehabilitation
- Explore emotions, and normalize what have we learned from this experience/previous rehabilitation that can help moving forwards
- Defusion
- Acceptance
- Self-as-context

Slide 121

Setbacks

Case Study

Slide 124

Task: Acceptance

Pick an acceptance metaphor or practice and work with your athlete to make space for difficult thoughts and feelings

- Notice**
Where is the feeling, where is it most intense, what are the different sensations
- The struggle-switch**
- Dripping the rope**
- Pushing away paper**
- The choice to feel two sides of a coin**
You could get rid of all those thoughts and feelings, but then you would also have to get rid of all the good feelings too

Slide 122

Following Setbacks

- Explore how athletes are feeling
- What skills do they already have to manage this situation?
- Pay attention to blame/sanger directed at self or others - if others, what does it mean for those relationships?

Everyone can learn a lot from setbacks - it's useful to explore what may have lead to it.

Not all setbacks have a clear cause, but be on the lookout for FQR, Overtraining, EDs and poor rehabilitation adherence

Be aware of the impact setbacks can have on other members of the MDT

Slide 125

Conclusions

Slide 123

Acceptance

Example:
Compassionate practice

Slide 126

Using the Hexaflex

- There is no 'right' order to work in different areas of the hexaflex.
- Listen to what your athlete is bringing to the session and respond to what they need
- Metaphors are really useful to explain concepts, but they are not the whole skill

Open Up
Be Present
Do what matters

Conclusions

- All athletes will be affected psychologically by injury, but each experience will be different
- Support needs to be tailored to the different challenges at each stage of injury, but practitioners need to work flexibly to meet the changing needs of the athlete

RETURN (Gerris, 2021)

R - Physical Rehabilitation

E - Emotional/ Psychological Recovery

T - Team Based

U - Unique to Each Player

R - Readiness to return, Physical and Psychological

N - Normalised

Thank You!

helen.pickford@brunel.ac.uk

Thank you!

1. What was meaningful for you from today's workshop?
1. Which parts of the workshop worked well and why?
1. Which parts of the workshop could be improved and how?
1. Is there anything you feel is missing from the workshop?
1. How do you think this will impact your practice in the future?

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Athlete A

Case Formulation:

Athlete A suffered a high ankle sprain through a tackle in a football match

They are 28, and live with their partner.

They have been feeling very down and anxious, this is their first serious injury since an Achilles injury on the same side five years ago.

They have some pain and swelling, Otherwise they are physically fit and well.

Committed Action:

Because of the injury, A is not allowed to run and can only complete off-feet/upper-body conditioning and gym work. They are skipping sessions because they are very limited compared to their usual training and seem 'pointless'.

Avoidant Behaviour:

A is still finding off-feet conditioning this very boring and will often sit on the bike and watch Netflix on their phone while completing sessions. The S&C is complaining that the intensity of these sessions is not high enough for A to maintain their fitness.

Setback:

A is about a week away from being allowed back into training (non-contact) when they twist their ankle in town one evening. The physio has said they have to go back to off-feet conditioning until they have seen the doctor and had a scan.

Fear of Re-injury:

A is back in training, but the coach is complaining they aren't quick enough to win the ball.

Return to Competition:

A is excited to be playing at the weekend and is adamant they are going to win every tackle and help the defence keep a clean sheet.

Athlete B

Case Formulation:

Athlete B is a gymnast who has been diagnosed with spondylolysis - stress fracture to the vertebrae in the lower back caused by repeated arching.

They are 17 and currently studying for their A levels.

They have been feeling isolated since they are unable to train with their friends

The last time they were injured (broken wrist two years ago) they lost a lot of weight while recovering.

Committed Action:

B is doing well in their rehab and school work, but arrived at your session very low-energy and without their usual engagement. On questioning, they say they woke up too late to eat breakfast before school, and had to go and meet with a teacher at lunchtime, so didn't get a chance to eat.

Avoidant behaviour:

B has told you they have eaten breakfast and lunch today, but when you ask for details you find they have only had a yoghurt for breakfast and a banana for lunch. B says they are worried that if they eat the 'wrong' thing they'll put on weight which they think will slow their recovery and make getting back into training more difficult.

Setback:

During training B pulled out of a back walkover and fell awkwardly, pulling a muscle in their shoulder. The physio is not yet sure how long it will take to heal.

Fear of Re-Injury:

B has recovered well and is able to start some basic training. They have been fine with forwards rotations, but are scared to go backwards.

Return to Competition:

B is excited to be back at their first competition since the injury. They are competing in four different disciplines and aiming to place higher than they did in their last competition pre-injury.