BPS DSEP Position Statement: Psychological Skills Training for Performance Enhancement, Long-Term Development, and Well-being in Youth Sport

Thrower, S., Barker, J., Bruton, A., Coffee, P., Cumming, J., Harwood, C., Howells, K., Knight, C., McCarthy, P., & Mellalieu, S. D.

Correspondence:

Correspondence concerning this article should be addressed to Sam N. Thrower, Office SNC.G.19, Department of Sport, Health Sciences and Social Work, Faculty of Health & Life Sciences, Headington Campus, Oxford Brookes University, Oxford, OX3 0BP. Email: sthrower@brookes.ac.uk

Abstract

Young athletes have become an increasingly important client group for sport psychology practitioners and a population whose physical, cognitive, emotional, and social development should be carefully considered by a practitioner when delivering their services (Visek et al., 2009). The aim of this British Psychological Society (BPS) Division of Sport and Exercise Psychology (DSEP) position statement is to summarise existing knowledge about psychological skills training (PST) interventions and discuss optimal service provision of PST in youth sport. In the first section of this position statement, we provide a brief overview of the literature exploring PST during childhood (5-11 years), early adolescence (12-15 years), and mid-to-late adolescence (16-18 years). Within each sub-section, key developmental considerations (i.e., physical, cognitive, emotional, and social) are provided followed by short summaries of research on basic single strategy (i.e., goal setting, imagery, relaxation, and self-talk) and alternative strategy interventions (e.g., mindfulness, music, perceptual training, and self-modelling) with young athletes. In the second section, optimal service provision of PST is discussed by drawing upon practitioners' experiences of working with young athletes, concluding with 10 recommendations for youth sport organisations, training and accrediting bodies, researchers, and practitioners.

Keywords: *Sport Psychology, Applied Practice, Great Britain, Children, Adolescents*

BPS DSEP Position Statement: Psychological Skills Training for Performance Enhancement, Long-Term Development, and Well-being in Youth Sport

Youth sport in its broadest sense refers to the skill development sessions and competitive events participated in by children and adolescents, typically under 18 years of age (Harwood & Thrower, 2019a). Within the United Kingdom (UK), youth sport remains a popular activity for children and adolescents, with over 90% of children currently participating in sport on a weekly basis (Department of Digital, Culture, Media & Sport, 2023). Although youth sport exists in various guises (i.e., with varying amounts of adult involvement, and at different levels and intensity of competition), in recent years the term has become synonymous with adult structured, regulated, and organised competitive events. There are also an increasing number of organised youth sport programmes which identify and select talented young athletes, focus on sport skill development, and are primarily concerned with optimising opportunities for young athletes to develop and progress to an elite level (Harwood & Thrower, 2019a). Whilst participating in structured and competitive youth sport has been associated with many physical (e.g., strength, coordination), psychological (e.g., self-esteem, emotional regulation), cognitive (e.g., working memory, attention), and social benefits (e.g., social skills, peer relationships), there have also been a growing number of concerns in recent years (i.e., early sport specialisation, low rates of retention, increased risk of concussions and overuse injuries, high levels of stress, and burnout; see Gould, 2019).

The changing youth sport landscape has led to expanding roles and responsibilities for sport psychology practitioners (SPPs) (e.g., engaging in organisational psychological practices, positive youth development, promoting life skills, and mental health and counselling support provision; see Sly et al., 2020). Within the UK, however, youth sport coaches' and parents' perceptions of the role and benefits of SPPs remain strongly centred around performance enhancement, development, and well-being (see Thelwell et al., 2018).

As Harwood and Thrower (2019b) recently suggested: “We [SPPs] have a responsibility and duty of care towards the science of protecting young athletes and optimising health and well-being, we also have a responsibility to support those committed young people who are looking to scientists to serve their intrinsic passion for sport, and introduce them to the processes and skills that will help to optimise their performance and its consistency under pressure” (pp. 176). Therefore, psychological skills training (PST) continues to play a vital role in helping young athletes cope with the performance-related demands and expectations associated with increasingly professionalised youth sport environments and talent development pathways (e.g., pressure to perform, performance errors/mistakes, overemphasis on winning; see Crocker et al., 2017).

Fortunately, there is a sizable body of literature which provides scientific and applied knowledge to support practitioners using PST to enhance the well-being, long-term development, and performance of young athletes. For instance, applied researchers have written book chapters on the key developmental considerations when working with young athletes (see Kipp, 2018), developed youth sport consulting models (e.g., Visek et al., 2009; Blom et al., 2013), and explored practitioners’ accounts and experiences of delivering PST interventions with young athletes (e.g., Foster et al., 2016; Henriksen et al., 2014; Howells, 2017). In addition, researchers have also examined the effectiveness of basic single strategy interventions (i.e., goal setting, imagery, relaxation, and self-talk), alternative strategy interventions (e.g., mindfulness, music, and perceptual training, and self-modelling), and multimodal interventions on young athletes’ long-term development (see Dohme et al., 2019) and performance (see Harwood & Thrower, 2019b).

Although these studies have made valuable contributions to the literature, there remains an absence of clear and coherent recommendations for supporting further scholarship and developmentally appropriate evidence-based PST in youth sport. This has been attributed

to a lack of applied researchers consistently dedicated to studying PST with young athletes and the wider challenges associated with gaining accessibility and financial support for research from youth sport organisations (Harwood & Thrower, 2019b). As such, there is a need for youth sport organisations, training and accrediting bodies, and applied researchers to take a more active and cooperative role in providing practitioners with clear guidance on optimal PST provision. Therefore, the purpose of this British Psychological Society (BPS) Division of Sport & Exercise Psychology (DSEP) position statement is to summarise existing knowledge about PST interventions across developmental stages, discuss optimal service provision of PST in youth sport, and generate recommendations for youth sport organisations, training and accrediting bodies, researchers, and practitioners to help advance knowledge and practice within this area.

Research Exploring PST Interventions in Youth Sport

In the following section, we provide a brief overview of the literature exploring PST during childhood (5-11 years), early adolescence (12-15 years), and mid-to-late adolescence (16-18 years; Kipp, 2018; Wylleman & Lavellee, 2004). It is important to note that PST refers to the learning and implementation of mental techniques that assist individuals in the development of mental skills to achieve performance success and well-being (Vealey, 2007). As such, there is a distinction between psychological techniques/strategies (e.g., imagery, self-talk, goal setting, routines, etc) and psychological skills (e.g., capacity to regulate one's own cognitive, affective, and behavioural states; see Holland et al., 2018). Within each sub-section below, key developmental considerations are provided followed by short summaries of research on basic single strategy and alternative strategy interventions with young athletes.

PST with Children (5-11 years)

The ages of 5-11 years include the end of the preoperational stage (2-7 years) and the concrete operational stage (7-11 years; Piaget, 1952). When children are in the preoperational

stage, they typically can solve concrete problems but are unable to understand logic (Piaget, 1952). Children are likely to focus on single aspects of a problem, rather than considering the whole problem (Kipp, 2018). For these reasons, adopting PST will enable practitioners to target specific and tangible issues and also facilitate the cognitive stage of learning where the primary focus is on 'what to do' (Schmidt & Lee, 2005). Moreover, young children are generally unable to understand other people's points of view and thus, often assume that other people will see, hear, and feel the same way they do (Slater & Bremner, 2017). With regards to sport, a child may struggle to understand how a teammate located in a different position on a pitch may see the game differently to them and as such, may struggle to understand why they may have acted differently to the one they would have chosen. Therefore, SPPs should focus on understanding perceptions and experiences from each child's perspective when delivering PST.

As children progress into the concrete operational stage, they are better able to understand abstract principles; however, they continue to be more comfortable with concrete ideas (Piaget, 1952; Slater & Bremner, 2017). Children can draw on their previous experiences to produce a general principle, thus their ability to identify areas for improvement based on previous experiences increases (Horn, 2004; Kipp, 2018), which provides scope for adopting PST. Using imagery as an example, a child can draw on their long-term memory to imagine a desired performance or outcome. The teaching of psychological strategies to children will be easier if they are explicitly linked to situations they have already encountered and draw on tangible concepts. Older children within this stage will have a better understanding of their own feelings and how they relate to others compared to those in the earlier stage. They will also have a better understanding that their behaviours can have consequences for others and that others may not share their feelings and

thoughts (Piaget, 1952). As such, they will increasingly understand why they may need to change or adapt their behaviours or thinking to help their teammates.

As children move into later childhood, the structure and content of their self-perception system begins to change as they can more easily distinguish between their abilities in different sub-domains (e.g., physical and academic competence; Harter, 1999). Children begin to understand that they might be successful in sport but less successful at school, which can be confusing for them. Children often use parent feedback and the outcome of competitions to judge physical competence, but also increasingly compare sources of information to gain more accurate perceptions of sporting ability (Kipp, 2018). Moreover, as children move towards adolescence, they will increasingly be able to distinguish task difficulty from their personal success and effort. They begin to develop a norm-referenced view so that if only a few children complete a task it is difficult and there are some tasks that only a few children complete (Horn, 2004). Children who complete the more difficult tasks are understood to have a higher level of ability; however, children may not know if it is task difficulty or ability that changes the outcome and may still perceive that more effort will aid success in both skill and luck-based activities. As children's understanding of ability changes, access to PST can play an important role in mitigating possible detrimental consequences.

Despite children's less developed cognitive capabilities, evidence suggests (albeit a very limited number of studies) that children can benefit from psychological skill use (e.g., Haddad & Tremayne, 2009; Meggs & Chang, 2019; Munroe-Chandler et al., 2012). Of this literature, one of the more common strategies considered is self-talk, which has been suggested as particularly useful to develop in pre-adolescent athletes (Aghdasi & Touba, 2012; Meggs & Chan, 2019; Ming & Martin, 1996). The ability to engage in self-talk develops at an early age; typically, children begin talking to themselves between the ages of two and three years of age, although the internalisation of their self-directed talk is commonly

around the age of five (Vygotsky, 1962). Aghdasi and Touba (2012) examined the effects of instructional self-talk on students aged 9-11 years and 15-17 years in a novel dart-throwing task and found that it facilitated the acquisition, retention, and transfer of dart throwing in both age groups. Importantly, when considering self-talk, practitioners working with children should be aware that one of the uses of self-talk, that of emotional regulation, only becomes viable when a child's verbal ability develops sufficiently during the transition from childhood to adolescence (Baker et al., 2019). Consequently, practitioners should be clear about the goal of a self-talk intervention in relation to an athlete's age.

Beyond self-talk, there is also a suggestion that imagery may be a psychological strategy that can be taught to children. Between the ages of 6 and 11 years, children develop an ability to internally represent movement as well as other information which is the foundation of imagery (Spruijt et al., 2015). Young athletes from 7 years of age report using the five main functions of imagery: Cognitive specific (CS), cognitive general (CG), motivational specific (MS), motivational general-arousal (MG-A), and motivational general-mastery (MG-M); however, children tend to use imagery more for motivational rather than cognitive reasons, with MG-M and MS imagery the most frequently used and CG imagery the least (Hall et al., 2009). Imagery interventions with young athletes have also been successful in increasing imagery use (Munroe-Chandler et al., 2012), efficacy beliefs (Munroe-Chandler & Hall, 2004; O et al., 2014), and performance (Guillot et al. 2013; Munroe-Chandler et al. 2012). Although both CS (Munroe-Chandler et al., 2012) and motor imagery (Guillot et al., 2013) have been shown to improve performance, educating children on the use of all five functions of imagery is likely to achieve a fuller range of benefits.

There is also evidence to suggest that older children may benefit from engaging in goal setting through increased intrinsic motivation (Kolovelonis et al., 2010) and improved performance (Meggs & Chen, 2019). For instance, Meggs and Chen (2019) reported a

moderately beneficial effect of goal setting on swimming performance compared with a control group among young swimmers (M_{age} = 10.8 years). Similarly, relaxation (often used as part of multi-model interventions targeting stress management, performance, and recovery outcomes) has been identified as beneficial for older children/young adolescents (10.2-12.4 years; see Wrisberg & Anshel, 1989). Performance improvements in young performers (M_{age} = 10.6 years) have also been noted via the use of relaxation techniques such as centring (Haddad & Tremayne, 2009). Finally, self-modelling interventions have been found to facilitate the learning of a trampoline routine in novice children (M_{age}= 10.2 years; Ste-Marie et al., 2011a); however, no such benefits have been reported for self-observation (i.e., the athlete watching his/herself performing at their current level) in children learning to swim (M_{age}= 8.3 years; Clark & Ste-Marie, 2007).

In drawing together the limited PST literature available pertaining to children, combined with an understanding of developmental psychology, it is clear that a range of psychological strategies (i.e., goal setting, imagery, relaxation, self-talk) can benefit children and we would suggest that it may be a useful introduction to sport psychology; however, care must be taken to ensure that delivery is appropriately tailored. For instance, clear, tangible examples drawing on children's previous (and likely limited) experiences should be used to convey different psychological strategies. The number of strategies taught should also be limited in number and will benefit from being revisited regularly. Like any physical skill, children need opportunities to apply and further develop their psychological skills in practice and competition. Moreover, the focus of PST should be on supporting children to maintain effort and focus on skill learning and improvement. Delivery should also recognise the different experiences of children as well as the role parents can play in enhancing effectiveness through reinforcing key messages.

PST with Early Adolescents (12-15 years)

As young athletes enter adolescence, they are navigating complex athletic, psychological, psychosocial, and academic transitions (Wylleman & Rosier, 2016). From a cognitive perspective, they are now able to think about abstract concepts (Piaget, 1952) and consequently the teaching of psychological strategies to early adolescent athletes can incorporate different scenarios and outcomes, including those that athletes are yet to experience. At this age, athletes will also progress from trial-and-error as their means of solving problems to being able to solve problems in logical and methodical ways (Shaffer & Kipp, 2013). When doing so, they will draw on pre-defined knowledge structures formed through prior experiences and make informed decisions about the best possible option(s) to navigate any challenges placed upon them. As such, when teaching psychological strategies, it is important to reinforce existing knowledge structures, by devising activities around prior knowledge and adopting pedagogical approaches that promote questioning and dialogue.

Typically, adolescent athletes will be in the associative stage of learning for their sport, meaning they are progressing from focusing on 'what to do' to 'how to do it' in different situations with varying constraints (Schmidt & Lee, 2005). This means their performance is likely to become more consistent and controlled, and they will be focusing on the adaptation of relevant skills rather than understanding the skills (Furley & Wood, 2016). Consequently, early adolescents will be less focused on fundamental movements and more interested in refining role-specific skills, providing an ideal basis for PST.

Adolescents will also have the capacity to evaluate their abilities in different contexts based on a range of sources of information (Harter, 1999). In sport, adolescents will typically base these self-evaluations on *internal information* such as skill improvement and perceived effort, *competitive outcomes*, and *evaluative feedback* from spectators, parents, coaches, and peers (Horn, 2004). As adolescents can fully differentiate between effort and ability, it is expected they will shift from judging competence based on task mastery and parent feedback

to focusing on peer comparison and evaluation (Vealey et al., 2017). Although this can be mitigated by intentionally creating task-orientated environments, group delivery of PST could lead to unwanted social comparisons, potentially detracting from any intended outcomes and causing conflicts. Such conflicts can help athletes learn about other people's point of view and develop their problem-solving skills (Smith & Paoli, 2017), but care will need to be taken in managing them.

Moreover, from a social-psychological perspective, peers and friendships are increasingly important at this age (Smith et al., 2012). These relationships are highly valued because they typically provide early adolescents with security, validation of worth, and facilitate social adjustment (Kipp, 2018). As such, the teaching of psychological skills to early adolescents can benefit from drawing on close relationships between peers, while delivering training to friendship dyads could mitigate the possible negative outcomes associated with peer comparisons.

The current youth sport literature base appears to lend support to the utilisation of single-strategy PST interventions with this age group (e.g., Hatzigeordis et al., 2009; Liu et al. 2012; Post et al., 2012). Imagery is one of the most cited psychological intervention methods in sport, and this pattern is mirrored in the basic PST literature with early adolescent athletes. Early adolescents have used imagery to support their physical and mental preparation as well as to overcome fear of injury (Chase et al., 2005). However, to date, most studies have investigated changes in sport performance or skill execution, demonstrating improved movement outcomes for different sports and skills after imagery interventions (e.g., Garza & Feltz, 1998; Guillot et al., 2012; Norouzi et al., 2019; O et al., 2020; Post et al., 2012). For example, Garza and Feltz (1998) showed improved jumps and spin performance in competitive early adolescent figure skaters (M_{age} = 12.37 years), and Post et al. (2012) found that three out of four competitive adolescent swimmers (M_{age} = 15.5 years) were able to

significantly improve their 1000-yard swim times after a 3-week imagery intervention. Despite the reasonable volume of support for the efficacy of imagery interventions some studies also report a lack of effect (e.g., Bjorkstrand & Jern, 2013; Munroe-Chandler et al. 2005). In a study with elite female early adolescent soccer players (M_{age} = 12.50 years), a CG imagery intervention did not improve the learning of soccer routines/strategies (Munroe-Chandler et al., 2005). Furthermore, a large-scale experiment by Munroe-Chandler et al. (2012) found that early adolescent soccer players (aged 11-12 and 13-14 years) did not experience speed or accuracy benefits for a soccer task after engaging with a cognitive-specific imagery intervention, but children aged 7-8 years did show improvements post-intervention.

Beyond imagery, in a large-scale multi-study experiment with male soccer players (M_{age} = 13.56 years), Theodorakis et al. (2000) reported that instructional self-talk led to improved fine motor skill performance for a soccer accuracy test and badminton service test, whereas both instructional and motivational self-talk resulted in improved performance for gross motor skills (i.e., a sit-up test and knee extension task). Furthermore, research has shown that training sessions incorporating motivational self-talk improved competitive early adolescent tennis players' (M_{ages} = 13.26 and 13.47 years) forehand execution when compared to control training conditions (Hatzigeordis et al., 2008; Hatzigeordis et al., 2009). Therefore, self-talk preferences and subsequent effectiveness may be sport- and task-specific, suggesting that contextual information should be incorporated into the intervention content when researching and practising self-talk with early adolescents (Hatzigeorgiadis et al., 2014).

Research on goal setting in early adolescent athletes has typically adopted experimental designs that combine sporting tasks/performance measures (Pierce & Burton, 1998) with psychological outcomes such as motivation (Bieleke et al., 2019) and self-

regulation (Liu et al., 2012). For example, Liu et al. (2012) found that early adolescent female table tennis players (M_{age} = 12.9 years) showed improvements in self-regulatory processes and subsequent service performance after an 8-week goal setting intervention that incorporated goals that randomly varied in terms of difficulty across the intervention period. In addition, Lane and Streeter (2003) focused on the difficulty of goals (i.e., easy, difficult, unrealistic) in an adolescent sample (M_{age} = 15.4 years) and found that basketball-shooting performance improved regardless of the difficulty of the goal. Importantly for practitioners, they found that irrespective of the perceived difficulty of the goal, participants reported a similar 'intended effort'. It was concluded that the intended effort, not the difficulty of the performance goals was the important factor in explaining any performance improvements.

For early adolescent athletes, research has predominantly employed relaxation alongside other strategies as a component of a multi-modal intervention targeting stress management, performance, and recovery outcomes (see Ong & Griva, 2017). The majority of studies examining the independent effects of relaxation on these outcomes in early adolescent athletes have used Progressive Muscular Relaxation (PMR). PMR interventions have led to reductions in competitive state anxiety (Bagherpour et al., 2012) and improved mood (Hashim et al., 2011). In addition, performance improvements in early adolescents have also been noted via the use of other relaxation techniques such as biofeedback (Bar-Eli et al., 2002), centring (Terry et al., 1995), and brief yoga (Donohue et al., 2006). Furthermore, there is some initial evidence to suggest that mindfulness-based interventions can lead to improved performances in golf (Bernier et al., 2009), figure skating (Bernier et al., 2014), and springboard diving (Schwanhausser, 2009).

A comparatively small body of literature (e.g., Law & Ste-Marie, 2005; Ste-Marie et al., 2011b) has explored alternative psychological strategies with early adolescent athletes, with interventions incorporating technology to present video footage or visual stimuli

providing the most popular avenue for research with this age group. Action observation has been recommended as a viable alternative intervention for learning and performance enhancement in youth sport. Self-modelling is one form of action observation intervention that displays the athlete's best performance of a skill/task, and this has been found to benefit female early adolescent gymnasts' (M_{age} = 12.18 years) competitive beam performance across a season (Ste-Marie et al., 2011b); however, no such benefits have been reported for self-observation in competitive female early adolescent figure skaters' (M_{age} = 13.4 years) performance of jump movements (Law & Ste-Marie, 2005). In terms of more technologically advanced approaches to training vision and decision-making processes in early adolescent athletes, Ehmann et al. (2022) showed that a five-week football-specific 360° multiple object tracking training intervention improved perceptual-cognitive task performance but not soccer-specific performance in early adolescent soccer players. Similarly, Schwab and Memmert (2012) found that a 6-week DynamicEye® training program improved the visual abilities of 12-16-year-old male early adolescent field hockey players.

In summary, key developmental changes that warrant consideration when adopting PST with early adolescent athletes include their new-found ability to think more abstractly and use more deductive and systematic problem-solving strategies when overcoming challenges, and the importance of social relationships with peers as both a source of performance information, security, and psychological well-being. Whilst the collective evidence suggests individual PST strategies (i.e., goal setting, imagery, mindfulness, relaxation, self-modelling, and self-talk) can be used with athletes during early adolescence, most studies are dated and have delivered interventions in fixed ways using controlled experimental designs, meaning the positive effects demonstrated in these studies may not transfer when interventions are adapted for use in current dynamic real-world settings. It is important that practitioners align their use of PST at this age with the key issues and

challenges early adolescents are experiencing. For example, incorporating more abstract and innovative approaches during PST will allow the athletes to reinforce the development of implicit strategies, foster creativity, and ideally facilitate PST use and adherence in this age group.

PST with Mid-to-Late Adolescents (16-18 years)

By the time athletes enter mid-to-late adolescence, they will be able to understand abstract concepts and engage in adult-like role-taking as they can comprehend other individuals' perspectives (Piaget, 1952). They are likely to be less reliant upon peer comparison for competency information as this will be integrated from past experiences and their ability to self-reference is enhanced by this stage (Vealey et al., 2017). This is important in the context of PST in sport as mid-to-late adolescents will be more focused on the development of process- and performance-oriented skills rather than outcomes and social comparisons; however, this is a complex time for young people as social status continues to be important, both in terms of peer approval but also as a motivator for continued involvement in sport (Smith & Paoli, 2017). At this stage of development, athletes' cognitive development is more similar to adults, they have undergone unique neurocognitive development which means their executive functions have reached adult levels of maturation. In addition, they are also likely to be operating in the autonomous stage of learning where skill execution is automatic and requires little conscious thought (Schmidt & Lee, 2005). This, alongside more finely tuned proprioceptive senses, enables athletes to understand complex training instruction, become more proficient at self-correction, and be more readily able to identify (and respond to) correct and incorrect techniques (Kushner et al., 2015).

Accordingly, there may be the temptation to treat adolescents as adults, however, they continue to face a range of developmental transitions (Wylleman & Rosier, 2016). During this period, adolescents also encounter several major life transitions, such as moving from

secondary school to university, work, or full-time training, or in some cases, a combination of all three (Wylleman & Rosier, 2016). While these transitions are taking place, adolescents will be experiencing a range of emotional changes (Crocker et al., 2017) as they distance themselves from their parents, become more autonomous, and start to develop their own identities (Brewer et al., 2017). A time characterised by change means that the ability to control emotions may fluctuate within and between individuals as they appraise the unfamiliar demands encountered and attempt to implement the coping strategies they have developed (Crocker et al., 2017). Thus, the adoption of PST with mid-to-late adolescent athletes is timely, as this can continue to diversify the techniques they draw from when trying to cope with the ever-increasing stressors they experience alongside sport participation.

Given the majority of SPPs' clients are in the mid-to-late adolescence stage of development, there is a clear need for practitioners to have an in-depth understanding of their clients in this age range (Fedderson & Ryom, 2022). Although practitioners may be tempted to inform their practice and engagement with PST from the literature involving young adults, they should be mindful of the nuanced differences between mid-to-late adolescents and adults and focus on the research that has specifically targeted this age group.

Similar to previous developmental stages, there is some evidence to suggest that imagery interventions can improve mid-to-late adolescents' performances (e.g., Dana & Gozalzadeh, 2017; Post et al., 2010; Fortes et al., 2018). For example, Post and colleagues (2010) examined the influence of a pre-game imagery intervention on mid-to-late adolescents' (M_{age} 16.8 years) free throw performance over the course of a season. Findings revealed a significantly higher than expected number of free throws made in games preceded by the intervention. Similarly, Fortes et al. (2018) evaluated the effectiveness of an 8-week CG imagery intervention on 16-year-old volleyball players' decision-making with findings indicating a moderate positive effect on performance. However, other studies have shown no

impact on freestyle swimming turn speed (Casby & Moran, 1998) or tennis returning performance (i.e., Coelho et al., 2007). Taking this into consideration, it is important to note that research exploring the characteristics of imagery use with mid-to-late adolescents has shown that they use MG-M imagery most frequently and MG-A less frequently (Parker & Lovell, 2009).

In addition to interventions focused on imagery, studies with mid-to-late adolescents often use relaxation as a component of a multi-modal intervention (e.g., Wikman et al., 2016). However, performance improvements in mid-to-late adolescents have been noted via the use of relaxation techniques such as PMR (e.g., Lanning & Hisanaga, 1983) and biofeedback (Bar-Eli & Blumenstein, 2004). Furthermore, when compared to imagery, PMR has led to greater reductions in competitive state anxiety and attention (Owen & Lanning, 1982).

A relatively small body of research has examined the role of both self-talk and goal setting with mid-to-late adolescents (see Aghdasi & Touba, 2012; Gill, 2013). In one of the only studies to date, Gill (2013) evaluated the use of goal setting on the basketball performance of players aged between 16-20 years old (Mage = 16.69 years). Findings suggested setting goals benefited performers in both training and competition, supported the use of goal setting in an ecologically valid setting, and concluded that goal setting can be used to increase motivation levels and enhance performance. Despite limited research within this developmental stage, it appears that practitioners often assume enhanced performance (process → mastery), motivation (process → intrinsic motivation), and well-being when using goal setting. However, even with a wealth of literature on the use of goal setting and self-talk with adult athletes, there is limited empirical evidence for its use with mid-to-late adolescents per se.

Moving beyond the more conventional psychological strategies, music-based interventions, which in the age of smartphones can be easily translated into the training and competition environment, have demonstrated beneficial effects on affective valence, physical performance, perceived exertion, and oxygen consumption in sport and exercise settings (e.g., Bishop et al., 2007; Bishop et al., 2009; Miller & Donohue, 2003). These interventions have shown initial promise as a performance-enhancement technique for mid-to-late adolescents in a variety of sports. For instance, music has been shown to improve running time trial performance in high school long-distance runners (M_{age} = 16.2 years) compared to control conditions (Miller & Donohue, 2003). Young tennis players (M_{age} = 18.4 years) have also reported using music to manage pre-competition emotions by improving mood, increasing arousal, and facilitating imagery (Bishop et al., 2007). In a follow-up study, Bishop et al. (2009) suggested that higher music intensity can increase arousal and improve choice reaction times in young performers (M_{age} = 17.7 years). Furthermore, Eliakim et al. (2007) demonstrated an increase in peak anaerobic power in youth and adolescent athletes (M_{age} = 16.4 years) following a music intervention. These initial findings suggest that music is a simple, low-cost, and comparatively effective way of enhancing athletes' psychological preparation for competition and competitive performance.

In summary, when adopting PST with mid-to-late adolescent athletes, practitioners should be mindful that they will now be able to understand abstract concepts and comprehend other individuals' perspectives. Although social relationships with peers will continue to be important, mid-to-late adolescent athletes are likely to be more able to self-reference and reflect on their own performances. Accordingly, the use of PST that is task or goal-orientated can be used with some confidence when focused on clear athlete-focused goals (e.g., to improve running time, reduce state anxiety). Nevertheless, practitioners should ensure that their practice is informed by evidence from the age-specific literature rather than assuming

the transferability of adult-focused PST research to this age demographic. Currently, the literature suggests several psychological strategies as being appropriate for this age group, specifically imagery, relaxation, and music.

Considerations for Optimal Service Provision in Youth Sport

The experimental and quasi-experimental studies outlined above offer practitioners important scientific insights into PST-related considerations at different stages of young athletes' development. Such intervention studies, however, are often imposed on participants for the purpose of scientific discovery as opposed to being reflective of how the natural youth sport environment engages with the process of PST. Such matters, including who actually delivers PST-related work with young people, are likely to influence intervention effectiveness in the real world, particularly where key aspects of the traditional consultancy process in youth sport (e.g., professional boundaries and philosophy, building rapport or relationships, assessment with young athletes; see Visek et al., 2009) are not considered within constrained scientific investigations. Indeed, Henriksen and colleagues (2014) suggested that many intervention studies are far removed from the field-based realities of youth sport practice (e.g., understanding contextual challenges and engaging with key stakeholders). As such, beyond empirical PST interventions with young athletes, it is important to consider the growing body of literature representing: (a) the promotion of 'how to' frameworks tailored to working in youth sport (e.g., Visek et al., 2009; Blom et al., 2013); and (b) practitioners' accounts and experiences of working with young athletes (e.g., Foster et al., 2016; Henriksen et al., 2014; Howells, 2017). For example, the Youth Sport Consultancy Model (YSCM; Visek et al., 2009) details six phases of consultation when working with young athletes and teams: (a) practitioner considerations (e.g., boundaries and philosophical approach); (b) initiating contact; (c) doing sport psychology (e.g., confidentiality, assessment, game and practice observation, selecting, implementing and processing skills, and time-outs

in sport psychology); (d) wrapping up the season and consultation; (e) assessing the consulting relationship; and (f) termination and continuation (Visek et al., 2009). Similarly, Blom and colleagues (2013) present the concept of the Youth Sport Psychology Consultation Triangle (YSPCT) to assist practitioners in navigating the uniqueness of multiple, dyadic relationships in youth sport (i.e., young athlete, practitioner, coach, and parents) with a focus on role knowledge and role clarity for each stakeholder to ensure the overall well-being and interests of young athletes. The contextual 'craft knowledge' of experienced practitioners comes from several personal accounts of working directly in this setting (see Foster et al., 2016; Henriksen et al., 2014; Howells, 2017). Such accounts illustrate practitioner attention to holistic skills that include, but also go beyond, sport-specific psychological strategies to foster the long-term development of young athletes, the integration of simple techniques into daily practice environments, and engagement of coaches, family, and peers as much as possible. How SPPs 'reach' young athletes and build rapport is a critical process as it precedes any actual application of (and adherence to) psychological strategies from which we want young performers to benefit.

Most recently, Thrower, Barker et al. (2023) gathered insights from experienced SPPs working with young athletes in the UK, and addressed how psychological strategies and techniques are delivered within this population. Firstly, their findings illustrated how practitioners adapted their delivery of PST concepts to young athletes in creative and age-appropriate ways through the use of physical props, scenarios, biofeedback, or YouTube footage of sport to encourage engagement, normalise psychology and raise their awareness of psychological qualities in athlete role models. Helping young athletes with an awareness that mental strategies are 'tools', 'powers' or 'weapons' against the sport's demands aligns with how children might see the superhero and the villain in online computer games. As conversation starters, it can open the door for them to share the thoughts and feelings they

currently experience in their sport and feel better understood (Foster et al., 2016). Secondly, practitioners reinforced the criticality of multiple stakeholders being involved in PST-related initiatives and the effectiveness of indirect interventions through coaches and parents, as opposed to direct athlete-practitioner work. Practitioner participants considered who was 'best positioned' to support an athlete with respect to their progression in psychological skills and reinforced how the effectiveness of this depended upon a PST-educated stakeholder environment.

Overall, these findings reinforced how PST with young people should be integrated into day-to-day athletic practice as opposed to merely off-field workshops and classroom settings. This depended greatly on the integration, buy-in and education of coaches receiving support and mentoring from practitioners around session design that incorporated psychological strategies (see Harwood et al., 2015; Foster et al., 2016). Similarly, the consistency of parents being on the same page as the coaching and support team, reinforcing practitioner messages (e.g., at home, during car journeys) comes through this research as vital for creating a coherent climate around the young person. As Thrower and colleagues note: "Future research is also needed to 'close the gap' between research and practice and explore the integrative processes and outcomes of a child-centred, coach-led, and parent-supported system that is focused on specific psychological skill outcomes over time" (p.18). PST with young athletes is not a practitioner-alone endeavour and neophyte practitioners need to consider the practical and contextual implications of service provision in the competitive youth sport environment.

Recommendations for Youth Sport Organizations, Training / Accrediting Bodies, Researchers, and Practitioners

Drawing upon our review of the literature exploring the effectiveness of PST interventions across developmental stages, practitioners' experiences of integrating PST-

related services in youth sport settings, as well as our own applied experience, below we provide 10 recommendations (not presented in order of importance) directed towards youth sport organisations, training and accrediting bodies, researchers, and practitioners. These recommendations illustrate joint responsibility and provide a pathway regarding how to accelerate the development and training of practitioners within the UK and move closer towards evidence-based guidelines for PST in youth sport.

Youth Sport Organisations

1. Youth sport governing bodies should support (i.e., accessibility and financial support) the development of research that informs evidence-based PST within their specific sport.
2. Youth sport governing bodies have a responsibility to utilise the evidence-base and provide access to educational resources on PST (e.g., Thrower, Shanmuganathan-Felton et al., 2023) to support all young peoples' performance, long-term development, and well-being.
3. Youth sport organisations and clubs have a 'duty of care' to ensure all young athletes on high-performance pathways have access to Health Care Professions Council (HCPC) registered Sport & Exercise Psychologist (or those on HCPC-approved postgraduate supervised training routes[1]) to manage the demands they experience in increasingly professionalised youth sport environments.

Training and Accrediting Bodies

4. University lecturers/teachers should place greater emphasis on developmental psychology within both undergraduate and postgraduate sport and exercise psychology programme content.
5. Accrediting bodies should provide more formalised and dedicated training opportunities focused on PST with young athletes (e.g., qualifications, placements) and mandate the

inclusion of one assessment (i.e., case study) with young athletes as part of regulated independent training routes (e.g., BPS Stage 2).

Researchers

6. Applied research is needed to identify which strategies are most effective at optimising young athletes' performance to inform age, stage-appropriate, and sport-specific PST guidelines for practitioners working with young athletes.
7. Applied researchers should explore how PST intervention efficacy, and long-term evaluation, are determined by the context and method of delivery to narrow the gap between research and practice.

Practitioners

8. Practitioners should only deliver PST to young athletes following prior assessment (i.e., case formulation) and interventions should match the known demands of the sport, the young athlete's developmental stage, and their unique wants and/or needs.
9. PST in youth sport should be simple, adaptable, and where possible integrated within a young athlete's training and competition context. Practitioners should also whenever possible work collaboratively with coaches and/or parents (indirectly or directly) to elicit the greatest effects.
10. Practitioners should provide 'practice-based evidence' (e.g., case reports) to enhance knowledge in this area and inform practitioner training and effectiveness.

Note

1. There are two sport and exercise psychology independent postgraduate supervised training routes in the UK which make practitioners eligible to apply for registration with the Health Care Professions Council (HCPC): (1) BPS Qualification in Sport & Exercise Psychology (QSEP); and (2) British Association of Sport and Exercise Science (BASES) Sport and Exercise Psychology Accreditation Route (SEPAR). In addition, practitioners

who complete an HCPC-approved Professional Doctorate in Sport and Exercise Psychology are also eligible to apply for HCPC registration.

References

Aghdasi, M. T., & Touba, N. (2012). The effects of instructional self-talk on girl's performance, retention and transfer of dart throwing in late childhood and adolescence. *Journal of Physical Education and Sport*, *12*(3), 391. http://dx.doi.org/10.7752/jpes.2012.03058

Bagherpour, T., Hashim, H. A., Saha, S., & Ghosh, A. K. (2012). Effects of progressive muscle relaxation and internal imagery on competitive state anxiety inventory-2R among taekwondo athletes. *International Proceedings of Economics Development & Research*, *30*, 218.

Baker, E. R., Liu, Q. Y., & Huang, R. (2019). A view from the start: A review of inhibitory control training in early childhood. In S. Palermo & M. Bartoli (Eds.), In inhibitory control training-a multidisciplinary approach. IntechOpen. doi:10.5772/intechopen.88700

Bar-Eli, M., & Blumenstein, B. (2004). Performance enhancement in swimming: The effect of mental training with biofeedback. *Journal of Science and Medicine in Sport*, *7*(4), 454-464. https://doi.org/10.1016/S1440-2440(04)80264-0

Bar-Eli, M., Dreshman, R., Blumenstein, B., & Weinstein, Y. (2002). The effect of mental training with biofeedback on the performance of young swimmers. *Applied Psychology*, *51*(4), 567-581. https://doi.org/10.1111/1464-0597.00108

Bernier, M., Thienot, E., Pelosse, E., & Fournier, J. F. (2014). Effects and underlying processes of a mindfulness-based intervention with young elite figure skaters: Two case studies. *The Sport Psychologist*, *28*(3), 302-315. https://doi.org/10.1123/tsp.2013-0006

Bernier, M., Thienot, E., Codron, R., & Fournier, J. F. (2009). Mindfulness and acceptance approaches in sport performance. *Journal of Clinical Sport Psychology*, *3*(4), 320-333. https://doi.org/10.1123/jcsp.3.4.320

Bieleke, M., Kriech, C., & Wolff, W. (2019). Served well? A pilot field study on the effects of conveying self-control strategies on volleyball service performance. *Behavioral Sciences, 9*(9), 93. https://doi.org/10.3390/bs9090093

Bishop, D. T., Karageorghis, C. I., & Kinrade, N. P. (2009). Effects of musically-induced emotions on choice reaction time performance. *The Sport Psychologist*, *23*(1), 59-76. https://doi.org/10.1123/tsp.23.1.59

Bishop, D. T., Karageorghis, C. I., & Loizou, G. (2007). A grounded theory of young tennis players' use of music to manipulate emotional state. *Journal of Sport & Exercise Psychology*, *29*(5), 584-607. https://doi.org/10.1123/jsep.29.5.584

Björkstrand, S., & Jern, P. (2013). Evaluation of an imagery intervention to improve penalty taking ability in soccer: A study of two junior girls teams. *Nordic Psychology*, *65*(4), 290-305. https://doi.org/10.1080/19012276.2013.851444

Blom, L. C., Visek, A. J., & Harris, B. S. (2013). Triangulation in youth sport: Healthy partnerships among parents, coaches, and practitioners. *Journal of Sport Psychology in Action*, *4*(2), 86-96. https://doi.org/10.1080/21520704.2012.763078

Brewer, B. W., Petitpas, A. J., & Van Raalte, J. L. (2017). Self-identity and young athletes. In C. J. Knight, C. G. Harwood, & D. Gould (Eds.), *Sport psychology for young athletes* (pp. 153-163). Routledge.

Casby, A., & Moran, A. (1998). Exploring mental imagery in swimmers: A single-case study design. *The Irish Journal of Psychology*, *19*(4), 525-531. https://doi.org/10.1080/03033910.1998.10558212

Chase, M. A., Magyar, T. M., & Drake, B. M. (2005). Fear of injury in gymnastics: Self-efficacy and psychological strategies to keep on tumbling. *Journal of Sports Sciences*, *23*(5), 465-475. https://doi.org/10.1080/02640410400021427

Clark, S. E., & Ste-Marie, D. M. (2007). The impact of self-as-a-model interventions on children's self-regulation of learning and swimming performance. *Journal of Sports Sciences, 25*(5), 577–586. https://doi.org/10.1080/02640410600947090

Coelho, R. W., De Campos, W., Silva, S. G. D., Okazaki, F. H. A., & Keller, B. (2007). Imagery intervention in open and closed tennis motor skill performance. *Perceptual and Motor Skills*, *105*(2), 458-468. https://doi.org/10.2466/pms.105.2.458-4

Crocker, P. R., Tamminen, K. A., & Bennett, E. V. (2017). Stress, emotions, and coping in youth sport. In C. J. Knight, C. G. Harwood, & D. Gould (Eds.), *Sport psychology for young athletes* (pp. 164-173). Routledge.

Dana, A., & Gozalzadeh, E. (2017). Internal and external imagery effects on tennis skills among novices. *Perceptual and Motor Skills*, *124*(5), 1022-1043. https://doi.org/10.1177/0031512517719611

Department of Digital, Culture, Media and Sport. (2023, July 20). *Share of children (aged 5-16) participating in any sport in the last week in England from 2018 to 2021.* https://www.statista.com/statistics/421116/childrens-sports-involvment-england-uk/

Dohme, L. C., Piggott, D., Backhouse, S., & Morgan, G. (2019). Psychological skills and characteristics facilitative of youth athletes' development: A systematic review. *The Sport Psychologist, 33*(4), 261-275. https://doi.org/10.1123/tsp.2018-0014

Donohue, B., Miller, A., Beisecker, M., Houser, D., Valdez, R., Tiller, S., & Taymar, T. (2006). Effects of brief yoga exercises and motivational preparatory interventions in distance runners: results of a controlled trial. *British Journal of Sports Medicine*, *40*(1), 60-63. https://doi.org/10.1136/bjsm.2005.020024

Ehmann, P., Beavan, A., Spielmann, J., Mayer, J., Ruf, L., Altmann, S., ... & Englert, C. (2022). Perceptual-cognitive performance of youth soccer players in a 360°-environment–An investigation of the relationship with soccer-specific performance and the effects of systematic training. *Psychology of Sport and Exercise*, *61*, 102220. https://doi.org/10.1016/j.psychsport.2022.102220

Eliakim, M., Meckel, Y., Nemet, D., & Eliakim, A. (2007). The effect of music during warm-up on consecutive anaerobic performance in elite adolescent volleyball players. *International Journal of Sports Medicine*, *28*(04), 321-325. https://doi.org/10.1055/s-2006-924360

Feddersen, N. B., & Ryom, K. (2022). Examining the field of applied sport psychology in Denmark. *Journal of Sport Psychology in Action*, *14*(2), 110-120. https://doi.org/10.1080/21520704.2022.2129890

Fortes, L. S. (2018). Effect of an eight-week imagery training programme on passing decision-making of young volleyball players. *International Journal of Sport and Exercise Psychology*, *10*, 1612197X. https://doi.org/10.1080/1612197X.2018.1462229

Foster, D., Maynard, I., Butt, J., & Hays, K. (2016). Delivery of psychological skills training to youngsters. *Journal of Applied Sport Psychology, 28*(1), 62-77. https://doi.org/10.1080/10413200.2015.1063097

Furley, P., & Wood, G. (2016). Working memory, attentional control, and expertise in sports: A review of current literature and directions for future research. *Journal of Applied Research in Memory and Cognition*, *5*(4), 415-425. https://doi.org/10.1016/j.jarmac.2016.05.001

Garza, D. L., & Feltz, D. L. (1998). Effects of selected mental practice on performance, self-efficacy, and competition confidence of figure skaters. *The Sport Psychologist*, *12*(1), 1-15. https://doi.org/10.1123/tsp.12.1.1

Gill, G. S. (2013). The effects of goal setting on basketball performance. *International Journal of Sports Sciences & Fitness*, *3*(1), 54-65.

Gould, D. (2019). The current youth sport landscape: Identifying critical research issues. *Kinesiology Review*, *8*(3), 150-161. https://doi.org/10.1123/kr.2019-0034

Guillot, A., Desliens, S., Rouyer, C., & Rogowski, I. (2013). Motor imagery and tennis serve performance: The external focus efficacy. *Journal of Sports Science & Medicine*, *12*(2), 332.

Guillot, A., Genevois, C., Desliens, S., Saieb, S., & Rogowski, I. (2012). Motor imagery and 'placebo-racket effects' in tennis serve performance. *Psychology of Sport and Exercise*, *13*(5), 533-540. https://doi.org/10.1016/j.psychsport.2012.03.002

Haddad, K., & Tremayne, P. (2009). The effects of centering on the free-throw shooting performance of young athletes. *The Sport Psychologist*, *23*(1), 118-136. https://doi.org/10.1123/tsp.23.1.118

Hall, C. R., Munroe-Chandler, K. J., Cumming, J., Law, B., Ramsey, R., & Murphy, L. (2009). Imagery and observational learning use and their relationship to sport confidence. *Journal of Sports Sciences*, *27*(4), 327-337. https://doi.org/10.1080/02640410802549769

Hatzigeorgiadis, A., Galanis, E., Zourbanos, N., & Theodorakis, Y. (2014). Self-talk and competitive sport performance. *Journal of Applied Sport Psychology*, *26*(1), 82-95. https://doi.org/10.1080/10413200.2013.790095

Hatzigeorgiadis, A., Zourbanos, N., Goltsios, C., & Theodorakis, Y. (2008). Investigating the functions of self-talk: The effects of motivational self-talk on self-efficacy and

performance in young tennis players. *The Sport Psychologist*, *22*(4), 458-471. https://doi.org/10.1123/tsp.22.4.458

Hatzigeorgiadis, A., Zourbanos, N., Mpoumpaki, S., & Theodorakis, Y. (2009). Mechanisms underlying the self-talk–performance relationship: The effects of motivational self-talk on self-confidence and anxiety. *Psychology of Sport and Exercise*, *10*(1), 186-192. https://doi.org/10.1016/j.psychsport.2008.07.009

Harter, S. (1999). *The construction of the self: A developmental perspective.* Guilford Press.

Harwood, C. G., Barker, J. B., & Anderson, R. (2015). Psychosocial development in youth soccer players: Assessing the effectiveness of the 5Cs intervention program. *The Sport Psychologist*, *29*(4), 319-334. https://doi.org/10.1123/tsp.2014-0161

Harwood, C. G., & Thrower, S. N. (2019a). Youth sport. In D. Hackfort, R. Schinke, & B. Strauss (Eds.), *Dictionary of sport psychology* (pp. 317). Elsevier

Harwood, C. G., & Thrower, S. N. (2019b). Performance enhancement and the young athlete: Mapping the landscape and navigating future directions. *Kinesiology Review*, *8*(3), 171-179. https://doi.org/10.1123/kr.2019-0026

Hashim, H. A., Hanafi, H., & Yusof, A. (2011). The effects of progressive muscle relaxation and autogenic relaxation on young soccer players' mood states. *Asian Journal of Sports Medicine*, *2*(2), 99. https://doi.org/10.5812/asjsm.34786

Henriksen, K., Larsen, C.H., & Storm, L.K. (2014). Sport psychology interventions with young athletes: The perspective of the sport psychology practitioner. *Journal of Clinical Sport Psychology*, *8*, 245-260. https://doi.org/10.1123/jcsp.2014-0033

Holland, M. J. G., Cooley, S. J., & Cumming, J. (2018). Understanding and assessing young athletes' psychological needs. In C. J. Knight, C. G. Harwood, & D. Gould (Eds), *Sport psychology for young athlete*s (pp. 43–54). Routledge.

Horn, T. S. (2004). Lifespan Development in Sport and Exercise Psychology: Theoretical Perspectives. In M. R. Weiss (Eds.), *Developmental sport and exercise psychology: A lifespan perspective* (pp. 27–71). Fitness Information Technology.

Howells, K. (2017). Butterflies, magic carpets, and scary wild animals: An intervention with a young gymnast. *Case Studies in Sport and Exercise Psychology*, *1*(4), 26-37. https://doi.org/10.1123/cssep.2016-0006

Kipp, L. E. (2018). Developmental considerations for working with young athletes. In C. J. Knight, C. G. Harwood, & D. Gould (Eds.), *Sport psychology for young athletes* (pp. 32-42). Routledge.

Kolovelonis, A., Goudas, M., & Dermitzaki, I. (2010). Self-regulated learning of a motor skill through emulation and self-control levels in a physical education setting. *Journal of Applied Sport Psychology, 22*(2), 198-212. https://doi.org/10.1080/10413201003664681

Kushner, A. M., Kiefer, A. W., Lesnick, S., Faigenbaum, A. D., Kashikar-Zuck, S., & Myer, G. D. (2015). Training the developing brain part II: Cognitive considerations for youth instruction and feedback. *Current Sports Medicine Reports*, *14*(3), 235–243. https://doi.org/10.1249/JSR.0000000000000150

Lane, A., & Streeter, B. (2003). The effectiveness of goal setting as a strategy to improve basketball shooting performance. *International Journal of Sport Psychology*, *34*(2), 138-150.

Lanning, W., & Hisanaga, B. (1983). A study of the relation between the reduction of competition anxiety and an increase in athletic performance. *International Journal of Sport Psychology, 14*(4), 219–227.

Law, B., & Ste-Marie, D. M. (2005). Effects of self-modeling on figure skating jump performance and psychological variables. *European Journal of Sport Science*, *5*(3), 143-152. https://doi.org/10.1080/17461390500159273

Liu, W., Zhou, C., Ji, L., & Watson, J. (2012). The effect of goal setting difficulty on serving success in table tennis and the mediating mechanism of self-regulation. *Journal of Human Kinetics*, *33*, 173-185. https://doi.org/10.2478/v10078-012-0056-y

Meggs, J., & Chen, M. A. (2019). Competitive performance effects of psychological skill training for youth swimmers. *Perceptual and Motor Skills*, *126*(5), 886-903. https://doi.org/10.1177/0031512519852533

Ming, S., & Martin, G. L. (1996). Single-subject evaluation of a self-talk package for improving figure skating performance. *The Sport Psychologist*, *10*(3), 227-238. https://doi.org/10.1123/tsp.10.3.227

Miller, A., & Donohue, B. (2003). The development and controlled evaluation of athletic mental preparation strategies in high school distance runners. *Journal of Applied Sport Psychology*, *15*(4), 321-334. https://doi.org/10.1080/714044200

Munroe-Chandler, K. J., & Hall, C. R. (2004). Enhancing the collective efficacy of a soccer team through motivational general-mastery imagery. *Imagination, Cognition and Personality*, *24*(1), 51-67. https://doi.org/10.2190/UM7Q-1V15-CJNM-LMP4

Munroe-Chandler, K. J., Hall, C. R., Fishburne, G. J., Murphy, L., & Hall, N. D. (2012). Effects of a cognitive specific imagery intervention on the soccer skill performance of young athletes: Age group comparisons. *Psychology of Sport and Exercise*, *13*(3), 324-331. https://doi.org/10.1016/j.psychsport.2011.12.006

Munroe-Chandler, K. J., Hall, C. R., Fishburne, G. J., & Shannon, V. (2005). Using cognitive general imagery to improve soccer strategies. *European Journal of Sport Science*, *5*(1), 41-49. https://doi.org/10.1080/17461390500076592

Norouzi, E., Norouzi Seyed Hossini, R., Afroozeh, M. S., Vaezmosavi, M., Gerber, M., Puehse, U., & Brand, S. (2019). Examining the effectiveness of a PETTLEP imagery intervention on the football skill performance of Novice athletes. *Journal of Imagery Research in Sport and Physical Activity*, *14*(1), 20180010. https://doi.org/10.1515/jirspa-2018-0010

O, J., Ely, F., & Magalas, S. (2020). It's all about timing: An imagery intervention examining multiple image speed combinations. *Journal of Applied Sport Psychology, 32(*3), 256-276. https://doi.org/10.1080/10413200.2019.1570391

O, J., Munroe-Chandler, K. J., Hall, C. R., & Hall, N. D. (2014). Using motivational general-mastery imagery to improve the self-efficacy of youth squash players. *Journal of Applied Sport Psychology, 26*(1), 66–81. https://doi.org/10.1080/10413200.2013.778914

Ong, N. C., & Griva, K. (2017). The effect of mental skills training on competitive anxiety in schoolboy rugby players. *International Journal of Sport and Exercise Psychology*, *15*(5), 475-487. https://doi.org/10.1080/1612197X.2016.1153129

Owen, H., & Lanning, W. (1982). The effects of three treatment methods upon anxiety and inappropriate attentional style among high school athletes. *International Journal of Sport Psychology, 13*(3), 154-162.

Parker, J. K., & Lovell, G. (2009). Characteristics affecting the use of imagery: A youth sports academy study. *Journal of Imagery Research in Sport and Physical Activity*, *4*(1). Article 8. https://doi.org/10.2202/1932-0191.1034

Piaget, J. (1952). *The origins of intelligence in children*. International Universities Press.

Pierce, B. E., & Burton, D. (1998). Scoring the perfect 10: Investigating the impact of goal-setting styles on a goal-setting program for female gymnasts. *The Sport Psychologist*, *12*(2), 156-168. https://doi.org/10.1123/tsp.12.2.156

Post, P., Muncie, S., & Simpson, D. (2012). The effects of imagery training on swimming performance: An applied investigation. *Journal of Applied Sport Psychology*, *24*(3), 323-337. https://doi.org/10.1080/10413200.2011.643442

Post, P. G., Wrisberg, C. A., & Mullins, S. (2010). A field test of the influence of pre-game imagery on basketball free throw shooting. *Journal of Imagery Research in Sport and Physical Activity*, *5*(1). https://doi.org/10.2202/1932-0191.1042

Schmidt, R. A., & Lee, T. D. (2005). *Motor control and learning: A behavioral emphasis* (4th Ed.). Human Kinetics.

Schwab, S., & Memmert, D. (2012). The impact of a sports vision training program in youth field hockey players. *Journal of Sports Science & Medicine*, *11*(4), 624.

Schwanhausser, L. (2009). Application of the mindfulness-acceptance-commitment (MAC) protocol with an adolescent springboard diver. *Journal of Clinical Sport Psychology*, *3*(4), 377-395. https://doi.org/10.1123/jcsp.3.4.377

Shaffer, D. R., & Kipp, K. (2013). *Developmental psychology: Childhood and adolescence*. Cengage Learning.

Slater, A., & Bremner, J. G. (2017). *An introduction to developmental psychology*. John Wiley & Sons.

Sly, D., Mellalieu, S. D., & Wagstaff, C. R. (2020). "It's psychology Jim, but not as we know it!": The changing face of applied sport psychology. *Sport, Exercise, and Performance Psychology*, *9*(1), 87. https://psycnet.apa.org/doi/10.1037/spy0000163

Smith, A. L., Dorsch, T. E., & Monsma, E. V. (2012). Developmentally informed measurement in sport and exercise psychology research. In G. Tenenbaum, R. C. Eklund, & A. Kamata (Eds.), *Measurement in sport and exercise psychology* (pp. 131-141). Human Kinetics.

Smith, A. L., & Paoli, A. G. D. (2017). Fostering adaptive peer relationships in youth sport. In Knight, C. J., Harwood, C. G., & Gould, D. (Eds.), *Sport psychology for young athletes* (pp. 196-205). Routledge.

Spruijt, S., van der Kamp, J., & Steenbergen, B. (2015). Current insights in the development of children's motor imagery ability. *Frontiers in Psychology*, *6*, 787. https://doi.org/10.3389/fpsyg.2015.00787

Ste-Marie, D. M., Rymal, A., Vertes, K., & Martini, R. (2011b). Self-modeling and competitive beam performance enhancement examined within a self-regulation perspective. *Journal of Applied Sport Psychology*, *23*(3), 292-307. https://doi.org/10.1080/10413200.2011.558049

Ste-Marie, D. M., Vertes, K., Rymal, A. M., & Martini, R. (2011a). Feedforward self-modeling enhances skill acquisition in children learning trampoline skills. *Frontiers in Psychology*, *2*, 155. https://doi.org/10.3389/fpsyg.2011.00155

Terry, P., Coakley, L., & Karageorghis, C. (1995). Effects of intervention upon pre-competition state anxiety in elite junior tennis players: The relevance of the matching hypothesis. *Perceptual and Motor Skills*, *81*(1), 287-296. https://doi.org/10.2466/pms.1995.81.1.287

Thelwell, R. C., Wood, J., Harwood, C., Woolway, T., & Van Raalte, J. L. (2018). The role, benefits and selection of sport psychology consultants: Perceptions of youth-sport coaches and parents. *Psychology of Sport and Exercise*, *35*, 131-142. https://doi.org/10.2466/pms.1995.81.1.287

Theodorakis, Y., Weinberg, R., Natsis, P., Douma, I., & Kazakas, P. (2000). The effects of motivational versus instructional self-talk on improving motor performance. *The Sport Psychologist, 14*(3), 253-271. https://doi.org/10.1123/tsp.14.3.253

Thrower, S.N., Barker, J., Burton, A.M., Coffee, P., Cumming, J., Harwood, C.G., Howells, K…Mellalieu, S.D. (2023). Enhancing wellbeing, long-term development, and performance in youth sport: Insights from experienced applied sport psychologists working with young athletes in the United Kingdom. *Journal of Applied Sport Psychology, 36*(3), 519-541. https://doi.org/10.1080/10413200.2023.2274464

Thrower, S. N., Shanmuganathan-Felton, V., Harwood, C. G. (2023). *The psychology behind sports performance*. Frontiers Media SA. https://doi.org/10.3389/978-2-8325-2983-6

Vealey, R. S. (2007). Mental skills training in sports. In G. Tenenbaum & R.C. Eklund (Eds.) *Handbook of sport psychology* (pp.287–309). Wiley.

Vealey, R.S. Chase, M.A. Cooley, R. (2017). Developing self-confidence in young athletes. In C.J. Knight, C.G., Harwood, and D. Gould (Eds.) *Sport psychology for young athletes* (pp. 93–104). Routledge.

Visek, A.J., Harris, B.S., & Blom, L.C. (2009). Doing sport psychology: A youth sport consulting model for practitioners. *The Sport Psychologist*, *23*, 271-291. https://doi.org/10.1123/tsp.23.2.271

Vygotsky, L. S. (1962). The genetic roots of thought and speech. In L. Vygotsky & E. Hanfmann, G. Vakar (Eds.), *Thought and language* (pp. 33–51). MIT Press.

Wikman, J. M., Ryom, K., Stelter, R., & Elbe, A. M. (2016). Effects of a school-based relaxation intervention on recovery in young elite athletes in high school. *Sport Science Review*, *25*. https://doi.org//10.1515/ssr-2016-0011

Wrisberg, C. A., & Anshel, M. H. (1989). The effect of cognitive strategies on the free throw shooting performance of young athletes. *The Sport Psychologist*, *3*(2), 95-104. https://doi.org/10.1123/tsp.3.2.95

Wylleman, P., & Lavallee, D. (2004). A developmental perspective on transitions faced by athletes. In M. R. Weiss (Ed.), *Developmental sport and exercise psychology: A lifespan perspective* (pp. 507–552). Fitness Information Technology.

Wylleman, P., & Rosier, N. (2016). Holistic perspective on the development of elite athletes. In M. Raab, P. Wylleman, R. Seiler, A.M. Elbe, and A. Hatzigeorgiadis (Eds.) *Sport and exercise psychology research; From theory to practice* (pp. 269-288). Academic Press.