Rehabilitation Using Virtual Gaming For Hospital And Home-Based Training For The Upper Limb In Acute And Subacute Stroke (Rhombus Ii): Results Of A Feasibility RCT

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Introduction: Current provision of upper-limb (UL) rehabilitation during the early period post stroke is insufficient to optimise potential for recovery. Virtual reality systems, such as the Neurofenix platform, can help increase the intensity of UL rehabilitation across the stroke pathway.

Method: A feasibility RCT was undertaken to determine the safety, feasibility and acceptability of the Neurofenix platform. Stroke survivors with UL weakness were recruited from in-patient or early supported discharge stroke teams. Both groups received usual care, the intervention group also had the Neurofenix platform for 7-weeks. Outcomes were assessed at baseline and 7-weeks. Safety was assessed through adverse events (AEs), pain, spasticity and fatigue. Feasibility was determined through training and support requirements, and acceptability through intervention fidelity and a satisfaction questionnaire.

Results: 24 participants were randomised, n=16 to the intervention (13 women; mean (SD) age 66.5 (15) years; median (range) 9.5 (1-42) days post-stroke) and n=8 control group (4 women; mean (SD) age 64.6 (13.6) years; median (range) 17.5 (4-23) days post-stroke). 3 participants withdrew before 7-weeks, with 21 (intervention group n=15; control group n=6) included in the analysis. No significant between group differences in fatigue, spasticity, pain scores or total number of AEs. Median (IQR) time to train participants was 98 (64) minutes over 1-3 sessions. Participants trained with the platform for a median (range) of 11 (1-58) hours, equating to 94 minutes extra per week.

Conclusion: The Neurofenix platform is safe, feasible and well-accepted across the hospital and home settings, supporting increased dose and intensity of essential early UL stroke rehabilitation.