

THE EFFECT OF EXERCISE ON HIP EXTENSION IN HEMIPARETIC GAIT: A SINGLE SYSTEM DESIGN

Jackie Shanley, Physiotherapy Subject Group, School of Health and Social Sciences, Coventry University

PURPOSE: To evaluate the effect of an individually designed exercise programme on the hip extension of a hemiparetic subject in whom lack of hip extension had been assessed as their main problem.

RELEVANCE: Recovery of walking is a high priority for stroke patients. While physiotherapy has been shown to be effective in the rehabilitation of hemiparetic gait, it is not clear from the literature which aspect of physiotherapy is effective or whether rehabilitation should focus on remediation of specific impairments, or more generally.

SUBJECT: A 64 year old woman, presenting with left hemiparesis, was randomly selected from a group of patients who fulfilled the inclusion criteria and attended out patient rehabilitation.

METHOD: A single system ABA design. The variable of interest was hip extension in the affected leg. Data was collected using motion analysis, where markers around the hip were digitised and analysed with a biomechanics workstation. The subject walked a distance of 4 metres, unaided. Measurements were taken twice per week, for 11 weeks. The subject attended a rehabilitation day unit throughout the study (participating in group work and functional activities) and during weeks 5 – 8 (B phase), specific exercises were introduced.

ANALYSIS: The maximal hip flexion and extension were identified, in order to calculate total joint excursion, for one gait cycle. The data were assessed for serial dependency and analysed using the two standard deviation band method.

RESULTS: Baseline data showed no trend. A significant increase in hip extension was noted in the B phase, which reduced slightly in the 2nd A phase (functional rehabilitation only).

DISCUSSION / CONCLUSION: The findings suggest that specific exercises aimed at improving hip control, result in increased hip extension, with an associated improvement in gait speed and function. While limitations are acknowledged, the findings do provide insight into the complexity of gait rehabilitation and may inform the design of a randomised controlled trial.