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The impact of a self-regulated pneumatic resistance intervention on variables related to balance, gait and lower extremity muscle function in community dwelling older adults

Dolan E.[1], Swinton P.[1], McCoy S.[1], Carver P.[2]

1. School of Health Sciences and Institute for Health and Wellbeing Research, Robert Gordon University, Aberdeen, UK
2. School of Health and Related Research, University of Sheffield, Sheffield, UK

ABSTRACT

Purpose: To evaluate the impact of self-regulated pneumatic resistance exercise on variables related to balance, gait and lower extremity muscle function in community dwelling older adults.

Materials and methods: Thirty-six older adults, aged ≥65 years completed the testing procedure as either the 10 week control (n=18) or intervention (n=18) group. Outcome measures included spatiotemporal gait variables, double leg standing balance assessment (with eyes open and closed), and the five times sit-to-stand measurement. Results were analysed using ANCOVA tests, with baseline values included as a covariate.

Results: No change to balance or gait was identified in either group. Participants within the intervention group significantly decreased time taken to complete the five times sit-to-stand test (p=0.006, η_p^2 =.218), while no change was reported within the control group.

Conclusion: Positive findings of increased lower extremity muscle function indicate that self-regulated pneumatic resistance may represent an appropriate exercise intervention for use in older adults, although the lack of improvement to balance and gait parameters suggest that further research is required to develop delivery modalities for optimum effectiveness in this population.

Key words: active ageing; pneumatic resistance; physical function.