

A 12-Week Step Training Intervention for Older Adults with Mild Dementia: A Feasibility and Preliminary Efficacy Study

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Introduction

Reduced stepping performance is a key modifiable risk factor for falls in older adults with dementia. While step training is effective in healthy older populations, its feasibility and efficacy have not been established for individuals with dementia. This study aimed to evaluate the feasibility and potential effects of a step training program in a preliminary sample of community-dwelling older adults with mild dementia.

Methods

In this pre-post intervention study, 31 older adults with mild dementia participated in a structured step training program (2 times per week, 30-min sessions). Participants were instructed to stand on a nonslip plastic mat and repeatedly step onto targets designated by an exercise instructor throughout each session. We primarily assessed feasibility through retention rates, adherence, and safety monitoring. Secondary objectives were to evaluate changes in clinical outcomes from baseline to 12 weeks, including measures of stepping performance and other physical, cognitive, and psychological outcomes.

Results

Twenty-seven participants (mean age = 78.9 ± 7.1 years; 54% female; mean MoCA = 14.0 ± 2.6) completed the study, yielding a retention rate of 87%. The mean adherence rate to the training sessions was 83%. No adverse events were recorded. Participants showed significant improvements in the Berg Balance Scale ($p = .006$), the Choice Stepping Reaction Time Test ($p = .011$), the Maximum Step Length Test ($p < .001$), the 30-second Sit-to-stand Test ($p = .002$), and the Geriatric Depression Scale ($p = .006$). All effects were of medium to large magnitude (Cohen's $d = 0.53$ - 0.78).

Conclusions

This preliminary investigation demonstrates that a structured step training program is a safe, feasible, and potentially effective intervention in older adults with mild dementia. These promising results

warrant a larger randomized controlled trial to confirm efficacy and evaluate the program's impact on fall rates.

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