

The effect of a 10-week postural stability exercise intervention on balance in elderly female care home residents

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In the UK, older people constitute a large and increasing percentage of the population and 32-42% of over 70's fall each year, particularly care home residents (Todd and Skelton [2004] *WHO Regional Office for Europe*). Balance is one of the major risk factors for falling. Exercise interventions that challenge balance have been shown to have the greatest effect in reducing falls in community-dwelling older people (Sherrington et al [2016] *British Journal of Sports Medicine, in press*). However, few exercise interventions have been conducted in a residential care home setting. Therefore, the aim of this study was to investigate the effect of a 10-week postural stability exercise intervention on balance in care home residents. Six female residents (91.2 ± 3.8 yrs) took part in this study following ethical approval. Participants were screened using an adapted Falls Management Exercise (FaME) procedure (Skelton et al [2005] *Age and Ageing*, 34, 636-639). Community-dwelling questions were removed and balance was focused on by including the Berg Balance Scale (BBS). Participants completed a 4-week control period followed by a 10-week exercise programme led by Postural Stability Instructors qualified by Later Life Training. This programme comprised twice weekly group-based classes of one hour, encompassing balance, strength and cardiovascular exercises. The BBS and Confidence in Balance (ConfBal) questionnaire were conducted before and after the control period, at the midpoint and at the end of the programme. A qualitative In-Depth Interview (IDI) was carried out with the care home manager post intervention. The authors considered interviewing the participants however there were ethical constraints and issues surrounding their variable mental cognition. Two participants didn't complete the study; fall-related injury (Week 7), non-adherence after Week 11. A Friedman's ANOVA was carried out on the remaining 4 participants data. There was no significant difference in the BBS over the 4 testing points [median and IQR: baseline 37(13.75), pre 37(11.50), mid 35(12.75), post 38(5.25)], (Fr(3)=3.265, P=0.353) or ConfBal score [baseline 15(9.00), pre 16(8.25), mid 18(11.75), post 14(9.25)], (Fr(3)=5.727, P=0.126) over time. Two participants achieved clinically meaningful improvements in BBS, one participant's score declined and one stayed constant. The parameters that defined clinical meaningfulness in this study were in accordance with previously determined banding (Donoghue and Stokes [2009] *Journal of Rehabilitation Medicine*, 41, 343-346). Despite the limited sample size potentially influencing the results, these data provide novel, preliminary information about the effect of exercise on balance in frail, elderly individuals. The interview revealed many perceived benefits in qualitative measures including quality of life, confidence and appetite. Objective measures of these perceived benefits may provide a future avenue of research.