Does the addition of a tailored exercise program, delivered in the home, improve the balance of clients attending a group exercise program?

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INTRODUCTION

Exercise can improve balance and reduce the risk of falling (Sherrington et al 2008). Balance exercise programs are common in rehabilitation settings, however, a minimum of 50 hours of balance exercise is required to make a change to an individual's balance and reduce risk of falls[1]. This target can be difficult to achieve.

AIM

Determine if an individually tailored home exercise program provided during a home visit, would assist patients with balance impairments achieve improvements to their balance performance in addition to usual care.

METHODS

A randomised controlled trial was conducted.

50 participants with balance impairments were recruited.

Exclusion criteria:

- cognitive impairment (Abbreviated Mental Test Score ≤7)
- not safe to participate in a group exercise program

The control group received usual care (one-hour group exercise program each week for 8 weeks and a standardised home exercise program).

The intervention group received 2 home-based physiotherapy visits to tailor a home exercise program (OTAGO[2]) in addition to usual care.

Primary outcome was Balance Outcome Measure for Elder Rehabilitation (BOOMER) score.[3]

Secondary Outcome measures were:

- Force platform balance measures using the NeuroCom Balance Master® for (i) Modified Clinical Test of Sensory Interaction of Balance, (ii) Limits of Stability and (iii) Step and Quick Turn.[4]
- Sit to stand task.[5]

Outcomes were measured before and after the intervention and at 3-month follow-up.

RESULTS

35 participants completed all assessments. Adherence to the intervention group home exercise program was 67%. The intervention group participants completed an estimated average of 37 hours of exercise.

There was no significant difference between groups for the primary outcome. Secondary outcomes with significant between group differences are listed in *Table 1*.

Table 1. Significant secondary outcomes with effect sizes:

OUTCOME	Difference b/w groups[#]			
	Wk 0-Wk 9	Effect	Wk 0-Wk 22	Effect
Clinical Test Sensory Integration Sway	0.40 (0.13 to 0.66)*	0.57	0.45(0.18 to 0.72)*	0.68
Limits of stability Reaction Time	-0.27(-0.44 to -0.09)*	1.30	-0.28 (-0.45 to -0.10)*	1.08
Limits of stability Max excursion	8.66 (1.67 to 15.65)*	0.43	14.58 (7.59 to 21.57)*	0.73
Step quick Turn Time	0.56 (0.02 to1.10)*	-	0.37 (-0.17 to 0.91)	-

[#] based on repeated measures mixed models, adjusting for gender, age and pre time-point values for each outcome

DISCUSSION

Our main findings were:

(1) The addition of 2 home visits improved several dynamic balance outcomes for patients with balance impairments compared to a control group receiving usual care.

(2) There was moderate adherence to the prescribed home exercise program component of the intervention.

(3) There was an unexpected improvement in the control group relative to the intervention group on one static and one dynamic balance measure.

These mixed results highlight the importance of the content of home exercise programs, to ensure the most appropriate mix, intensity and challenge to balance for an individual.

Future studies might investigate how to increase adherence to home exercise programs in people with balance impairments to achieve a volume of exercise that might positively change balance impairments and reduce falls risk.

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