

# Fear of falling and balance confidence following 12 weeks of falls prevention exercise within the Greater Glasgow and Clyde Falls Prevention Programme

G.McGrath<sup>1</sup>, D.A. Skelton<sup>1</sup>, M.Anderson<sup>2</sup>

<sup>1</sup>School of Health, Glasgow Caledonian University, <sup>2</sup>Community Falls Prevention Programme Lead, NHS Greater Glasgow and Clyde. Glasgow,

## Introduction

Fear of falling is a recognised health problem that increases activity avoidance, adversely affecting quality of life [1]. A recent systematic review of interventions to reduce fear of falling noted that 5 multifactorial programs, 3 tai chi interventions, 2 exercise interventions, and a hip protector intervention were effective at reducing fear of falling [1]. Little research has investigated fear of falling, balance confidence or quality of life with regards to falls prevention interventions, and no one has investigated all 3 outcomes following exercise in a clinical setting.

The Community Falls Prevention Programme (CFPP) is a specialist falls service which aims to prevent further falls by providing a comprehensive falls screening, health education, exercise, rehabilitation and onward referral. Does a real life exercise intervention, within the context of a multifactorial programme, delivered by the NHS, reduce fear?

## Aim and objectives

To examine whether a 12 week strength and balance exercise class improved an individual's perception of their fear of falling, balance confidence and quality of life.

## Methods

Ethical approval was granted by the West of Scotland Research Ethics Committee 3. All subjects gave informed consent.

Subjects were recruited from the NHS GGC CFPP. The prospective cohort study recruited female participants (n=13), 12 declined to be included but did take part in the exercise.

**Inclusion criteria:** Community-dwelling older people aged  $\geq 65$  years, fall in previous year and functionally independent and mobile. Subjects were **Excluded** if they were not taking part in the exercise intervention as part of the CFPP programme.

**Group settings:** The first 12-18 weeks of the group exercise intervention is delivered by a trained physiotherapist [2] and based on FaME [3] in local community settings. They attend weekly and are encouraged to perform home exercises. The classes have a free transport service (70% utilise) in partnership with Day hospital and Leisure services.

**Methods:** Questionnaires specific to fear of falling (SFES-I) [4], balance confidence (CONFBal) [5] and quality of life (SF-12) [6] were completed prior to and on completion of the 12 week exercise intervention.

**Analysis:** All data was inputted into SPSS™ 16.0 and a Wilcoxon Signed Rank (matched pairs) was used to compare the results pre- post-exercise intervention. Although a non parametric statistical test was performed, means and standard deviations (SD) given here for ease.

## Results



The mean age of the female subjects was  $78.85 \pm 2.97$  years (min 74, max 84 yrs. 85% of subjects reporting between 1-2 falls in the preceding year. The subject's household arrangements varied between, living alone (62%) and married or living as married (38%) with the majority of subjects living alone. Current activity levels varied among subjects but, the majority used to exercise regular each week but have lapsed (46%) and the minority are thinking of exercising each week (8%). Following completion of the 12 week exercise intervention there was a significant reduction in fear of falling ( $p < 0.05^*$ ) together with a significant improvement in balance confidence ( $p < 0.05^*$ ) and quality of life ( $p < 0.01^{**}$ ).

	Pre-Ex Mean $\pm$ SD	Post-Ex Mean $\pm$ SD	p-value (Wilcoxon)
SFES-I	17.7 $\pm$ 4.5	15 $\pm$ 4.5	0.03*
CONFBal	24.6 $\pm$ 3.4	22.1 $\pm$ 4.6	0.03*
SF-12 (total)	26.7 $\pm$ 5.4	31.5 $\pm$ 4.8	0.012**
SF-12 (mental health)	17.5 $\pm$ 4.5	20.1 $\pm$ 4.1	0.01**
SF-12 (physical health)	9.8 $\pm$ 2.0	12.1 $\pm$ 2.8	0.01**

## Conclusion

A falls specific group exercise intervention is effective in reducing fear of falling whilst improving balance confidence and quality of life in community dwelling older women aged  $\geq 65$  years in an NHS setting.

## Acknowledgements

The participants and the CFPP Team

## References

- Zijlstra GAR et al. Interventions to Reduce Fear of Falling in Community-Living Older People: A Systematic Review. *J Am Geriatr Soc* 55:603-615, 2007.
- Skelton DA. The Postural Stability Instructor: Qualification in the UK for Effective Falls Prevention Exercise. *Journal Aging and Physical Activity* 12 (3); 375-376.
- Skelton DA et al. Tailored Group Exercise (Falls Management Exercise - FaME) reduces falls in community-dwelling older frequent fallers (an RCT). *Age Ageing* 34: 636-639, 2005.
- Kempen GJ et al. The short FES-I: a shortened version of the falls efficacy scale-international to assess fear of falling. *Age and Ageing*, 37, 45-50, 2008.
- Simpson JM et al. The CONFBal scale: a measure of balance confidence - a key outcome of rehabilitation. *Physiotherapy*, 95, 103-109, 2009.
- Ware JE et al. A 12-item short-form health survey: construction of scales and preliminary test or reliability and validity. *Medical Care*, 34(3), 220-233, 1996.