A meta-analysis of fear of falling treatment programs for the elderly
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CRD summary
This review found that interventions effectively decreased fear of falling and increased fall efficacy in the elderly. The best outcome was achieved after four months. However, the small number of studies limited generalisability of the results. Possible publication and language biases and inappropriate pooling of studies suggests these conclusions may not be reliable.

Authors' objectives
To examine effectiveness of interventions to decrease fear of falling in elderly people.

Searching
MEDLINE (1966 to 2006) and CINAHL (1982 to 2006) were searched for articles published in English. Search terms were reported. Reference lists were searched.

Study selection
Randomised controlled trials (RCTs) of elderly individuals (60 years or older) that used an intervention for preventing falls or fear of falling were eligible for inclusion. Eligible trials had fear as the outcome measure. Total number of participants had to be at least 20 and the number of participants had to be specified for inclusion.

Mean age of included participants was 76.5 years. Included interventions were combined exercise and education, exercise only, hip protection, encouragement and socialising. Exercises used included balance strategy training, ankle strengthening, walking, t'ai chi and low-resistances exercises against gravity, walking and stretching. Education programs included provision of information to reduce risk of falling and discussion of falling concerns. Interventions were facility, community or home based. Control groups were treated with simple exercises and educated about falls, left untreated or asked to attend a regular social meeting. Outcome measures used were falls efficacy scale, simple question, activities-specific balance confidence scale and modified falls efficacy scale.

The authors stated neither how papers were selected for the review nor how many reviewers performed study selection.

Assessment of study quality
Methodological quality was assessed using a modified version of the research quality scoring method (Sackett and Haynes, 1976) to derive a quality score out of 6. Scores of 0 to 3 were considered low quality and scores of 4 to 6 were considered high quality.

Quality was assessed independently by two reviewers. Disagreements were resolved by consensus.

Data extraction
An effect size (d) and 95% confidence intervals were calculated for outcomes. The authors did not state how many reviewers extracted data.

Methods of synthesis
Effects sizes and 95% CIs were pooled in a random-effects meta analysis, weighted by study variance, to calculate overall weighted effect size (ES). Subgroup analyses were performed for type of intervention (combined exercise and education, exercise only or use of hip protector), follow-up (three months or less or more than four months) and intervention setting (facility, community or home). Statistical heterogeneity was assessed using the Q statistic.

Results of the review
Six studies were included (n=957). All six studies were deemed high quality.
When all study interventions were pooled (six studies), interventions were associated with reduced fear of falling or increased efficacy of fall prevention (ES 0.215, 95% CI 0.068 to 0.362). Statistically significant heterogeneity was found (Q=4.210, p=0.05).

In subgroup analyses, combined intervention (two studies) and use of a hip protector (one study) were associated with a statistically significant reduction of fear of falling (ES 0.249, 95% CI 0.049 to 0.449) or increased efficacy of fall prevention (ES 0.418, 95% CI 0.071 to 0.764).

Also associated with decreased fear of falling were community-based interventions (ES 0.228, 95% CI 0.044 to 0.412; two studies) and home-based interventions (ES 0.418, 95% CI 0.071 to 0.764; one study). Follow-up of at least four months was associated with significant effects.

Exercise only interventions, follow-up of three months or less and facility-based interventions were not associated with significant effects.

**Authors’ conclusions**
Interventions effectively decreased fear of falling and increased fall efficacy. The results suggested that the best outcome was achieved after four months. The small number of studies limited generalisability of the results.

**CRD commentary**
The research question was supported by inclusion criteria for participants, intervention outcomes and study design. Relevant databases were searched. Only published English-language articles were sought, which left the review prone to publication and language biases. Quality assessment was performed in duplicate; no similar measures to reduce reviewer error and bias were described for study selection and data extraction. Study quality was assessed, but no criteria were reported. The interventions were heterogeneous, so pooling may not have been appropriate and results of the meta-analysis may not have been reliable. Subgroup analyses involved small study numbers. Heterogeneity was not reported. The authors reported that some control groups underwent some form of intervention, which may have influenced comparability of studies. Possible publication and language biases and possible inappropriate pooling of studies suggests the authors’ conclusions may not be reliable.

**Implications of the review for practice and research**
**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that different types of intervention program (such as those that examined cognitive reconstructing and behavioural changes or those that used the Internet or telephone) should be examined. A consensus should be reached on the measurement scale used for fear of falling and the use of falls efficacy scale. Further studies in this field were required.

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