Interventions to reduce fear of falling in community-living older people: a systematic review

CRD summary
The authors concluded that there is limited evidence to show that home-based exercise, fall-related multifactorial interventions and community-based group t'ai chi are effective in reducing the fear of falling in older people living in the community. This was a well-conducted review and the authors’ conclusions reflect the evidence and are likely to be reliable.

Authors’ objectives
To identify effective interventions that reduce the fear of falling in community-living older people.

Searching
PubMed, the Cochrane CENTRAL Register, EMBASE and PsycINFO were searched from inception to January 2006. Additional studies were identified through contact with experts in the field and by handsearching the reference lists from identified reports. There were no restrictions applied to language or publication status.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) were eligible for inclusion in the review.

Specific interventions included in the review
Studies of any type of intervention that were or were not explicitly aimed at reducing the fear of falling were eligible for inclusion. The included studies evaluated a variety of different types of interventions including fall-related multifactorial interventions, t'ai chi, exercise, balance, hip protectors and fall risk factor interventions. Some interventions were home-based and others were conducted in groups in the community. Most of the interventions were aimed at reducing falls; three were explicitly aimed at reducing the fear of falling. The duration of interventions ranged from one home visit to 1 hour of exercise every week for 1 year. The control interventions included usual care, written information, social home visits, stretching exercises, education about falls, discussion sessions and activities.

Participants included in the review
Studies of interventions that targeted the general population of community-living older people (mean age 65 years and older) were eligible for inclusion. Studies targeting people with a specified medical condition were excluded. Most of the included studies were of ambulatory men and women aged 60 years and older.

Outcomes assessed in the review
Studies that assessed the fear of falling were eligible for inclusion. This measure could be a primary or secondary outcome. Most of the included studies measured fear of falling using the Falls Efficacy Scale (FES), the Modified Falls Efficacy Scale or an adaptation of the FES; some studies used a one-item fear of falling measure.

How were decisions on the relevance of primary studies made?
Two reviewers independently screened titles and abstracts.

Assessment of study quality
Study quality was assessed using eight validity criteria: allocation concealment, baseline comparability of the treatment groups, cointerventions avoided or comparable, acceptable compliance in all groups, blinding of the outcome assessment, acceptable withdrawal or drop-out rate, comparable timing of the outcome assessment and intention-to-treat analysis. Validity was scored from 0 to 8; studies that met at least four validity criteria were classified as 'higher methodological quality'. The adequacy of reporting of the process characteristics of the interventions was also assessed
using seven descriptive and statistical criteria. Two reviewers independently assessed the quality of each study. Any disagreements were resolved through consensus or with the aid of a third reviewer.

**Data extraction**
Two reviewers independently extracted the data. Any disagreements were resolved through consensus or with the aid of a third reviewer. The statistical significance of differences in fear of falling between treatment groups was extracted for all studies. Authors of studies with incomplete or missing information on outcomes were contacted for additional data.

**Methods of synthesis**
How were the studies combined?
The studies were combined in a narrative.

How were differences between studies investigated?
Higher quality studies were considered separately and some potential reasons for differing results among the studies were discussed.

**Results of the review**
Nineteen RCTs (n=3,420) were included.

Studies met a median of four validity criteria (range: 0 to 8). Twelve studies were classified as higher quality. Most studies described baseline comparability of treatment groups and withdrawals. General methodological limitations included a lack of reporting of blinded outcome assessment and allocation concealment.

Overall, 12 of the 19 studies reported that interventions were associated with statistically significant reductions in the fear of falling compared with controls.

Eleven of the 12 higher quality studies reported that interventions were associated with statistically significant reductions in the fear of falling compared with controls. Statistically significant reductions were found in studies of fall-related multifactorial interventions (5 studies), t'ai chi interventions (3 studies), exercise interventions (2 studies) and hip protectors (1 study).

Four of 5 studies that assessed fear of falling using a one-item measure reported no significant difference between intervention groups.

Three studies that measured fear of falling using more than one measure reported different results for different measures.

**Authors' conclusions**
Limited evidence shows that home-based exercise, fall-related multifactorial interventions and community-based group t'ai chi are effective in reducing the fear of falling in older people living in the community.

**CRD commentary**
The review addressed a clear question that was defined in terms of the participants, outcomes and study design; the inclusion criteria for the interventions were broad but this appeared appropriate given the nature of the review. Several relevant sources were searched and attempts were made to minimise publication and language bias. Two reviewers independently selected the studies, assessed validity and extracted the data, thus reducing the potential for reviewer bias and error. Validity was assessed using specified criteria and the results of the assessment were reported. In view of the differences between the studies, a narrative synthesis that discussed results from higher quality studies separately was appropriate. This was a well-conducted review and the authors' conclusions are likely to be reliable.
Implications of the review for practice and research

Practice: The authors stated that the most appropriate effective interventions should be chosen for home-based and community-based settings.

Research: The authors stated that there is a need for further research to identify interventions that reduce the fear of falling in older people. They stated that future studies should be adequately powered, be of higher methodological quality, be adequately reported (according to the Consolidated Standards of Reporting Trials (CONSORT) guidelines), describe process characteristics, use intention-to-treat analysis and analyse subgroups of people with varying characteristics. Studies should evaluate the effectiveness of balance interventions, community-based exercise interventions and community-based multifactorial interventions on fear of falling, measured using the FES-International, to ensure studies are comparable. Studies should also teach older people to perform activities safely. In addition, future research should seek to identify the mechanism underlying effective interventions and to develop an appropriate tool to measure physical activity, activities of daily living and social participation.

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Other publications of related interest
This additional published commentary may also be of interest. Messecar DC. Review: several interventions reduce fear of falling in older people living in the community. Evid Based Nurs 2008;11:21.

Indexing Status
Subject indexing assigned by NLM

MeSH
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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract
contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.