



Exercises: falls prevention

Intervention

Multiple-component exercise programs with a focus on balance retraining and muscle strengthening.

Indication

About 30% of people in the community over age 65 years fall annually, and this increases with age. Around 10% of falls in those over age 65 years result in a fracture.

Adults over age 60 years living in the community who are at risk of falls.

Exercise reduces both the rate of falling (the number of falls a person experiences within a specified period) and the risk of falling (the fraction of people in a group who fall over time). Exercise may also reduce fall-related injuries, such as the risk of sustaining fall-related skeletal fractures.

A fall is defined by the World Health Organization as an event which results in a person coming to rest inadvertently on the ground or floor or other lower level.

Precautions

Care needs to be taken with exercises, including those that challenge balance. Exercises need to be performed in ways that minimise the risk of falling.

People with a higher falls risk may benefit from exercising in smaller groups and closer supervision. Do not prescribe brisk walking programs unless the person has been carefully screened for safety.

Adverse Effects

The clinical trials in the meta-analyses cited were powered for efficacy rather than safety. This makes it difficult to estimate the risk and type of adverse events that are associated with falls.

Possible adverse events – particularly in high-risk patients – may be:

- temporary, exercise-related, musculoskeletal discomfort
- exacerbation of existing musculoskeletal conditions
- falls and fall-related injuries
- exercise-related injuries.

Availability

See Consumer Resources for information on individual home-based exercises. There are also a number of group exercise activities for older people taking place around Australia.



Description

Programs including more than one category of exercise (balance training, strength training or walking) were effective in reducing both the rate and risk of falling*. This was the case whether the exercises were delivered as group classes or individually prescribed for home.

*e.g. with multiple-component group exercise, approximately 9 fewer falls per 100 participants annually.

Tai chi was the only *single* exercise intervention proven to reduce the risk of falling although it was not definitely proven to reduce the falls rate. There was no evidence that any other single category of exercise –balance-retraining, muscle-strengthening or walking – was effective on its own.

Meta-regression analyses suggest that exercises are more effective at preventing falls if they provide a moderate or high challenge to balance and are delivered at higher rather than lower ‘doses’.

It is recommended that exercises challenge balance in the following three ways and for at least 2 hours a week.

	Balance challenge	Examples
1	Reducing the base of support	<p>Standing with both legs close together</p> <p>Standing with one foot directly in front of the other – that is, in a tandem stance position</p> <p>Standing on one leg (if possible)</p>
2	Moving the centre of gravity (by controlling the body’s position while standing)	<p>Reaching safely</p> <p>Transferring the body weight from one leg to the other</p> <p>Stepping up onto a block</p>
3	Reducing the need for upper-limb support (by using standing exercises that do not need the arms for support)	<p>Holding onto a bar with one hand instead of both hands</p> <p>Resting one finger on a table rather than the whole hand</p>

Practice Points

- Physiotherapist input may be required for those with a high falls risk. For a qualified local physiotherapist, search ‘find a physio’ at the Australian Physiotherapy Association. www.physiotherapy.asn.au
- Exercise should be included as one component of an overall plan to reduce the risk of falling and to minimise the consequences of falls. Such plans should also consider:
 - regular assessments of vision and optimal visual aids
 - podiatrist attention to minimise foot problems
 - minimising psychoactive medications and helping patients manage sleep or anxiety disorders in other ways
 - effectively managing medical conditions that may increase the falls risk (eg arthritis, Parkinson disease, neuropathy)



Practice Points (cont)

- advice on suitable footwear and walking aids, and making homes and gardens as ‘falls-proof’ as possible
- measures to prevent and treat osteoporosis
- checking standing blood pressure, when appropriate, and addressing postural hypotension.

See this AFP article on falls prevention www.racgp.org.au/afp/2012/december/falls-prevention for further information on assessing and managing falls in older adults in the community.

Grading

NHMRC Level 1 evidence

References

El-Khoury F, Cassou B, Charles M-A, Dargent-Molina P. The effect of fall prevention exercise programmes on fall induced injuries in community dwelling older adults: systematic review and meta-analysis of randomised controlled trials. *BMJ* 2013; 347: f6234 doi: 10.1136/bmj.f6234.

Gillespie LD, Robertson MC, Gillespie WJ et al. Interventions for preventing falls in older people living in the community. *Cochrane Database Syst Rev* 2012, Issue 9. Art. No. CD007146. Doi: 10.1002/14651858.CD007146.pub3.

Sherrington C, Tiedemann A, Fairhall N et al. Exercise to prevent falls in older adults: an updated meta-analysis and best practice recommendations. *NSW Public Health Bulletin* 2011; 22: 78–83.

Consumer Resources

Department of Health and Ageing, Don't fall for it www.health.gov.au/internet/main/publishing.nsf/Content/phd-pub-injury-dontfall-cnt.htm

NSW Government, Staying active and on your feet
www.activeandhealthy.nsw.gov.au/your_active_and_healthy_guide

NHS (UK), Exercises for older people
www.nhs.uk/Tools/Pages/Exercises-for-older-people.aspx

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