Institute for Musculoskeletal Health

A research partnership between Sydney Local Health District and the University of Sydney in musculoskeletal health and physical activity

Exercise to prevent falls: evidence update

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NSW Government Health Sydney Local Health District

The University of Sydney

Disease
Medication
Ageing
Inactivity

Physical factors:
balance, strength, vision, sensation, reaction time, cardiovascular

Cognition
Insight
Attitudes
Distraction

Behaviour:
choice of and care with activity

Environmental hazards

Triggers of trips and slips

Community: exercise (2019)

Cochrane Library

Cochrane Database of Systematic Reviews

Exercise for preventing falls in older people living in the community (Review)

Sherrington C, Fairhall NJ, Wallbank GK, Tiedemann A, Michaleff ZA, Howard K, Clemson L, Hopewell S, Lamb SE

Results: community exercise

Exercise reduces the rate of falls by 23% (rate ratio (RaR) 0.77, 95% confidence interval (CI) 0.71 to 0.83; 12,981 participants, 59 studies; **high certainty** evidence).

- **1000 people** followed over 1 year
    - **850 falls** without intervention
    - **195 fewer falls** (95%CI 144 to 246) with exercise

Results: community exercise

- No difference in effect on falls on basis of
  - inclusion of participants at an increased risk of falling
  - age 75 years+
  - interventions delivered in a group setting versus individually

Results: secondary outcomes

- **Exercise may reduce** the number of people experiencing **fall-related fractures** (RR 0.73, 95% CI 0.56 to 0.95; 4047 participants, 10 studies; **low certainty** evidence)
- **Exercise may reduce the** number of people experiencing **falls requiring medical attention** (RR 0.61, 95%CI 0.47 to 0.79; 1019 participants, 5 studies; **low certainty** evidence).

Results: community exercise

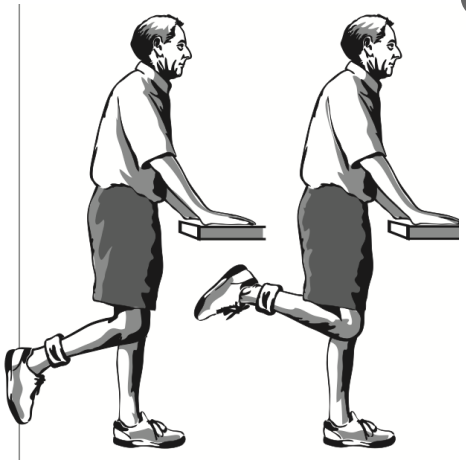
- **Balance and functional exercises reduce** rate of falls by 24% (RaR 0.76, 95% CI 0.70 to 0.81; 7920 participants, 39 studies; **high certainty** evidence)
- **Multiple types of exercise** (most commonly balance and functional exercises plus resistance exercises) **probably reduce** rate of falls by 34% (RaR 0.66, 95% CI 0.50 to 0.88; 1374 participants, 11 studies; **moderate certainty** evidence)
- **Tai Chi may reduce** rate of falls by 19% (RaR 0.81, 95% CI 0.67 to 0.99; 2655 participants, 7 studies; **low certainty** evidence)

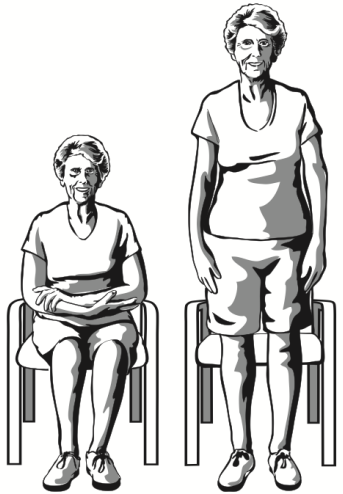
Results: community exercise

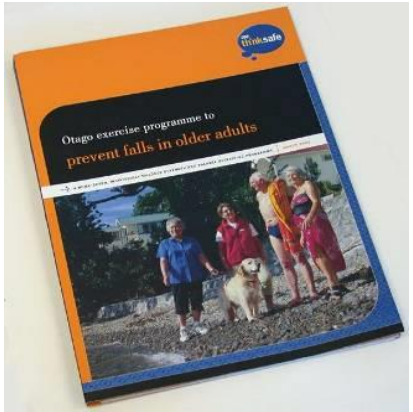
We are **uncertain of the** effects of programmes that are primarily

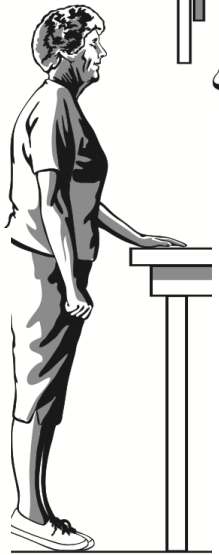
- resistance training (RaR 1.14, 95% CI 0.67-1.97; 328 participants; 5 studies, I^2 = 67%, **very low certainty** evidence)
- dance (RaR 1.34, 95% CI 0.98-1.83; 522 participants; 1 study, **very low certainty** evidence)
- walking (RaR 1.14, 95% CI 0.66-1.97; 441 participants; 2 studies, I^2 = 67%, **very low certainty** evidence)

Otago Exercise Programme

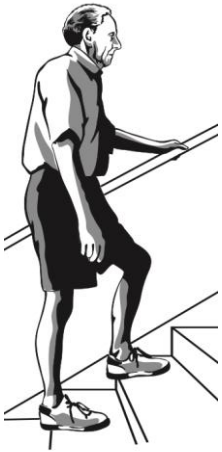


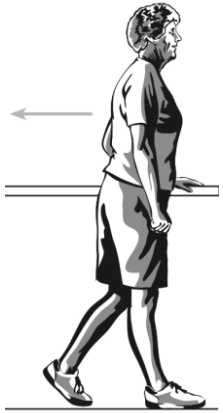


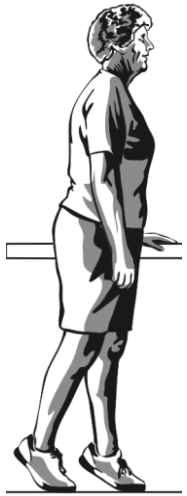




Otago Exercise Programme







Physical activity themes n=5987 60-89 yrs

- social influences
- physical limitations
- competing priorities
- access difficulties
- personal benefits of physical activity
- motivation and beliefs

BJSM Online First, published on January 13, 2015 as 10.1136/bjsports-2014-094015

Review

Older people's perspectives on participation in physical activity: a systematic review and thematic synthesis of qualitative literature

Marcia R Franco,[1] Allison Tong,[2] Kirsten Howard,[2] Catherine Sherrington,[1] Paulo H Ferreira,[3] Rafael Z Pinto,[4,5] Manuela L Ferreira[1]

People more likely to participate in exercise (n=220 choice experiment)

Journal of Physiotherapy 61 (2015) 34–41

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journal homepage: www.elsevier.com/locate/jphys

Research

Eliciting older people's preferences for exercise programs: a best-worst scaling choice experiment

Marcia R Franco [a], Kirsten Howard [b], Catherine Sherrington [a], Paulo H Ferreira [c], John Rose [d,e], Juliana L Gomes [f], Manuela L Ferreira [a]

[a] The George Institute for Global Health, Sydney Medical School; [b] Sydney School of Public Health; [c] Faculty of Health Science, The University of Sydney; [d] UniSA Business School, The University of South Australia, Adelaide; [e] Business School, Institute of Transport and Logistics Studies, The University of Sydney, Sydney, Australia; [f] Faculty of Medicine, University of Sao Paulo, Sao Paulo, Brazil

- they could do at home
- required no transport
- improved ability to do home-based daily activities by 60%
- incurred no cost
- eliminated risk of falling.

Age and Ageing Advance Access published December 18, 2014

Age and Ageing 2014; **0:** 1–6
doi: 10.1093/ageing/afu195

Economic modelling of a public health programme for fall prevention

INEZ FARAG[1], KIRSTEN HOWARD[2], MANUELA L. FERREIRA[3], CATHERINE SHERRINGTON[4]

- Markov model costs and benefits of widespread rollout of a fall prevention program
- incremental cost-effectiveness ratio (ICER) of $A28,931 per QALY gained assuming program cost of $700 per person and at a fall prevention risk ratio of 0.75
- cost-effective at a threshold value of $A50,000 per QALY gained

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