Exercise to prevent falls: evidence update

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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)

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

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

- 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.
Economic modelling of a public health programme for fall prevention

Inez Farag¹, Kirsten Howard², Manuela L. Ferreira³, Catherine Sherrington⁴

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

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