Exercise for falls prevention? A systematic review

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Evidence-based health care

- informed by relevant, high quality clinical research

  high quality = trustworthy
  = low risk of bias

  randomised controlled trials (RCTs)
  systematic reviews of RCTs
Can exercise prevent falls?

- Included in multi-faceted program (YES)
- Otago, Tai Chi (YES)
- Untargeted group exercise, strength training (?)
- Walking program in women with previous fracture (unlikely to be beneficial)
Outstanding questions

- What do the more recent trials tell us?
- Different results in different trials
  - exercise program design?
  - study population?
  - study design?
Systematic review

- Literature search, May 2007
  - Medline, EMBASE, CINAHL,
- Identified 44 RCTs comparing fall rates in exercise and no-exercise control groups
Meta-regression model 1: explained 80% of variance

- Moderate to high challenge balance training (greater effect)
- 50+ hours of prescribed exercise (greater effect)
- Inclusion of walking program (lesser effect)
Meta-regression model 2: explained 60% of variance

- Moderate to high challenge balance training (greater effect)
- 50+ hours of prescribed exercise (greater effect)
- High risk population (lesser effect)
Balance training

- Moderate or high challenge balance training = exercise in standing involving 2-3 of these features
  - movement of the centre of mass
  - narrowing of the base of support
  - minimising upper limb support
Exercise can reduce fall rates

- Bigger reductions in falls from
  - higher challenges to balance
  - a higher dose of exercise

- Smaller reductions in falls
  - in those at high risk (but absolute number of falls prevented will be greater)
  - when walking programs are included (increased exposure)
What didn’t change the effect of exercise on falls?

- **strength training**
  - has other benefits but not the first priority for falls prevention
  - ? role in very early prevention

- **progression, supervision, tailoring**
  - don’t prevent falls if intervention doesn’t include balance training
  - part of successful programs
Otago program - NZ

• Eric Tindill, aged 96 cricket and rugby All Black

• Challenges balance
• Home exercise
• Progressive
• Walking included if safe to do so

Photo from The Dominion Post, May 2007
Tai Chi

- Also involves controlled movements of the centre of mass and narrowing the base of support
- Can be modified to include hand support

Photo from Alex Voukelatos, Central Sydney Tai Chi study
Group exercise

- Circuit classes and volunteers can enable more of a challenge to balance
- “Open gym” can increase dose

Photo from Bankstown-Lidcombe Hospital
Can health professionals help prevent falls for people at high risk?

- Careful discharge planning
- Expansion of services to offer group programs and/or “open gym”
- Closer relationships with other exercise providers
- Supporting older people to take responsibility for own ongoing exercise
  - individually during follow-up appointments
  - Stroke Clubs, Parkinson’s NSW
- Assessment of other risk factors as necessary
It is happening

- NSW network for the prevention of falls

- Informal survey May 2007
  - small group/ home exercise programs aiming to prevent falls in people at high risk
    - 11 hospitals
    - 3 hostels
    - 5 community health programs