Handout for Evidence for Fall Prevention – Best Bets

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What Works (from meta analyses, systematic reviews, articles found within these reports):

Where to search:

- **Citations:** OT Seeker (low in variability -of experience – same yield regardless of who’s doing the search)
- **Abstracts:** Ageline, OTCATS, OTDBASE (all low variability); OT Search (high variability though & subscription separate from AOTA membership!)
- **Abstracts & full-text articles:** Ageline, CINAHL & PsychINFO (all three very low in variability)

Interventions that work:

- Reduction in home hazards after hospitalization
- Multifactorial risk assessment with targeted management
- Discontinuation of psychotropic medication
- Specific balance or strength exercise programs (But not computerized balance in Wolf, et al. 1996 study!)
- Exercise class including Tai Chi once weekly plus walking with sticks, and home exercises each at least 3× weekly for 6 months
- Tai Chi 15 min twice daily at home for 4mo
- Individually tailored program of exercise. Physiotherapist visited 4× in first 2mo. Exercises 3× per wk, 30 min each, lower limb strength and balance plus encouraged walking outside 3×/wk
- For individuals with at least mild deficits in strength or balance: Strength training: upper and lower limb; 3 sessions per wk for 60 min. PLUS flexibility PLUS endurance training: stationary cycle 75% max. heart rate

Interventions with little to no support:

- Strengthening exercise/balance found to “work” but not always:
  - NOT computerized balance (as described in Wolf, et al. 1996 study)!
  - NOT Exercise: 60 min, 3× per wk, 12mo. Stand-up, step-up, stretching and movement to music
- NOT Cognition/behavioral: health and safety curriculum to prevent falls, relaxation, video games.

- NOT Exercise/cognition: 2× per wk exercise, once per wk cognition

- NOT stand-up/step-up routine progressing to 4 sets of 10 repetitions. 60 min 3× per wk

- NOT individually tailored one-one physiotherapy sessions 3× per wk for 4mo, including range of motion, strength, balance, transfer and mobility. Each session 30-40 min

- NOT 60-min exercise sessions, twice weekly in 4 terms of 10-12wk. 4 sections per session: warm-up, conditioning (aerobic, strength, balance and flexibility), stretching and relaxation

- NOT 45 min weight-bearing exercise to music, 3× per wk for 3× 10wk terms for 2y (although worked for 18 months)

- NOT strength, endurance, mobility and balance training for 90 min, 3× per wk for 12wk

What works from Cochrane Collaboration systematic reviews:

- Exercise may prevent falls?????? (Carter – problem with measurement of dependent variables)

- Hospital-based fall prevention?????? (Oliver – Compliance, costs, inconsistent study designs all a problem; no significant findings per study, but a possible pooled effect across studies)

- Multi disciplinary/factorial risk screening

- Risk screening (for individuals with a history of falls)

- Programs in nursing home settings

- Strength and balance programs?

- Home hazard evaluation and modification (for individuals with a history of falls)

- Tai Chi group

Interventions not supported in Cochrane:

- Group-Delivered Exercise
- Individual LE Strengthening
- Home Hazard Mod. w/ Medication suggestions
- Home Hazard Mod. w/ education packet on exercise and reducing falls
- Cognitive/Behavioral Approach Alone
- Hm. Haz. Mod. when no Hx of falling
- Brisk walking in older women with UE fracture
What works from CATs – critical appraisals (OTCATS.com):

- Home hazard assessment and modification/Risk awareness or advice
  - But which one is more effective??
- Interdisciplinary/multifactorial assessment and intervention for those with a history of falls
  - NOT if cognitive impairment/dementia was present!!
- Multifactorial falls risk assessment and management program
  - But which components?: Exercise effective – but which type of exercise?
  - !!Environmental modification and education not necessarily effective!!

Final What Works:

Search with

- OTCATS, OTDBASE, AOTA Evidence-Based Practice Abstracts (for other than falls); Ageline, CINAHL & PsychINFO for full text

Intervene with

- Some programs using multifactorial and interdisciplinary risk assessment with reduction in home hazards and behavioral hazards (maybe most effective with a history of falling)
- Some programs for balance or strength exercise
- Tai Chi (certain programs)
- Individually tailored program of exercise (consult PT)
- Specific strength training WITH flexibility WITH endurance training
- The “Stepping on” program to improve mobility efficacy and protective behaviors
- Individually prescribed multidisciplinary evaluation and recommendations in residential settings

Final What Doesn’t:

- Strengthening program
- Increase in safety devices and reduction in hazards (installed hand-rails, removed rugs, increased lighting, repaired floors) in a “one-time intervention
• decrease in internal risk factors including improved visual acuity, improved sit-to-stand time and improved knee flexion strength

• reducing risk factors: gait/balance training, medicine review, optometry and podiatry visits

• “low impact” individually prescribed fall risk management (individually prescribed: strength/balance training, ADL devices, caregiver instructions for supervision, medication review, accompany resident to toilet, ID as fall risk, vision/hearing eval & tx)

Three studies you can really use:

• Improve mobility efficacy and protective behaviors as in the “Stepping on” program – 7- sewssion course in hazard identification, adopting safety strategies, etc. (described in Appendix of Clemson, Cumming, Kendig, Swann, Heard, & Taylor. Journal of the American Gerontological Society, 52: 1487-1494, 2004)

• Reduce environmental hazards and behavioral hazards. There was no difference in strength in fall vs no-fall group; but no-fall group benefitted from hazard reduction, so hazard reduction seems more important than strengthening. (Diener & Mitchell, Topics in Geriatric Rehab, 21 (3): 247-252, 2005)

• Individually prescribed multidisciplinary recommendations  (as per OT / Speech / PT / Nursing / Pharmacy / Social Services evals): scheduled toileting program, ambulate with CNA when restless, clear pathways/clutter, wc modifications and minimal unsupervised use of adaptive mobility aids, restraint-free alarms, role-relevant activities to visit/engage. (Eakman et al. Topics in Geriatric Rehabilitation, 17 (3): 29-39, 2002)

Bibliography


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