

The Role of PT and OT in Fall Prevention

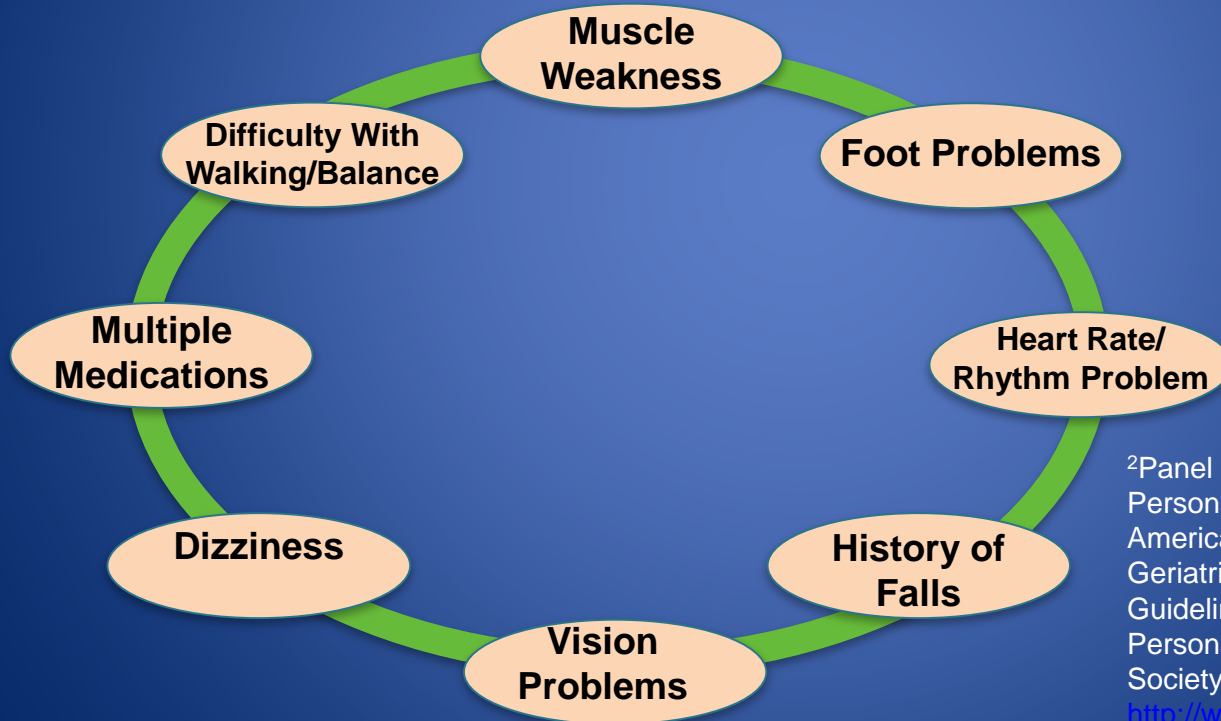
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Why do people fall?

Research shows that a combined effect of many interacting factors increases fall risk.²



²Panel on Prevention of Falls in Older Persons. Summary of the Updated American Geriatrics Society/British Geriatrics Society Clinical Practice Guideline for Prevention of Falls in Older Persons. American Geriatrics Society/British Geriatric Society.

http://www.americangeriatrics.org/health_care_professionals/clinical_practice/clinical_guidelines_recommendations/2010.

Intrinsic

- Lower extremity weakness
- Previous falls
- Gait & balance disorders
- Decline in vision
- Depression
- Functional & cognitive impairment
- Dizziness
- Low body mass index
- Incontinence
- Female sex
- Advanced age

Extrinsic

- Polypharmacy
- Stairs
- Clutter
- Wet surfaces
- Loose rugs/carpets
- Cords
- Poor lighting



Physical Therapy/Occupational therapy

- **Assessment – Comprehensive**

- History of falls?
- Fear of falls?
- Medication use?
- Medical history
- Strength tests
- Mobility tests
- Gait analysis
- Balance tests
- Vision
- Cognition
- System review
 - Neurological
 - Cardiovascular
 - Integumentary
 - Pulmonary
- Special tests

- **Mobility Devices**

- Prescription
- Fitting
- Utilization
- Maintenance

PT/OT ASSESSMENT

- Fitness/Physical Activity
- Balance
- Vision
- Fear of Falling
- Cognition
- Mobility

What are your therapists using?

- Tinetti Balance Assessment
 - Testing static and dynamic balance
- Falls Efficacy Scale
 - A questionnaire rating confidence in completing tasks without fear of falling
- Berg Balance Scale
 - A 14 item scale testing static and dynamic balance in sit and in standing
- Time Up and Go
 - Testing dynamic balance. Testing the time it takes to stand up walk 10 feet turn walk back and sit down
- 6 minute walk test
 - Measuring the distance a person can walk in 6 minutes

PT/OT Intervention

*Not only is there evidence but
the evidence is overwhelming to
support intervention*

PT/OT Intervention; education and training

- Rehabilitation – physical activity, strengthening, balance training,
- Compensatory Strategies – environmental adaptations, assistive technology
- Maintenance!!
 - <https://www.cms.gov/Center/Special-Topic/Jimmo-Center.html>

Multi-Component Approach

- Involves targeting multiple areas to reduce fall risk, such as strength, mobility, balance, posture, vision, environmental modifications, medications, etc.
- Stronger level of evidence versus single component approach, such as only using exercise or home modifications.
- Results have shown decrease in falls, improvement of physical factors that predispose patient to falling, and reduced fear of falling.

How do you include PT/OT?

Best Practice Ideas

- Consistent and daily communication
- Early identification of risk
- Thoughtful planning in changes of environment
- Physical assessment at admission and on a routine basis – catch the changes early!
- Regular vision screening – glasses!

Programs and Protocols

- There are many programs and protocols available in the research literature! This includes working with people with dementia.
- Reimbursement is not the primary limiting factor. We CAN help people maintain their function if the skills of a therapist are needed.

A Matter of Balance

- Group-based program focused on increasing falls self-efficacy, increasing confidence that falls are controllable, and increasing physical activity levels.
- Group runs 2 hour sessions for 8 weeks, and includes problem-solving discussions, role-playing, exercise, assertiveness training, individual assignments, and lectures.
- Improving falls self-efficacy → increased physical activity → reduced fall risk and potentially lower readmission rates.

Wii Fit Exergames

- Works on balance & strength by having participants shift weight on platform while performing virtual games.
- Evidence supports use of Wii fit in reducing fall risk in older adults, however needs more research with randomized controlled trials, and larger sample sizes.
- Relatively cost-effective and easy to implement in facilities.
- Motivating for patients who don't enjoy participating in traditional exercise

Dance Interventions

- Braun (2015) conducted systematic review of dance interventions effect on physical health status of older adults.
- Results showed that dance, regardless of style, can positively influence flexibility, balance, muscle strength, and muscle endurance.
- Benefit: Cost-effective, easy to implement, supported by evidence, and could get people involved who don't like to participate in traditional exercise programs.

Whole-Body Vibration Training

- RCT study from Alvarez-Barbosa (2014) & colleagues showed that Whole-Body Vibration (WBV) training can reduce fall risk in older adults.
- Training consists of using a vibrating balance platform to challenge participants to hold their static positions for a set period of time(ex: 1 min).
- Tseng (2016) & colleagues conducted RCT that compared WBV training to Visual-Feedback Deprived Whole Body Vibration training (VFDWBV) group, as well as control group.
- Results: Rates of hospital visits for services related to falls were 0% for both WBV training groups at 6 month follow-up.

Otago Exercise Program

- An in home falls prevention program.
- 17 strength and balance exercises
- An 8weeks to 6 month exercise program

SAIL

Sail

Active
&

Independent
for
Life



Resources

- Alvarez-Barbosa, F., Pozo-Cruz, J. D., Pozo-Cruz, B. D. (2014). Effects of supervised whole body vibration exercise on fall risk factors, functional independence, and health-related quality of life in nursing home residents age 80+. *Maturitas*. 79 (4), 456-463. [http:// dx.doi.org/10.1016/j.maturitas.2014.09.010](http://dx.doi.org/10.1016/j.maturitas.2014.09.010)
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- Goble, D. J., Cone, B. L., Fling, B. W. (2014). Using the wii fit tool for balance assessment and neurorehabilitation: The first half decade of "Wii search". *Journal of NeuroEngineering and Rehabilitation*, 11:12. Doi: 10.1186/1743-0003-11-12

Resources

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- Tseng, Y. T., Lai, C. L., Chang, K. L. (2016). Influence of whole-body vibration training without visual feedback on balance and lower-extremity muscle strength of the elderly. *Medicine*. 95 (5), 2709. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4748931/pdf/medi-95-e2709.pdf>
- Sail fall prevention program <https://www.ncoa.org/wp-content/uploads/SAIL-Summary-2016-2.pdf>
- The Otago exercise program <https://www.ncoa.org/healthy-aging/falls-prevention/falls-prevention-programs-for-older-adults/>