Falls Risk Assessment, Outcome Measures, and Interventions

By: Anjali Paintal, SPT

Schedule

- In-service Presentation – 30 min
- Hands-on Lab – 30 min
- Survey – 5 min

Objectives

Identify the most important components of a thorough falls risk assessment

Identify main risk factors associated with increased falls risk

Demonstrate the ability to utilize at least 3 evidence-based outcome measures

Become better equipped to identify and treat falls risk patients in clinical practice

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Why Are Falls Important to Address?

Falls amongst the elderly population are one of the major causes of morbidity and mortality around the world.[1]

Falls are the second leading cause of unintentional death, just after motor-vehicle accidents.[2]

About 1/3 of people aged 65 and older fall every year and about 10% of fallers require medical care.[3]

Falls lead to about 80% of disability due to unintentional injuries.[1]

Globally, there is a growing number of older people, therefore there will be greater need to reduce falls risk.[1]

Señora Lina

Señora Lina is a 75-year-old female with a past medical history of mild dementia, diabetes, depression, hypercholesterolemia, and osteoporosis. Señora Lina recently was discharged from the hospital due to a vertebral fracture sustained from a fall. If you were treating this patient, what would you include in your falls risk assessment?

Questions for You

1. Based on your experiences as healthcare professionals, what do you think the biggest risk factors for falls are where you work?

2. Do you know any family members or community members that fall often?

3. How do you address falls in your workplace and in the community?

Risk Factors For Falls [4-7]

- Balance impairments
- History of falls
- Decreased ankle range of motion
- Visual impairments
- Multiple medications
- Medication that effects the CNS (antipsychotics, anxiolytics, hypnotics, sedatives, antidepressants)
- Cognitive impairment

Risk Factors For Falls [4-7]

- Gait:
  - decreased velocity
  - decreased stride length
  - heel to heel base of support variability
  - double support-time variability
  - Increased medial-lateral sway
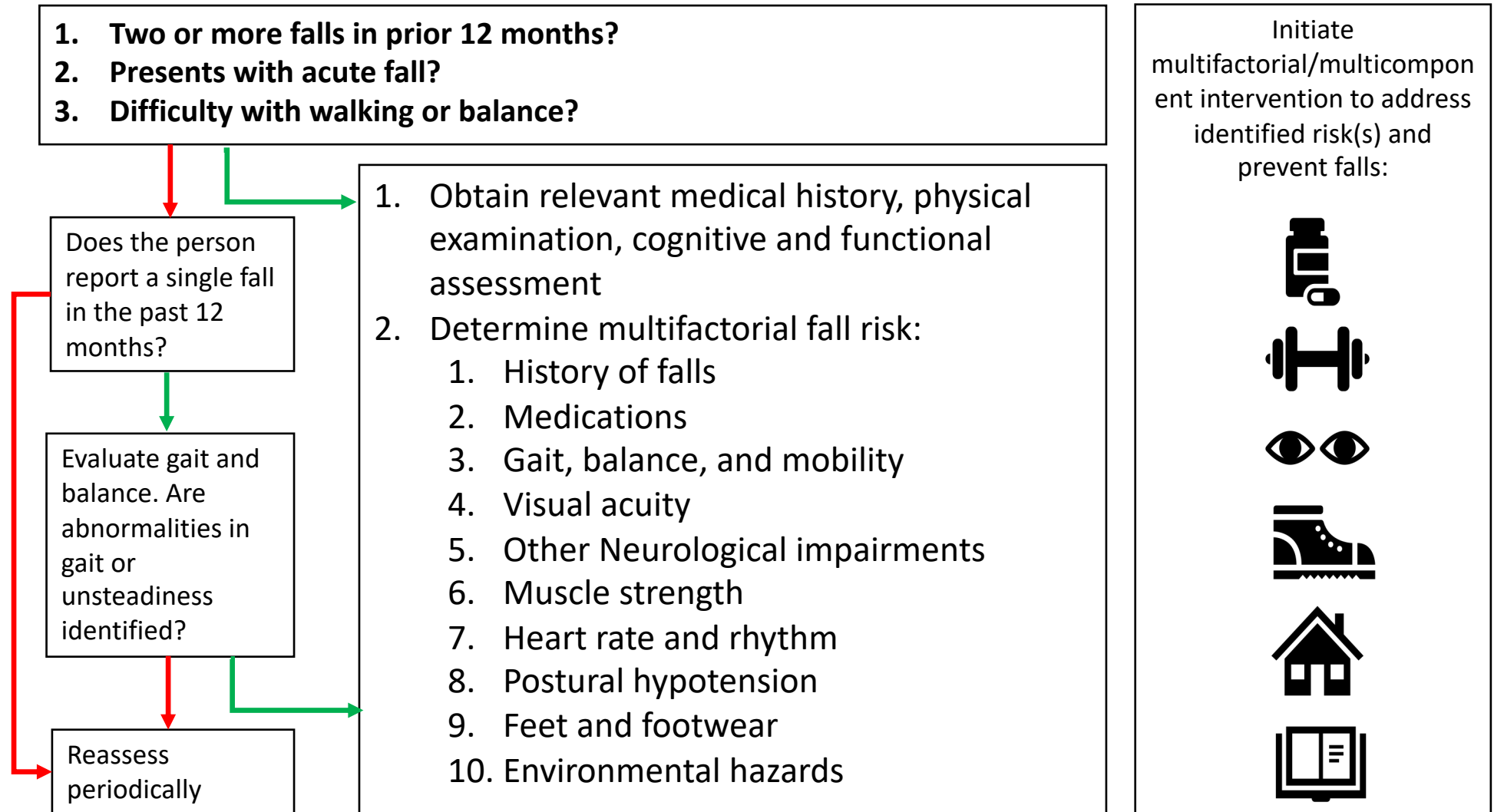 - Inability to walk and talk

Risk Factors For Falls Continued…

- Orthostatic hypotension
- Incontinence
- Behavioral symptoms (wandering, agitation, verbally or physically abusive behavior)
- Use of assistive devices
- Living alone
- Underweight
- IADL dependency
- Impaired chair stands
- Smoking
- Heart disease

Falls Risk Assessment [4]

1. Two or more falls in prior 12 months?
2. Presents with acute fall?
3. Difficulty with walking or balance?

Does the person report a single fall in the past 12 months?

Evaluate gait and balance. Are abnormalities in gait or unsteadiness identified?

Reassess periodically

1. Obtain relevant medical history, physical examination, cognitive and functional assessment
2. Determine multifactorial fall risk:
    1. History of falls
    2. Medications
    3. Gait, balance, and mobility
    4. Visual acuity
    5. Other Neurological impairments
    6. Muscle strength
    7. Heart rate and rhythm
    8. Postural hypotension
    9. Feet and footwear
    10. Environmental hazards

Initiate multifactorial/multicomponent intervention to address identified risk(s) and prevent falls:

Outcome Measures

- Community dwelling:[8]
  - Berg Balance Scale (↑ specificity)
  - Timed Up and Go (↑ specificity)
  - 5 times sit-to-stand (↑ specificity)

- Long-term care:[9]
  - 5 times sit-to-stand (↑ sensitivity and ↑ specificity)
  - Mobility Interaction Fall Chart (↑ sensitivity and ↑ specificity)
  - Modified Fall Assessment Tool (↑ specificity)

Outcome Measures

- All Older Adults (data from community, long-term care, and acute settings):[10]
  - <u>↑ Specificity:</u>
    - Berg Balance Scale
    - Mobility Interaction Fall Chart
  - <u>↑ Sensitivity</u>
    - Downton Fall Risk Index
    - Hendrich II Fall Risk Model
    - St. Thomas's Risk Assessment Tool in Falling elderly inpatients
    - Timed Up and Go test
  - Recommended to use <u>2 assessments</u>
    - 1 with ↑ specificity and 1 with ↑ sensitivity
    - For example: Berg Balance Scale + Timed Up and Go test

Outcome Measures

- Examples of combinations for **<u>Long-term care</u>**: [8,9,10]

  - **Modified Fall Assessment Tool** (↑ specificity) + **Timed Up and Go Test** (↑ sensitivity)

  - **Berg balance scale** (↑ specificity) + **Timed up and Go** (↑ sensitivity)

  - **5 times sit-to stand** (↑ sensitivity and ↑ specificity) + **Timed up and Go** (↑ sensitivity)

Outcome Measures Lab

- Modified Falls Assessment Tool
- Timed Up and Go
- 5 Times Sit to Stand
- Berg Balance Scale

Modified Fall Assessment Tool [9,14]

- Takes <5 min to rate each patient
- Recommended for patients in nursing homes
- Equipment: pencil
- **≥20 points** indicates high falls risk

Modified Fall Assessment Tool (Farmer, 2003)

Please circle all factor scores that apply to the patient and/or environment.

	Initial score	Reassessed score
Patient factors		
History of falls	15	15
Confusion	5	5
Age (over 65)	5	5
Impaired judgment	5	5
Sensory deficit	5	5
Unable to ambulate independently	5	5
Decreased level of cooperation	5	5
Increased anxiety/emotional lability	5	5
Incontinence/urgency	5	5
Cardiovascular/respiratory disease affecting perfusion and oxygenation	5	5
Medication affecting blood pressure or level of consciousness	5	5
Postural hypotension with dizziness	5	5
Environmental factors		
First week on unit	5	5
Attached equipment (e.g., IV pole, chest tubes, appliances, O_2 tubing etc.)	5	5
TOTAL POINTS		

# Modified Fall Assessment Tool [9,14]

- Now it's time to practice!

- Time: <2 min

- Instructions:
  - Divide yourselves into groups
  - You will find the Modified Fall Assessment Tool in your packets
  - Read through each item on of the assessment
  - Think about specific patients you work with and approximate their score using this tool

Timed Up and Go [10,12]

- Assess mobility, balance, gait, and falls risk in older adults

- Recommended for neuro and geriatric patients

- Time to administer: <3 min

- Equipment: standard chair, stopwatch

- A time of **≥13.5 seconds** associated with higher risk of falling
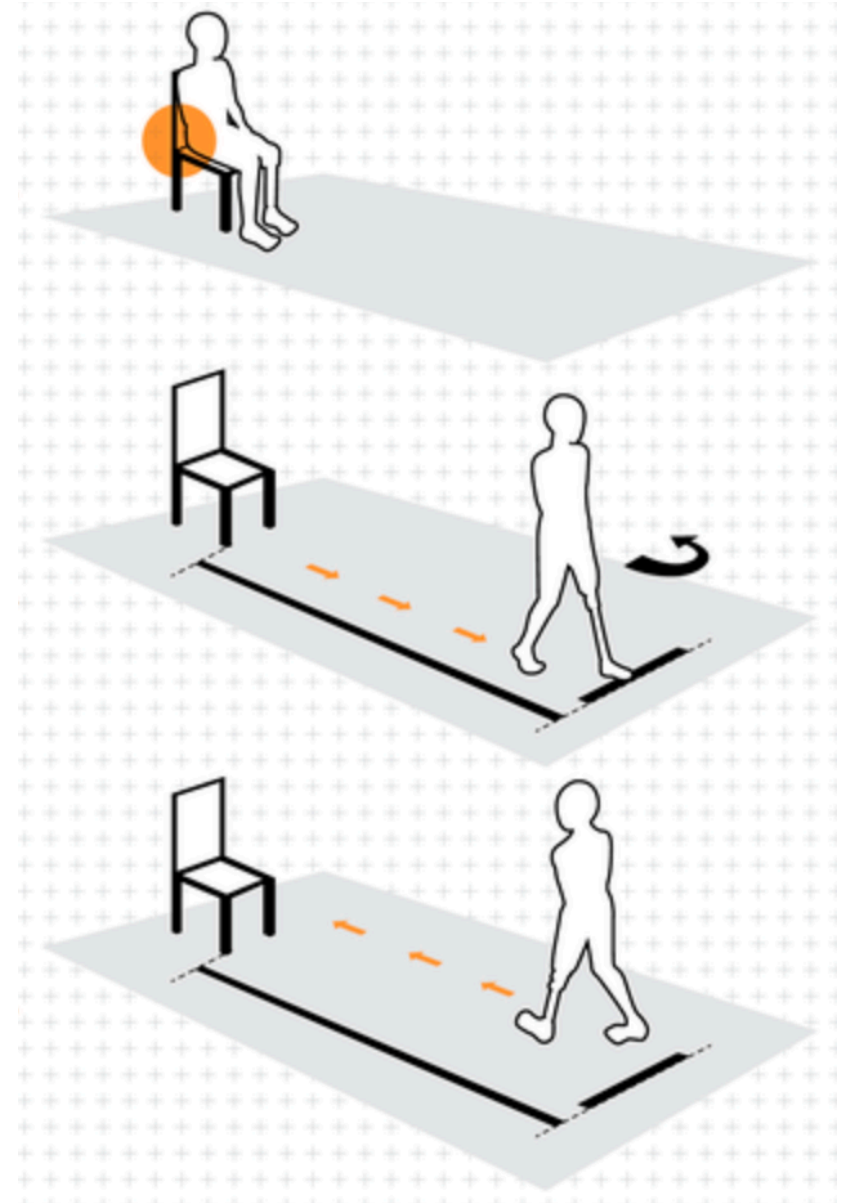
Timed Up and Go [12]

- Now it's time to practice!

- Time: 10 min

- Instructions:
  - You will find instructions regarding the TUG on the next pages in your packet.
  - Same groups
  - Please follow the instructions and practice administering and performing the items included in the TUG.

5 Times Sit-to-Stand [9,10,13]

- Assesses transfer skill, lower extremity strength, and falls risk

- Recommended for geriatric and neuro patients

- Equipment: standard chair (43-45 cm height), stopwatch

- Time to administer: < 5 min

- **≥ 12 sec** associated with increased falls risk

5 Times Sit-to-Stand [13]

- Now it's time to practice!

- Time: 5 min

- Instructions:
  - You will find instructions regarding the 5 Time Sit-to-Stand on the next pages in your packet.
  - Same groups
  - Please follow the instructions and practice administering the 5 Times sit-to-Stand using the instructions and guidelines provided to you

Berg Balance Scale [10,11]

- 14 item objective measure to assess static balance and falls risk

- Recommended for neuro and geriatric populations

- Time to administer: 15-20 min

- Equipment: stopwatch, two chairs, step or stool, ruler, slipper or shoe

- Score of **<45** indicates individuals may be at greater risk of falling

- Score of <40% indicates almost 100% fall risk

BERG BALANCE SCALE

Patient Name: _____

Rater Name: _____

Date: _____

Balance Item   **Score (0-4)**

1. Sitting unsupported _____
2. Change of position: sitting to standing _____
3. Change of position" standing to sitting _____
4. Transfers _____
5. Standing unsupported _____
6. Standing with eyes closed _____
7. Standing with feet together _____
8. Tandem standing _____
9. Standing on one leg _____
10. Turning trunk (feet fixed) _____
11. Retrieving objects from floor _____
12. Turning 360 degrees _____
13. Stool stepping _____
14. Reaching forward while standing _____

TOTAL (0–56): _____

Interpretation

0–20, wheelchair bound
21–40, walking with assistance
41–56, independent

Berg Balance Scale [11]

- Now it is time to practice!

- Time: 15-20 min

- Instructions:
  - You will find a sheet including instructions for the Berg Balance Scale in your packet
  - Same groups
  - Please follow the instructions and practice administering and performing the Berg Balance Scale
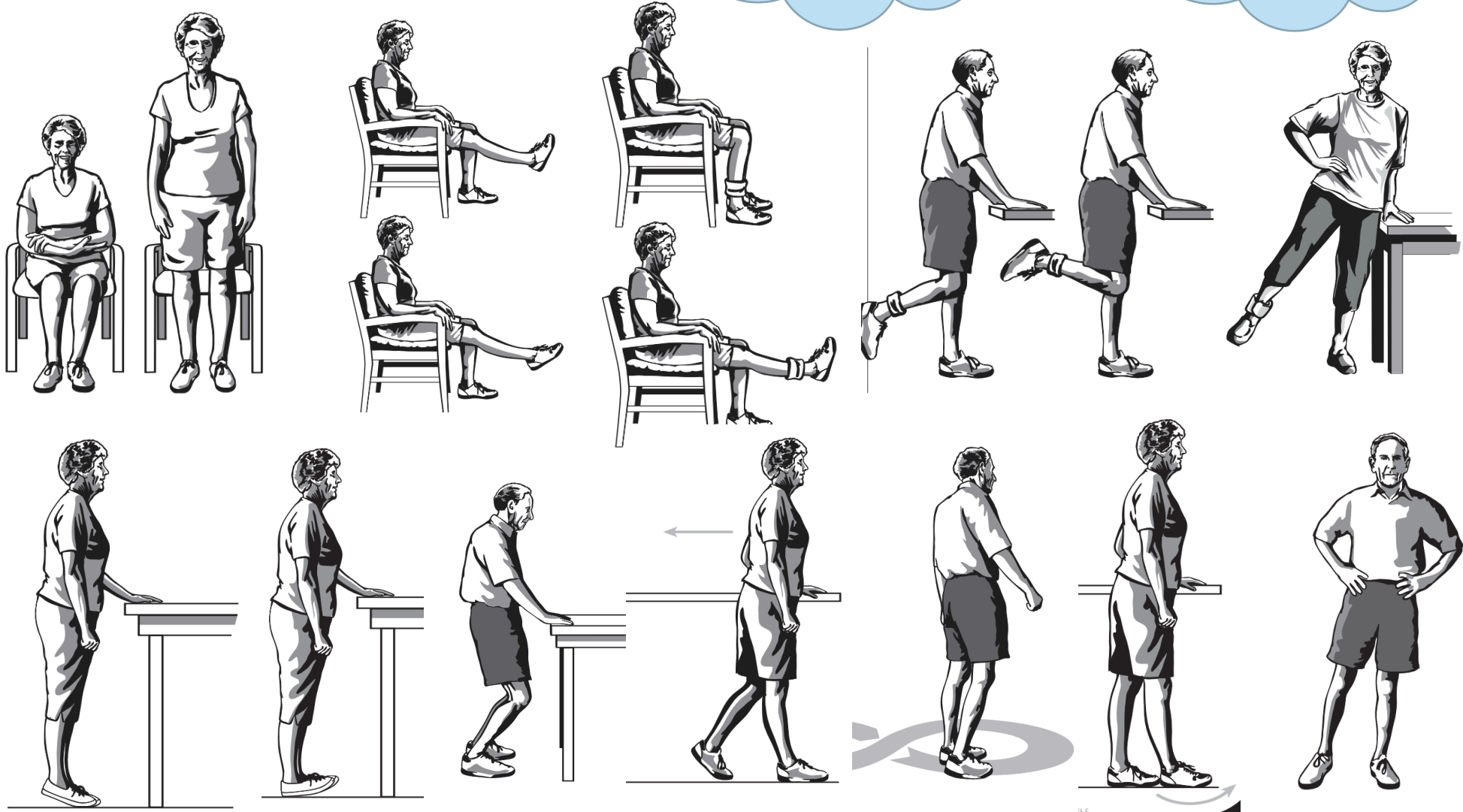
Evidence Based Interventions [15-17]

- Combined exercise interventions (balance, strength, and walking) are more effective single type exercise interventions alone
- Effect of exercise programs is greater when interventions are > 6 months long
- Exercise frequency should be at least 2-3x per week
- Combined exercise intervention + other fall interventions (medication review, environmental modification, or staff education) > than exercise intervention alone
- Important to include balance training with narrow base of support
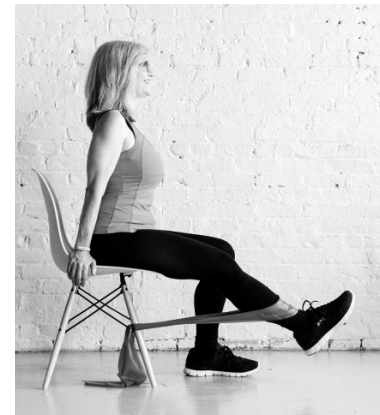
Exercise Ideas [18]

Exercise Ideas

- Intensity
- Frequency
- Duration
- Dual task
- Support/no support
- Sitting/standing
- Eyes closed/open
- Varying surfaces
- Resistance

Think about ways to progress these exercises…

Think about ways to make these exercises fun for people with cognitive impairments…

Exercise Modifications

- Music
- Dance
- Balls
- Scarves
- Bubbles
- Partner Activities

Thank you

- Advisor:
  - Lisa Johnston, PT, MS, DPT
- Committee:
  - Karen McCulloch, PT, PhD, FAPTA
  - Charron Andrews, PT

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