Reducing Fall Risk By Becoming FITT

Carol Sames, PhD Upstate Medical University

Objectives

- 1. Explain the acronym FITT.
- 2. Describe the benefits of regular physical activity.
- 3. Discuss the 2018 Physical Activity Guidelines.
- 4. Understand why balance is important.
- 5. Describe the types of balance control.
- 6. Summarize the risk factors for falls.
- 7. Describe types of physical activity that can reduce risk for falls.
- 8. Integrate FITT into daily life!

What is FITT?

- Regular Physical FITTness!
- Frequency, Intensity, Time, Type

Benefits of Regular PA/Exercise

- Research provides strong evidence to support physical activity and reduce risk for:
- **All cause mortality**
- **CVD/CAD**
- **HTN**
- **Stroke**
- *Osteoporosis/Osteopenia/Hip Fx*
- **Type II DM**
- **Metabolic syndrome**
- **Weight loss**
- *Colon cancer & breast cancer*
- *Depression*
- *Functional Health/Falls*
- *Cognitive Function*

2018 Physical Activity (PA) Guidelines Committee Report--Adults

- 150 min/wk of moderate intensity, aerobic activity; 75 min/wk of vigorous intensity aerobic activity; or combination of both for substantial health benefits.
- Additional health benefits with 300 min/wk of moderate intensity aerobic activity; 150 min/wk of vigorous intensity aerobic activity; or combination of both.

2018 Physical Activity (PA) Guidelines Committee Report

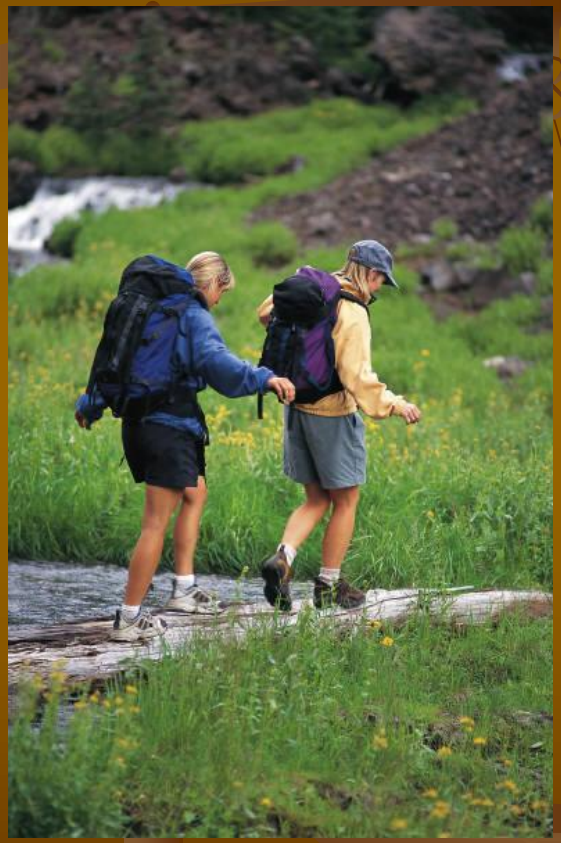
- Aerobic activity spread throughout week.
- Muscle strengthening-- moderate or greater intensity & involve major muscle groups 2 or more times/ week.
- Move more & sit less throughout day. Some PA BETTER THAN NONE!
- Adults who sit less & do any amount of moderate-vigorous PA gain some health benefits.
- PA that includes balance training as well as aerobic & muscle strengthening activities.

Significant Changes to 2018 Guidelines

- 1. **MOVE MORE SIT LESS**
- 2. Any amount of PA has some health benefits—elimination of 10-min bouts of PA counting towards meeting guidelines.
- 3. PA has some immediate health benefits—reduce anxiety, BP & improve quality of sleep & insulin sensitivity.
- 4. More long term benefits—improve cognition; reduce risk for bladder, endometrium, esophagus, kidney, stomach & lung cancer.
- 5. For older adults reduces injuries from falls.
- 6. All age groups reduces risk of excessive weight gain.
- 7. PA can help to manage health conditions.

Why Is Balance Important?

- **Humans MOVE to get around!**
- **The ability to transfer and walk safely depends on coordination among sensory, nervous, cognitive, cardiopulmonary, musculoskeletal, and contextual effects (environment, lighting, support surface, specific task).**



What Happens If We Lose Our Balance?

Losing Balance--Consequences of Falls

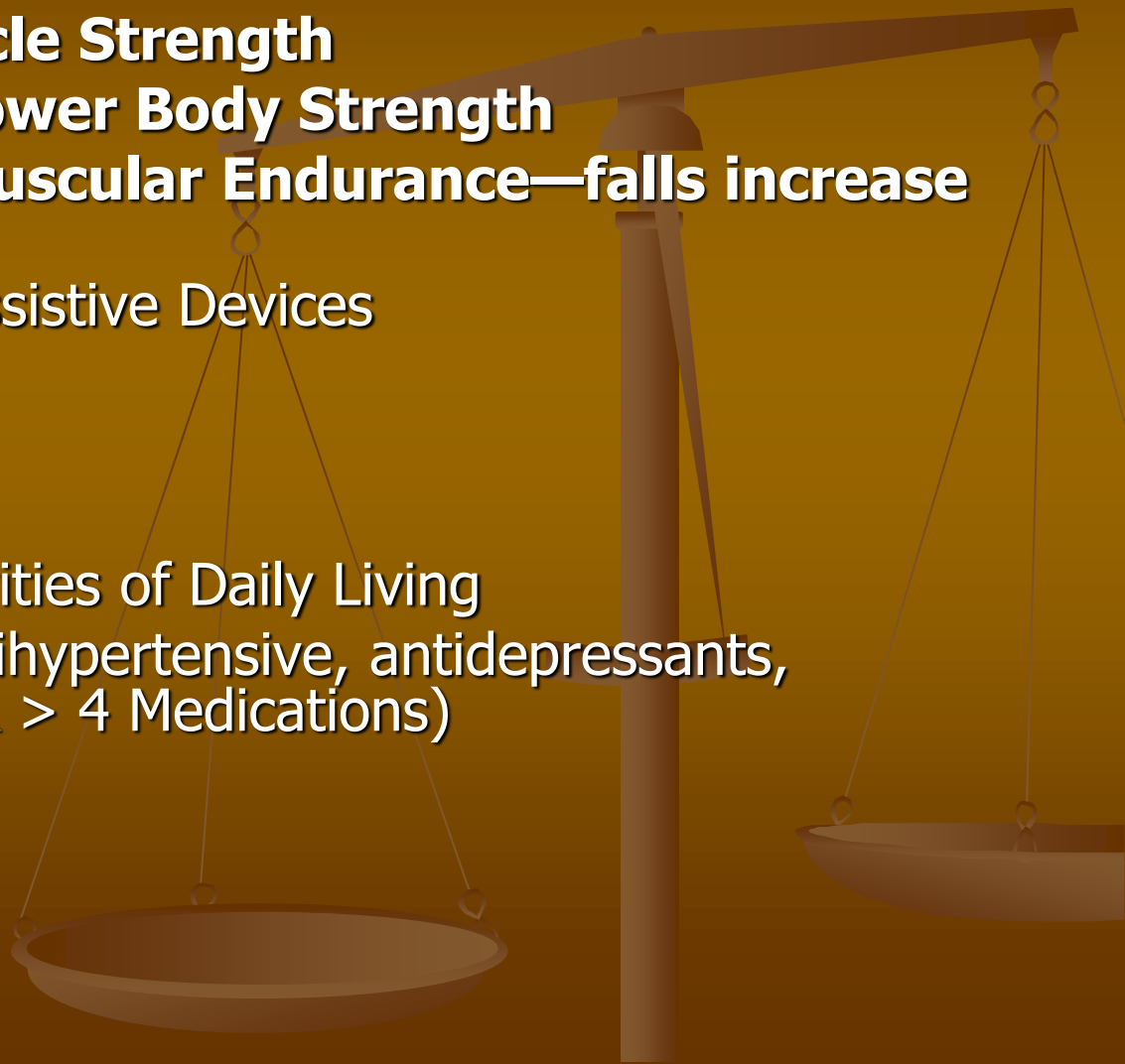
- **Falls**—leading cause of accident related death & disability > 65 yr. olds & 30% fall each year with risk of falling increasing with age.
- 10% falls result in significant injury: fracture, serious soft tissue injury, traumatic brain injury.
- Estimated costs for 2.6 million falls (fatal & non-fatal) in 2015 =$50 billion.
- Increase aging population=fall prevention is urgent public health challenge.

What Are the Statistics on Falls?

- 10% falls result in significant injury: fracture, serious soft tissue injury, traumatic brain injury.
- Other consequences: lose confidence, restrict activity levels, decline in functional activity and independence.
- Similar injury rates: males & females.
- Increase aging population=fall prevention is urgent public health challenge.

Risk Factors for Falls

- **Previous falls--#1 Risk Factor**
- **Decreased CORE Muscle Strength**
- **Decreased Upper & Lower Body Strength**
- **Aerobic Endurance/Muscular Endurance—falls increase when fatigued**
- Walking Speed/Use of Assistive Devices
- Balance Impairments
- Depression
- Visual Impairment
- Difficulty with Basic Activities of Daily Living
- Specific Medications (antihypertensive, antidepressants, tranquilizers, sedatives & > 4 Medications)
- Cognitive impairment
- Age $\geq$ 80 years old

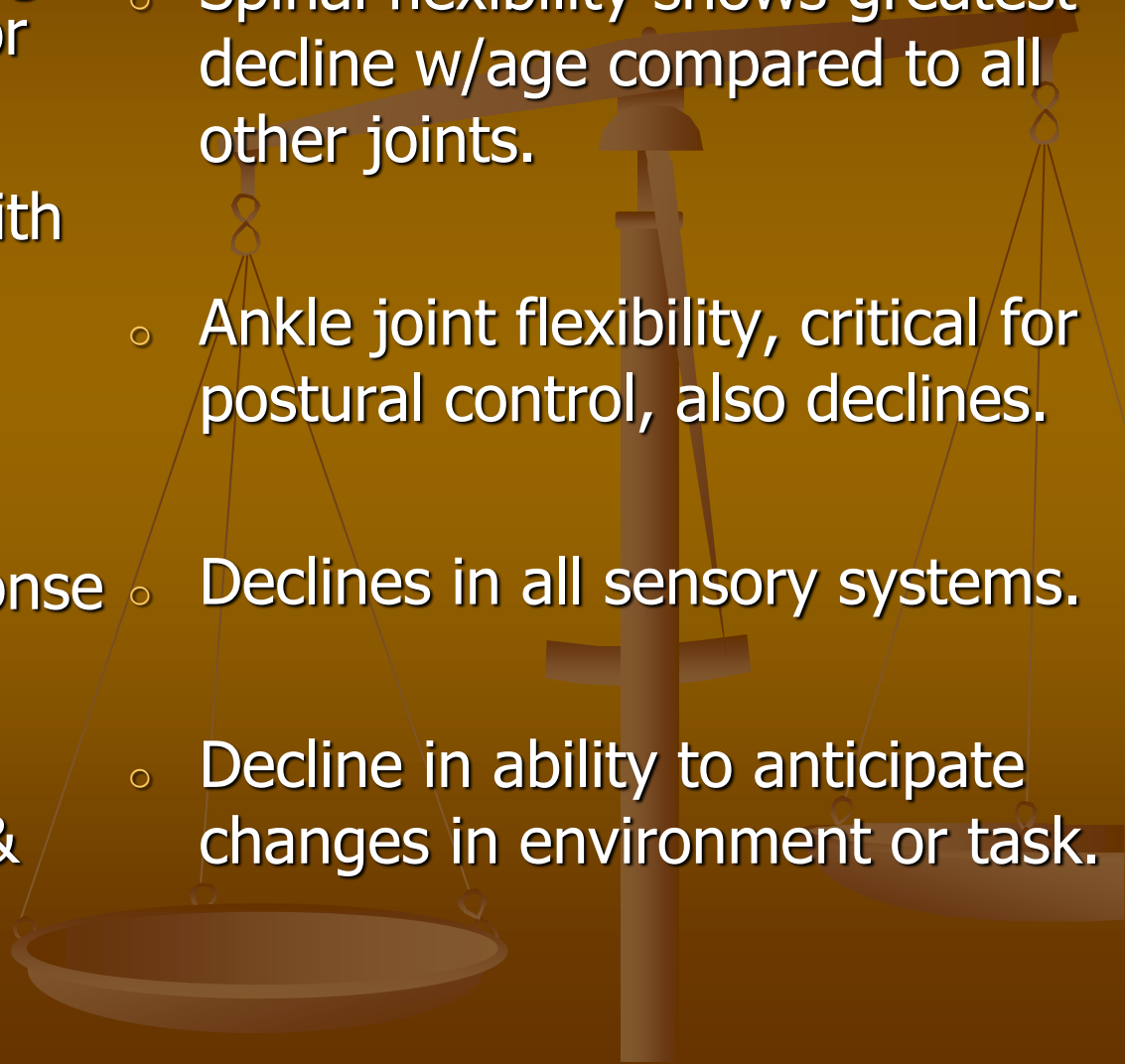


Types of Balance Control

- **Static Balance**—maintain stable position at rest—sitting or standing.
- **Dynamic Balance**—stabilize body when support surface moving or when body moving on stable surface—sit-to-stand or walking.
- **Automatic**—maintain balance in response to unexpected external motion—standing on bus, train.

Aging or Deconditioning?

- Strength declines with age. Loss of fast twitch motor units.
- Endurance decreases with age.
- Visual changes
- Decrease reaction time, movement time & response time.
- Reduced balance when challenged w/stronger & faster force.
- Spinal flexibility shows greatest decline w/age compared to all other joints.
- Ankle joint flexibility, critical for postural control, also declines.
- Declines in all sensory systems.
- Decline in ability to anticipate changes in environment or task.



Age or Deconditioning?

- **Research suggests that PA/exercise can reverse, or at least slow rate of decline.**
- **Consistent PA/exercise can INCREASE STRENGTH, ENDURANCE & BALANCE regardless of age & function.**

Can Age Related Changes in Balance/Fall Risk Be Reversed?

- Research suggests that in adults with existing balance problems and older adults, moderate to large improvements in balance & mobility and a reduction in fall risk or fall incidence occur with consistent, specific **PA/Exercise—WOW!!**

Falls: How Can Older Adults Reduce Risk/Prevent Them?

- **Exercise regularly/Endurance, Strength & Balance Exercises**
- Ask Dr. or pharmacist to review medicines–prescription & over-the counter–to reduce side effects and interactions.
- Yearly eye exam.
- Improve the lighting in the home.
- Reduce hazards in home that can lead to falls.
- **KNOW YOURSELF—Balance changes?**

http://www.cdc.gov/HomeandRecreationalSafety/falls/adultfalls.html

Recommendation (Sherrington)

Exercise must provide a **moderate or high challenge** to balance in order to be effective

1) Reducing base of support.
2) Movement of the center of gravity – control of body position while standing.
3) Reducing need for upper limb support with exercises in standing or decrease reliance on arms.

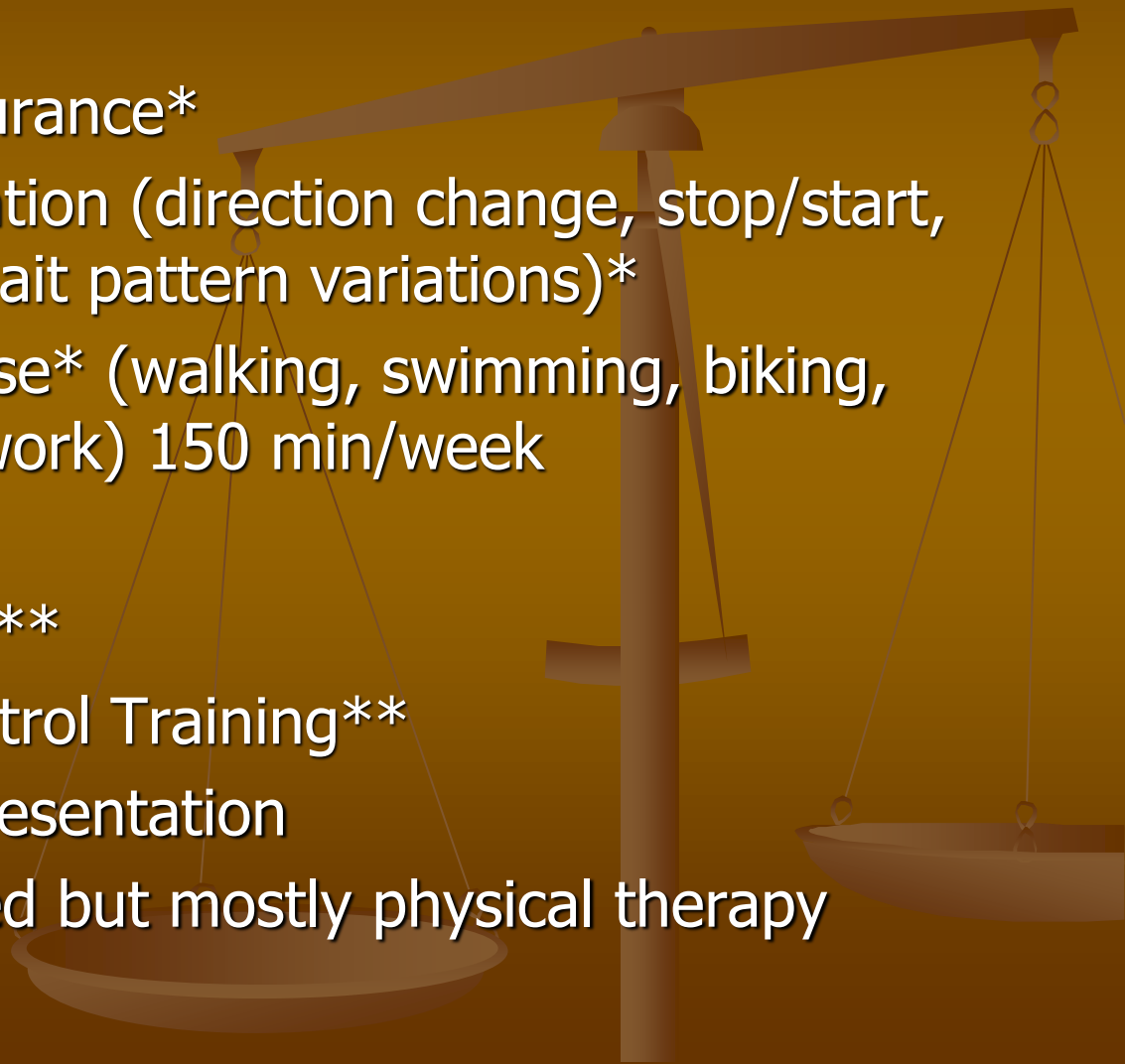
Exercise Training

Comprehensive program includes:

1. Flexibility*
2. Muscle Strength/Endurance*
3. Walking Pattern/Variation (direction change, stop/start, obstacle avoidance, gait pattern variations)*
4. Aerobic-Cardio Exercise* (walking, swimming, biking, dancing, yard/housework) 150 min/week
5. Postural Training**
6. Multisensory Training**
7. Center of Gravity Control Training**

*exercises included in presentation

**a few exercises included but mostly physical therapy

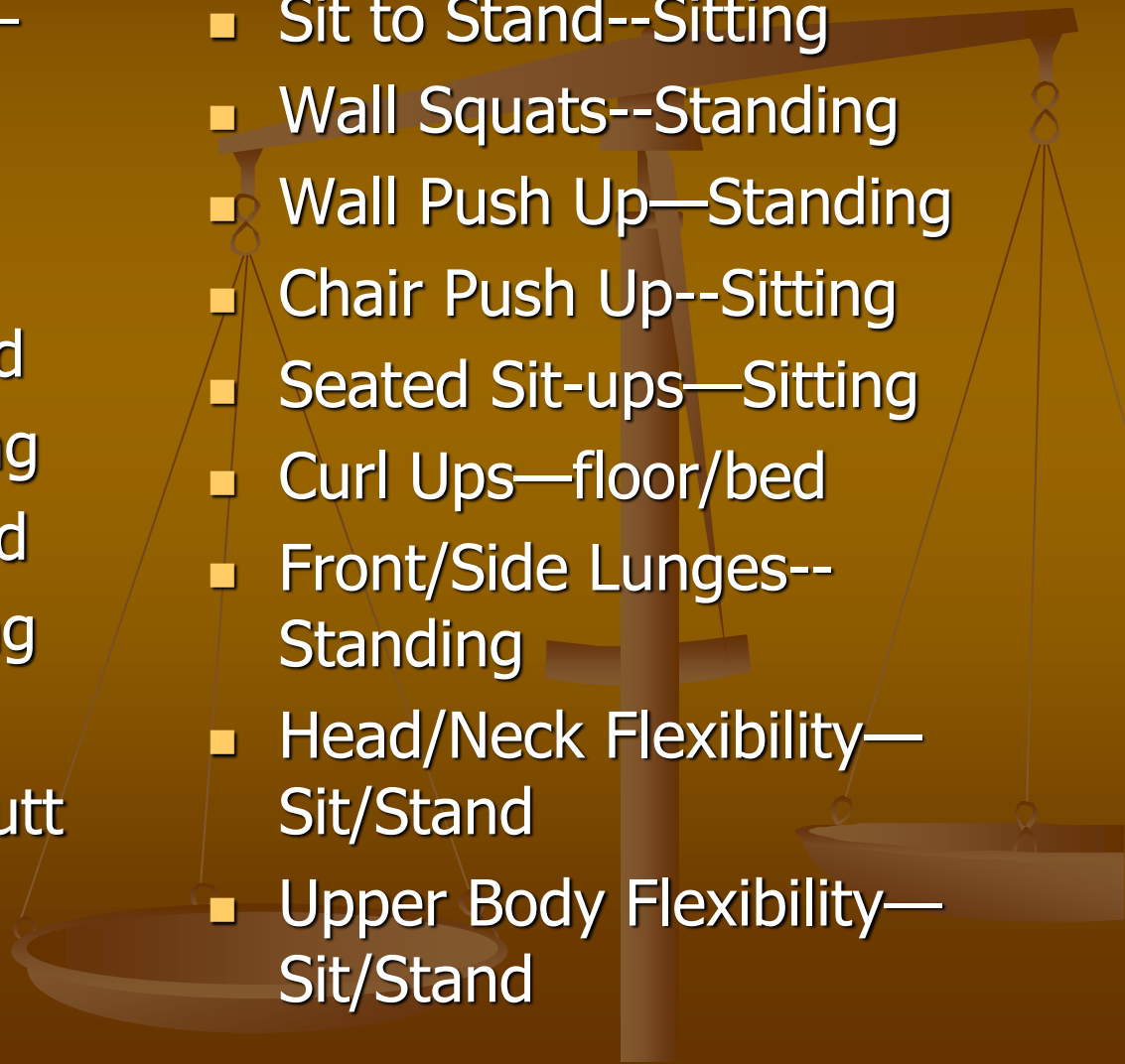


General Exercises to Improve Balance

- Do not bounce when stretching
- Hold stretch for 10-30sec (can go up to 60sec), to point of tightness, minimum of 2-3 days/week but most effective 6-7 days/week.
- Non stretching exercises should be performed 10-20 times each, minimum of 2-3 days/week but most effective 3-5 days/week.
- Make sure to exercise both arms/legs.
- Can provide resistance--hand, theraband, stability ball, cuff weights to make exercise more challenging.

General Exercises to Improve Balance (flexibility/strength)

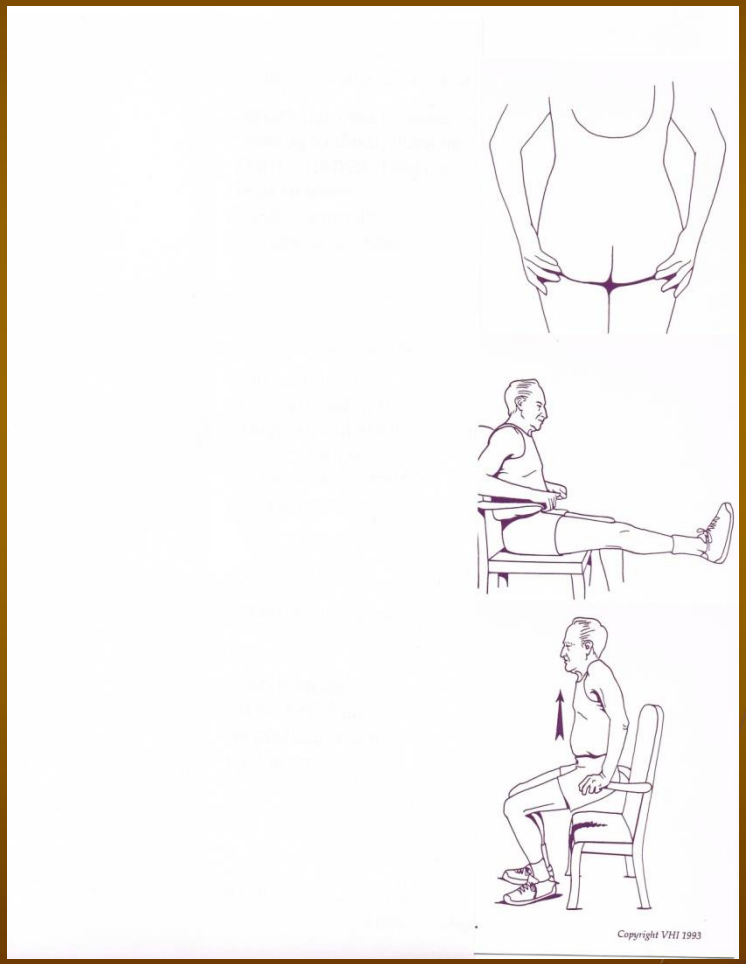
- Knee Extension/Flexion—Sit/Stand
- Toe/Heel Raises/Circle—Sit/Stand
- Lower Leg Stretch--Stand
- Hamstring Stretch--Sitting
- March in Place—Sit/Stand
- Hip Out/Together—Sitting
- Hip Pendulum--Stand
- Draw In (10x10sec) & Butt Squeeze (10x10sec)—Sit/Stand
- Sit to Stand--Sitting
- Wall Squats--Standing
- Wall Push Up—Standing
- Chair Push Up--Sitting
- Seated Sit-ups—Sitting
- Curl Ups—floor/bed
- Front/Side Lunges--Standing
- Head/Neck Flexibility—Sit/Stand
- Upper Body Flexibility—Sit/Stand



In Conclusion

Falls can be reduced by becoming FITT (in addition to many other benefits!)

Exercise Pictures



- Butt Squeeze
- Knee Extension/Flexion
- Chair Push Up

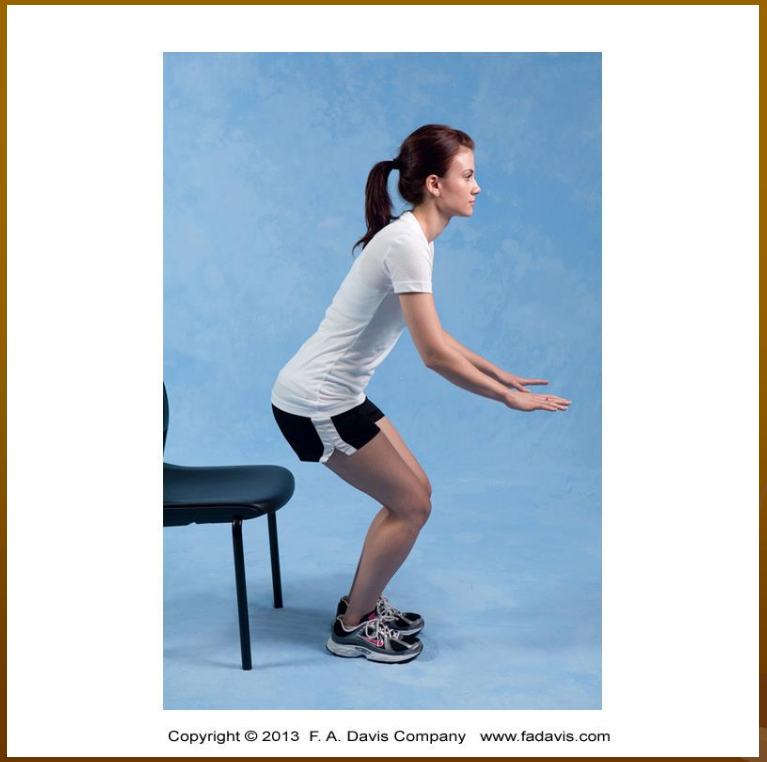
Exercise Pictures

Lower Leg Stretch

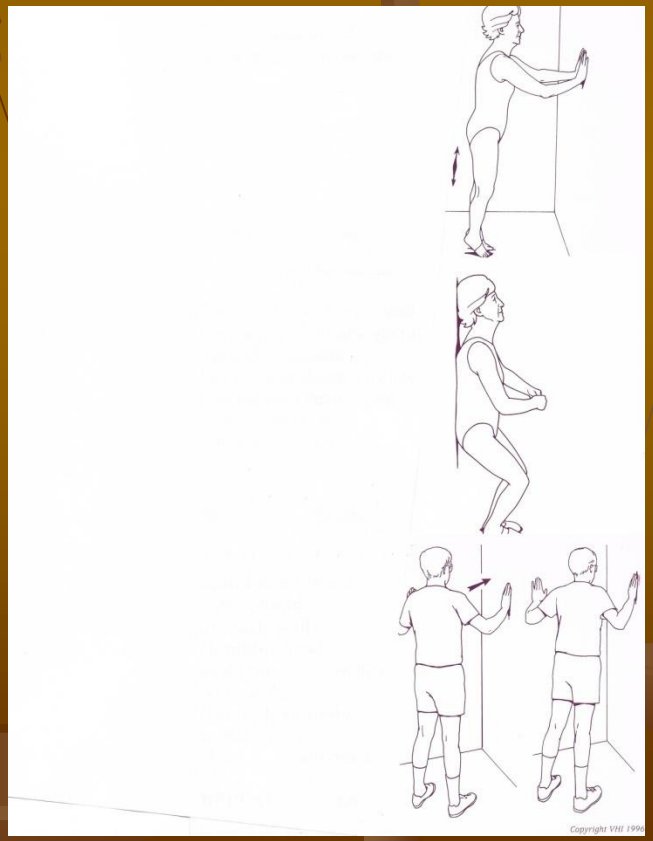
Hamstring Stretches

Exercise Pictures

Sit To Stand



Toe Raises, Wall Squats & Wall Push Ups



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