Reducing Fall Risk By Becoming FITT

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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
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.
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.


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 ≥ 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 with 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
References

References

- https://www.health.gov/PAGuidelines/