FROM FRAIL TO FUNCTION
TO FUN

Section on Geriatrics
American Physical Therapy Association
OBJECTIVES

• Identify myths, stereotypes, and barriers associated with physical activity participation

• Distinguish the differences between natural age-associated changes and inactivity
OBJECTIVES

• Begin or continue a safe and effective exercise program
• Seek appropriate consultation for an exercise prescription
MYTHS, STEREOTYPES, AND BARRIERS ASSOCIATED WITH EXERCISE
23% of deaths from leading chronic diseases are from **sedentary lifestyles**

<table>
<thead>
<tr>
<th>Inactivity</th>
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<tr>
<td>Osteoarthritis</td>
<td>Depression</td>
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<td>CAD</td>
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<td>Stroke</td>
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<td>Diabetes</td>
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MYTHS, STEREOTYPES, BARRIERS

- Negative consequences of aging are inevitable
- High intensity exercise is not for older adults
- Older adults cannot get stronger or faster
- Strength training will injure older adults
MYTHS, STEREOTYPES, BARRIERS

- Fear of injury
- Fear of falling
- Not knowing what to do to get started
- Not having a place to exercise
- No experience with exercise
- Takes too much time
- Exercise causes incontinence
- Exercise has to be a formal activity
Differentiate normal aging from changes that occur due to inactivity

Cardiovascular/pulmonary
Musculoskeletal
Neuromuscular
CARDIOVASCULAR CHANGES

Resting heart rate does not change but if inactive, resting HR likely to increase.

Endurance does go down (e.g., harder to climb mountains) but capability to do normal everyday activities should not change unless inactive.
PULMONARY CHANGES

You will have less "wind" with age but change is not noticeable unless you are inactive.
MUSCULOSKELETAL CHANGES

↓ Skeletal muscle mass (sarcopenia)
↓ Strength

The loss in mass and strength is MUCH greater if muscles are inactive
Musculoskeletal Changes

↓ Muscle mass leads to decreased endurance
↓ Flexibility
↓ Bone mineral density

Although bone mineral content goes down with age, osteoporosis is NOT normal aging

Inactivity results in even more muscle and bone loss
MUSCLE STRENGTH DECREASE

Normal change

Inactive
MUSCULOSKELETAL CHANGES

↑Body fat
(BMI)
Body fat increases are greater with inactivity
NEUROMUSCULAR CHANGES

Decreases

↓ Reaction time
↓ Cognitive processing speed, accuracy
↓ Attention span
↓ Walking speed

Many of these changes are improved with exercise
FUNCTIONAL REQUIREMENTS FOR COMMUNITY-LIVING OLDER ADULTS

• 1000 feet required to complete an errand in the community 3x
• Turning around
• Negotiating floor/surface transitions
• Gait speed of 3 miles/hour
• Need to carry an average of 7 lb package
OLDER ADULTS and FITNESS

• Of community dwelling older adults over 75:
  – 16% could not lift 10 pounds
  – 21% could not walk up 10 steps without stopping
  – 29% could not walk 1300 feet
  – 28% could not stoop, crouch, and kneel

(Vital & Health Statistics National Health Interview Survey 2002
www.cdc.gov/nchs/nhis.htm)
The good news is..

All of these changes can be improved with exercise!!!!
RESPONSES TO EXERCISE

Quality of Life/Functional Abilities

– Regular exercise maintains independence, and improves quality of life
– Functional decline can be retarded
Quality of life and function (through strength, endurance, and balance training) may be ↑ at any age as long as the intensity, duration, and frequency are sufficient to consistently overload the system.
TYPES of EXERCISE

• Aerobic/Endurance
  • Balance
  • Flexibility
• Strengthening/Resistance
Aerobic Exercises

- Walking, brisk walking, mall walking, treadmill
- Elliptical trainer
- Exercise bicycle (regular, stationary, recumbent, upper arm arm ergometer)
- Swimming/water aerobics
- Steppers
- Jump rope
How much and how long?

- Ideally, aerobic exercise should be at least 20-40 minutes long
  - Cumulative or continuous
- Minimum 3x/week
- Intensity: should breathe hard but still be able to talk
STRENGTHENING EXERCISE

• Requires resistance and should include upper body, lower body and trunk
  – Weights or a heavy object to lift
  – Body weight
  – Elastic bands or tubing
• Should be done 2-3x/week on non-consecutive days
• 8-12 repetitions
• Last repetition you do should feel like the last repetition you can do
GAIT, MOBILITY, BALANCE

Chair Squat
Quads, hamstrings, gluts

Knee Extension
Quads

Exercise Photos Courtesy of FirstStep
TO ACTIVE HEALTH
CARRYING, LIFTING, PULLING

Chest Press

Seated Row

Pectorals, Ant Deltoid

Scapular Stabilizers

Exercise Photos Courtesy of FirstStep
CARRYING, LIFTING, PULLING

Elbow Curl

Biceps

Elbow Extension

Triceps

Exercise Photos Courtesy of FirstStep
FLEXIBILITY

• Flexibility is stretching
• Hold each stretch for 30-60s
• Do each stretch 3-4x
• You should feel a little uncomfortable but no pain
• Do not bounce!
• What to stretch: shoulders, chest, calves, hamstrings, hips
FLEXIBILITY ACTIVITIES

Exercise Photos Courtesy of FirstStep
FLEXIBILITY ACTIVITIES
BALANCE EXERCISES

• Balance exercises move you outside your comfort zone

• Activities may include
  – Narrowing your base of support
  – One legged stand
  – Standing and moving your head side to side
  – Standing with eyes closed
  – Standing on uneven surfaces

• Do once a day for a minute

• Progress to 5 minutes
STATIC BALANCE; FIRM

Tandem

Unilateral

Exercise Photos Courtesy of
STATIC BALANCE; FOAM

Bilateral → Unilateral

Exercise Photos Courtesy of
DYNAMIC BALANCE

Kick  Hip Abduction  Hip Flexion  Knee Flexion

Exercise Photos Courtesy of FirstStep
Seek appropriate consultation for an exercise prescription

Who to see? A Physical Therapist (PT)

Why? Because PTs have more knowledge and skill for developing an exercise program for aging adults than MD, exercise physiologist, personal trainer
What to expect from your PT

• A review of your medical history
• An evaluation of your capabilities
  – Aerobic
  – Strength
  – Balance
  – Flexibility
• Instruction in how to perform an individualized exercise program
Who to contact?

- For help in getting started, contact the American Physical Therapy Association
  - 1-800-999-APTA
- Refer to the “Find a PT” website of the APTA.  [www.apta.org](http://www.apta.org)
- [www.FirstSteptoActiveHealth.com](http://www.FirstSteptoActiveHealth.com)