

Aging and Exercise

Dave Enzler
 Director of Recreation, Fitness and Wellness
 University of Southern Indiana

Effects of Aging and Exercise

Normal Changes

- ▶ **Body Composition**
(muscle mass decreases, fat increases)
- ▶ **Muscular Efficiency**
(strength, power, endurance decreases)
- ▶ **Cardiovascular Function**
(HR, SV, Cardiac Output, O2 consumption, circulation, respiratory function decreases)
- ▶ **Flexibility**
Range of Motion decreases
- ▶ **Bone Density decreases**
- ▶ **Hearing, Eye Sight, Height**

Benefits of Exercise

- ▶ **Body Composition**
(muscle mass increases, fat decreases)
- ▶ **Muscular Efficiency**
(strength, power, endurance increases)
- ▶ **Cardiovascular Function**
(HR, SV, Cardiac Output, O2 consumption, circulation, respiratory function, increases)
- ▶ **Flexibility**
Range of Motion may increase
- ▶ **Bone Density Increases**

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- ▶ Are these thing true aging or lack of activity?
- ▶ Exercise can help delay some of the aging effects or can actually reverse some of the effects.
- ▶ Eventually, we all age.

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Why Exercise? Motivation?

- ▶ **Types of Fitness**
 - ▶ Health Fitness
 - ▶ Live longer
 - ▶ Live better
 - ▶ Performance Fitness
 - ▶ Competition
 - ▶ Appearance Fitness
 - ▶ Weight control
 - ▶ Tone
- ▶ **Side Benefits**
 - ▶ Emotional
 - ▶ Intellectual
 - ▶ Social
 - ▶ Fun

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Questions you need to answer

- ▶ Why are you exercising?
- ▶ Are you social?
- ▶ Are you competitive?
- ▶ How much time do you have?
- ▶ How much time will you devote to exercise?
- ▶ Do you need a push to get started?
- ▶ Do you need intellectual stimulation?

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General Principles of Training

- ▶ **Individuality**
 - High vs. Low Responders
- ▶ **Specificity**
 - Adaptations highly specific to type of activity, training volume, and intensity
- ▶ **Reversibility**
 - Use it or Lose it
- ▶ **Overload**
 - Must increase demands on body to make further improvements
- ▶ **Variation**
 - Periodization

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Exercise Prescription

- ▶ Intensity, Duration, Frequency
- ▶ 10 min jumping rope 3 times a week
- ▶ 40 min walking 4 times a week
- ▶ Longer duration at lower intensity usually better for weight control

- ▶ Doesn't need to be continuous

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Cardiovascular Recommendations

- ▶ Adults should get at least 150 minutes of moderate-intensity exercise per week.
- ▶ Exercise recommendations can be met through 30-60 minutes of moderate-intensity exercise (five days per week) or 20-60 minutes of vigorous-intensity exercise (three days per week).

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Resistance Recommendations

- ▶ Adults should train each major muscle group two or three days each week using a variety of exercises and equipment.
- ▶ Very light or light intensity is best for older persons or previously sedentary adults starting exercise.
- ▶ For each exercise, 8-12 repetitions improve strength and power, 10-15 repetitions improve strength in middle-age and older persons starting exercise, and 15-20 repetitions improve muscular endurance.
- ▶ Adults should wait at least 48 hours between resistance training sessions.

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Flexibility Recommendations

- ▶ Adults should do flexibility exercises at least two or three days each week to improve range of motion.
- ▶ Each stretch should be held for 10-30 seconds to the point of tightness or slight discomfort.
- ▶ Repeat each stretch two to four times, accumulating 60 seconds per stretch.
- ▶ Static, dynamic, ballistic and PNF stretches are all effective.
- ▶ Flexibility exercise is most effective when the muscle is warm. Try light aerobic activity or a hot bath to warm the muscles before stretching.



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Neuromotor Recommendations

- ▶ Neuromotor exercise (sometimes called "functional fitness training") is recommended for two or three days per week.
- ▶ Exercises should involve motor skills (balance, agility, coordination and gait), proprioceptive exercise training and multifaceted activities (tai chi and yoga) to improve physical function and prevent falls in older adults.
- ▶ 20-30 minutes per day is appropriate for neuromotor exercise.



Cardiovascular Exercise

- Walking
- Swimming
- Jogging
- Treadmill workout - walking, running, jogging
- Dancing
- Stair climbing
- Rope jumping
- Horse riding
- Biking
- Rowing
- Aqua aerobics
- Boxing
- Aerobic dance/step aerobic
- All kinds of sports & games



Resistance Exercises

- ▶ Body Weight
- ▶ Machines
- ▶ Free Weights
 - ▶ Barbells-dumbbells
- ▶ Resistance Bands

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Stretching Exercises

- ▶ Yoga-Tai Chi
- Just stand up and sit down -- no hands**
Shrug your shoulders -- to release the neck and shoulders
Loosen the hands with air circles
Point your fingers -- good for hands, wrist, and forearms
Release the upper body with a torso twist
Stretch your back with a "big hug"
Cross your arms -- for the shoulders and upper back
Look up to release upper body

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Neuromotor Exercises

- ▶ Balance
- ▶ Eye-Hand Coordination
- ▶ Agility
- ▶ Gait

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Combinations

- ▶ Do some exercises work more than one type of fitness?
- ▶ Game or Sport might include CV, Balance, Coordination

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What is your excuse?

- ▶ No time
- ▶ Boring – Too tired
- ▶ Don't know how/what to do
- ▶ No equipment

- ▶ Combine it with something else
 - ▶ Walk on treadmill while watching favorite show
 - ▶ Listen to favorite show while walking

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Precautions

- ▶ Heat
- ▶ Cold
- ▶ Altitude

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