



# PHYSICAL ACTIVITY

Know and understand:

- The health benefits of physical activity in older adults
- Clinical guidelines for physical activity in the management of common chronic conditions
- Recommended levels of aerobic exercise, resistance training, and flexibility training for older adults
- Strategies for promoting appropriate physical activity in older adults

# TOPICS COVERED

- Benefits of Physical Activity
- Recommended Amounts of Physical Activity
- Promotion of Physical Activity in Older Adults

Physical activity reduces the risk of:

- Mortality (CVD and non-CVD)
- Coronary heart disease
- High blood pressure
- Stroke
- Some lipid disorders
- Non–insulin-dependent diabetes mellitus
- Cognitive impairment
- Depression
- Osteoporosis
- Colon cancer
- Breast cancer
- Unhealthy weight gain
- Falls

## The health benefits of physical activity:

- Accrue independently of other risk factors for chronic disease such as smoking
- Accrue whether or not a person loses body weight as a result of physical activity
- Include reduced risk of moderate or severe functional limitations, both physically and mentally in older adults

# THERAPEUTIC EFFECTS OF PHYSICAL ACTIVITY

- Physical activity has a therapeutic role in many chronic illnesses
- The benefits of physical activity are demonstrable in older adults with clinically significant functional limitations

# ECONOMIC EFFECTS OF PHYSICAL ACTIVITY

- Habitually active adults have lower medical expenditures
- Evidence is growing that medical expenditures decline in sedentary older adults who become more active

# RECOMMENDATIONS ABOUT AEROBIC PHYSICAL ACTIVITY (1 of 3)

<b>Frequency/ Duration</b>	<b>Examples of activities</b>	<b>Examples of targeted conditions</b>
<p>≥150 minutes of moderate-intensity activity each week, spread throughout the week, OR</p> <p>≥75 minutes of vigorous-intensity activity each week, spread throughout the week</p>	<p>Walking, running, swimming, bicycling, rowing, using stairs instead of elevators, aerobic exercise machines such as ellipticals and stair steppers</p>	<p>Many conditions, including cardiovascular disease, cancer, diabetes, and depression</p>



# RECOMMENDATIONS ABOUT AEROBIC PHYSICAL ACTIVITY (2 of 3)

<b>Frequency/ Duration</b>	<b>Examples of activities</b>	<b>Examples of targeted conditions</b>
≥2 days each week for 20–30 minutes	Resistance exercises targeting major muscle groups, eg, abdominals (situps), shoulders and arms (pushups), thighs (squats), calf muscles (heel raises -helps with balance as well), gluteals, and lower back (alternating leg raises in prone position). Weight machines allow calibration of the resistance and may activate a wider range of muscle groups.	Falls, frailty, osteoarthritis, sarcopenia

# RECOMMENDATIONS ABOUT AEROBIC PHYSICAL ACTIVITY (3 of 3)

- Preferably 3 or more days per week
- All types of activity count toward recommended amount
  - Occupational, such as carpentry, gardening
  - Domestic, such as yard work and house cleaning
  - Transportation, such as walking to the store
- Greater levels of activity result in more benefits
- Even if a person is not able to meet the recommended level, some activity is better than inactivity
- Too much sitting increases the risk of early mortality and morbidity, independent of achieving exercise targets

# EXPLAINING AEROBIC ACTIVITY LEVEL

- To explain intensity, use a scale of 0–10
  - 0 = sitting
  - 5 = brisk walking, about 3 mph
  - 10 = all-out effort
- Light activity is 2–4
- Moderate intensity is 5 or 6
- Vigorous intensity is 7 or 8

# RECOMMENDATIONS ABOUT MUSCLE STRENGTHENING (1 of 2)

<b>Frequency/ Duration</b>	<b>Examples of activities</b>	<b>Examples of targeted conditions</b>
≥2 days each week for 20–30 minutes	Resistance training (eg, using weight machines, push ups, sit ups)	Falls, frailty

# RECOMMENDATIONS ABOUT MUSCLE STRENGTHENING (2 of 2)

- All major muscle groups
  - Arms
  - Shoulders
  - Legs
  - Back
  - Chest
  - Abdomen
- Moderate or high intensity recommended, on a scale of 0-10
  - Moderate = 5 or 6
  - High = 7 or 8

# RECOMMENDATIONS ABOUT FLEXIBILITY TRAINING

<b>Frequency/ Duration</b>	<b>Examples of activities</b>	<b>Examples of targeted conditions</b>
10 min daily to maintain adequate range of motion	Stretching	Osteoarthritis, muscle spasms

- Recommended in older adults to maintain flexibility needed for regular physical activity and daily life
- No known health benefits by itself

# RECOMMENDATIONS ABOUT BALANCE TRAINING

- $\geq 3$  days per week for adults at increased risk of falls and those with mobility problems
- Types of exercises:
  - Backward walking
  - Heel-to-toe walking
  - Standing on 1 foot
- Tai Chi is effective in fall prevention, although optimal amount and forms of Tai Chi are unclear

# MANAGEMENT OF BODY WEIGHT

- To attain a healthy weight, first achieve activity level of 140–175 minutes of aerobic exercise per week (20–25 minutes daily)
- If 150 minutes/week is insufficient, increase intensity and duration of physical activity and decrease caloric intake
- When older adults cannot do higher levels of activity, emphasize caloric restriction
- Older adults should avoid weight loss by caloric restriction alone, because physical activity opposes the loss of muscle and bone mass that occurs during weight loss



# “SCREENING”

- The purpose of a medical evaluation prior to exercise (“screening”) is to match older adults to an activity plan appropriate for their abilities
- Clinicians should:
  - Ensure that the patient does not have any undiagnosed symptoms or unstable medical problems, and is up-to-date on preventive care
  - Assess if and how the patient should limit activity
- At a minimum, older adults should discuss physical activity with a health care provider at least once per year

# PROMOTION OF PHYSICAL ACTIVITY IN CLINICAL SETTINGS

Clinical settings need a system for routinely:

- Assessing levels of physical activity in patients
- Providing patients with a recommendation about physical activity
- Helping patients achieve recommended levels
- Evaluating the effectiveness of the system in promoting physical activity

- Tools can provide quick assessments of the physical activity level of older adults, such as **Rapid Assessment of Physical Activity**
  - 9-item questionnaire
  - Patients self-rate their strength, flexibility, and frequency and intensity of exercise
- Both the amount of aerobic activity and the amount of muscle-strengthening activity should be assessed

- Studies have shown that time that is spent sitting is independently associated with total mortality, regardless of physical activity level
  - Those who sit in front of computers all day without hourly walking breaks and older adults with or without limited mobility, who spend excessive time laying down are at increased risk
- Clinicians should provide advice on ways to avoid excessive time sitting and in bedrest
- Caregivers should be aware that doing too much for those in their care may not be in the best interest of the patient

- In ACSM/AHA recommendations, the activity prescription is part of a broader approach of developing the physical activity plan
  - Plan considers preferences, individual abilities and fitness, chronic conditions and activity limitations, risk of falls, strategies for decreasing risk of injury
  - Includes behavioral strategies to increase adherence
- A resource for developing the plan is ACSM's *Exercise Management for Chronic Diseases and Disabilities*

- Guidelines for developing an activity plan:
  - Emphasize walking or for those with knee arthritis, swimming, pool exercise, and non-weight bearing activities such as cycling or rowing
  - Importance of gradually increasing physical activity over time
  - Start in a supervised, evidence-based program
  - Importance of social support

# ASSISTANCE IN INCREASING PHYSICAL ACTIVITY (1 of 2)

- Some clinic-based systems of promoting physical activity have been carefully studied and reported to increase physical activity
- A clinic can implement either an existing evidence-based approach, or implement and evaluate a new approach tailored to the clinical situation, based on principles of behavior change and building on existing approaches

# ASSISTANCE IN INCREASING PHYSICAL ACTIVITY (2 of 2)

- For adults with some functional limitations, an appropriate way to provide assistance is to make a referral to an evidence-based program
- Resources to consider:
  - National Council on Aging Web site ([www.ncoa.org](http://www.ncoa.org))
  - *Exercise: A Guide from the National Institute on Aging*



# MANAGEMENT OF RISKS OF PHYSICAL ACTIVITY

- Increase physical activity gradually over time
  - **In reasonably healthy adults**, adding a small amount of light- to moderate-intensity activity each week (eg, increasing walking time by 5–15 minutes on 2 to 3 days per week) has low risk of musculoskeletal injury and no known risk of sudden cardiac events
  - **In less healthy adults**, increase activity level as seldom as once per month
- Prefer moderate-intensity activity

# OLDER ADULTS WITH LOW FITNESS OR LOW FUNCTIONAL ABILITY

- It can be challenging to match abilities with types and amounts of activity
  - Sometimes referrals can be made to specific rehabilitation programs (such as pulmonary rehabilitation) for assessment, exercise prescription, and medically supervised exercise
- Assessment by a physical therapist is generally appropriate
  - The therapist can design and tailor an exercise program to the specific limitations of the patient

# SUMMARY (1 of 2)

- The health benefits of physical activity accrue independently of risk factors
- To obtain substantial health benefits of physical activity, older adults are commonly advised to do at least 150 minutes of moderate-intensity aerobic activity each week
  - If they cannot do this amount, they should do the amount possible according to their abilities
  - At least 30 minutes of moderate-intensity aerobic activity on 5+ days/week is an appropriate way for older adults to be active

## SUMMARY (2 of 2)

- Older adults should also engage in muscle-strengthening activity on 2+ days each week, and those at risk of falls should do balance training
- Promoting physical activity is one of the most important and effective preventive and therapeutic interventions
- Counseling by a health care provider is an important way of promoting physical activity in clinical settings
- Referral of patients to community resources, particularly evidence-based programs, is also important

- A 70-year-old man comes in for follow-up related to acute MI 1 month ago.
- History: hypertension, dyslipidemia, diabetes, tobacco use
- Since the MI, he has quit smoking and increased his physical activity.
- He asks whether his increased physical activity could reduce his risks of future health problems, given that he smoked most of his life.

Which one of the following is true regarding regular physical activity in older adults?

- A. There is a linear dose–response relationship for all health conditions.
- B. Physical activity decreases cardiovascular and noncardiovascular mortality in older adults.
- C. Health benefits accrued from physical activity are dependent on risk factors.
- D. Physical activity does not reduce the risk of moderate or severe functional limitation.

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