Physical Activity Guidelines for Older Adults

BASSEM ELSAWY, MD, and KIM E. HIGGINS, DO, *Methodist Charlton Medical Center, Dallas, Texas*

Few older adults in the United States achieve the minimum recommended amount of physical activity. Lack of physical activity contributes to many chronic diseases that occur in older adults, including heart disease, stroke, diabetes mellitus, lung disease, Alzheimer disease, hypertension, and cancer. Lack of physical activity, combined with poor dietary habits, has also contributed to increased obesity in older persons. Regular exercise and increased aerobic fitness are associated with a decrease in all-cause mortality and morbidity, and are proven to reduce disease and disability, and improve quality of life in older persons. In 2008, The U.S. Department of Health and Human Services released guidelines to provide information and guidance on the amount of physical activity recommended to maintain health and fitness. For substantial health benefits, the guidelines recommend that most older adults participate in at least 150 minutes of moderate-intensity aerobic activity, 75 minutes of vigorous-intensity aerobic activity, or an equivalent combination of each per week. Older adults should also engage in strengthening activities that involve all major muscle groups at least two days a week. Those at risk of falling should add exercises that help maintain or improve balance. Generally healthy adults without chronic health conditions do not need to consult with a physician before starting an exercise regimen. **(*Am Fam Physician*. 2010;81(1):55-59, 60-62.**

▶ **See related editorial on page 24.**

▶ **Patient information:** A handout on exercise in older adults, written by the authors of this article, is provided on page 60.

The number of older Americans is expected to double from 35 to 70 million over the next 25 years. By the year 2030, 20 percent of the U.S. population will be older than 65 years.[1] Lack of physical activity contributes to many of the chronic diseases that occur in older adults, including heart disease, stroke, diabetes mellitus, lung disease, Alzheimer disease, hypertension, and cancer. Lack of physical activity, combined with poor dietary habits, has also contributed to increased obesity in this population.[2] In response to these trends, the U.S. Department of Health and Human Services published the 2008 Physical Activity Guidelines for Americans to provide specific minimum guidelines for regular physical activity.[3] Unlike previous recommendations, these guidelines suggest a total amount of activity per week and allow for individualized activity plans.

Relatively few older adults in the United States achieve the minimum amount of recommended physical activity, and 28 to 34 percent of adults 65 to 74 years of age are inactive.[4] The medical costs for inactive adults are substantially higher than for active adults and increase with age. This suggests that it may be possible to significantly lower health care costs by improving physical activity levels in older adults, as compared with any other age group.[4]

Health Benefits of Physical Activity

Regular physical activity has beneficial effects on a variety of health outcomes[4] *(Table 1[3])*. It is a proven public health strategy that reduces disease and disability while improving quality of life in older persons.[5]

MAINTAINING FUNCTION

Muscle strength decreases with age and may lead to a loss of autonomy and increased disability.[6] A randomized controlled trial examining the effects of progressive weight training in 142 healthy adults 60 to 80 years of age found that long-term resistance training increased dynamic muscle strength, muscle size, and functional capacity.[6]

PROTECTING THE MIND

Physically active adults have a lower risk of depression and cognitive decline than inactive adults.[3] In a study of 1,740 persons 65 years and older without a diagnosis of dementia at baseline, those who exercised at least three times a week were much less likely than nonexercisers to develop dementia or Alzheimer disease.[7] Additionally, participating in an activity, especially regular physical exercise, appears to decrease the risk of delirium in hospitalized older patients. In a study of 779 newly hospitalized patients 70 years and older without dementia, regular exercise lowered the risk of delirium by 24 percent.[8]

SORT: KEY RECOMMENDATIONS FOR PRACTICE

Clinical recommendation	*Evidence rating*	*References*
To promote and maintain health, older adults should participate in moderate-intensity aerobic activity for at least 30 minutes on five days of the week, or vigorous-intensity aerobic activity for at least 20 minutes on three days of the week.	A	15
Moderate- and vigorous-intensity activity can be combined to meet the minimum recommendation for aerobic activity.	B	15
To promote and maintain health and physical independence, older adults should perform muscle-strengthening activities on at least two days of the week.	B	15
Participation in more than the minimum recommended amount of aerobic and muscle-strengthening activities leads to additional health benefits and higher levels of fitness.	A	15
To reduce the risk of falls and related injuries, community-dwelling older adults with substantial risk of falling should perform exercises that maintain or improve balance.	A	15
To maintain the flexibility necessary for regular physical activity and daily life, older adults should perform activities that maintain or increase flexibility for at least 10 minutes on at least two days of the week.	B	15
Older adults should have a plan for obtaining sufficient physical activity that addresses each recommended type of activity.	C	15

NOTE: *The recommendations are based on American College of Sports Medicine/American Heart Association guidelines.*

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, go to http://www.aafp.org/afpsort.xml.

Table 1. Health Benefits of Physical Activity in Adults

Strong evidence
Decreased risk of early death, heart disease, stroke, type 2 diabetes mellitus, high blood pressure, adverse blood lipid profile, metabolic syndrome, and colon and breast cancers
Prevention of weight gain
Weight loss, when combined with healthy diet
Improved cardiorespiratory and muscular fitness
Fall prevention
Reduced depression
Improved cognitive function (older adults)
Moderate to strong evidence
Improved functional health (older adults)
Reduced abdominal obesity
Moderate evidence
Weight maintenance after weight loss
Decreased risk of hip fracture
Increased bone density
Improved sleep quality
Decreased risk of lung and endometrial cancers

Adapted from U.S. Department of Health and Human Services. 2008 physical activity guidelines for Americans. http://www.health.gov/paguidelines/guidelines. Accessed December 8, 2008.

DECREASING THE RISK OF MEDICAL CONDITIONS

Regular exercise and increased aerobic fitness are associated with a decrease in all-cause mortality and morbidity in older adults.[9,10] The benefits are greatest among the most active persons, but are also evident with moderate activity.[9] In one study, life expectancy was increased even in persons who did not begin exercising regularly until 75 years of age.[11]

Strong scientific evidence shows that physical activity helps maintain a healthy body weight and lowers the risk of obesity.[3] Physically active persons also have a significantly lower risk of colon and breast cancers compared with inactive persons.[3]

It is estimated that approximately 2.3 million adults in the United States have atrial fibrillation. By the year 2050, it is projected that this number will increase to more than 5.6 million adults, and more than 50 percent of those affected will be 80 years or older.[12] In one study of 5,446 adults with an average age of 73 years, the incidence of atrial fibrillation was inversely proportional to how often a person walked. For example, persons who walked five to 11 blocks weekly had a 22 percent lower risk of atrial fibrillation than those who walked fewer than five blocks weekly. The risk was 44 percent lower for those who walked 60 or more blocks weekly.[12]

The cardiac risk of inactive persons is comparable with that of smokers.[4] Adults who are regularly active have

lower rates of heart disease and stroke, lower blood pressure, a lower risk of hypertension, a better lipid profile, and a higher fitness level.[3]

Recommended Levels of Physical Activity

Recommendations for physical activity in generally healthy older adults are summarized in *Table 2*.[3,13] The 2008 Physical Activity Guidelines for Americans advises older adults to avoid inactivity while striving to be as physically active as their abilities allow.[3] According to the American College of Sports Medicine (ACSM), aerobic and muscle-strengthening activity is critical for healthy aging.[3]

ACTIVITY PLAN

It is important to create a plan that addresses each recommended type of activity. The plan should describe how, when, and where each activity will be performed. Patients with chronic conditions require a plan that integrates prevention and treatment. Additionally, the activity plan should gradually and progressively increase physical activity over time. Physicians should counsel older adults to participate in sufficient weekly physical activity, adding additional exercises to meet the patient's specific needs and goals.[14] Participating in several short periods of physical activity enables some older adults to achieve the recommended level of activity. A combination of moderate- and vigorous-intensity activity should be performed and individualized to the person's functional abilities.[3] *Table 3* provides examples of aerobic and muscle-strengthening activities.[3]

Studies of effective exercise programs typically include warm-up and cool-down periods, although evidence of their benefit is lacking.[3] Patients should be encouraged to self-monitor their physical activity on a regular basis and to reevaluate their activity plan as their abilities improve or as their health status changes. Additionally, some older adults may need to increase their physical activity level and modify their diet to maintain a healthy body weight.

Table 2. Recommendations for Physical Activity in Older Adults

Minimum activity for achieving important health benefits
Two hours and 30 minutes (150 minutes) of moderate-intensity aerobic activity (e.g., brisk walking) a week, plus muscle-strengthening activities on at least two days of the week
or
One hour and 15 minutes (75 minutes) of vigorous-intensity aerobic activity (e.g., jogging, running) a week, plus muscle-strengthening activities on at least two days of the week
or
A combination of moderate- and vigorous-intensity aerobic activity equivalent to the recommendations above, plus muscle-strengthening activities on at least two days of the week
Increased activity for achieving additional health benefits
Five hours (300 minutes) of moderate-intensity aerobic activity a week, plus muscle-strengthening activities on at least two days of the week
or
Two hours and 30 minutes (150 minutes) of vigorous-intensity aerobic activity a week, plus muscle-strengthening activities on at least two days of the week
or
A combination of moderate- and vigorous-intensity aerobic activity equivalent to the recommendations above, plus muscle-strengthening activities on at least two days of the week

NOTE: *Activity level should be relative to physical ability, and exercises to improve balance and flexibility may also be beneficial. Aerobic activity should occur throughout the week, with each session lasting at least 10 minutes. Muscle-strengthening activities should work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms), and consist of eight to 12 repetitions per activity or continue until it would be difficult to do another repetition without help.*

Adapted from Centers for Disease Control and Prevention. Physical activity for everyone. How much physical activity do older adults need? http://www.cdc.gov/physicalactivity/everyone/guidelines/olderadults.html. Accessed August 17, 2009; with additional information from reference 3.

Table 3. Examples of Aerobic and Muscle-Strengthening Activities

Aerobic activities	Muscle-strengthening activities
Aerobic exercise classes	Calisthenic exercises
Bicycle riding	Carrying groceries
Dancing	Exercises using exercise bands, weight machines, or handheld weights
Golf (without a cart)	Pilates
Some activities of yard work/gardening (e.g., raking, pushing a lawn mower)	Some activities of yard work/gardening (e.g., lifting, digging, carrying)
Swimming, water aerobics	Some yoga and tai chi exercises
Tennis or racquetball	Washing windows or the floor
Vacuuming	
Walking, jogging	

Adapted from U.S. Department of Health and Human Services. 2008 physical activity guidelines for Americans. http://www.health.gov/paguidelines/guidelines. Accessed December 8, 2008.

AEROBIC PHYSICAL ACTIVITY

Joint guidelines from the ACSM and American Heart Association recommend engaging in a variety of different types of aerobic physical activity throughout the week.[15] The activities should last at least 10 minutes at a time and should be performed at moderate- or vigorous-intensity. Studies show that activity performed at least three days a week may reduce the risk of injury and excessive fatigue while producing health benefits.[3]

MUSCLE STRENGTHENING

The development of muscle strength and endurance is progressive and is important to help prevent loss of bone and muscle mass. At least two days a week, older adults should do muscle-strengthening activities (e.g., lifting weights, carrying groceries) that involve all major muscle groups. These exercises should consist of eight to 12 repetitions per activity, or should continue until it would be difficult to do another repetition without help.

BALANCE AND FLEXIBILITY

Performing exercises that maintain or improve balance may reduce the risk of falls and related injuries.[16] Older adults are at increased risk of falls if they have fallen recently or have difficulty ambulating. Balance exercises and moderate-intensity, muscle-strengthening activities should be performed at least three days a week for a total of 90 minutes, in addition to moderate-intensity walking for about one hour a week. Examples of exercises to improve balance include walking backward or sideways, heel walking, toe walking, and standing from a sitting position. As balance improves, these exercises should increase in difficulty.

Stretching activities may help maintain the flexibility necessary to continue regular physical activity. Older adults should perform activities that maintain or increase flexibility on at least two days a week for at least 10 minutes a day.

Table 4. Special Considerations for Initiation of Physical Activity in Older Adults

Inactivity
If necessary, start out with light-intensity activity that lasts less than 10 minutes, and slowly increase the duration of light-intensity activity and number of days a week the person is active.
Light-intensity walking is a good beginning activity, and moderate-intensity aerobic activity can be added gradually. Engaging in vigorous-intensity activity should initially be avoided to reduce risk of injury.
Functional limitations*
Evidence indicates that regular physical activity is safe and helps improve functional capacity.
Resuming activity after an illness or injury
Sometimes, it is necessary to take a break from regular physical activity because of an illness or injury. If this occurs, physical activity should be resumed at a lower level and progressively increased to the previous level of activity.
Increasing activity for weight loss
Some older adults require more physical activity than others to sustain a healthy body weight.
If needed, the amount of aerobic physical activity should be gradually increased and caloric intake should be reduced to achieve energy balance and a healthy weight.

**—The inability to do an everyday activity, such as climbing stairs.*

Information from reference 3.

Integration of Preventive and Therapeutic Recommendations

Older adults with chronic illnesses or disabilities can gain significant health benefits by engaging in daily nonstrenuous physical activity.[3] Regular, adequate, weekly activity is more important than strenuous physical activity, and all activity plans should be customized to the individual patient's abilities and needs. For some patients, low-impact activities (e.g., stretching exercises, swimming or other water activities) may be beneficial. Yoga and tai chi are other modalities that may promote flexibility, improve balance, and increase strength.[4] *Table 4* includes recommendations for older adults with limitations or other special considerations.[3]

Preexercise Evaluation

Before initiating an exercise program, most older adults with diagnosed chronic health conditions (e.g., diabetes, heart disease, osteoarthritis) should devise an appropriate activity plan in consultation with their physician that focuses on cardiac risk factors and physical limitations. Recommendations for preexercise evaluation are presented in *Table 5*.[3,17-19]

The 2008 Physical Activity Guidelines for Americans does not recommend consultation with a physician before starting an exercise plan in persons without diagnosed chronic health conditions or symptoms, such as chest pain or pressure, dizziness, and joint pain.[3]

Table 5. Recommendations for Preexercise Evaluation in Older Adults

U.S. Department of Health and Human Services (2008)[3]
All adults without a diagnosed chronic condition, such as diabetes mellitus, heart disease, or osteoarthritis, and who do not have symptoms (e.g., chest pain or pressure, dizziness, joint pain) *do not* need to consult with a physician about physical activity.
Patients with chronic conditions should consult a physician to set physical activity goals.
American College of Cardiology/American Heart Association (2002)[17]
Physicians should consider routine exercise stress testing before the initiation of a *vigorous* exercise program in healthy men older than 45 years and healthy women older than 55 years.
All sedentary older adults and persons with known coronary artery disease, cardiac symptoms, or two or more coronary artery disease risk factors should undergo exercise stress testing before initiation of a *vigorous* exercise program.
American College of Sports Medicine (1998)[18] **and American Heart Association (2000)**[19]
Absolute contraindications to aerobic exercise and resistance training programs include recent myocardial infarction or electrocardiography changes, complete heart block, acute congestive heart failure, unstable angina, and uncontrolled hypertension.

Information from references 3, and 17 through 19.

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The Authors

BASSEM ELSAWY, MD, is a geriatrics faculty member in the Methodist Charlton Medical Center Family Medicine Residency Program, Dallas, Tex. He is also medical director at several long-term care and hospice facilities in Dallas.

KIM E. HIGGINS, DO, is a third-year family medicine resident at Methodist Charlton Medical Center.

Address correspondence to Bassem Elsawy, MD, Methodist Charlton Medical Center Family Medicine Residency, 3500 W. Wheatland Rd., Dallas, TX 75237 (e-mail: bassemelsawy@mhd.com). Reprints are not available from the authors.

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