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ELDER CARE

A Resource for Interprofessional Providers

Physical Exercise Guidelines for Older Adults

Jorge C Mora, MD, MPH, Annabella Ferrari, MD, Florida International University

Older adults spend 65-80% of their waking day being sedentary. Yet regular physical exercise is a key intervention in aging for preserving cognition, function, and well-being, and for reducing risk of cardiovascular events. Regular physical activity that burns >1000 kcal/week is associated with a 30% reduction in all-cause mortality. Benefits of physical exercise for older adults are shown in Table 1.

Although physical decline is often associated with aging and can affect almost all systems in the human body, the rate of decline varies considerably. There is evidence that this deterioration may be partially avoided and/or reversed with regular exercise and avoidance of sedentary lifestyles. In fact, older adults have the ability to respond positively to exercise even in their 90s.

Unfortunately, while there are clear benefits to physical exercise with aging, older adults are at higher risk than younger individuals for many sports-related injuries and the disability that results from them. Providing patients with guidelines may help to maximize the benefits of regular exercise while minimizing the risk of injury.

Exercise Recommendations for Older Adults

The 2018 Physical Guidelines from the US Department of Health and Human Services (HHS) recommend at least 150-300 minutes per week of moderate-intensity aerobic exercise, or 75-150 minutes per week of vigorous-intensity aerobic exercise for older adults. However, additional health benefits are attained if the amount of moderate and vigorous intensity increases beyond those levels. Tai chi, yoga, dancing or recreational sports should also be recommended to older adults because they include several types of physical activity (aerobic, balance, flexibility and muscle strengthening) and thus can reduce the risk of injury and improve physical function. In addition, older adults should exercise in "sports clubs or gyms" to reduce the risk of social isolation and to promote healthier social networks, which may have additional health benefits beyond the physiological response to exercise.

For older adults who are deconditioned, functionally limited, frail, or have chronic conditions that affect their ability to perform any physical activities, a more conservative exercise regimen is necessary to prevent complications or injuries. For example, short episodes of activity as low as 5 minutes per day are appropriate for people who were inactive and have gradually started to increase their level of fitness over weeks or even months.

Table 1. Health Benefits of Physical Exercise in Older Adults

System	Benefit
Overall	Reduces all-cause mortality, improves quality of life and physical function in older adults with and without frailty.
Immune	Reduces markers of systemic inflammation. Reduces the risk of the following cancers: bladder, stomach, colon, endometrium, breast, esophagus, kidney, and lung.
Neurological	Reduces the risk of dementia. Improves cognition (executive function, attention, memory and processing speed). Improves visual-spatial orientation and proprioception.
Cardiovascular and Pulmonary	Reduces risk of cardiovascular disease, hypertension, heart failure, heart attack, peripheral vascular disease, high blood pressure, LDL and total cholesterol, and stroke. Improves muscle function and adaptation to oxidative stress. Improves heart rate variability and reduces arterial stiffness. Improves gas exchange.
Endocrine and Metabolic	Increases basal metabolic rate, and improves insulin sensitivity and glucose homeostasis. Lowers percentage body fat, slows weight gain. Reduces the risk of diabetes mellitus.
Muscles, Bones, Joints	Reduces risk of osteoporosis and risk of osteoporotic fracture, especially among postmenopausal women. Improves and maintains joint range of movement and flexibility. Increases synthesis of collagen in ligaments and tendons.
Psychological	Reduces anxiety, depression, improves sleep.

TIPS FOR RECOMMENDING EXERCISE REGIMENS FOR OLDER ADULTS

- Older adults should remain physically active. The target for health benefits is at least 150 minutes of moderate aerobic exercise per week. If this cannot be obtained, some exercise is better than none.
- For additional and more extensive health benefits, recommend 300 minutes per week of aerobic exercise.
- If a patient is sedentary, has multiple medical conditions, is frail, or has problems with balance, the patient should be enrolled in an observed physical therapy program to aid in beginning a physical activity regimen.

Resistance (weight) and flexibility training should be part of the exercise routine for older adults.

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Injuries and Medications

Exercise-related injuries in older adults are often the result of irregular activity, or overuse with repetitive microtrauma to tissues. Muscle strains are among the most frequent overuse injuries, largely due to the decreased flexibility of musculoskeletal units. Tendinopathies are also common due to changes in the microarchitecture and collagen disorganization and decrease in collagen amount.

Some medications can impair exercise performance in older adults, and should be discontinued or decreased if feasible when interfering with activity. Beta-blockers can reduce exercise tolerance by producing fatigue, lowering lactate threshold, predisposing to hyperthermia, impairing left ventricular function, and causing bronchospasm in some individuals. Diuretics cause urinary loss of potassium and magnesium, which can result in muscle cramps, arrhythmias, and rhabdomyolysis, especially during warm weather. Statins can induce muscle weakness, increase self-reported fatigue and joint pain, and alter energy metabolism during aerobic exercise. Metformin can increase heart rate and lactate concentration during exercise. Quinolones and steroids increase the risk of tendinopathy and tendon ruptures. Proton pump inhibitors can cause muscle cramps, muscle weakness, and arrhythmias during exercise. Selective serotonin reuptake inhibitors (SSRIs) increase fall risk. Antihistamines reduce reaction time and visual discrimination, potentially predisposing to falls. NSAIDs reduce inflammation associated with exercise but increase the risk of GI bleeding and renal insufficiency.

Other Considerations

For individuals who have been sedentary, have multiple medical conditions, are frail, or have problems with balance, it is often useful to begin exercise activities in a supervised physical therapy program or through a "Sit and Be Fit" or "Silver Sneakers" program. These programs also facilitate social interaction and promotion of stronger social networks resulting in even further health benefits seen with exercise alone in older adults. Patients with recent cardiac events or exacerbations of pulmonary disease should be considered for cardiac or pulmonary rehabilitation, respectively. But, even if the individual is unable to fully participate in these programs and achieve the exercise goals listed in Table 2, some exercise is better than none. The goal is to avoid inactivity.

Table 2. 2018 U.S. Department of Health and Human Service Exercise Recommendations for Older Adults

Exercise Type	Recommendation
Aerobic	• At least 150-300 minutes/week of moderate-intensity exercise* or 75-150 minutes/week of vigorous-intensity • Frequency: aerobic activity should be spread throughout the week • Type: Any modality that does not impose excessive orthopedic stress
Resistance	• Frequency: 2 times/week involving all major muscle groups, moderate-vigorous intensity* • Type: Progressive weight training program or weight bearing, or weight bearing calisthenics.
Balance	• For frequent fallers, or for individuals with mobility problems • Frequency: 3 times/week • Type: Progressively difficult postures that gradually reduce the base of support, dynamic movements that perturb the center of gravity, and stressing postural muscle groups. Examples: walking heel-to-toe, tai chi, standing from a sitting position, etc.
Flexibility	• Stretching and warm up and cool down activities, minimum 2 times a week. • Does not count to towards meeting aerobic or muscle-strengthening guidelines • Type: Any activities that maintain or increase flexibility using sustained stretches for each major muscle group

* Moderate-intensity activity is at a level of perceived effort of 5 or 6 on a scale of 0-10 where 0 is the effort of sitting, and 10 is maximal effort. Vigorous-intensity activity is a 7 or 8 on this scale. A person doing moderate-intensity aerobic activity can talk but not sing, while a person doing vigorous-intensity activity cannot say more than a few words without pausing for a breath.

References and Resources

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