

James L. Holly, M.D.

**You Can Get There but You Have to Walk Part VI
The Elderly and Exercise and Your Walking Speed and your Heart
By James L. Holly, MD
Your Life Your Health
The Examiner
December 10, 2009**

This is the sixth in a series of articles with a general title of “You can get there, but you have to walk.” In this series, we have discussed the importance of physical activity and why walking is the most sustainable, life-time activity.

Part I of this series was published on September 24th. At which time I discussed the 4 x 13 project. In that article, I discussed an ambitious goal of walking 5.5 miles a day for 365 days without missing a day. By October 20th, the 4 x 13 project had morphed into a 3 x 17.334 project. On October 20th, I completed 1/3rd of my goal with 122 days of daily walking 5.5 miles. On December 10th, when this article is published, I will be ten days from the halfway point in this exercise. You can accomplish the daunting goal of walking 365 days without missing a day; but you have to do it one day at a time. In that October 20th article, I comment that November 4th would be my 66th birthday.. I announced my intent to walk 6.6 miles that day; I did.

As I continue toward my goal, I invite you to establish a goal for yourself. It may involve more or less activity. The amount is not as important as the consistency. Never forget, exercise for health is NOT a competitive sport. It doesn't matter what others do or don't do. What matters is what you do and that you do it regularly, consistently and permanently.

Three studies add to our understanding of the value of exercise, particularly as we get older. They appeared in *Medicine & Science in Sports & Exercise*, the *British Medical Journal* and the *Journal of the American Geriatric Society*.

The following are highlights of the Sports Medicine guidelines published in *Medicine and Science in Sports & Exercise*:

1. The 2008 Physical Activity Guidelines for Americans affirms that regular physical activity reduces the risk of many adverse health outcomes.
2. The Sports Medicine guidelines include four overarching principles:
 - All adults should avoid inactivity
 - Some physical activity is better than none
 - Adults who participate in any amount of physical activity gain some health benefits.
 - Additional benefits occur as the amount of physical activity increases through higher intensity, greater frequency, and/or longer duration.

No amount of physical activity can stop aging but that evidence to date affirms that by limiting the development and progression of chronic disease and disabling conditions, regular exercise can reduce the harms of an otherwise sedentary lifestyle and improve active life expectancy. Older adults who engage in regular exercise may also experience significant emotional and mental benefits.

The following are specific evidence (this means that clinical research supports these conclusions) statements regarding the benefits of physical activity and exercise. Some of them are rather technical but the “take away” is that there are significant benefits to the basic three types of exercises: Strength (RET), Cardiovascular (AET) and Stretching.

- Vigorous, long-term participation in aerobic exercise training (AET) (walking, running, cycling, swimming etc.) improves cardiovascular reserve and skeletal muscle adaptations, allowing trained older persons to sustain exercise with a slower heart rate, less shortness of breath and less muscle fatigue than their untrained peers. Prolonged AET may also reduce age-related accumulation of central body fat, thereby protecting the heart.
- Prolonged participation in resistance exercise training (RET) increases muscle and bone mass and strength to a greater extent than AET.
- In healthy middle-aged and older adults, AET programs of sufficiently intense ($\geq 60\%$ of predicted maximum heart rate, frequency, and length (≥ 3 days/week for ≥ 16 weeks)) may significantly improve endurance.
- In healthy middle-aged and older adults, 3 months or more of moderate-intensity AET are associated with cardiovascular adaptations which are apparent both at rest and in response to acute exercise.
- Moderate-intensity AET has been shown to reduce total body fat, but not fat-free mass, in overweight middle-aged and older adults.
- Beneficial metabolic changes associated with AET include improved glycemic (blood sugar) control and removal of fats from the blood after a meal, as well as the burning of fat during exercise.
- In postmenopausal women, AET may counteract age-related decreases in bone mineral density.
- RET may markedly increase strength and muscular power in older adults.
- Older and younger adults have similar age-related increases in muscle quality, and these increases do not appear to be sex specific.
- Improvements in muscular endurance have been reported after RET using moderate- to higher-intensity programs, but not lower-intensity RET, and may improve muscular endurance.
- Although the effect of exercise on physical function is poorly understood and may not be linear (increasing steadily as the intensity and frequency increase), RET may improve walking, chair stand, and balance activities.
- Older adults who regularly take part in moderate- or high-intensity RET may have increased fat-free mass, decreased total body fat mass, and other beneficial changes in body composition.
- Compared with sedentary subjects, adults who participate in high-intensity RET have maintained or improved bone mineral density, with a direct relationship between muscle and bone adaptations.

- Evidence is mixed regarding the effect of RET on metabolic variables.
- In populations at increased risk of falling, multimodal exercise, including strength and balance exercises, and tai chi may decrease the risk for non-injurious and sometimes injurious falls.
- Few controlled studies have evaluated the effect of flexibility exercise on range of motion in older adults.
- Regular exercise and physical activity are linked to significant improvements in overall psychological well-being, possibly via effects on self-concept and self-esteem. Physical fitness and AET are linked to a lower risk for clinical depression or anxiety.
- Cardiovascular fitness and higher levels of physical activity lower the risk for cognitive decline and dementia, based on epidemiologic studies. In experimental studies, AET and RET, alone or especially combined, improve some measures of cognitive functioning, especially those requiring executive control, in previously sedentary older adults.
- Physical activity appears to be linked to some aspects of quality of life, but the precise nature of the relationship is unclear.
- High-intensity RET is effective for treating clinical depression. Additional research should address the optimal intensity and frequency of RET needed to elicit specific improvements in other measures of psychological health and well-being.

AET and RET activities together seem to be more effective than either form of training alone in counteracting the detrimental effects of a sedentary lifestyle on the health and functioning of the cardiovascular system and skeletal muscles. Although there are clear fitness, metabolic, and performance benefits associated with higher-intensity exercise training programs in healthy older adults, it is now evident that such programs do not need to be of high intensity to reduce the risks of developing chronic cardiovascular and metabolic disease. However, the outcome of treatment of some established diseases and geriatric syndromes is more effective with higher-intensity exercise (e.g., type 2 diabetes, clinical depression, osteopenia, sarcopenia, muscle weakness).

How Fast you Walk is important

Another study has shown that walking speed over 6 meters (19.5 feet) in older people is predictive of cardiovascular mortality, with those who walk the slowest being three times more likely to suffer cardiovascular death over five years than those who walked faster. The *British Medical Journal* suggests that this kind of walking test could be part of a general clinical assessment of those aged over 65..

Older persons who walk slowly have an increased risk of death, in particular cardiovascular death; it's an easy message, showing the very important role of trying to maintain good fitness in older persons.

In this study, walking speed was measured by asking participants to walk at their usual speed and then asking them to walk, over 19.5 feet down a corridor, at their maximum pace without running. This measure could be simply performed in a doctor's office using

a watch or timer, to obtain walking speed in meters per second, he noted. Those who walked at 1 meter/sec (this correlates with a 2.2 mile per hour walking pace or 39 inches per second which is equal to 3.25 feet per second) or slower were at greater risk. There was no difference in the mortality risks between those who walked faster and those who walked fastest.

In this study, during follow-up, 209 participants died (99 from cancer, 59 from cardiovascular disease, 51 from other causes); those in the lowest third of baseline walking speed had a 44% increased risk of death (hazard ratio 1.44), compared with the faster walkers.

Analyses for specific causes of death showed that those with a low walking speed had about a threefold increased risk of cardiovascular death (HR 2.92) compared with participants who walked faster. There was no association between walking speed and cancer mortality, however.

Walking Speed: An Objective Measure of Physical Fitness

The assessment of walking speed is simple and can be performed easily in a routine clinical setting. Some geriatricians already do this kind of thing, following the measure over time, seeing if it remains stable. However, walking speed should not be used in isolation to identify people at high risk of cardiovascular death but rather "in the context of a global assessment." The participants studied were community-dwelling, well-functioning older people in fairly good health who were able to come by themselves to the study center. Assessment of older, frailer individuals "is more complicated" and has not been done.

How Fast is Enough?

Walking is one of the favorite activity pastimes of older adults, but few of them might consider that increasing their speed and agility may prevent hospitalization or disability. However, a study by Cesari and colleagues, which was published in the October 2005 issue of the *Journal of the American Geriatric Society*, demonstrated that walking speed translates into important clinical outcomes. Among 3047 older adults, those with a walking speed of less than 1 meter per second (about 2.2 miles per hour) were more likely to have a hospitalization or lower extremity disability versus older adults with a faster walking speed.