



## Reduced Aerobic Fitness May Mean Dependent Living In Later Years

It's long been documented that aerobic exercise delivers critical health benefits, from an increase in health span and decrease in health risks to reduced stress, better muscle endurance and improved quality of sleep.

In fact, a significant study of more than 15,000 veterans whose average age was 60, published in the January 2008 *Circulation* (a journal of the American Heart Association), found that men who were "highly fit" had a 50% - 70% lower mortality risk than their "low-fit" counterparts. Lead author on the study Peter Kokkinos even stated that to attain the associated health benefits, it only takes "moderate levels of physical activity like 30 minutes a day, five days a week of brisk walking."

But it's also well documented that maximal oxygen intake decreases between 20 to 60 years old and is projected to deteriorate at a similar rate into retirement. The faculty of Physical Education and Health and Department of Health of Public Health Sciences along with the faculty of medicine at the University of Toronto, (Ontario, Canada) examined the "likelihood that a deterioration of aerobic fitness will lead to a loss of independence in old age."

Published in the March 2008 *British Journal of Sports Medicine*, the short-review study investigated maximal aerobic power, which they had postulated two decades earlier as an important factor that influenced the quality of life in the aged and allowed for independent living.

**A look at the study.** They used traditional relative units— $\text{ml}/[\text{kg}\cdot\text{min}]$ —to describe any functional losses with aging. In previous cross-sectional studies, a "typical sedentary man . . . showed maximal aerobic power decreasing fairly steadily from perhaps  $45 \text{ ml}/[\text{kg}\cdot\text{min}]$  at age 20 to about  $25 \text{ ml}/[\text{kg}\cdot\text{min}]$  at age 60." For women, the deterioration begins around age 35, decreasing from "young adult value of perhaps  $38 \text{ ml}/[\text{kg}\cdot\text{min}]$  to  $25/[\text{kg}\cdot\text{min}]$  at age 60." And, according to their abstract, a 1995 U.S. study (Jackson, AS et al) found "an accumulation of body fat and a decrease in habitual physical activity accounted for about half of the age-related decrease."

The Canadian researchers hypothesized that independence would be "challenged when the maximal aerobic power had dropped to  $12\text{-}15 \text{ ml}/[\text{kg}\cdot\text{min}]$ "—based on a study by Bonjer, FH that "demonstrated an exponential relationship between the duration of aerobic exercise and the relative intensity that was tolerated."

The result? Efforts over an eight-hour day that demanded more than 40%-50% of a subject's maximal aerobic power produced fatigue. A decrease of 4 METS in the elderly person's maximal aerobic power—METS are metabolic equivalents, a measurement of energy demands on exercise—would indicate the individual could only "sustain a very limited range of activities requiring less than 2 METS." For comparison, resting equates to 1 MET; a light workout is 2-4 METS; a vigorous run is 8 METS.

In other words, this elderly individual would only have the energy capacity for resting, which makes dependent living inevitable! Just standing, per a 2006 study by Weiss et al, showed that in their oldest subjects, "demanded half of their maximal oxygen intake of  $13 \text{ ml}/[\text{kg}\cdot\text{min}]$ ."

**What the findings mean to you.** After analyzing numerous studies, researchers found the following outcome, as stated in their abstract:

- Available data suggest a loss of  $5 \text{ ml}/[\text{kg}\cdot\text{min}]$  per decade continues in old and very old subjects.
- The maximal oxygen intake compatible with continued independence is about  $15\text{-}18 \text{ ml}/[\text{kg}\cdot\text{min}]$ , reached at 80-85 years in sedentary elderly people.
- A regular exercise program can slow or reverse the loss of aerobic fitness, reducing the individual's biological age and prolonging independence. Progressive aerobic training can boost the aerobic power of elderly subjects by at least  $5\text{-}6 \text{ ml}/[\text{kg}\cdot\text{min}]$ , potentially delaying the loss of dependence by as much as 10-12 years.

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### **Your good health and well-being are in your control.**

Shown by these studies, exercise capacity is linked to healthy aging and an opportunity to live out those years with dignity and self-reliance. . . rather than in assisted living. The Mayo Clinic lists ten ways regular aerobic exercise helps you live a robust life:

- **Reduce health risks**—including obesity, heart disease, high blood pressure, type 2 diabetes, stroke, certain types of cancer and osteoporosis (with weight-bearing aerobics such as walking)
- **Better management of chronic conditions**—helping to lower high blood pressure, control blood sugar, relieve chronic muscle pain and even prevent subsequent heart attacks in those who had one previously
- **Weight control**—when combined with a healthy diet
- **Stronger immune system**—aerobics activate your immune system, warding off viral illnesses (colds and flu)
- **Cleared arteries**—by increasing the concentration of high-density lipoprotein (HDL) cholesterol and decreasing the concentration of low-density lipoprotein (LDL) cholesterol in your blood for less plaque buildup
- **Strengthens your heart**—pumping blood more efficiently, improving blood flow
- **Mood enhancer**—reduces tension, promotes relaxation, eases depression
- **Increased stamina**—reduces fatigue in the long run
- **Vigorous, independent living as you age**—increased mobility with stronger muscles and enhanced maximal aerobic power
- **Sharper thinking**—researchers suggest at least 30 minutes of aerobics three days a week can reduce cognitive decline in older adults

Discuss an action plan with your physician for a more meaningful, vigorous life now—one that will last into your twilight years. Consider brisk walking, biking, jogging, swimming, dancing and even fitness center activities, including treadmills, elliptical machines, exercise cycles, etc.

**Cenegenics: a life-changing medical approach.** Cenegenics is all about fitness and helping patients experience a new definition of aging—one filled with youthful energy (physical and sexual), improved libido, lean muscle mass, reduced body fat, sharper thinking, stronger immune system, an ability to manage stress and an enhanced sense of well-being.

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