

## Age and Athleticism

### A Comparison of Physiological to Chronological Age

It has been found that that age tells little about your health, your appearance, or ability to perform. Chronological age isn't the predictor of health or performance. Performance in work or sport is a function of *physiological age*, not chronological age.

The single best measure of physiological age, known to Sport Medicine, is the aerobic fitness score ( $VO_{2max}$ ). It gives information about health and capacity of the respiratory, circulatory, and muscular systems. It inversely relates aerobic fitness to risk factors causing the claim:

Thus a 55-year-old may have the health and performance capability of the average 25- to 30-year-old. <sup>3</sup>

Other factors of physiological age include family history, health habits, measure of blood pressure and cholesterol; and measures of strength, reaction time, vision, and hearing.

It has been well documented that slowing the aging process comes from the physiological benefits of regular exercise, and that they are fairly certain that persons who are more physically active live longer than those who are sedentary.

The physiological factors that contribute to a "sustained youthfulness" are body composition, cardiovascular function, and muscles and nerves.

Lean body mass is needed for physical performance and consists of muscle, skin, bone, and the internal organs. It has been found that regular physical exercise can increase the muscle mass regardless of age. Case studies have shown the percent body fat of a trained 70-year-old can match that of a 19- to 25-year-old and even maintain the same lean body mass of a younger athlete. <sup>1</sup>

Loss of muscle mass is called sarcopenia and results from loss of muscle fibers and fiber atrophy, due to lack of use. People who use their strength regularly can retain their muscle function.

Another energy system that is studied is called *anaerobic capacity*, the ability to provide energy to the muscles without the use of oxygen using the process of glycolysis. The anaerobic system can be maintained through lifelong training, and in a study swimmers aged 46 to 56+ did not differ from 25- to 35- year-old swimmers in their ability to produce and remove lactic acid. Maintenance of muscle mass, especially fast-twitch fiber, maintain the anaerobic system and can be achieved by training at higher intensities.

Some feel that Swimming is the closest thing on earth to the perfect sport, since it exercises all the major muscles of the body.

.. When you exercise aerobically, your lungs actually increase in size, capacity, and efficiency. Your heart becomes more powerful, more fit with exercise, just like any other muscle. Your blood vessels actually increase in number, and they may even become more flexible, thereby forestalling any tendency toward arteriosclerosis. Some studies also indicate that aerobic exercise reduces the cholesterol levels in the blood overall, and that it may alter the cholesterol that is found in the blood to a less dangerous type. Other aerobic benefits include lower blood pressure, improved digestion, a clearer complexion, and generally increased alertness ..<sup>2</sup>

A research specialist at Western Illinois University has called swimming the "Fountain of Youth". "You can slow down and even help reverse the aging process if you follow a regular, year-round fitness program."

#### References

1. Goldstein, Mel and Tanner, Dave, Swimming Past 50, (Human Kinetics), 1999.
2. Katz, Jane (with Bruning, Nancy P.) Swimming for Total Fitness, 2 ed., Doubleday, 1993.
3. Sharkey, Brian J. (and Gaskill, Steven E.) Fitness & Health, 6th Ed., University of Montana/Human Kinetics, 2007.