



fitness
Barry Franklin

The less physically active people become as they get older, the faster their bodies wear out on them. That's the conclusion from two scientists at the Center on Aging at Tufts University.

Drs. William Evans and Irwin Rosenberg detail their anti-aging program, which includes regular exercise and sound nutrition, in a just-published book entitled, "Biomarkers: The 10 Determinants of Aging You Can Control" (Simon & Schuster, New York).

The biomarkers that they identify include:

- muscle mass
- strength
- resting metabolism
- body fatness
- maximal oxygen consumption
- blood sugar tolerance
- blood pressure
- blood fats
- blood density
- temperature regulation

Although the researchers concede

that genetics plays a part in the gradual decline of the biomarkers, they emphasize that regular exercise and a prudent diet can minimize the deleterious changes that are normally attributed to aging.

CONSIDER THE EFFECT of exercise on muscle mass and strength, both of which decline throughout our adult lives. From age 20 to about 70, we lose about 20 percent of our muscle cells that remain.

Regular exercise also helps to compensate for the decrease in metabolism that normally occurs as we age, that is, the rate at which we burn calories just to maintain vital body functions. With each passing decade, a person needs about 100 fewer calories per day. Fortunately, the active muscle tissue that exercise maintains counteracts the tendency toward a reduced caloric requirement. Moreover, regular physical activity reduces body fat stores.

Another consequence of aging is a

decrease in our ability to take in and use oxygen. The maximal oxygen consumption, a key indicator of our capacity to produce energy, decreases by about one percent per year. Since an exercise program will generally increase this variable by about 20 percent, the physically trained 60-year-old may achieve the same fitness level as the inactive 40-year-old (figure). In other words, regular exercise can lead to a 20-year functional rejuvenation in that respect!

Blood sugar tolerance, or the body's ability to regulate the level of sugar in the blood, is also enhanced by exercise. By age 70, approximately one in four adults is at increased risk of developing a blood sugar tolerance problem: adult-onset diabetes. Regular exercise, along with an appropriate diet, can help to break the chain of events that can lead to this condition.

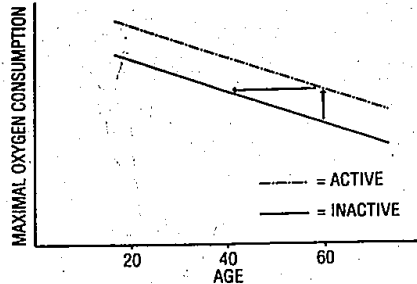
ANOTHER ADVANTAGE of an exercise program is that it can lower

total and "bad" LDL-cholesterol levels, and raise the protective, or "good" HDL-cholesterol. These changes, however, are even more likely to occur if a low-fat diet is simultaneously adopted, and body weight is reduced.

Along with controlling blood fats, exercise can reduce blood pressure. Scientists at the Cooper Clinic in Dallas have reported that people who maintain their fitness have a 34 percent lower risk of developing high blood pressure.

An additional benefit of regular exercise is that it can help to ward off the loss of bone tissue that normally occurs as a person grows older. Weight-bearing exercises, like walking, can help to maintain bone density.

Finally, exercise enhances the body's ability to regulate its internal temperature by increasing the amount of water in the blood. This may hasten the sweating response, releasing heat from the body.



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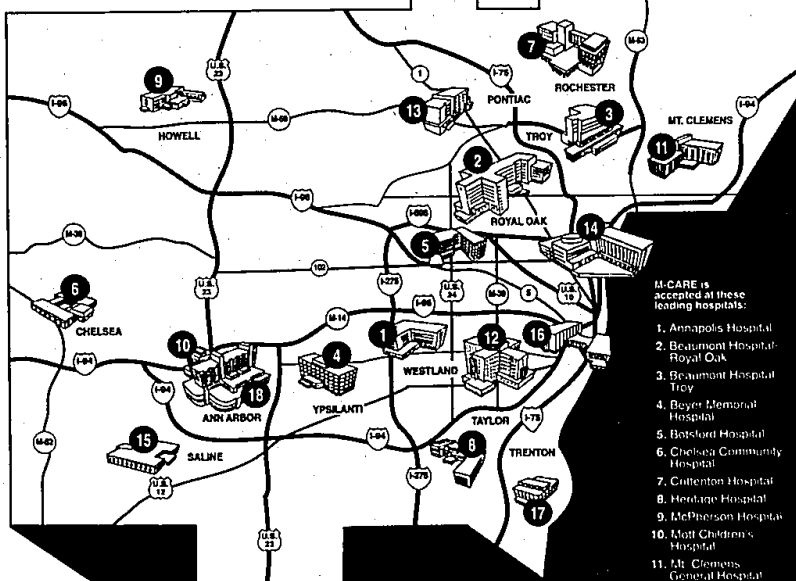
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