

Is Exercise the Elixir of Youth?



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One Study Says: Yes!

A study published in *Circulation* in September 2001 documents what many cardiologists and athletes have believed for a long time: Moderate amounts of aerobic exercise can literally "roll back the clock." The study was a 30-year follow-up to the well-known Dallas Bed Rest and Training Study, conducted by researchers at Southwestern Medical Center in Dallas in 1966.

The 1966 Study

In the original Bed Rest and Training Study, five 20-year-old healthy men were placed at bedrest for 20 days. Their aerobic capacity was measured before and after the 20 days of bed rest. At the end of the period of bed rest, all five had experienced a dramatic loss in exercise capacity and cardiovascular fitness (in other words, they became "out of shape.") After 8 weeks of intensive exercise training, the five 20-year-old men were able to recover and surpass their original level of aerobic fitness, or get back into shape.

This 1966 study, conducted mainly to help NASA scientists predict the effect of prolonged weightless space travel, had a profound effect on the practice of medicine. Prior to this study, bedrest was frequently prescribed by physicians for a variety of illnesses – heart attacks being one of the more prominent examples. Once this study was published, bedrest became a thing of the past for post-treatment of heart attacks, surgery, and many other acute medical conditions.

30 Years Later

Thirty years after the original study, the same researchers located the same five original study participants – now men aged 50 to 51 – and asked them to participate in a follow-up evaluation. They all agreed.

The five now-middle-aged men underwent measures of their aerobic and cardiovascular fitness. Their baseline fitness levels were similar to the fitness levels they had experienced after 20 days of bed rest 30 years earlier. Following this baseline evaluation, all five entered an exercise training program tailored to their individual interests. Two men entered a walking program, two a jogging program, and one a bicycling program. Their exercise was gradually increased to the level of duration and intensity of their 1966 exercise program - to between 4 and 5 hours of exercise a week. Then, after six months, their aerobic and cardiovascular fitness was re-measured.

Amazingly, with 6 months of moderate aerobic exercise, all five middle-aged men had restored their aerobic and cardiovascular fitness to the baseline levels they had enjoyed 30 years earlier, as healthy 20-year-old men.

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Conclusions

- 1) Twenty days of bedrest has the same effect on cardiovascular fitness as does 30 years of aging.
- 2) With as little as 6 months of moderate aerobic exercise, middle aged individuals can reverse the effects of decades of aging on cardiovascular fitness.

What This Means

Cardiovascular fitness is important from several aspects. It slows the process of hardening of the arteries, reduces the risk of heart attack and stroke, keeps weight down, reduces the risk of developing diabetes, reduces LDL cholesterol (bad cholesterol) and triglyceride levels, increases HDL cholesterol (good cholesterol,) and reduces the inward signs of aging (i.e., "feeling old,") as well as the outward signs of aging (i.e., "looking old.") The very best ways to look years younger than your age are: 1) don't smoke, and 2) get plenty of exercise.

This latest study should be very good news for those of us who are of a certain age. It tells us that: Not only is exercise good for you, and not only can it reverse some of the physiological effects of decades worth of aging, but it also apparently never loses these powerful effects.

On the other hand, this study reemphasizes the risks of a sedentary lifestyle. Very few people are completely sedentary, of course, to the point of being virtually at bedrest. But many, many people are living highly sedentary lifestyles that are merely less drastic versions of bedrest. Over time, these people can expect the same type of cardiovascular deterioration seen in young, healthy people who are placed at 20 days of bedrest. Their decrease in cardiovascular fitness makes them, physiologically at least, decades older than they are.

Exercise may not actually be a fountain of youth, but it is as close as it gets at this point.

Sources

McGuire DK, Levine BD, Williamson JW, et al. A 30-Year Follow-Up of the Dallas Bed Rest and Training Study. *Circulation*. 2001;104:1350.

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