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## Running slows the aging clock, Stanford researchers find

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STANFORD, Calif. - Regular running slows the effects of aging, according to a new study from the [Stanford University School of Medicine](#) that has tracked 500 older runners for more than 20 years. Elderly runners have fewer disabilities, a longer span of active life and are half as likely as aging nonrunners to die early deaths, the research found.

"The study has a very pro-exercise message," said [James Fries](#), MD, an emeritus professor of medicine at the medical school and the study's senior author. "If you had to pick one thing to make people healthier as they age, it would be aerobic exercise." The new findings appear in the Aug. 11 issue of the *Archives of Internal Medicine*.

When Fries and his team began this research in 1984, many scientists thought vigorous exercise would do older folks more harm than good. Some feared the long-term effect of the then-new jogging craze would be floods of orthopedic injuries, with older runners permanently hobbled by their exercise habit. Fries had a different hypothesis: he thought regular exercise would extend high-quality, disability-free life. Keeping the body moving, he speculated, wouldn't necessarily extend longevity, but it would compress the period at the end of life when people couldn't carry out daily tasks on their own. That idea came to be known as "the compression of morbidity theory."

Fries' team began tracking 538 runners over age 50, comparing them to a similar group of nonrunners. The subjects, now in their 70s and 80s, have answered yearly questionnaires about their ability to perform everyday activities such as walking, dressing and grooming, getting out of a chair and gripping objects. The researchers have used national death records to learn which participants died, and why. Nineteen years into the study, 34 percent of the nonrunners had died, compared to only 15 percent of the runners.

At the beginning of the study, the runners ran an average of about four hours a week. After 21 years, their running time declined to an average of 76 minutes per week, but they were still seeing health benefits from running.

On average both groups in the study became more disabled after 21 years of aging, but for runners the onset of disability started later.

"Runners' initial disability was 16 years later than nonrunners," Fries said. "By and large, the runners have stayed healthy."

Not only did running delay disability, but the gap between runners' and nonrunners' abilities got bigger with time.

"We did not expect this," Fries said, noting that the increasing gap between the groups has been apparent for several years now. "The health benefits of exercise are greater than we thought."

Fries was surprised the gap between runners and nonrunners continues to widen even as his subjects entered their ninth decade of life. The effect was probably due to runners' greater lean body mass and healthier habits in general, he said. "We don't think this effect can go on forever," Fries added. "We know that deaths come one to a customer. Eventually we will have a 100 percent mortality rate in both groups."

But so far, the effect of running on delaying death has also been more dramatic than the scientists expected. Not surprisingly, running has slowed cardiovascular deaths. However, it has also been associated with fewer early deaths from cancer, neurological disease, infections and other causes.

And the dire iniurv predictions other scientists made for runners have fallen completely flat. Fries and his colleagues

published a companion paper in the August issue of the *American Journal of Preventive Medicine* showing running was not associated with greater rates of osteoarthritis in their elderly runners. Runners also do not require more total knee replacements than nonrunners, Fries said.

"Running straight ahead without pain is not harmful," he said, adding that running seems safer for the joints than high-impact sports such as football, or unnatural motions like standing *en pointe* in ballet.

"When we first began, there was skepticism about our ideas," Fries said. "Now, many other findings go in the same direction."

Fries, 69, takes his own advice on aging: he's an accomplished runner, mountaineer and outdoor adventurer.

Hanging on his office wall is a photo he jokingly describes as "me, running around the world in two minutes." In the dazzling image of blue sky and white ice, Fries makes a tiny lap around the North Pole.

Fries collaborated with Stanford colleagues Eliza Chakravarty, MD, MS, an assistant professor of medicine; Helen Hubert, PhD, a researcher now retired from Stanford, and Vijaya Lingala, PhD, a research software developer.

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