

Higher fitness linked to reduced risk of death after first heart attack

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Researchers at Johns Hopkins and the Henry Ford Health System report evidence that higher levels of physical fitness may not only reduce risk of heart attacks and death from all causes, but also possibly improve the chances of survival after a first attack.

The findings, based on medical records data gathered from more than 2,000 men and women, are described in the online Feb. 1, 2016 edition of *Mayo Clinic Proceedings*.

"We knew that fitter people generally live longer, but we now have evidence linking fitness to survival after a first heart attack," says Michael Blaha, M.D., M.P.H., director of clinical research for the Ciccarone Center for the Prevention of Heart Disease and assistant professor of medicine at the Johns Hopkins University School of Medicine. "It makes sense, but we believe this is the first time there is documentation of that association."

"Our data suggest that doctors working with [patients](#) who have cardiovascular risk factors should be saying, 'Mr. Jones, you need to start an exercise program now to improve your fitness and chances of survival, should you experience a heart attack,'" says Clinton Brawner, Ph.D., clinical exercise physiologist at Henry Ford Health System.

For the new study, Blaha and his colleagues focused on medical records of individuals who had taken a treadmill stress test before their first heart attack and used the patient's achieved metabolic equivalent

score—MET, for short—as a quick, although not perfect, measure of energy consumption at rest and during physical activity. The higher the MET score, Blaha says, the more physically fit the participants were considered to be.

MET scores range from 1 to 12, where 1 is considered the equivalent of sitting on the couch, 3 aligns with walking, 7 with jogging, 10 with jumping rope and 12 with sprinting.

The researchers found that overall, the 634 people achieving MET scores of 10 or higher had about 40 percent fewer deaths after a first heart attack as compared to the rest of the patients. They also observed that one-third of the 754 patients with a MET score of 6 or less died within a year of their first heart attack. Overall, their results showed an 8 percent reduction in death risk for each whole-number increase in MET score after a first heart attack.

Blaha emphasizes that fitter patients still had heart attacks but appeared less likely to die from them.

The research team used data from the Henry Ford Exercising Testing Project, the so-called FIT Project, which followed patients who underwent exercise stress tests between 1991 and 2009 at Henry Ford Hospital in Detroit. The Henry Ford Health System adopted electronic medical record-keeping much earlier than most health systems, says Blaha, and included pharmacy and insurance information in the data.

From an initial pool of 69,885 people, the researchers excluded patients who had heart attacks before the stress test, patients that never had a heart attack or patients whose records were missing fitness data from the [stress test](#), narrowing the final research pool to 2,061 people. The patients were an average of 62 years old, 38 percent were female and 56 percent were Caucasian.

The investigators noted that their study design has limitations, including the fact that they could not assess whether improving fitness levels as measured by MET scores can decrease the risk of death from a heart attack. Also, Blaha says, they didn't determine if people who are fitter have less damaging heart attacks, or if they have same-sized heart attacks as those who are unfit but survive them better. Decades of research show that cardiovascular fitness does increase blood flow to the heart and may aid in healing, which is a likely contributing factor to lower mortality rates.

According to the American Heart Association, about 550,000 people in the U.S. have a first-time heart attack each year.

In a 2013 study, Blaha and his colleagues at Henry Ford Hospital linked physical fitness to improved overall survival and heart attack prevention in people with already established coronary artery disease, including prior [heart attack](#).

Provided by Johns Hopkins University School of Medicine

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