

Physical activity may ward off heart damage

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Physical activity can lower the risk of heart damage in middle-aged and older adults and reduce the levels of heart damage in people who are obese, according to research published today in *JACC: Heart Failure*.

Obesity is associated with structural and functional abnormalities in the [heart](#) and subsequent [heart failure](#). Heart [failure](#) may be caused by subclinical myocardial damage, in which there is damage to the heart muscle but a patient does not show sign or symptoms.

Researchers examined 9,427 patients aged 45-64 years without cardiovascular disease and a body mass index of more than 18.5 kg/m². Physical [activity](#) was measured through a questionnaire and categorized according to current guidelines as "recommended" (at least 75 minutes per week of vigorous intensity or at least 150 minutes per week of a combination of moderate to vigorous intensity), "intermediate" (1-74 minutes per week of vigorous intensity or 1-149 minutes of a combination of moderate to vigorous intensity), or "poor" (no moderate to vigorous exercise). To measure damage to the heart, researchers assessed levels of high [sensitivity troponin T](#). Elevated levels of this biomarker are considered a marker of [heart damage](#) and have been shown to be associated with future heart failure.

Elevated levels of high sensitivity troponin T were observed in 7.2 percent of the total study population. Individuals with lower levels of [physical activity](#) were significantly more likely to have elevated levels of high sensitivity troponin suggesting higher heart damage. For example, participants who performed poor and intermediate levels of physical

activity were 39 percent and 34 percent more likely to have heart damage than persons who engaged in recommended levels of physical activity.

The researchers subsequently looked at the combined associations of physical activity and [obesity](#) with this blood marker of heart damage. Obesity had been previously shown to be strongly associated with elevated levels of high sensitivity troponin, and the combination of obesity and elevated troponin was associated with a significantly increased risk of future heart failure. In the current study, the authors demonstrated that participants with obesity who performed poor levels of exercise had the highest likelihood of having elevated high sensitivity troponin levels. Participants with obesity who performed recommended levels of physical activity had a weaker association with elevated levels of high sensitivity troponin, and after adjustment for traditional cardiac risk factors, this association was no longer statistically significant. These results suggest physical activity may lessen the association of obesity and heart damage. The authors also found a significant interaction between physical activity and obesity on elevated levels of high sensitivity troponin, which indicates that the protective association of physical activity and heart damage may be stronger among individuals with obesity, a group at particularly high risk for future heart failure.

"The protective association of physical activity against subclinical myocardial [damage](#) may have implication for heart failure risk reduction, particularly among the high-risk group of individuals with excess weight," said Roberta Florido, MD, cardiology fellow at Johns Hopkins Hospital and lead author of the study. "Promoting physical activity may be a particularly important strategy for heart failure risk reductions among high risk groups such as those with obesity."

In an accompanying editorial comment, Tariq Ahmad, MD, MPH, FACC, and Jeffrey M. Testani, MD, MTR, said they encourage

cardiologists to promote healthy habits rather than simply treating heart failure after it has developed.

"In this report we add to the body of evidence supporting moderate physical activity and its protective effect in the setting of obesity," said *JACC: Heart Failure* Editor-in-Chief Christopher O'Connor, MD, FACC.

Provided by American College of Cardiology

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