

# Physical fitness associated with less pronounced effect of sedentary behavior

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Credit: Peter Griffin/Public Domain

Physical fitness may buffer some of the adverse health effects of too much sitting, according to a new study by researchers from the American Cancer Society, The Cooper Institute, and the University of Texas. The study appears in the journal *Mayo Clinic Proceedings*, and finds the association between prolonged sedentary time and obesity and blood markers associated with cardiovascular disease is markedly less

pronounced when taking fitness into account.

Sedentary behavior has been linked to an increase risk of obesity, [metabolic syndrome](#), type 2 diabetes mellitus, [cardiovascular disease](#), some cancers, and premature death. But previous studies of the association have not taken into account the protective impact of fitness, a strong predictor of cardiovascular disease incidence and mortality.

For the current study, researchers led by Kerem Shuval, Ph.D., of the American Cancer Society, examined the association of sedentary behavior, physical activity, and fitness to obesity and metabolic biomarkers among 1304 men seen at the Cooper Clinic in Dallas, Texas between 1981 and 2012. Sedentary time was composed of self-reported television viewing time and time spent in a car self-reported on a 1982 survey. Fitness was determined by a treadmill test during the medical examination at clinic visits.

The study showed that more sedentary time was significantly associated with higher levels of systolic blood pressure, and total cholesterol and triglycerides, as well as lower levels of HDL, the "good" cholesterol. It was also associated with BMI, waist circumference, and body fat percentage. But when researchers controlled for fitness, they found prolonged sedentary time was only significantly associated with a higher triglyceride/HDL cholesterol ratio (an indicator of insulin resistance). Sedentary time was not associated with metabolic syndrome (a clustering of risk factors). In comparison, higher fitness levels were associated with reduced adiposity and metabolic measures.

The authors say interpretation of their study's findings should be tempered by its limitations. For example, [sedentary behavior](#) was based on self-report at one point in time, whereas fitness was assessed objectively during clinic visits.

"[A]lthough our findings suggest the need to encourage achieving higher levels of fitness through meeting physical activity guidelines to decrease metabolic risk," they conclude, "the effects of reducing [sedentary time](#) on cardiometabolic risk biomarkers warrant further longitudinal exploration using objective measurement."

**More information:** Sedentary Behavior, Cardiorespiratory Fitness, Physical Activity, and Cardiometabolic Risk in Men: The Cooper Center Longitudinal Study *Mayo Clin Proc.* 2014 Published ahead of print July 14 2014 [DOI: 10.1016/j.mayocp.2014.04.026](https://doi.org/10.1016/j.mayocp.2014.04.026)

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