

Researchers discover the point at which maximum sitting time starts to harm your heart

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Human heart. Credit: copyright American Heart Association

(Medical Xpress)—A team of researchers affiliated with several institutions in the U.S. has discovered what they claim is the maximum amount of time a person can sit on average per day before it starts to

damage their heart. In their paper published in the journal *JAMA Cardiology*, the team describes how they conducted a detailed analysis of patient data from two major medical databases covering a period of eleven years, what they found, and what they believe it means for people who sit for many hours every day.

One of the benefits of modern living is that very few people now have jobs that are physically taxing—many actually spend most of their working hours sitting at a desk. But this lack of physical activity has been found to be hazardous to our health. Obesity is at very high levels, as is heart disease and other ailments tied to both inactivity and over eating. But, just how long can a person sit each day before they are actually causing harm to their heart? Until now, medical science did not have an answer. To find out, the researchers turned to data in the EMBASE and MEDLINE databases looking for an association between sedentary time and incidences of cardiovascular disease. Among 700,000 patients identified, they found 25,769 unique events.

In studying the data the researchers found that the cutoff maximum appeared to be sitting for 12 hours on average every day—such people, the researchers found, were 14 percent more likely to have heart problems than people who sat only 2.5 hours on average each day. The researchers defined sitting as being sedentary, which includes lying down. They noted that an increased risk of cardiac problems began to be noticeable in people who were sedentary for 10 hours a day, which suggests the problem is likely very widespread. Office workers, for example, may sit down at work for seven hours a day, sit down for an hour at lunch and then again while driving for an hour and then once home sit down while watching TV, eating dinner, getting online or playing video games for a few more hours. That alone is enough to put them in the risk category.

What is still not known is whether exercise in-between bouts of sitting

are able to offset the associated heart problems—if someone jogs every morning, for example, does that reduce the risk of heart problems if they sit for 12 hours otherwise? The researchers suggest some people could reduce their risk by using stand-up workstations or other office options that allow occasional activity.

More information: Ambarish Pandey et al. Continuous Dose-Response Association Between Sedentary Time and Risk for Cardiovascular Disease, *JAMA Cardiology* (2016). DOI: 10.1001/jamacardio.2016.1567

ABSTRACT

Importance. Prior studies suggest that higher sedentary time is associated with a greater risk for cardiovascular disease (CVD).

However, the quantitative, dose-response association between sedentary time and CVD risk is not known.

Objective. To determine the categorical and quantitative dose-response association between sedentary time and CVD risk.

Data Sources. Two independent investigators searched the MEDLINE and EMBASE databases for all studies published before July 6, 2015, that evaluated the association between sedentary time and incident CVD.

Study Selection. Prospective cohort studies with participants 18 years or older that reported the association between sedentary time and incident CVD were included.

Data Extraction and Synthesis. Two independent investigators performed the data extraction and collection using a standardized form. The study quality was assessed using the Newcastle-Ottawa Scale. The categorical dose-response association was evaluated by comparing the pooled hazard ratio (HR) for incident CVD associated with different levels of sedentary time (vs lowest sedentary time) across studies. The continuous dose-response association was assessed using random-effects generalized least squares spline models. Data were collected from April 5 to July 6, 2015.

Main Outcomes and Measures Incident CVD (coronary heart disease, including nonfatal myocardial infarction, stroke, and cardiovascular mortality).

Results. Nine prospective cohort studies with 720 425 unique participants (57.1% women; 42.9% men; mean age, 54.5 years) and 25 769 unique cardiovascular events and a median follow-up of 11 years were included. In categorical analyses, compared with the lowest sedentary time category (median, 2.5 h/d), participants in the highest sedentary time category (median, 12.5 h/d) had an increased risk for CVD (HR, 1.14; 95% CI, 1.09-1.19). However, no apparent risk associated with intermediate levels of sedentary time (HR for 7.5 h/d, 1.02; 95% CI, 0.96-1.08) was found. In continuous analyses, a nonlinear association between sedentary time and incident CVD was found (P for nonlinearity

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