

Too much, too little sleep linked to elevated heart risks in people free from disease

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People who clock six to seven hours of sleep a night had the lowest chance of dying from a heart attack or stroke when compared with those who got less or more sleep, according to a study being presented at the American College of Cardiology's 70th Annual Scientific Session. This trend remained true even after the research team accounted for other

known conditions or risk factors for heart disease or stroke.

The study, according to researchers, is the first to explore the association between baseline cardiovascular risk and duration of sleep and adds to mounting evidence that sleep—similar to diet, smoking and exercise—may play a defining role in someone's cardiovascular risk.

"Sleep is often overlooked as something that may play a role in cardiovascular disease, and it may be among the most cost-effective ways to lower [cardiovascular risk](#)," said Kartik Gupta, MD, resident, Division of Internal Medicine, Henry Ford Hospital in Detroit and lead author of the study. "Based on our data, sleeping six to seven hours a night is associated with more favorable heart health."

For the study, Gupta and his team included data from 14,079 participants in the 2005-2010 National Health and Nutrition Examination Survey. Participants were followed for a median duration of 7.5 years to determine if they died due to [heart attack](#), heart failure or stroke. Those surveyed were 46 years old on average, half were women and 53% were non-white. Less than 10% of participants had a history of [heart disease](#), heart failure or stroke.

Researchers divided participants into three groups based on answers to a survey question about their average length of sleep—[less sleep](#) (seven hours). Researchers then assessed participants' atherosclerotic cardiovascular disease (ASCVD) risk scores and levels of C-reactive protein (CRP), a key inflammatory marker known to be associated with heart disease.

The ASCVD risk score, which accounts for age, gender, race, blood pressure and cholesterol, is widely used to predict how likely someone is to have a heart attack or stroke or die from atherosclerosis, a hardening of the arteries, in the next 10 years. An ASCVD risk score less than 5%

is considered low risk.

While the median ASCVD risk was 3.5% among all participants, there was a U-shape relationship based on sleep duration such that participants with six to seven hours had the lowest risk. The median 10-year ASCVD risk among people with less than six, six to seven and more than seven [hours of sleep](#) were 4.6%, 3.3% and 3.3%, respectively.

"Participants who slept less than six hours or more than seven hours had a higher chance of death due to cardiac causes. ASCVD risk score was, however, the same in those who sleep six to seven hours versus more than seven hours," Gupta said, adding that the ASCVD risk score may not adequately capture elevated cardiac risk in this subgroup and that results are perhaps stronger for participants sleeping less than six hours a night.

Levels of CRP, a protein made in the liver that rises when there is inflammation in the body, were also higher in participants with longer or shorter durations of sleep.

"Participants who sleep less or more than six to seven hours have higher ASCVD risk scores, which is likely driven by heightened inflammation as measured by CRP, which was found to be higher among those who had less or more sleep," Gupta said, adding that CRP levels were only collected at the start of the study. "The effect of sleep probably accrues over time; it takes time for the damage to happen."

According to the researchers, unlike some [risk factors](#) for heart disease that can't be changed, such as age or genetics, sleep habits can be adjusted and should be routinely asked about during medical visits.

"It's important to talk about not only the amount of sleep but the depth and quality of sleep too. Just because you are lying in bed for seven

hours doesn't mean that you are getting good quality sleep," Gupta said, adding that this study is limited to sleep quantity, not quality or how well or deeply someone sleeps. For example, sleep apnea, which is a sleep disorder that results in frequent awakenings, is increasingly associated with [cardiovascular disease](#).

The amount of sleep found to be favorable to [heart](#) health in this study differs slightly from national recommendations by the National Sleep Foundation and the American Academy of Sleep Medicine, which recommend most adults get seven to nine hours or seven or more hours of sleep a night, respectively. But, as Gupta explains, individuals were limited to choosing hour blocks (six, seven or eight hours, for example) when noting sleep time.

More research is needed to further validate these results.

Provided by American College of Cardiology

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