

# Study finds chronically disrupted sleep may increase the risk for heart disease

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Sleep irregularity—chronically disrupted sleep and highly variable sleep durations night after night—may increase the risk for atherosclerosis, according to a study led by Kelsie Full, Ph.D., MPH, of Vanderbilt

University Medical Center.

The multicenter study, reported Feb. 15 in the *Journal of the American Heart Association*, followed 2,032 older, racially and ethnically diverse participants from six communities around the United States.

When monitored over a seven-day period, participants with greater irregularity in their sleep duration were more likely to have a higher burden of coronary artery calcium, more plaque in their carotid arteries, and greater systemic atherosclerosis and stiffness in their [blood vessels](#), commonly referred to as "hardening of the arteries."

"These results suggest that maintaining regular or habitual sleep durations, or sleeping close to the same total amount of time each night, may play an important role in preventing cardiovascular disease," said Full, a former postdoctoral fellow at the University of Minnesota who joined the Vanderbilt faculty last year as assistant professor of Medicine in the Division of Epidemiology.

The Multi-Ethnic Study of Atherosclerosis (MESA) Sleep Ancillary Study included participants from St. Paul, Minnesota; Baltimore; Chicago; Forsyth County, North Carolina; Los Angeles County, California; and northern Manhattan and the Bronx, New York.

The study excluded shift workers, who are likely to have irregular sleep patterns, and those with existing [heart disease](#) and [obstructive sleep apnea](#), a known risk factor for [coronary artery disease](#).

Among the study's participants, those with more irregular sleep durations were more likely to have atherosclerosis in the coronary arteries and peripheral arteries. These findings suggest that doctors who encourage their patients to maintain regular sleep patterns can help them reduce their risk of cardiovascular disease, Full said.

Full's co-authors were from Brigham and Women's Hospital and Harvard Medical School in Boston, the Icahn School of Medicine at Mount Sinai, New York, the University of California, San Diego, and Johns Hopkins School of Medicine in Baltimore.

Disruption of the body's circadian rhythm may be the link between disrupted sleep and [cardiovascular disease](#). "Almost all major cardiovascular functions, including heart rate, [blood pressure](#), vascular tone, and endothelial functions, are regulated by circadian clock genes," the researchers reported.

"Disruption or misalignment of circadian rhythms," they wrote, "can interrupt these important cardiovascular functions, resulting in the promotion of chronic inflammation, alterations in glucose metabolism, heightened sympathetic nervous system activation, and increases in arterial pressures, all predisposing to the risk of atherosclerosis progression."

**More information:** Sleep Irregularity and Subclinical Markers of Cardiovascular Disease: The Multi-Ethnic Study of Atherosclerosis, *Journal of the American Heart Association* (2023).

[www.ahajournals.org/doi/10.116...circ.145.suppl\\_1.040](http://www.ahajournals.org/doi/10.116...circ.145.suppl_1.040)

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