

Prolonged shortened sleep increases blood pressure at night

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People exposed to prolonged periods of shortened sleep have significant increases in blood pressure during nighttime hours, Mayo Clinic researchers report in a small study of eight participants.

Results of the study will be presented Sunday, March 15, at the American College of Cardiology's 64th Annual Scientific Session in San Diego.

In this study, eight healthy, normal weight participants, ages 19 to 36, participated in a 16-day inpatient protocol, consisting of a four-day acclimation period followed by nine days of either [sleep restriction](#) (four hours of [sleep](#) per night) or normal sleep (nine hours of sleep per night), and three days of recovery. Twenty-four blood pressure monitoring at regular intervals was measured at each study phase.

During the nighttime, in the sleep restriction phase compared to the normal sleep phase, systolic (top number) and diastolic (bottom number) blood pressure averaged 115/64 millimeters of mercury (mm Hg) versus 105/57 mm Hg, respectively, researchers found. Furthermore, the expected fall in blood pressure during the night was suppressed when subjects had inadequate sleep. They also found that nighttime heart rate was higher with sleep restriction than in normal sleep.

"We know high blood pressure, particularly during the [night](#), is one of the major risk factors for heart disease, and Americans typically do not get enough sleep," says lead author Naima Covassin, Ph.D., Mayo Clinic cardiovascular diseases research fellow. "For the first time, we demonstrated that insufficient sleep causes increases in nighttime blood pressure and dampens nocturnal [blood pressure](#) dipping by using a controlled study that mimics the [sleep loss](#) experienced by many people".

Provided by Mayo Clinic

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