

Could high blood pressure at night have an effect on your brain?

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Most people's blood pressure goes down during the night, which doctors call "dipping." But for some people, especially those with high blood pressure, their nighttime pressure stays the same or even goes up, called

"reverse dipping." A new study shows that people with high blood pressure and reverse dipping may be more likely to have small areas in the brain that appear damaged from vascular disease and associated memory problems. The study is published in the April 15, 2020, online issue of *Neurology*, the medical journal of the American Academy of Neurology.

"These results add to the mounting evidence that shows the importance of vascular risk factors in contributing to [memory problems](#)," said study author Adam M. Brickman, Ph.D., of Columbia University in New York, N.Y. "They also point to the potential impact of preventing high [blood pressure](#) through efforts such as maintaining a healthy weight, being physically active and having a healthy diet."

The study involved 435 people with an average age of 59 who were enrolled in a study of aging in Venezuela. Their [blood](#) pressure was monitored for 24 hours at home with a device that took their pressure every 15 minutes during the day and every 30 minutes at night. They had brain scans to look for the small areas in the brain that appear damaged from vascular disease, called white matter hyperintensities. They also took tests of their [memory](#) and other thinking skills.

A majority of the people, 59%, had [high blood pressure](#), which was defined as a 24-hour average of more than 130/80 mmHg, or were taking medication for high blood pressure. In half the people, the blood pressure dipped at night, in 40% it stayed the same, and in 10% it went up.

The researchers found that after adjusting for age, the people with high blood pressure and reverse dipping had over twice the amount of [white matter hyperintensities](#) as the other participants. They had an average of over six cubic centimeters of these white matter changes in the periventricular area of the brain, while the other participants had an

average of 2.5 cubic centimeters or less.

Those with high blood pressure and the reverse dipping were also more likely to have had lower scores on a memory test than the other participants. They had average scores of about 33 while the other participants had average scores of about 40. These differences in memory across groups were explained partially by the differences in blood pressure and dipping status.

"It appears that reverse dipping may amplify the effects of high blood pressure on people's cerebrovascular health and associated [cognitive abilities](#)," Brickman said.

The study looked at people at one point in time. It does not show that nighttime blood pressure increases cause the white matter changes and memory problems. It only shows the association.

"Longer studies that follow people over time will be needed to determine whether these factors do indeed lead to white matter changes and memory problems, although our initial findings are indeed consistent with this hypothesis," Brickman said.

He noted that the study included only middle-aged and [older adults](#), so the results may not apply to people of other ages.

Provided by American Academy of Neurology

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