

# More frequent overnight hot flashes linked with brain scan changes

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Women who experience more hot flashes, particularly while sleeping, during the menopause transition are more likely to have brain changes reflecting a higher risk for cerebrovascular disease, such as stroke and other brain blood flow problems, according to a pilot study led by researchers at the University of Pittsburgh School of Medicine published online today in *Menopause* and funded by the National Institutes of Health.

More than 70 percent of women have hot flashes—a sudden feeling of intense warmth and sweatiness—while transitioning into menopause, said principal investigator Rebecca Thurston, Ph.D., associate professor of psychiatry, Pitt School of Medicine. While recent research has shown that hot flashes can be linked to signs of subclinical heart disease, such as changes in the [blood vessels](#), as well as [high blood pressure](#) and elevated cholesterol levels, Thurston and colleagues examined the possible connection between hot flashes and brain health.

The research team recruited 20 women in midlife who were not taking hormone therapy and, using a device that measures skin conductance, biologically monitored their hot flashes for 24 hours. They also conducted MRI brain imaging on participants to detect [white matter hyperintensities](#), which are bright spots on the scan that are thought to develop due to disease of the brain's small blood vessels. Participants also kept electronic hot flash diaries.

The women reported an average of three hot flashes per day, but the

monitoring showed greater frequency, at an average of eight per day as some were likely not self-reported because they occurred during sleep, Thurston said. Women who had more monitor-detected hot flashes, particularly during sleep, also had a greater number of white matter hyperintensities on their brain scans.

'Other factors like age and [cardiovascular risk factors](#) did not explain this effect, so these findings suggest there is a relationship between menopausal hot flashes and blood vessel changes in the brain,' Thurston said. 'Further work is needed to understand whether one causes the other, or if hot flashers are a signal of some other vascular process that impacts brain health.'

Thurston notes that it might be particularly important for women who are experiencing numerous [hot flashes](#) to consider modifying cardiovascular risk factors by quitting smoking and treating high blood pressure.

Provided by University of Pittsburgh Schools of the Health Sciences

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