

Reduction in menopause-related symptoms associated with non-invasive neurotechnology

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Nearly nine out of 10 premenopausal and postmenopausal women in the United States experience hot flashes, night sweats or other disturbances in mood and sleep. Unfortunately, there aren't many safe and effective therapies available to manage these symptoms.

In a pilot study conducted at Wake Forest Baptist Medical Center, [hot flash](#) severity scores, as well as symptoms of insomnia and depression, were significantly reduced after participants received a non-invasive neurotechnology known as high-resolution, relational, resonance-based electroencephalic mirroring, or HIRREM.

The study is published in the Feb. 11 online issue of the journal *Menopause*.

During the menopausal process, estrogen levels fluctuate and eventually fall enough to cause impaired temperature regulation, possibly associated with resetting in patterns of brain [electrical activity](#), to produce the various symptoms of menopause, said the study's lead author, Charles H. Tegeler, M.D., professor of neurology at Wake Forest Baptist.

HIRREM identifies dominant brain frequencies through high-resolution spectral analysis of non-invasively recorded brain electrical activity. Those dominant frequencies are translated into auditory tones of varying pitch and timing that are quickly presented as acoustic feedback via earbuds. This is intended to allow the brain to relax and thus, on its own, to improve balance in brain electrical activity, Tegeler said.

Twelve women ranging in age from 46 to 69 were enrolled in the study. Hot flash symptoms were reported by all participants, and frequency and severity were documented by use of a daily diary.

At the beginning of the study, the participants underwent baseline assessments to obtain information regarding brain electrical frequencies and amplitudes. They then received an average of 13 HIRREM sessions over several days. After their final session, the participants returned for a follow-up data collection visit.

"Our study found that there were statistically significant reductions in the hot flash severity score, which incorporates both frequency and severity of symptoms, as well as decreased [symptoms](#) of insomnia and depression, and decreased amplitudes in the high-frequency range of temporal lobe brain electrical activity," Tegeler said.

However, interpretation of the findings is limited by the size of the study, the absence of a control group and the lack of long-term follow-up, he noted. Future controlled trials are needed to assess the magnitude and duration of benefits.

Provided by Wake Forest University Baptist Medical Center

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