

# Hormone fluctuations disrupt sleep of perimenopausal women

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Women in the early phases of menopause are more likely to have trouble sleeping during certain points in the menstrual cycle, according to a new study published in the Endocrine Society's *Journal of Clinical Endocrinology & Metabolism*.

During perimenopause - the earliest stage of the menopausal transition - women may have irregular menstrual cycles due to the body's fluctuating hormone levels. Symptoms such as sleep disturbances and hot flashes typically begin three to five years prior to the onset of menopause, when a woman is in her 40s, according to the [Hormone Health Network](#).

The study examined how hormone fluctuations affected sleep during the luteal and follicular phases of the menstrual cycle. The luteal phase occurs prior to menstruation. The follicular phase refers to the two weeks after menstruation.

"We found that perimenopausal women experience more sleep disturbances prior to menstruation during the luteal phase than they did during the phase after menstruation," said one of the study's authors, Fiona C. Baker, PhD, of the Center for Health Sciences at SRI International in Menlo Park, CA, and the University of the Witwatersrand in Johannesburg, South Africa. "Measures of electrical brain activity found that the hormone progesterone influences sleep, even at this late reproductive stage in perimenopausal women."

The laboratory study examined sleep patterns in 20 perimenopausal

women. Eleven of the participants experienced difficulty sleeping at least three times a week for at least a month, beginning with the onset of the menopausal transition.

The women each slept in a sleep laboratory twice - once in the days leading up to the start of the menstrual period and the other time several days after the menstrual period. Researchers used an electroencephalogram (EEG) to assess the women's sleep and brain activity. Each participant also completed a survey regarding their sleep quality in the month prior to the laboratory testing and underwent a blood test to measure changes in hormone levels.

Researchers found women had a lower percentage of deep, or slow-wave, sleep in the days before the onset of their [menstrual periods](#), when their progesterone levels were higher. The women also woke up more often and had more arousals - brief interruptions in sleep lasting 3 to 15 seconds - than they did in the days after their menstrual periods. In contrast, sleep tends to be stable throughout the [menstrual cycle](#) in younger women.

"Menstrual cycle variation in hormones is one piece in the overall picture of [sleep](#) quality in midlife [women](#)," Baker said. "This research can lead to a better understanding of the mechanisms behind [sleep disturbances](#) during the approach to [menopause](#) and can inform the development of better symptom management strategies."

**More information:** The study, "Menstrual-cycle Related Variation in Physiological Sleep in Women in the Early Menopause Transition," will be published online at [press.endocrine.org/doi/10.1210/jc.2015-1844](http://press.endocrine.org/doi/10.1210/jc.2015-1844) , ahead of print.

Provided by The Endocrine Society

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