

Are drops in estrogen levels more rapid in women with migraine?

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Credit: Sasha Wolff/Wikipedia

Researchers have long known that sex hormones such as estrogen play a role in migraine. But there's been little research on how that works. Do

women with migraine have higher estrogen levels in general? Higher levels at the peak of the monthly cycle?

Research published in the June 1, 2016, online issue of *Neurology*, the medical journal of the American Academy of Neurology, shows that, for [women](#) with a history of migraine, estrogen levels may drop more rapidly in the days just before menstruation than they do for women who do not have migraine history. For other hormone patterns, there were no differences between women with migraine and women who did not have migraine.

The study also showed that the women with a migraine history had a faster rate of estrogen decline regardless of whether they had a migraine during that cycle.

"These results suggest that a 'two-hit' process may link estrogen withdrawal to menstrual migraine. More rapid estrogen decline may make women vulnerable to common triggers for [migraine attacks](#) such as stress, lack of sleep, foods and wine," said study author Jelena Pavlovi?, MD, PhD, of Albert Einstein College of Medicine/Montefiore Medical Center in Bronx, NY, and a member of the American Academy of Neurology.

For the study, researchers reviewed migraine history, daily headache diaries and hormone data for 114 women with a history of migraine and 223 women without a history of migraine. The women were an average 47 years old. The investigators measured hormone levels from daily urine samples for one monthly cycle; the participants' peak hormone levels, average daily levels and day-to-day rates of decline were calculated over the five days following each hormone peak in their cycles.

In the two days after the peak estrogen level in the luteal phase of the

cycle, which is the time after ovulation and before menstruation, the [estrogen levels](#) in the women with migraine dropped by 40 percent compared to 30 percent for women without migraine. The rate dropped 34 picograms per milligram of creatinine (pg/mgCr) in women with migraine, compared to 23 pg/mgCr in women without migraine.

"Future studies should focus on the relationship between headaches and daily hormone changes and explore the possible underpinnings of these results," said Pavlovi?.

While the study's size and amount of [hormone](#) data are strengths, limitations include proportionately more Chinese and Japanese women in the group of women without migraine and more white and black women in the [migraine](#) group. The level of [sex hormones](#) may differ according to racial and ethnic differences.

Provided by American Academy of Neurology

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