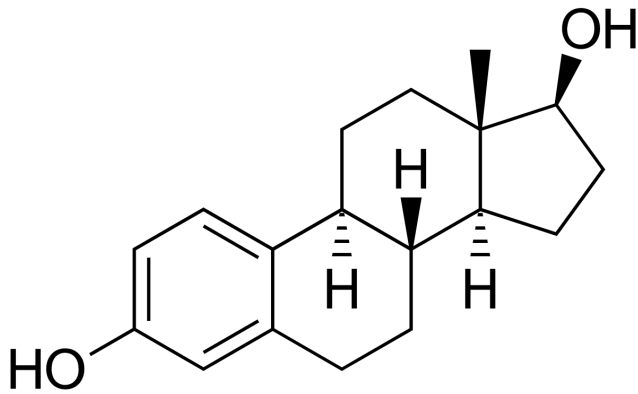


# Men with migraine may have higher estrogen levels

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Estradiol, the major estrogen sex hormone in humans and a widely used medication. Credit: Public Domain

While it has been known that estrogen plays a role in migraine for women, new research shows that the female sex hormone may also play a role in migraine for men, according to a small study published in the June 27, 2018, online issue of *Neurology*, the medical journal of the American Academy of Neurology.

Migraine is a disabling neurologic disorder marked by frequent attacks of severe headaches. During childbearing years, women are three times more likely to have [migraine](#) than men.

"Previous research has found that levels of [estrogen](#) can influence when women have migraines and how severe they are, but little is known about whether sex hormones also affect migraine in men," said study author W.P.J. van Oosterhout, MD, of Leiden University Medical Centre in the Netherlands. "Our research found increased levels of estrogen in men with migraine, as well as symptoms of lower levels of testosterone."

The study involved 17 men with an average age of

47 who had a migraine an average of three times a month. None were taking medication known to affect hormone levels. They were compared to 22 men without migraine. All participants were of healthy weight, matched for age and [body mass index](#).

Researchers measured the levels of both estradiol, an estrogen, and testosterone in the blood. They took four blood samples from each participant on a single day, each three hours apart. For those with migraine, the first blood samples were taken on a non-migraine day and then each day thereafter until the participant had a migraine.

They found that men with migraine had higher levels of estrogen between migraines, 97 picomoles per liter (pmol/L), compared to 69 pmol/L in men without migraine, while [testosterone levels](#) were similar for both groups. This resulted in a lower ratio of testosterone to estrogen between migraines, 3.9, compared with men without migraine, 5.0. Testosterone levels did increase 24 hours before a migraine in men who experienced pre-migraine symptoms like fatigue, muscle stiffness and food cravings.

In addition, participants were surveyed about symptoms that they may have a relative deficiency in [testosterone](#), such as mood, energy and sexual disorders, and researchers found that men with migraine more frequently reported such symptoms and the symptoms were more often severe. A total of 61 percent of men with migraine reported such symptoms, compared to 27 percent of men without migraine.

"Further studies are needed in larger populations to validate our findings," said Van Oosterhout. "The exact role of estrogen in men with migraine, and whether fluctuations in estrogen may be associated with migraine activity, like they are in women, needs to be fully investigated."

A limitation of the study is that participants filled out a questionnaire to be considered for enrollment. It is possible that those with severe migraine were more likely to fill out the questionnaire, meaning results from this study may only apply to people with severe migraine.

Provided by American Academy of Neurology

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