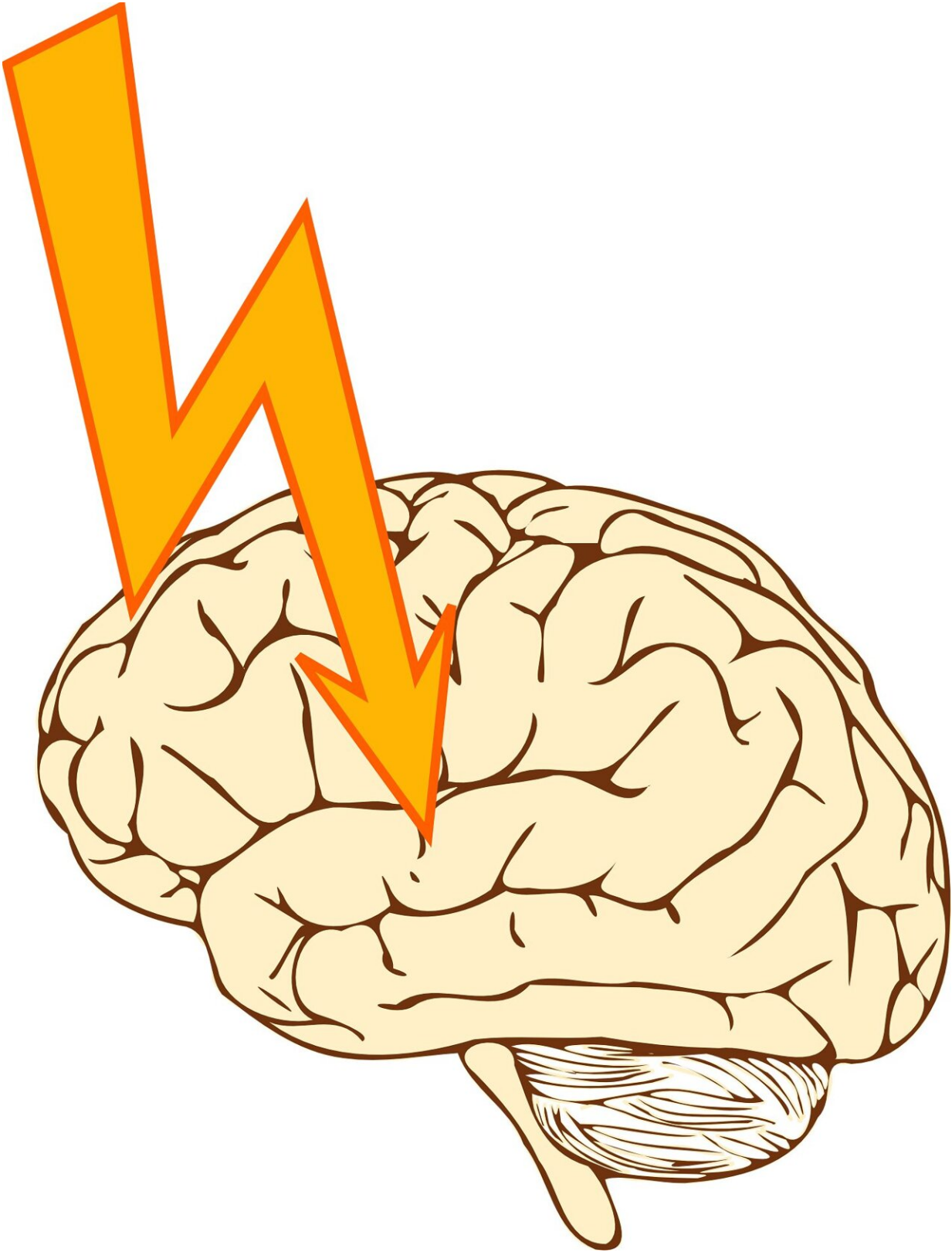


# **Researcher: Women with epilepsy face a rollercoaster of hormones and seizures, but we're treating them like men**

June 13 2024, by Lata Vadlamudi

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About [50 million people](#) globally have epilepsy. [Half](#) of these are women.

Until now, treatments for men and women have been identical. But men and women experience epilepsy differently.

For women, fluctuating hormones—spanning from the reproductive years, to pregnancy, perimenopause and menopause—can affect [the frequency](#) of seizures at [multiple stages](#) in their lives.

As we outline in our [recent paper](#), we need to take this into account and tailor women's therapies accordingly.

## What is epilepsy?

In people without epilepsy, the brain's overall electrical activity is stable. Signals acting on the neurons ([brain cells](#)) allow a fine balancing act between excitation (increased brain electrical activity) and inhibition (reduced brain electrical activity).

However, in epilepsy this balance is disrupted. When there is a burst of uncontrolled electrical activity, some or all the neurons are temporarily over-excited or are "in overdrive." This leads to a seizure (or fit).

This disruption can occur unpredictably, a bit like an earthquake, where the [seizure](#) comes out of the blue and then generally stops abruptly.

Epilepsy can severely affect people's [quality of life](#). People with epilepsy also face an increased risk of [premature death](#), not only from the epilepsy itself, but from other complications of seizures, and from suicide.

## What part do hormones play?

The hormones estrogen and progesterone are made in the ovaries and brain. Whether or not a woman has epilepsy, levels of these hormones fluctuate throughout her life. But having epilepsy can also affect the production of estrogen and progesterone.

In general, estrogen signals [more electrical activity](#) and progesterone [signals less](#). The ratio of these two hormones is important for the fine balance of [electrical activity](#) in the brain.

But an unfavorable ratio disrupts the balance, leading to a rollercoaster of symptoms.

Some specific [anti-seizure medications](#) can also alter this ratio by reducing levels of estrogen and progesterone.

Take the example of "catamenial epilepsy," which one study shows affects [about half](#) of women with epilepsy.

In this type of epilepsy, women can have more seizures at certain times of the menstrual cycle. This most commonly happens [just before](#) their periods, when levels of progesterone are falling and the ratio of estrogen to progesterone is changing. In other words, [progesterone](#) seems to protect against seizures.

Around menopause is another time of hormonal change. If a woman has catamenial epilepsy, [this can lead](#) to an increase in seizures during

perimenopause when both hormone levels are becoming erratic and periods are increasing irregular. But there's a decrease in seizures at menopause when both hormone levels are consistently low.

Researchers have [long known](#) about the cyclical nature of women's fluctuating reproductive hormones and its impact on epilepsy. But this has not yet been translated into how we treat women.

## **What should we be doing?**

We need to urgently research how hormone fluctuations during different stages in a woman's life affects her epilepsy and quality of life.

We need to better understand if we can reduce the frequency of seizures with [progesterones](#) during certain times in the menstrual cycle. We also need to better understand whether [estrogens](#) (in menopausal replacement therapy, also known as [hormone replacement therapy](#) or HRT) can make seizures worse in later life.

If we do not research the influence of hormonal fluctuations on epilepsy, we risk not treating the specific trigger of many women's seizures.

[Roughly 30%](#) of women with [epilepsy](#) do not respond to [drug treatment](#). We don't know what proportion of this is due to hormonal factors.

However, we do know seizures play an enormous role in adding to the burden of this disease. And that burden [can be improved](#) by better treating the seizures.

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