

## Hormones and Epilepsy

### What are hormones?

Hormones are chemical substances formed in organs and glands that travel through the body via the bloodstream. They control and coordinate many body functions such as muscle growth, heart rate, hunger and menstrual cycle. Steroid hormones include the three major sex hormone groups: estrogens, androgens, and progesterones. All three are present in both men and women, but in different amounts.

### What do the sex hormones do?

Sex hormones have several functions. Primarily, they control and maintain our reproductive systems. They also have an influence on muscle mass, bone strength, emotions, and behavior. Sex hormones begin to influence brain function before birth, as early as a month or two after conception.

### Is there a connection between seizures and hormones?

Yes, sex hormones can influence the excitability of nerve cells in the brain and thus influence seizure control. Estrogen can excite brain cells and can make seizures more likely to happen. In contrast, natural progesterone breaks down into a substance that can inhibit or prevent seizures in some women.

### Are all seizures caused by hormone changes?

Hormones generally do not cause seizures but can influence if or when they happen. Some women with epilepsy experience changes in their seizure patterns at times of hormonal fluctuations. For example, puberty is a time when hormones are stimulating body changes. It is not unusual for certain kinds of seizures to disappear at puberty, while other seizure disorders may start at this time. Many women with epilepsy see changes in the number or the pattern of their seizures around the time of ovulation (mid-cycle), or just before and at the beginning of their menstrual periods.

### Why do I have seizures more often around the time of my menstrual period?

Changes in seizure frequency in relation to the menstrual cycle is called "catamenial epilepsy."

- In some women, seizures occur most frequently just before menstruation or during the first few days of menstrual bleeding. This is thought to be due to the fast drop in progesterone that occurs before menstruation. Some of these women may find that taking natural progesterone may help seizure control.
- Other women have seizures most frequently in the middle of their cycle, at the time of ovulation. This may be due to the rapid increase in estrogen that stimulates ovulation at this time.
- Some women have more seizures during the entire second half of their menstrual cycle, from mid-cycle to the onset of menstrual bleeding. This pattern usually is seen in women who may not ovulate and they don't have enough progesterone being produced. It's also possible that the amount of certain seizure medications in the blood stream may decrease before menstruation.

### Why do women with epilepsy have more reproductive disorders than women without seizures?

Women with seizures that start in the temporal lobes of the brain seem more likely to have reproductive disorders such as polycystic ovaries, early menopause, and irregular (or no) ovulation, than women in the general population. The temporal lobes are connected directly to another brain region (called the hypothalamus) that regulates hormone production and ovulation from the ovaries. Disrupting the normal

### ***Hormones and Epilepsy (continued)***

may be affected which could lead to reproductive disorders. Certain epilepsy medications seem to interfere with hormone regulation too.

### **Do men have hormone-sensitive seizures, too?**

Hormonal changes in men are less obvious than in women because men do not have a monthly cycle. However, in men, hormones (testosterone and breakdown products) also influence brain function and may have an impact on seizures. Some of the older seizure medications lower the active part of testosterone. This can lead to loss of energy, competitive drive, mood, and sexual interest. More research is needed on hormones, seizures and sexual function in men with epilepsy -- as it is needed in women with epilepsy.

### **Is it important to find out if hormone changes are involved in my seizures?**

Yes! It's important to understand that people differ in their hormonal sensitivity. If hormones are found to affect a person's seizures, there may be a role for hormones in epilepsy treatment. For both women and men, identifying hormonal influences on seizure patterns may lead to a better understanding of treatment options for seizure control. Women should keep a calendar of their menstrual cycles and of days they have seizures. It is important to keep track of other factors that may affect the menstrual cycle or seizure patterns, such as missed medication, loss of sleep, unusual fatigue, intense physical training, stress or an illness. Some women may find it helpful to keep track of the lowest body temperature of the day (taken each morning before getting out of bed, and before eating the first meal of the day). This helps to find out if you are ovulating regularly. Be sure to share these records with your doctor or the nurse who is helping you manage your seizures.

### **How do I find out if I have hormone-related problems?**

If you suspect that hormones play a role in your seizures, talk to your physician or the nurse who helps monitor your seizures. Blood tests of certain hormone levels and of your seizure medication may provide helpful information. Sometimes additional tests, such as a pelvic ultrasound, may be recommended to rule out other causes for menstrual irregularities.

### **Should I see a specialist?**

Most people who have well-controlled seizures are treated by a primary care doctor. But women who have special concerns about seizures and hormones need referral to a neurologist. A neurologist who specializes in seizures is called an epileptologist. A neuroendocrine specialist is a neurologist with training in hormone disorders and their effects on brain function. These physicians are usually found at hospitals or health care centers with programs devoted to epilepsy treatment, often called Comprehensive Epilepsy Centers.

### **Will my insurance cover the costs of seeing a specialist?**

Talk to your doctor first about your concerns and referral sources covered by your health insurance. [Contact Help@EndEpilepsy.org](mailto:ContactHelp@EndEpilepsy.org) for information about specialists in epilepsy care who can help you.

*Reviewed by: Andrew Herzog MD | Patricia O. Shafer RN MN on 1/2014*

**Credit to: Epilepsy Foundation, [www.epilepsy.com](http://www.epilepsy.com)**