

## SEIZURES AND TEENS:

# Sex, Seizures, and Drugs: What Teenage Girls and Their Parents Need to Know

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*Adolescence is a time of transition, marking a period in which a teen's sexuality is developing physically and emotionally. A parent's job is to help children understand these feelings and how to respond safely and appropriately. While sexuality is important for both boys and girls, many issues are unique to females. Young girls with seizures need to learn how evolving hormonal changes may affect seizures as well as how their epilepsy may affect their sexual lives and other gender-specific health concerns. This article introduces the relationship between hormones and epilepsy and how seizures and medications may affect sexual function, contraception, and having children. The importance of counseling girls early on sexuality and family planning is reinforced.*

### Sexuality and adolescence

Adolescents with epilepsy have the right to achieve their life goals just as other teens without epilepsy do. This may include having friendships and other relationships, having children if that is their choice, completing educational goals, having a job,

and, in general, feeling comfortable with their physical appearances and emotional selves. Teenagers with epilepsy may be timid about discussing aspects of life seemingly unrelated to epilepsy with their doctors, nurses, or, most importantly, their parents. However, it is natural for teens to have questions about having sex as well as about menstruation, contraception, sexual desire, becoming a parent, or even basic questions as to when to discuss epilepsy with a potential partner.

### Brain, hormones, and seizures

There is a dynamic relationship between hormones, brain function, and seizures. The brain is the seat of the body's hormones and regulates the release of the major sex hormones—estrogen, progesterone, and testosterone. These hormones in turn provide feedback to the brain and control the amount of hormones released at different points in time. Research has shown that seizure discharges in certain brain areas can alter the output of hormones from the brain and sex hormones can influence how the brain works. For example, estrogen has been shown to increase seizure activity, while progesterone can have anti-seizure effects.

During puberty, sex hormones start to surge and can fluctuate widely. These hormonal shifts are responsible for the physical, emotional, and behavioral changes that normally occur during puberty, including changes in sex drive and function. For teens with epilepsy, changes in seizures may also be reported, possibly as a result of hormonal influences on brain function, or from changes in the body's requirements for seizure medicine.

### Hormone-sensitive seizures

Seizures that are most likely to be affected by hormonal changes are partial seizures that involve the temporal or frontal lobes of the brain; however, hormonal associations may also be seen with generalized seizures. The temporal and frontal areas of the brain are closely connected to the hypothalamus and pituitary glands of the

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brain, which control the release of hormones. Seizure activity may influence levels of hormones in the body, and the levels of estrogen and progesterone in the body can affect seizures. Rarely are seizures solely caused by a hormonal imbalance, but the way in which seizures are expressed and the frequency of seizures can be affected. In adolescent girls, seizures may begin, end, or change at puberty when hormones are in a state of change and menstruation is beginning. For some girls, these associations could be coincidence or due to changes in medicine levels or other developmental changes. Some girls may notice that seizures occur more often during certain parts of their menstrual cycle, such as the middle of their cycle or in the week or so before their period begins; this is called catamenial epilepsy.

Hormonal disturbances that may cause gynecological problems such as irregular menstrual cycles, problems ovulating, or ovarian cysts are believed to occur more often in females with hormone-sensitive seizures. Recognizing these problems early and understanding their association to seizures is important to knowing how best to treat them. For example, correcting a hormonal imbalance may help both the gynecological problem and also help control seizures that cluster around menstruation.

### Types of sexual or hormonal problems

Adolescence covers a wide age range, from preteen years to the early 20s. The types of hormonal or sexual problems seen will vary according to the age of the young woman. For example, young girls and teens may be most concerned with bodily changes, changes in seizures at puberty, or in relation to menstruation. An older adolescent girl may be more concerned about contraception, risks of seizure medicines on pregnancy, and side effects of medicine on physical and emotional health. Helping these young women sort out what changes are due to adolescence and what may be related to their epilepsy will be important.

Research has shown that problems with vaginal dryness, pain during intercourse, changes in sexual desire, and difficulties reaching an orgasm may be seen more often in females with temporal lobe seizures. While these problems may be seen with any adolescent girl, if they persist or are more pronounced than normal in a teen with seizures, talking to a doctor knowledgeable about women and epilepsy would be helpful. These problems may be caused by hormonal influences on physical function, but emotional factors may also need to be evaluated.

### Emotional and social aspects of sexuality

Coping with seizures can lead to many social and emotional difficulties for some teenagers. Seizures can interfere with friendships and relationships by affecting how a girl feels about herself, how she fits in with peers, and what others think about epilepsy. She may be embarrassed about having a seizure in public or in front of a date. Teens frequently report having difficulties talking about seizures with their friends.

When any of these social or emotional struggles occur, a

teen's sense of self and of relating with others can be affected. Anxiety or depression can influence sexual function as well as seizure control thus complicating the management of epilepsy and sexuality. Teens commonly cope by acting out in some way. For teens with seizures, this can take the form of not taking care of themselves or not taking seizure medicine as prescribed, leading to worsening of seizures. A vicious cycle can develop with emotional and social factors affecting seizure control and seizure control affecting social and emotional function.

### Seizure medicines and sexual function

Understanding how some seizure medicines can affect a girl's physical and sexual health can help parents and teens make wise decisions about seizure medications. Yet, it's important to remember that not all problems are caused by side effects of medicines and that the impact of seizures on the brain can contribute to sexual problems, too.

Some seizure medicines can lower libido, affect mood, or cause physical changes that make intercourse painful or less pleasurable. Sexual function is affected most by medicines that affect the liver's ability to break down medications. These include the older seizure medications (such as phenytoin, phenobarbital, carbamazepine, and primidone) as well as some of the newer ones (such as lamotrigine, oxcarbazepine, and, to a lesser extent, topiramate). As a result, the liver may metabolize or break down the sex hormones differently in girls taking one of these seizure medicines, lowering the level of estrogen or progesterone available to the body. Lower hormone levels may contribute to a change in sex drive and some of the physical problems such as vaginal dryness, pain, or altered sexual response. Seizure medicines that can lead to sedation or depression can also be a problem, such as the barbiturates, zonisamide, or benzodiazepines. Interactions between sex hormones and certain seizure medicines can also lead to changes in the level of seizure medicines. These fluctuating levels may contribute to why seizures occur more frequently in some women at certain parts of their menstrual cycle.

Girls taking seizure medication, particularly any of the drugs that may affect liver metabolism, should be followed closely by their healthcare professional to monitor the dose needed to maintain seizure control and prevent side effects. Girls should be taught early to track seizures and side effects in relation to menses, seizure medicines, and the use of hormonal contraceptives. Other factors, too, can affect seizure control and drug levels, such as weight changes that occur with adolescent growth spurts, not taking medications regularly, or interactions with other medications.

### Side effects of medicines

Medicines affect the body in different ways, sometimes affecting

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**Table 1: Seizure medicines that may interfere with hormonal birth control**

Generic Name	Brand Name*
Carbamazepine	Tegretol, Tegretol XR, Carbatrol
Felbamate	Felbatol
Lamotrigine	Lamictal
Oxcarbazepine	Trileptal
Phenobarbital	Luminal
Phenytoin	Dilantin, Phenytek
Primidone	Mysoline
Topiramate	Topamax

\* Medicines may be known by different brand names in different countries.

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other body systems. For example, some seizure medicines can affect a girl's appearance. Phenytoin can cause coarsening of facial features, excessive hair on the body or face, and swelling of the gums. Thinning or loss of hair has been reported with valproic acid. While a number of medicines may contribute to mild weight gain, larger weight gains have been reported with valproic acid, carbamazepine, gabapentin, and pregabalin. Conversely, decreased appetite and weight loss have been reported with topiramate and zonisamide. Since weight, appearance, and mood are important in a teenage girl's development, side effects that may contribute to these problems should be monitored carefully.

More recently, long-term effects of medicines on bone health have been studied. Some of the older seizure medicines appear to have a greater risk of causing thinning of the bones and over time could lead to osteoporosis or bone loss. Hormonal changes as people grow older can also affect bone health. Since people with thinning of the bones are at greater risk of broken bones, careful consideration of this potential problem should be considered when choosing medicines for females, and early introduction of calcium, vitamin D, and regular, weight-bearing exercise should be encouraged.

## Contraception

Since an adolescent girl may be reluctant to ask her neurologist about contraception, ideally the physician or nurse would introduce the topic at an office visit. Avoiding medications that affect the liver's ability to break down medications is important for girls and women taking hormonal treatments for contraceptive

or other purposes. Medicines that completely bypass the liver, such as levetiracetam or gabapentin, are best. Seizure medicines that may interfere with the hormones in birth control pills, patches, or injections are listed in Table 1 on page 80. These medications may increase the breakdown of hormonal contraception, leading to decreased effectiveness at standard doses and a greater chance of becoming pregnant. Similarly, hormonal contraception can enhance breakdown of certain anticonvulsants, leading to poor seizure control. In some situations, changing to a seizure medicine that does not affect hormonal contraception or choosing a contraceptive with a higher dose of hormones may be recommended.

All girls and women who are sexually active with more than one partner should always use condoms to protect against sexually transmitted disease. Since condoms can have a high failure rate, using another barrier method, such as a diaphragm with spermicide, would be needed.

For longer-term contraceptive use, other options are available, including the use of intrauterine devices that can be placed for up to 10 years at a time and longer-acting hormonal delivery methods (such as Norplant device, depo-provera injections, and the hormonal patch).

## Seizure medicines and pregnancy

Girls and young women frequently express fears of using seizure medicine during pregnancy. In general, all women have a roughly 1 to 3 percent risk of having a baby with a birth defect. Taking seizure medicines during pregnancy may increase this risk slightly by 2 to 3 percent. The newer anticonvulsants appear to have a better use-in-pregnancy track record when it comes to birth defects. The older seizure medicines (such as phenytoin, phenobarbital, primidone, carbamazepine, and valproate) have been shown to have higher rates of major birth defects with valproate showing the greatest risk, especially when used along with other seizure medicines. Thus, avoiding these higher risk drugs, if possible, would be ideal for an adolescent girl. However, seizures can be harmful to mothers and unborn babies as well, and using the best medication that controls a girl's seizures is necessary in most situations.

## Preventing problems during pregnancy

Staying in good health and keeping seizures controlled can help lessen the chance of problems during pregnancy. Since critical development of a baby occurs usually before a woman knows she is pregnant, all girls and women able to have children should take folic acid, a vitamin that may help prevent birth defects involving the brain and spinal cord. While folic acid is found in some foods, it's recommended that girls and

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women take a supplement with 0.4 milligrams (mg) of folic acid each day. Some women taking seizure medicines may need higher amounts, from 1 to 4 mg each day. Since most pregnancies are not planned, every teenage girl should ask their doctor or healthcare professional for specific instructions and take this daily from the time that she is sexually active until past the point of menopause.

### Family Planning

Family planning should be discussed at the first visit with the epilepsy doctor, regardless of the girl's age. The topic can be introduced by saying that at some point in her future, she may be interested in having children while taking seizure medicine. Because she will grow up and may change doctors, it's important to start talking about this even briefly so that the teenager or young adult will know what questions to ask when they are ready. Since no one ever knows when a teenager will become sexually active, discussing the topic early is critical to prevent unplanned pregnancy.

Parents and other caregivers may also be part of this process. Family planning begins with helping young girls and women learn about their bodies and the impact of epilepsy and its treatment, now and in the future. While some girls may open up easily and talk about these issues, others may not. Parents and other caregivers may start introducing topics in brief "teachable moments" and respond to their teenager's questions and concerns as they arise. When issues about sexuality or family planning arise that a parent is not familiar with, helping the teen obtain accurate information from her healthcare providers is critical.

### Summary

This article broadens the role of parents and teens with epilepsy, highlighting the need to understand and manage the complex relationships between seizures, medicines, and sexuality. Teenage girls will need to learn strategies that will help them track and manage seizures in relation to menstruation, seek help for sexual or hormonal concerns, and learn how to make safe decisions regarding contraception, pregnancy, and their general health. Parents can help their teens get started by introducing these critical topics early, keeping open communication with their children, and working closely with healthcare professionals to address the unique issues of young girls and women with seizures. •

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