Seizures

Seizures are sudden, uncontrollable, electrical changes in the brain. Most seizures cause a loss of awareness and uncontrolled body movement. There are many types of seizures, and signs may differ based on the part of the brain affected. Most seizures last less than a few minutes.

Epilepsy is one condition in which seizures may occur. Persons affected by epilepsy have bursts of electrical energy in the brain that disrupts normal function. Epilepsy may be diagnosed if there are two or more seizures not triggered by an underlying medical condition.

Causes of Seizures

Seizures are a sign of a brain disorder. It is not always known why seizures occur. Other causes include:

- Brain tumors
- Stroke or transient ischemic attack (TIA)
- Brain injury
- High fever
- Infections
- Alcohol or drug use
- Alzheimer’s disease
- Congenital conditions such as Down’s syndrome
- Lack of oxygen during birth
- Low sodium or blood sugar levels
- Kidney or liver failure

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Signs of Seizure

Aura
An aura is a warning sign right before the seizure. The aura may be a headache, changes in vision, hearing noises or smelling a scent such as smoke.

During the Seizure
Other signs may occur during the seizure, such as:

- Staring spells
- Facial twitching
- Problems breathing
- Black outs, loss of memory or confusion
- Drooling
- Problems controlling the bowels or bladder
- Convulsions or uncontrollable body motions such as chewing motions, body stiffening, jerking or lip smacking
- Changes in sensation or vision

If the person has never had a seizure before or if the seizure lasts longer than 5 minutes, call 911 right away. A person with epilepsy should always wear a medical alert necklace or bracelet.

After the Seizure
The time after the seizure and before the person wakes up is called the postictal state. Most people are very tired and confused during this time.

If possible, write down what happens during the seizure. Include the date, how long it lasted, and exactly what happened. Share this information with the doctor. If the person has epilepsy, medicines or other treatments may need changed.

Ask for the handout, How to Help Someone Having a Seizure, to learn how to help someone during and after a seizure.
Types of Seizures

The two main types of seizures are:

- Generalized seizures (absence, atonic, tonic-clonic and myoclonic)
- Partial seizures (simple and complex)

Knowing the type of seizure the person has helps the doctor find the best treatment.

**Generalized Seizures**

Both sides of the brain are affected.

- **Absence seizure**, also called a petit mal seizure, involves a staring spell. This type is most often seen in people under 20 years old. The person may have no memory of the seizure. The person may stop walking or talking in mid-sentence and start again in a few seconds.

- **Atonic seizure** causes a sudden fall. Injury can result from hitting the face or head.

- **Tonic-clonic seizure**, also called a grand mal seizure, involves the whole body. This is the most common type of generalized seizure. It often starts with a cry before the person blacks out. Convulsions, tongue biting, frothy saliva around the mouth, bed-wetting and problems with breathing may occur.

- **Myoclonic seizure** involves quick, involuntary twitching of the muscles.

**Partial Seizures**

One part of the brain is affected.

- **Simple partial seizure**: The person knows what is happening, but is not able to control it.

- **Complex partial seizure**: The person does not know what is happening and may look or act confused during and after the seizure.

When a partial seizure leads to a generalized seizure, it is called a **secondary generalized seizure**. The seizure starts in one part of the brain, but spreads to another part of the brain. For some people, the partial seizure acts as an aura or warning sign. It can give the person enough time to get to a safe place before he or she blacks out.
Testing and Treatment

The doctor will ask about signs and check to see if there is a medical problem that caused the seizure. One or more of these tests may be ordered:

- **Electroencephalogram (EEG):** This is the most common test for epilepsy. It looks for abnormal brain activity.
  
The doctor may recommend a hospital stay and monitoring in the **Epilepsy Monitoring Unit.** The person is watched during a seizure event while the EEG records brain activity and a video camera records physical activity.

- **Brain scans:** **Computerized tomography (CT) scan** and **magnetic resonance imaging (MRI)** look at the structure of the brain. A **PET scan** checks the brain’s activity and finds problems in how it works. A **brain SPECT scan** measures blood flow in the brain. A scan done during a seizure and one done between seizures are compared so that the part of the brain where the seizures start can be found.

- **Blood tests:** Blood samples may be taken to check for causes or triggers of seizure such as infections, lead poisoning, anemia and diabetes.

- **Lumbar puncture:** A sample of fluid from the space that surrounds the spinal cord and nerve roots is checked to see if an infection is the cause of the seizure.

- Other tests may be done to measure motor skills, behavior and cognition to see how the epilepsy is affecting the person.

A seizure caused by a high fever or a certain medicine is treated by removing the cause. A new seizure with an unknown cause will need tests to determine treatment. For the person with epilepsy, a seizure may be a sign that his or her medicine may need changed.

Anti-epileptic medicines may be prescribed to control seizures. Surgery may be needed to help decrease seizures. Some patients need to wear helmets to prevent head injuries.

Living with Seizures

Seizures can affect daily living, self-esteem and freedom in daily activities. If you have depression, trouble sleeping, trouble eating or functioning, talk with your doctor. A referral for personal and/or family counseling may help to address quality of life issues. Seek out support groups to share experiences, frustrations and tips on how to cope with seizures.
**Driving and Other Activities:**

Each state has driving laws that cover people who have seizures. If seizures are not controlled, he or she cannot drive. Most states require that the person not have a seizure for a certain amount of time, such as six months. A note from the doctor may be needed stating that the seizures are controlled and the person is safe to drive. Or, the person may be able to get a restricted license to drive under certain conditions. For example, a person who suffers from seizures at night would be able to drive during the day only. In Ohio, call the Bureau of Motor Vehicles at (614) 752-7500 or TDD (614) 752-4559 for more information.

A person with uncontrolled seizures should also avoid activities where a seizure could cause serious injury. Examples include climbing, biking, and swimming alone.

**Important Considerations:**

- Talk to your doctor about birth control and other hormone treatment if you have seizures. Interactions can occur between medicines used to control seizures and birth control.

- Talk with your doctor if you are pregnant, are planning a pregnancy or breastfeeding. The frequency of seizures may change with pregnancy, and there may be at greater risk for some complications. During and after pregnancy, the amount or dose of seizure medicine may need to be changed. **Do not stop taking seizure medicine during pregnancy** unless directed by your doctor.

- The frequency of seizures may change over time. Aging, menopause, stress and other changes in health can affect the dose of seizure medicine needed to control your signs.

- Some seizure medicines can cause mineral loss from bone. This can lead to osteoporosis and bone fractures. Eat a diet high in calcium and vitamin D, do weight-bearing exercises, and avoid alcohol and smoking.

**For more information about seizures, visit these resources:**

- Patient Education handout “Women with Epilepsy”
- Epilepsy Foundation, [www.epilepsyfoundation.org](http://www.epilepsyfoundation.org)