

Seizures

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What is a seizure?

Brain cells use electrical signals to communicate. A seizure is an abrupt flow of this electrical activity. This will alter how someone feels or acts for a short period of time. Though there are numerous types of seizures that look different, they are all caused by a disturbance in the electrical activity. Some may hardly be noticed, while others are completely disabling. They vary from staring spells to convulsions to loss of consciousness.

A seizure is a symptom that may be caused by a variety of disorders. Epilepsy is a condition that makes people susceptible to seizures. It can sometimes be inherited or caused by a variety of things such as brain tumors or strokes.

What are the types of seizures?

Seizures can take many forms. Your doctor will not only focus on diagnosing seizures, but also what type of seizure you are having. Correct identification of seizure type will effect management.

There are two general types of seizures based on how they begin; primary generalized seizures and partial seizures.

- *Primary generalized seizures*: start with a widespread electrical discharge that involves both sides of the brain at the same time. These include the Grand Mal (Tonic-Clonic) seizures.
- *Partial seizures*: begin with an electrical discharge in one area of the brain. Usually the cause is unknown but in some cases they are related to head injury, brain infection, stroke, or tumor.

These two general categories can be further classified based on whether consciousness has been affected. These subclasses make up a full spectrum of awareness, alertness, and consciousness.

How does your doctor diagnose seizures?

A doctor can usually identify if a patient has had seizures based on the patient's history. However, there are some disorders that may mimic seizures by causing sudden changes in behavior or consciousness. Since the doctor will rarely witness a seizure, he or she will have to rely on the information provided by the patient or those who have witnessed the seizure itself. The doctor will also perform a physical exam to rule-out some of the diseases that may mimic seizures.

In many cases, the doctor may perform certain tests that will help diagnose and study the seizures. One of these tests is an electroencephalogram (EEG). This test uses electrodes that are placed on the scalp to measure the electrical activity of the brain very

much the same way an EKG examines the heart. Other tests such as a CT scan or MRI may be performed to “look” at the brain itself much like an X-ray. Sometimes the doctor may perform a lumbar puncture which allows fluid that surrounds the brain and spinal cord to be studied for disorders such as infection.

What are the risk factors for seizures?

Sometimes a patient may identify things that seem to “trigger” their seizures. This is especially true if the patient has had multiple seizures. The type of “trigger” often depends on the type of seizure being experienced. Not all people will be affected the same way. If you are having seizures, it may be helpful to keep a diary of things that you were doing or have been exposed to. This may aid both you and your doctor in identifying the “trigger.”

Some common “triggers” for those with a seizure disorder include:

- Forgetting to take medication
- Sleep deprivation
- Stress
- Drug and/or Alcohol use
- Over-the-counter medicines
- Nutritional deficiencies
- The menstrual cycle
- Fevers

What to do if you are with someone who has a seizure.

Witnessing a seizure can be quite frightening. Here are some basic guidelines for those who know someone with a seizure disorder.

- Stay calm.
- Do not try to restrain or hold the person.
- Remove dangerous objects from the area to prevent injury; or gently slide them away from an object that may cause harm.
- If possible, note the time. Call 911 if the seizure lasts for more than 5 minutes.
- If the seizure lasts for shorter than 5 minutes, contact of medical care depends upon the circumstance and person’s history of seizures.
- Stay with the person until he or she is fully alert. Assess orientation by asking date, time, or identification of place.
- Do not to give the person anything to eat or drink until he or she is fully alert.
- Do not try to place an object in the patient’s mouth in the false pretext that they will “swallow their tongue.” This will not occur. More importantly never put your fingers in the mouth of a person having a seizure. The force of the bite is more than capable of severing a finger.

If you have a history of seizures, it may be helpful to share these guidelines with family, friends, and co-workers.

How are seizures treated?

Your doctor may choose to treat your seizures with (anti-epileptic) medicines. Most of these are taken by mouth. The choice of drug depends on the type of seizures you are having. Each person will react differently to these medications. These differences include side effects. It may take some time and several trials of different medicines to find the right drug and right dose that will work for you. Whenever possible, doctors try to prevent seizures with a single medication. However, some people require the use of more than one medication to control seizures. Other methods such as diet, surgery or electrical stimulation of the vagus nerve may be options if medications fail.

If you taking medications for your seizures, you may need to have blood tests to monitor the amount of drug in your system. It is important to take the medicines prescribed by your doctor everyday and in the manner you are instructed to take them.

Most importantly, educate yourself about your seizure and its treatment. Those with epilepsy should wear a medical-alert bracelet or necklace. This can be attained from MedicAlert (<http://www.medicalert.org>).

For more information:

Epilepsy Foundation Homepage
<http://www.epilepsyfoundation.org/>

Local Chapter of Epilepsy Foundation for Kentuckiana (Kentucky and Indiana)
<http://www.efky.org/>

American Epilepsy Society
<http://www.aesnet.org/>

Epilepsy.Com
<http://www.epilepsy.com/epilepsy/>

References:

In addition to above links:

MedLine: <http://www.nlm.nih.gov/medlineplus/seizures.html>

Harrison's Principles of Internal Medicine. 14th edition. pgs 103-104, 2311-2323.
MacGraw-Hill. 1998

Kaplan and Saddock's Synopsis of Psychiatry. 8th edition. "Epilepsy" pgs 351-358.
Williams and Wilkins. 1998.