

Stabilizing Epilepsy

When clusters of nerve cells in the brain send the wrong signals, a person may have strange sensations and emotions, behave oddly, or have violent muscle spasms or lose consciousness—this is called a seizure [see-zher]. Epilepsy [ep-ih-lep-see] is a brain disorder that causes seizures to recur (occur more than once). In the U.S., 1 in 100 people may experience a seizure once in their lifetime; however, having 1 seizure does not mean you have epilepsy.

How do I know if I'm at risk?

Risk factors for epilepsy include:

- **Age.** Most people are diagnosed with epilepsy during early childhood or after the age of 60 years.
- **Family history.** If you have a family history of epilepsy, you may be at an increased risk.
- **Head injury.** A car accident or other traumatic injury can cause epilepsy.
- **Stroke.** Stroke and other blood vessel diseases can lead to brain damage that may trigger epilepsy.
- **Dementia.** The risk of epilepsy is increased in older adults with dementia.
- **Brain infections.** Infections, such as meningitis, can increase your risk.
- **Childhood seizures.** Children who have seizures due to high fevers are at increased risk of developing epilepsy. This risk is increased if they have a long seizure, other nervous system conditions, or a family history of epilepsy.

What are the symptoms?

Symptoms vary and may include:

- Temporary confusion
- Staring into space
- Uncontrollable jerking movements of the arms and legs
- Loss of consciousness or awareness
- Sudden behavioral changes

What causes it?

In more than half of all cases, the cause of epilepsy cannot be determined. However, some possible causes include genetics; head trauma; a brain condition, such as a stroke; infectious diseases, such as meningitis or AIDS; or developmental disorders, such as autism.

Are there complications?

When and where you have a seizure can lead to circumstances that are dangerous to yourself and others. Some complications include:

- Falls
- Drowning
- Car accidents
- Pregnancy complications
- Emotional health issues

It is important to note that although life-threatening complications are uncommon, they do occur. One life-threatening complication is status epilepticus [stat-uhs ep-ih-lep-tik-uhs], a condition that occurs if you're in a state of continuous seizure lasting more than 5 minutes. Another is if you have frequent recurrent seizures without regaining full consciousness between them. Sudden unexplained death is also possible and may occur due to heart or respiratory conditions.

How can I avoid the problem?

There may be things you can do to minimize seizures from occurring, including:

- Avoid excessive alcohol consumption
- Avoid nicotine usage
- Get enough sleep
- Reduce stress

When do I need medical attention?

You should seek medical attention if you experience a seizure for the first time or if any of the following occurs:

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- A seizure that lasts for more than 5 minutes
- Your breathing or consciousness doesn't return after the seizure stops
- A second seizure follows immediately
- High fever
- Heat exhaustion
- Injury to yourself during the seizure
- You are pregnant
- You have diabetes

What tests will I need?

Your doctor will first review your symptoms and medical history and then may order several tests to diagnose which type of epilepsy you have and determine the cause of your seizures, including:

- **Neurological examination.** During this examination, your doctor may test your behavior, motor abilities, and mental function.
- **Blood tests.** Your doctor may take a blood sample to check for signs of infections, genetic conditions, or other conditions, which may be associated with seizures.
Your doctor may also order the following tests:
- **Electroencephalogram (EEG).** During this test, electrodes attached to your scalp record the electrical activity of your brain.
- **Computerized tomography (CT) scan.** A CT scan uses X-rays to reveal abnormalities, such as tumors, bleeding, and cysts.
- **Magnetic resonance imaging (MRI).** An MRI uses powerful magnets and radio waves to detect lesions or abnormalities in your brain that could be causing seizures.
- **Functional MRI (fMRI).** An fMRI measures the changes in blood flow that occur when specific parts of your brain are working.
- **Positron emission tomography (PET) scan.** A PET scan uses a small amount of low-dose radioactive material that is injected into a vein to help visualize active areas of the brain and detect abnormalities.
- **Single-photon emission computerized tomography (SPECT).** The SPECT test is usually

used when an MRI and EEG aren't able to pinpoint the location in your brain where the seizures are starting.

- **Neuropsychological tests.** During these tests, doctors assess your thinking, memory, and speech skills.

How is it treated?

Your doctor will determine the best treatment for you, and this may change over time depending on the severity of your condition.

- **Medication** is generally the first line of treatment for epilepsy. Antiseizure medication, called anti-epileptic medication, can often help people with epilepsy live seizure-free lives, or at least reduce the frequency and intensity of the seizures.
- **Surgery** may be recommended if medication doesn't work. The surgeon will either remove the area of your brain that is causing the seizures or make several cuts in your brain designed to prevent seizures from spreading to other parts of your brain.
- **Vagus nerve stimulation** is a therapy where doctors implant a battery-powered device that sends bursts of electrical energy through the vagus nerve in your neck to your brain.
- A **ketogenic [kee-toh-jen-ik] diet** is high in fats and low in carbohydrates and may reduce seizures in children.

Epilepsy does not have to hold you back. Educate your friends and family about what epilepsy is and how they can be prepared if you have a seizure. Because anxiety and depression sometimes come with epilepsy, try to live as productively and independently as possible.

A seizure and epilepsy tutorial is available by visiting <http://www.nlm.nih.gov/medlineplus/tutorials/seizuresandepilepsy/htm/index.htm>.