New Onset Seizures in Adults

A Guide to Understanding Seizures

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What is a seizure?

A seizure is the physical response to increased electrical activity in the brain. The result is a synchronized firing of brain cells. Depending on the area of the brain affected, a person may experience many different symptoms. Seizures may have a variety of symptoms such as: changes in concentration, muscle contractions, body jerking, or sensations such as numbness and tingling. Most seizures last less than three minutes, although confusion afterwards may last longer. A seizure might be provoked by a preceding event such as metabolic disturbances or exposure to toxins. A provoked seizure will often not reoccur if the cause of the seizure has been corrected. All seizures should be assessed by a physician to determine the best treatment. Treatment may vary based upon the specific cause of the seizure.

What is epilepsy?

Epilepsy is a term used to describe a condition correlated with the ongoing risk of recurring seizures. This can include having more than one seizure or a single attack with a clear cause that increases the risk for further seizures. Many people can have a seizure without having the syndrome of epilepsy.

Epilepsy is a disorder that affects many people. One percent of the population in the United States have been diagnosed with epilepsy or have experienced a seizure. Risk for new onset of epilepsy increases with age. Epilepsy is NOT a mental illness.

What if I have never had a seizure but have been placed on seizure medication?

Many conditions such as brain surgery, tumor, or bleeding in the brain can increase the risk of having a seizure. Prevention of seizures related to acute illness may decrease the risk for injury or complications. Your physician may recommend seizure medications for a short time to prevent a seizure from happening until the brain has recovered from an injury.

How long does a seizure last?

Seizures may last from a few seconds to a few minutes. However, a person may remain sleepy and confused for a long time after a seizure.

What if a seizure does not stop?

Immediate attention is needed if a seizure is longer than 5 minutes. Multiple seizures that recur suddenly without regaining alertness between events also requires immediate attention. **Call 911 if this happens.**

Causes of Seizures

- **Idiopathic or unknown cause.** No cause is identified in 30 percent of all new onset seizures.
- **Brain Injury** from accidents or other trauma.
- **Brain Infections** like encephalitis or meningitis.
- **Genetic** conditions.
- **Metabolism changes** which prevent important nutrients from getting to the brain.
- **Electrolyte** abnormalities caused by certain medications or illnesses.
- **Toxins** such as drug overdose, alcohol, or environmental toxins.

Many adults have seizures related to physical changes associated with aging such as:

- **Stroke** is the most frequent cause of seizures that begin in later life. As people age, arteries may become narrowed or clogged, depriving parts of the brain of blood and oxygen. The resulting damage may produce seizures.
- **Bleeding** in the brain, which is another form of stroke, may also leave a person with seizures afterward.
- **Heart attacks** may temporarily cut off oxygen to the brain, with a similar result.
- **Disease:** Alzheimer's disease, or other neurodegenerative diseases that change the internal structure of the brain, may cause seizures. Complications of kidney disease, liver disease, alcoholism and even diabetes may make people more likely to have seizures in later life.
- **Infections** of the brain known as meningitis may cause seizures.
- **Brain tumors** of any kind will increase the risk of seizures.
- **Surgery:** An operation on the brain leaves a scar that can cause seizures later on.

Types of Seizures

There are many different types of seizures. People may experience only one type of seizure, while others experience multiple types. The kind of seizure a person has depends upon which part and how much of the brain is affected by the electrical disturbance. Seizures can be divided into categories: generalized seizures, partial (simple and complex) seizures, and status epilepticus.

Generalized Seizures

Generalized seizures affect the entire brain (both hemispheres) with a loss of consciousness. Types of generalized seizures include:

- **Generalized Tonic Clonic** often cause dramatic full body shaking known as tonic-clonic movements. The seizure will cause a loss of awareness and the person may appear unconscious. Usually the person will be confused and sleepy after the shaking (seizure) has stopped. This confusion may last for a few minutes to a few hours. Special caution should be used to ensure a person is on their side and on a stable surface (such as the floor) after a seizure to prevent breathing problems.

- **Absence seizures** are characterized by an altered state of consciousness usually lasting less than 30 seconds. Usually, the person's posture is maintained during the event. After the seizure the person may not recall the event and will continue activity as though nothing has happened. This type of seizure is often mistaken for a behavioral problem.

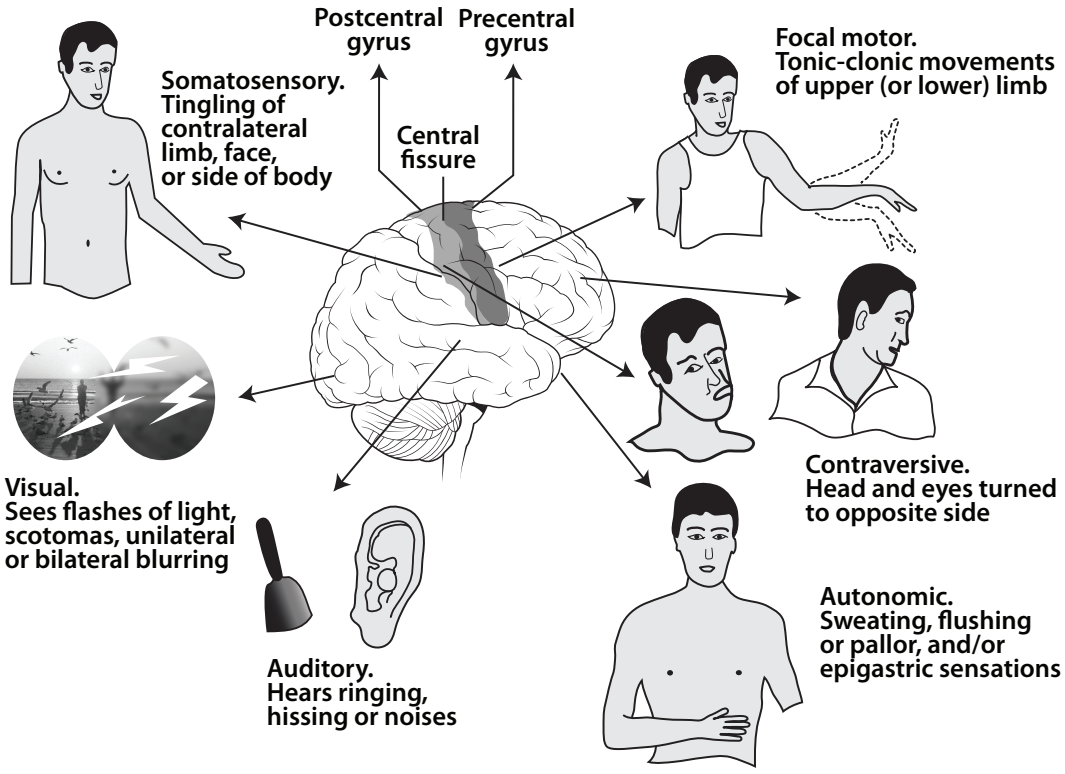
- **Atonic seizures** present with a sudden loss of muscle tone. The person will suddenly become limp and may fall from a standing position.

- **Myoclonic seizures** refer to quick movements or sudden jerking of the muscles. These seizures may occur several times a day for several days in a row.

Partial Seizures

In partial seizures, the electrical disturbance is limited to a specific area in the brain. Partial seizures affect different physical, emotional, or sensory functions of the brain. The symptoms are related to the part of the brain that is affected by the seizure. Some people have twitching on one part of the body or they may feel sensations that seem abnormal to them.

Partial seizures are classified by the area of the brain that is affected by the seizure and a



person's state of awareness. Partial seizures include:

- **Simple Partial Seizures.** Consciousness is not lost with this type of seizure. The seizure usually does not last longer than one minute. A person may experience sweating, nausea, visual changes, numbness, tingling, or isolated muscle movement.
- **Complex Partial Seizures.** This type of seizure commonly begins in the temporal lobe of the brain. The temporal lobe controls emotion and memory function. There is an alteration in a person's awareness or state of consciousness during a complex partial seizure. Seizures may present as lip smacking, screaming, and muscle movements correlated with a state of confusion. After the person regains consciousness they will usually feel tired and sleepy for a few hours.

All partial seizures have some things in common:

- **They end naturally.** Except in rare cases, the brain has its own way of bringing the seizure safely to an end after a minute or two.
- **You can't stop them.** In an emergency, doctors may use drugs to bring a lengthy, non-stop seizure to an end. However, the average person should wait for the seizure to run its course and try to protect the person from harm while consciousness is clouded.

Status Epilepticus

Most seizures end after a few moments or a few minutes. Seizures that are prolonged, or occur as a series (repeated seizures in the same day) are called status epilepticus. The term literally means a continuous state of seizure. **This is always an emergency.**

Diagnosis and Treatment Options

Diagnosis

Doctors take a medical history, do blood tests and use a variety of medical tests to determine if a person is at risk for recurrent seizures. If a person is at risk for recurrent seizures (epilepsy), they will often be referred to a neurologist for evaluation and treatment. A neurologist is a doctor that specializes in diseases of the brain, spine, and nerves.

A test commonly used to diagnose epilepsy is called an electroencephalogram (EEG). This test records the electrical activity in the brain in the form of brain waves. In many patients the doctor can determine if the brain has abnormal electrical activity. This may indicate increased risk for more seizures in the future. During the painless and non-invasive test, electrodes are placed on the scalp and brain waves are recorded. A brain scan may also

be done to see if there are any abnormalities within the brain which may cause seizures.

Treatment

For those at risk for seizure in the future, the doctor usually prescribes a drug that will lower the risk of recurrent seizures. More than 70 percent of patients with epilepsy can have their seizures controlled with medications. Effectiveness of the medication depends on the type of seizure, age, and other medical conditions. (See section on Seizure Medications below.)

When a medication fails to control seizures, other treatment options are available. Patients with seizures or serious side effects on seizure medication should discuss the various treatment options with their neurologist.

Seizure Medications

What should I know about seizure medications?

For most people, medication will prevent seizures as long as they are taken regularly. Successful drug therapy requires the active cooperation of the patient. Medications do not cure epilepsy and should never be stopped without a doctor's recommendation. **Be especially careful not to stop the medicine suddenly. Doing so may cause serious rebound seizures that could be life threatening.**

Missing doses may also increase the risk of having a seizure. All seizure medications require constant levels of the medication in the blood to work appropriately. **To keep the level steady and the seizures under control, the medicine has to be taken every day, on time.** If you think you will have a problem taking a medication as prescribed, talk to your doctor about changing the medication or slowly stopping it.

Will medication cure me from having seizures?

Antiepileptic (anti-seizure) drugs successfully prevent seizures in the majority of people who take them regularly and as prescribed. It has been estimated that at least 50 percent of all patients with epilepsy gain complete control of their seizures for substantial periods of time. Another 30 percent enjoy a significant reduction in the number of seizures. Some individuals have an excellent chance of remaining seizure-free without medication in the future. If you think that your seizures have resolved, talk to your doctor to safely taper the medication without having a seizure.

What side effects do seizure medications have?

A number of drugs are used to treat epilepsy; however, not all people respond the same. Each medication may have specific side effects that will be discussed with you by your

doctor. In general, increased levels of seizure medications may cause general side effects. Some people are more sensitive to side effects than others. Most medications have a risk of causing increased fatigue, memory problems, and difficulty concentrating. Although this may be normal with age and illness, sudden changes should always be reported. Seizures and seizure medications can also cause changes in mood, such as depression. Always talk to your doctor if you feel you are having side effects; he/she may decide to change the medication or change the dose.

Sometimes seizures continue even though the medication is being taken regularly. This may be caused by low blood levels of the medication. Each person will respond to medications differently. The goal of seizure medication is to have a balance of preventing seizures with minimal or no side effects.

How do I know when to call the doctor?

You should call your doctor if you have a sudden change in your mental status. Medication toxicity often causes confusion, difficulty with balance, and slurred speech. If the level of medication in the blood gets too high, it can produce these kinds of changes. It often takes longer for older people to process medicines and to eliminate them from the body. When this happens, the drug level in the blood slowly rises to levels which cause problems even though there's been no increase in the dose. Some older people may have toxic symptoms at levels that don't cause problems in younger people.

You should call your doctor if you notice a rash after starting a new medication. This is rare, but can be a sign of a serious allergic reaction that should be treated immediately.

First Aid

First aid for epilepsy is quite simple: keep the person safe until the seizure stops naturally and full awareness returns.

First Aid for Convulsive Seizures

During a generalized tonic-clonic seizure, the person suddenly falls to the ground and has a convulsive seizure. It is essential to protect him or her from injury.

DO:

- Keep calm.
- Look at a clock: Time the seizure.
- Clear the area around the person of anything hard or sharp.
- Loosen ties or anything around the neck that may make breathing difficult.
- Put something flat and soft, like a folded jacket, under the head.
- Stay with the person until the seizure ends naturally.

- After the seizure, place the person on their side. This will help keep the airway clear.
- Be reassuring and use a calm voice as consciousness returns.

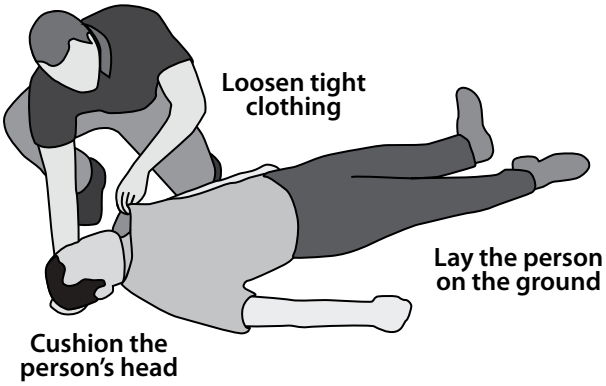
DO NOT:

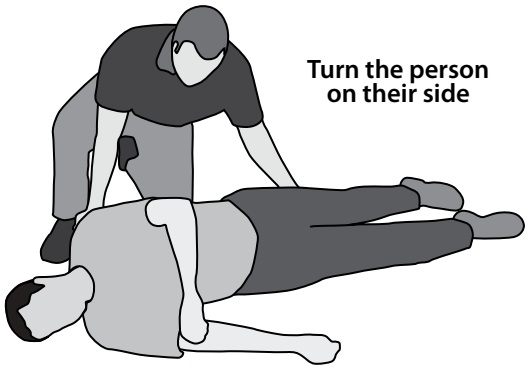
- Do not hold the person down or try to stop their movements.
- **Do not try to force the mouth open with any hard implement or with fingers.** A person having a seizure CANNOT swallow their tongue. Efforts to hold the tongue down can injure teeth, jaw, or your own fingers.
- Do not attempt artificial respiration except in the unlikely event that a person does not start breathing again after the seizure has stopped.

First Aid for Partial and Non-Convulsive Seizures

You don't have to do anything if a person has brief periods of staring or shaking of the limbs. If someone has the kind of seizure that produces a dazed state and automatic behavior, the best thing to do is:

- Speak quietly and calmly in a friendly way.
- Guide the person gently away from any danger, such as a steep flight of steps, a busy highway, or a hot stove. Don't grab hold, however, unless some immediate danger threatens. People having this kind of seizure are on "automatic pilot" as far as their movements are concerned. Instinct may make them struggle or lash out at the person who is trying to hold them.





- Stay with the person until full consciousness returns, and offer help as needed.

Responding to Confusion

Confusion may occur during a complex partial seizure or during the recovery period after other types of seizures.

In either case, the same basic rules apply:

- Remove anything from the area that might cause injury or could be a hazard to someone who is temporarily unaware of their surroundings.

- Do not try to restrain an older person who is wandering and confused during a complex partial seizure. If danger threatens, guide gently away.
- A person may be quite agitated during these episodes. Trying to restrain, or grab hold, is likely to make the agitation worse and may trigger an aggressive response.
- Be reassuring, comforting and calm as awareness returns. If confusion persists, seek medical attention.

Special Considerations

Living with Epilepsy

Although there are always exceptions, people with epilepsy who are otherwise in good health and whose mental abilities are unaffected can usually continue to live independently. Families may find this idea difficult to accept. With the best of intentions, they often become overprotective, making an older relative more dependent than is necessary.

Of course, there are risks associated with seizures when people live alone. Making certain changes in the home can reduce the risk of injury. For example, living in a house or apartment which does not have stairs reduces the risk of injury from falls; carpeted floors provide a softer surface.

Fire, heat, and water are hazards for people who have seizures. Use caution when cooking by using the back burners. No swimming or bathing in a bath tub without supervision unless cleared by your neurologist.

Jobs and hobbies may need to be limited to those that are not dangerous to the person if he or she suddenly loses awareness. Contact sports should be avoided to prevent trauma that could cause a seizure. Examples of activities and sports that should be avoided or supervised include:

- Swimming
- Riding a bicycle
- Contact sports
- Sailing
- Riding a motorcycle
- Mountain climbing
- Flying an airplane
- Skydiving

Many activities, such as jogging and tennis, are safe for individuals with seizures. General moderate exercise does not increase your risk for seizures. There is not an increased risk of seizures associated with sexual activity.

What provokes a seizure?

There are many things that can cause increased risk of seizures in people that are prone to seizures. **People with epilepsy should not drink alcoholic beverages or do illicit drugs. Doing so will increase the risk of seizures significantly.** Many people with epilepsy have identified certain things that seem to increase the number or severity of their seizures. Sometimes these connections are just coincidences, but in many cases a link has been proven between these factors (also called triggers) and the occurrence of seizures. Examples of typical seizure triggers include: lack of sleep, skipping a meal, or increased stress.

Can I still drive?

People who have recently had a seizure or are having active seizures should not drive. However, people with epilepsy whose seizures are fully controlled with medication can qualify to drive. With close follow-up with a neurologist, you can often drive after being seizure-free for a period of time. The physician will work with you to help you drive as soon as your seizures are controlled and there is no risk of loosing consciousness from seizures.

If driving is not an option, alternatives such as using public transportation, signing-up with local services for the elderly or disabled, or even moving to an apartment complex or community that has its own transportation may be among the alternatives.

Women with Seizures

Women with seizures and on seizure medication can get pregnant. However, certain medications can cause harm to an unborn child. There are many medications that are safe and supplements can be taken to decrease the risk of certain birth complications associated with epilepsy medication. The neurologist should be made aware of any upcoming planned pregnancy. The doctor will work with your obstetrician to provide individualized counseling or make changes to current medications.

Is there anyone I can talk to?

There are many resources for people that have epilepsy. Having seizures often may result in a few life changes. The feeling of losing independence and the fear of having seizures may cause new stress. There are resources at Hoag Hospital and in Orange County to meet others that have been through similar situations. The Hoag Epilepsy support group meets the first Wednesday of every month from 7-8 p.m. in the Hoag Cancer Center. Patients, friends, and family are welcome to join group discussion to help better understand and cope with epilepsy. The Hoag Epilepsy Center is also available to answer general questions about epilepsy and referral resources.

The Epilepsy Alliance of Orange County offers classes every month for education on seizures and seizure safety.

Resources

Hoag Hospital Epilepsy Center
949/764-8319

Epilepsy Alliance of Orange County
www.epilepsyalliance.org
714/557-0202

Offers extended education and support services in the Orange County area.

Denise Fortenberry, NP, MSN
Hoag Epilepsy Nurse Practitioner
949/764-8062

Hoag Hospital Epilepsy Support Group
949/764-8319

Meets the first Wednesday of every month from 6:30-8 p.m. in Hoag Cancer Center. Family and friends are welcome to attend.

The Epilepsy Foundation
www.epilepsyfoundation.org

National Institute of Neurological Disorders and Stroke
www.ninds.nih.gov/

One Hoag Drive
PO BOX 6100
Newport Beach, CA 92658-6100
949/764-HOAG (4624)
www.hoag.org

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