CONDITION

Seizures

A seizure is a brief episode caused by a sudden change in the brain's electrical activity.

WHAT IT IS
Brief abnormal electrical activity in the brain

BODY SYSTEM
Nervous system

MAIN SYMPTOMS
Jerking, staring, altered awareness, unusual sensations

WHAT CAUSES IT
Brain illness, injury, body chemistry changes, or unknown causes

HOW IT IS DIAGNOSED
History, witness account, EEG, and tests for causes

MAIN TREATMENT
Cause-specific care and anti-seizure medicines

CAN IT BE CURED?
Sometimes - reversible causes can be removed

IS IT AN EMERGENCY?
Sometimes - if lasting five minutes or repeating without recovery

LONG-TERM OUTLOOK
Many stop; recurrent seizures may need long-term treatment

Overview

A seizure is a short episode of abnormal electrical activity in the brain. It can affect movement, awareness, behaviour, emotions, or sensations. What happens depends on where the electrical activity starts and how far it spreads.

Not every seizure causes full-body shaking. A person may stare, become briefly confused, make repeated movements, experience an unusual smell or feeling, or lose awareness. Some people remain awake throughout.

Having one seizure does not necessarily mean you have epilepsy. Epilepsy is a condition involving an ongoing tendency to have seizures that are not caused by a temporary problem. A seizure can instead be triggered by something such as very low blood sugar, alcohol withdrawal, a serious infection, or a recent brain injury.

A first suspected seizure needs medical assessment, even if you feel normal afterward. Finding the cause helps determine whether treatment or further monitoring is needed.

Symptoms

Seizures can begin in one part of the brain or involve both sides from the start. Doctors describe these as focal-onset, generalized-onset, or unknown-onset seizures.

Possible symptoms include:

During a seizure with shaking, breathing may look irregular and the lips can briefly appear blue or grey. Saliva may gather around the mouth. A person may bite the side of their tongue or lose bladder control, but these signs do not occur in every seizure.

Afterward, the person may be confused, sleepy, weak, or have a headache. Recovery can take minutes or sometimes hours. Temporary weakness on one side can occur after some seizures and needs urgent assessment, especially if it is new.

Some seizures happen during sleep. Signs may include unexplained injuries, a bitten tongue, wet bedding, or waking with confusion or muscle soreness. These signs have other possible causes, so they do not confirm a seizure by themselves.

- Sudden stiffening or rhythmic jerking
- Staring and not responding normally
- Loss of awareness or collapse
- Repeated movements such as lip-smacking, chewing, or picking at clothing
- Tingling, flashing lights, an unusual smell, or a rising feeling in the stomach
- Sudden fear, a sense of déjà vu, or another unexplained emotional change
- Brief loss of muscle tone, causing the head or body to drop

Causes and risk factors

A seizure may be provoked by a temporary problem affecting the brain or body. These are sometimes called acute symptomatic seizures.

Possible causes include:

Other seizures are unprovoked, meaning there is no immediate temporary trigger. They may be related to an inherited tendency, an older brain injury, or a change in how brain cells function. Sometimes no cause is found.

Risk is higher in people with epilepsy, previous brain injury, stroke, dementia, certain developmental conditions, or close relatives with some forms of epilepsy. However, many people with these risk factors never have a seizure.

Lack of sleep, missed anti-seizure medicine, illness, or heavy alcohol use can make seizures more likely in someone who is already susceptible. Stress may contribute indirectly through poor sleep, missed medicine, or alcohol use, but it is not a simple cause of all seizures.

Fainting, migraine, sleep disorders, panic attacks, and functional seizures can resemble epileptic seizures. Functional seizures are real episodes caused by changes in brain functioning rather than epileptic electrical activity. Correct diagnosis matters because treatments differ.

- Stroke, head injury, brain infection, or lack of oxygen
- Very low blood sugar or major changes in blood salts, such as sodium
- Alcohol withdrawal or withdrawal from certain sedative medicines
- Some medicines, recreational drugs, or poisoning
- High fever in some young children
- A brain tumour or a structural difference in the brain

Diagnosis

There is no single test that confirms every seizure. Diagnosis starts with a detailed account of what happened before, during, and after the episode.

A witness description can be especially useful because you may not remember the event. A safely recorded phone video may help, but nobody should delay first aid or place themselves at risk to make one.

You may be asked about previous episodes, illness, medicines, alcohol or drug use, sleep, pregnancy, and family history. A physical and neurological examination checks movement, sensation, coordination, and alertness.

Tests may include:

An EEG may show patterns that support a diagnosis of epilepsy and help identify the seizure type. A normal EEG does not rule out a seizure or epilepsy because the recording covers only a limited period.

Longer ambulatory EEG or video-EEG monitoring may be used when the diagnosis remains unclear or episodes need to be recorded directly.

- Blood tests to look for low glucose, abnormal body salts, infection, or other causes
- An electrocardiogram, or ECG, to check for heart rhythm problems that can cause collapse
- An electroencephalogram, or EEG, which records electrical activity from the scalp
- MRI or CT imaging to look for bleeding, stroke, injury, or structural changes
- A lumbar puncture in selected cases, particularly if brain infection is suspected

Treatment and management

Immediate care focuses on safety and breathing. Most seizures stop without an emergency procedure.

If someone is having a seizure:

Do not hold the person down. Do not put fingers, food, drink, or objects in their mouth. A person cannot swallow their tongue, and placing something in the mouth can cause injury or block breathing.

Ongoing treatment depends on the cause and the chance of another seizure. A temporary cause, such as low blood sugar, needs treatment directed at that problem. One unprovoked seizure does not always lead to long-term medicine.

Anti-seizure medicines reduce the chance of further seizures. The choice is based on seizure type, age, other health conditions, possible interactions, pregnancy considerations, and side effects. Do not stop one suddenly unless instructed, because abrupt withdrawal can cause seizures.

Some people receive prescribed rescue medicine for a prolonged seizure or a cluster of seizures. It should be used only according to the person's written plan and training.

If medicines do not control recurrent seizures, specialist options may include surgery, an implanted nerve-stimulation device, or a medically supervised ketogenic diet. These treatments are suitable only for certain forms of epilepsy.

- Move dangerous or sharp objects away
- Cushion their head and loosen tight clothing around the neck
- Time the seizure
- Turn them onto their side when possible, especially after jerking stops
- Stay with them and speak calmly as they recover

- Follow their personal seizure plan if one is available

Complications

A seizure can cause falls, burns, cuts, dental injuries, or drowning. Driving or operating machinery during a seizure can harm the person and others.

A prolonged seizure, or repeated seizures without recovery between them, is called status epilepticus. This is a medical emergency because continued seizure activity can interfere with breathing and injure the brain or other organs.

Breathing problems and inhaling vomit or saliva into the lungs can also occur. Pregnancy, diabetes, serious injury, and seizures in water require particular caution.

People with epilepsy have a small risk of sudden unexpected death in epilepsy, known as SUDEP. The risk is higher when generalized convulsive seizures are frequent or uncontrolled. Taking medicine as prescribed and discussing ongoing seizures with an epilepsy specialist can help address individual risk.

Prevention

It is not possible to prevent every seizure. Some result from inherited tendencies, previous brain changes, or causes that cannot be predicted.

Certain provoked seizures may be prevented by managing the underlying risk. This includes taking prescribed medicines correctly, avoiding recreational drugs, and avoiding heavy alcohol use or sudden alcohol withdrawal. Anyone who may be dependent on alcohol should seek medical help rather than stopping abruptly.

If you have epilepsy, regular sleep and taking anti-seizure medicine on schedule may reduce your chance of a seizure. Triggers are personal; keeping a record can help identify patterns without assuming that every stressful day or missed meal is responsible.

Safety planning does not prevent seizures, but it can prevent injury. Examples include showering rather than bathing alone, avoiding unprotected heights, using guards around heat sources, and swimming only with someone who understands seizure first aid.

Living with it and what to expect

The outlook after a seizure depends mainly on its cause. A seizure caused by a short-lived

problem may not happen again once that problem is corrected. An unprovoked seizure carries some risk of recurrence, but it does not always lead to epilepsy.

For people with epilepsy, seizures may stop with the first suitable medicine. Others need medicine changes, combinations of treatment, or specialist assessment. Some continue to have seizures despite treatment.

Keep a record of when episodes happen, what they look like, how long they last, and how recovery feels. Include missed medicine, illness, sleep disruption, or menstrual timing if relevant. This information can guide follow-up.

Driving laws after a seizure differ by location. You may need to stop driving and notify the licensing authority. A healthcare professional can explain the rules that apply where you live.

Work, school, exercise, travel, relationships, and pregnancy are possible for many people with recurrent seizures. Planning may be needed around driving, heights, water, machinery, medicine supplies, and sleep. If pregnancy is possible, discuss anti-seizure treatment before trying to conceive when possible. Do not stop medicine on your own.

Regular follow-up is important if seizures continue, treatment causes side effects, or the pattern changes. A written seizure action plan can help family, friends, teachers, or coworkers respond safely.

When to get medical help

Call emergency services if:

Emergency services may not be needed for every brief seizure in someone with known epilepsy if it stops as expected, recovery is usual, and their care plan says how to respond.

Arrange prompt medical assessment after any first suspected seizure, even if it has stopped. Also seek follow-up if seizures become more frequent, recovery takes longer, new symptoms appear, or medicine side effects are affecting daily life.

- A seizure lasts five minutes or longer
- Another seizure starts before the person recovers
- It is the person's first known seizure
- The person has trouble breathing or does not regain awareness
- The seizure happened in water
- There is a serious injury

- The person is pregnant or has diabetes
- The seizure is different from the person's usual pattern
- You are unsure whether the person is recovering safely

Common questions

Is a seizure the same as epilepsy?

No. A seizure is an event. Epilepsy is an ongoing tendency to have unprovoked seizures. One seizure can result from a temporary illness or body chemistry problem and may never recur.

Can I be awake during a seizure?

Yes. Some focal seizures affect sensation, movement, emotion, or memory without causing complete loss of awareness. You may be able to speak, or you may understand what is happening but be unable to respond normally.

What should I put in someone's mouth during a seizure?

Nothing. Objects, food, drink, and fingers can damage teeth or block the airway. Protect the person from injury, cushion their head, time the seizure, and turn them onto their side when possible.

Can stress cause seizures?

Stress may make seizures more likely in some people who are susceptible, often by disturbing sleep or medicine routines. It is not the only explanation for a new episode, and a first suspected seizure still needs medical assessment.

Can I drive after a seizure?

You may need to stop driving for a legally defined period. Rules differ by country or region and may take account of the cause, recurrence risk, and seizure-free time. Check with the relevant licensing authority before driving again.

Can seizures happen while I am asleep?

Yes. Some people have seizures only or mainly during sleep. Unexplained nighttime injuries, tongue biting, or repeated episodes of waking confused should be discussed with a healthcare professional.

Sources



- National Institute for Health and Care Excellence. Epilepsies in children, young people and adults: diagnosis and management (NG217) , published April 2022, updated January 2025
- Centers for Disease Control and Prevention. First Aid for Seizures , May 2024
- National Institute of Neurological Disorders and Stroke. Epilepsy and Seizures , U.S. National Institutes of Health
- World Health Organization. Epilepsy , fact sheet, February 2024
- Fisher RS, Cross JH, French JA, et al. Operational classification of seizure types by the International League Against Epilepsy . Epilepsia , 2017;58(4):522-530
- NHS. What to do if someone has a seizure (fit) , reviewed December 2023