



WHAT ARE SEIZURES?

A seizure is a disruption in the normal pattern of impulses between nerve cells in the brain which can change behaviour, awareness or sensation.

The brain is made up of millions of nerve cells. These cells, called neurons, normally generate electrochemical impulses, sending messages to other regions of the body to produce thoughts, feelings and actions. Seizures happen when all the neurons fire at once and at a much faster rate. This causes changes in sensation, awareness and behaviour, or sometimes convulsions, muscle spasms or loss of consciousness, depending on where it starts and spreads in the brain.

What is epilepsy?

Anyone can have a seizure under certain circumstances. It is only when there is a tendency to have recurrent seizures that epilepsy is diagnosed. Approximately 2% of Australians will experience a seizure at some point in their lives. Up to 5% will have a one-off or provoked seizure during their lifetime (*Source: The World Health Organisation*).

What is a seizure threshold?

People more likely to have a seizure have what we term a lower seizure threshold. This is the level at which the brain will begin to have a seizure. A high threshold means that a seizure is unlikely to occur, while a low one means a seizure is more likely to occur. Antiepileptic drugs (AEDs) attempt to raise the seizure threshold, whereas some other medications and lifestyle factors may lower it.

Causes of epilepsy

There are many possible causes of epilepsy. However, up to 50% of people never find out why they have epilepsy. Anything that results in damage to the brain tissue or causes scarring on the brain may lead to abnormal electrochemical patterns resulting in seizures. Some possible causes of epilepsy include:

- ❖ Birth trauma, such as lack of oxygen during delivery or complications prior to birth
- ❖ Head injury
- ❖ Disease and infections of the brain such as meningitis and encephalitis
- ❖ Brain tumours and malformations
- ❖ Metabolic disorders and other conditions affecting the body's metabolism (e.g. kidney or liver disease)
- ❖ Stroke, brain haemorrhage
- ❖ Cerebrovascular disease (degeneration or abnormalities of the blood vessels in the brain)
- ❖ Chronic drug abuse or overdose
- ❖ Genetic predisposition

What can trigger a seizure?

Seizure triggers can include:

- ❖ Lack of sleep
- ❖ Missed medication
- ❖ Extreme fatigue or physical exhaustion/stress
- ❖ Emotional stress (conflict, fear and anxiety, emotional upsets, money concerns)
- ❖ Drug toxicity (too much antiepileptic medication)
- ❖ Poor nutrition (eating junk food or a diet that is not nutritionally balanced)

- ⚡ Excessive caffeine or stimulant drinks
- ⚡ Boredom, lack of activity or interest
- ⚡ Excitement
- ⚡ Other medications, including over the counter drugs
- ⚡ Consumption of alcohol or drug abuse
- ⚡ Fever, colds, infections
- ⚡ Hormonal fluctuations during the menstrual cycle
- ⚡ Excessive heat
- ⚡ Dehydration or overhydration
- ⚡ Flashing lights or rapid changes in geometrical patterns
- ⚡ Sudden shock or loud noise
- ⚡ Sudden extreme pain

If a person suddenly stops taking antiepileptic medication, it can lead to more severe or prolonged seizures, sometimes to life-threatening non-stop seizures, called status epilepticus.

People with epilepsy should never stop taking medications without consulting a doctor. Antiepileptic medication should only be withdrawn slowly and safely.

Not all seizures are epilepsy

Having a seizure does not necessarily mean that a person has epilepsy. Many seizures are not associated with the condition.

These are seizures with a known cause that are unlikely to happen unless the stimulus occurs again e.g. fever. While they are not considered epilepsy, there is a chance some of these episodes may lead to a slightly higher risk of developing it. Possible causes of seizures that are not epilepsy include:

- ⚡ Seizure immediately following **head trauma**
- ⚡ Seizure following a **faint** caused by temporary low blood supply to brain
- ⚡ **Febrile convulsions** when an infant/child has a seizure with a sudden rise in body temperature
- ⚡ **Cardiac events** e.g. heart attack
- ⚡ **Infections** e.g. viral or bacterial infections, herpes simplex, meningitis, and encephalitis
- ⚡ **Eclampsia** or seizures during pregnancy/labour because of extremely high blood pressure
- ⚡ **Sleep apnoea** when a person has periods of not breathing during sleep, temporary lack of oxygen
- ⚡ **Stopping drug or alcohol intake** after excessive use
- ⚡ **Poisoning** or large doses of medications, toxins, insecticides, industrial chemicals, etc.
- ⚡ **Extreme emotional stimulus**
- ⚡ **Psychiatric episodes**

This information is given to provide accurate, general information about epilepsy. Medical information and knowledge changes rapidly and you should consult your doctor for more detailed information. This is not medical advice and you should not make any medication or treatment changes without consulting your doctor.