



Brain Tumour Australia Information

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Seizures

What is a seizure and how do they occur?

- Brain cells that usually communicate with each other, may send abnormal messages (similar to electrical charges).
- The mis-communication of these messages is called a seizure.
- Where the signals originate from determines the type of seizure.

If the tumour is found in the cerebral hemisphere (of the brain) seizures may develop.

Types of Seizures

The following types of seizures may be encountered in a person diagnosed with a brain tumour:

Primary generalized seizures [Grand Mal Seizures]

- Primary generalized seizures begin with a widespread electrical discharge that involves both sides of the brain at once.
- Occur when there is a loss of consciousness after frequent rhythmic muscular contractions.

Primary Generalised Seizures

- Absence seizures
- Atypical absence seizures
- Myoclonic seizures
- Atonic seizures
- Tonic seizures
- Clonic seizures
- Tonic-clonic seizures

Tonic-Clonic seizures [grand-mal]

- As implied by the name, they combine the characteristics of tonic seizures and clonic seizures.
- The tonic phase comes first: All the muscles stiffen.
- Air being forced past the vocal cords causes a cry or groan.
- The person loses consciousness and falls to the floor.
- The tongue or cheek may be bitten, so bloody saliva may come from the mouth.
- The person may turn a bit blue in the face.
- After the tonic phase comes the clonic phase:
- The arms and usually the legs begin to jerk rapidly and rhythmically, bending and relaxing at the elbows, hips, and knees.
- After a few minutes, the jerking slows and stops.

- Bladder or bowel control sometimes is lost as the body relaxes.
- Consciousness returns slowly, and the person may be drowsy, confused, agitated, or depressed.
- These seizures may last 1 to 3 minutes
- A tonic-clonic seizure that lasts longer than 5 minutes probably calls for medical help.
- A seizure that lasts more than 30 minutes, or three seizures without a normal period in between, requires a visit to an emergency department

Clonic seizures

- *Clonus* means rapidly alternating contraction and relaxation of a muscle -- in other words, repeated jerking.
- The movements cannot be stopped by restraining or repositioning the arms or legs.
- Clonic seizures are rare
- The length of these seizures varies
- Much more common are tonic-clonic seizures in which the jerking is preceded by stiffening (the "tonic" part).
- Sometimes tonic-clonic seizures start with jerking alone.
- These are called clonic-tonic-clonic seizures!

Simple Partial seizures are often divided into categories depending on the type of symptoms the person experiences:

- Occurs when consciousness is present throughout the entire seizure.
- The type of symptoms experienced link to the region of the brain where the seizure occurs.

Secondary generalised seizures

- Seizures of this kind start as a partial seizure—that is, they start in one limited area of the brain.
- The forms they take vary as much as other partial seizures.
- Sometimes the seizure spreads quickly throughout the brain, becoming *generalized*.
- They are called *secondarily generalized* because they only spread to both sides of the brain after the initial or *primary* event, a partial seizure, has already begun.
- They happen when a burst of electrical activity in a limited area (the partial seizure) spreads throughout the brain.



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Seizures cont.

Secondary generalised seizures cont.

- The person may not recall the first part of the seizure.
- The generalized, convulsive phase of these seizures usually lasts no more than a few minutes, the same as primary generalized seizures.
- The preceding partial seizure is usually not very long.

Motor Seizures

- These cause a change in muscle activity. eg, a person may have abnormal movements such as jerking of a finger or stiffening of part of the body.
- Occur in the form of twitching movements throughout an area or in differing linked body parts.
- These movements may spread, either staying on one side of the body (opposite the affected area of the brain) or extending to both sides.
- Other examples are weakness, which can even affect speech, and coordinated actions such as laughter or automatic hand movements.
- The person may or may not be aware of these movements.

Sensory and Psychic Seizures

A lack of feeling or lack of sensation may occur in one area of the body and may also move to adjoining areas of the body. The following may be experienced:

- Seizures may even be painful for some patients.
- Feeling as if they are floating or spinning in space.
- Visual hallucinations, seeing things that aren't there (a spot of light, a scene with people).
- Illusions; distorted images. e.g. walls curving.
- Hallucination of smells or different tastes; may be very unpleasant.
- Auditory; hearing sounds where there are no sounds to be heard.
- Mood swings. e.g. being frightened, angry, sad, exuberant, happy.
- Altered memory. e.g. difficulty recalling events, instructions.
- Feel a sensation of pins and needles or numbness.

Autonomic seizures

- These cause changes in the part of the nervous system that automatically controls bodily functions.
- These common seizures may include strange or

unpleasant sensations in the stomach, chest, or head; changes in the heart rate or breathing; sweating; or goose bumps.

Psychic seizures

- These seizures change how people think, feel, or experience things.
- They may have problems with memory, garbled speech, an inability to find the right word, or trouble understanding spoken or written language.
- They may suddenly feel emotions like fear, depression, or happiness with no outside reason.
- Some may feel as though they are outside their body or may have feelings of *déjà vu* (I've been through this before) or *jamaïs vu* (This is new to me"— even though the setting is really familiar).
- Sometimes the seizure activity spreads to other parts of the brain, so another type of seizure follows the simple partial seizure.
- This can be a complex partial seizure or a secondary generalised seizure.
- They usually last only a short time, usually less than 2 minutes.

Complex Partial Seizures

- Involve the temporal lobe or frontal lobe resulting in
- Loss of alertness & awareness occurs without convulsion.
- A warning may be experienced but loss of consciousness occurs.
- While unconscious, the person may have their eyes open and fixed or make uncomplicated movements of the mouth (chewing, lip moving).
- Sometimes more complex movements may occur. (e.g. attempting to pick-up items up or wander about aimlessly).
- Some may think the person is just daydreaming.
- Because the seizure can wipe out memories of events just before or after it, however, memory lapses can be a problem..
- Also called an aura, this warning seizure often includes an odd feeling in the stomach.
- Less often, people may repeat words or phrases, laugh, scream, or cry.



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Seizures cont.

Complex Partial Seizures cont.

- Some people do things during these seizures that can be dangerous or embarrassing, such as walking into traffic or taking their clothes off.
- Complex partial seizures starting in the frontal lobe tend to be shorter than the ones from the temporal lobe.
- The seizures that start in the frontal lobe are also more likely to include automatisms like bicycling movements of the legs or pelvic thrusting.
- Some complex partial seizures turn into secondarily generalized seizures.
- They usually last between 30 seconds and 2 minutes. Afterward, the person may be tired or confused for about 15 minutes and may not be fully normal for hours.

Partial Seizures with Secondary Generalisations

- May start as a simple or complex partial seizure (see above) and may begin so rapidly that there is little or no forewarning.
- Falls may occur with the body stiffening.
- Sometimes this action is accompanied by a vocal outburst.
- Recurring twitching movements throughout the body may follow the initial stiffening.
- Care needs to be taken to ensure the tongue is not bitten.
- Breathing patterns, bowel and bladder control may be affected.
there (especially shapes).

Remember not every person diagnosed with a brain tumour will experience a seizure.

While for some people the experience of a seizure may be one of the earliest signs of a brain tumour, many people will never encounter a seizure at all.

Any type of seizure can be scary. Gaining knowledge about the differing types of seizures and how they occur can help.

However, as the possibility of seizures occurring can be a real concern for the person with a diagnosis and their families, the information has been provided as a guide only

Medications used to control Seizures

It is always wise to be knowledgeable about the uses and side effects of any medications you are taking.

The control of seizures is frequently possible by the intervention of medication.

To be most effective, medication must reach a certain level in the bloodstream. This is called a 'therapeutic level'.

- Keep a diary and note when medication is to be taken.
- Take the medication as prescribed and at the time of day/night recommended.
- It is important to monitor the exact dosage taken.
- Too much medication in the system is called a toxic level.
- Not enough medication in your system can also add to the risk of side effects or seizure risk.
- It is necessary for regular blood tests to be conducted to monitor levels or readings if advised by your treating specialist.
- Contact your pharmacist or medical practitioner if you have any issues of concern.
- It may be necessary to change dosage or even alter medications if readings cause concern

Types of medication used to control/prevent seizures are referred to in a number of ways:

- Anti-convulsants
- Anti-seizure treatment
- Anti-epilepsy treatment

and some of the most commonly used medications are:

- Dilantin (phenytoin sodium)
- Tegretol (carbamazepine)
- Epilim (sodium valproate)
- Keppra
- Lyrica

Use of Medication

- It may be necessary to take medication for a lengthy period.
- Discuss your care plan with your doctor.

Do not reduce your medication or take it in different dosages without medical advice.



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Medications to Treat Seizures

Medications to Treat Seizures

- **Tegretol or Carbatrol (carbamazepine)**
First choice for partial, generalised tonic-clonic and mixed seizures.
Common side effects include fatigue, vision changes, nausea, dizziness, rash.
- **Zarontin (ethosuximide)**
Used to treat absence seizures.
Common adverse effects include nausea, vomiting, decreased appetite, and weight loss.
- **Gabitril**
Used with other seizure meds to treat partial and some generalised seizures.
Common side effects include dizziness, fatigue, weakness, irritability, anxiety, and confusion.
- **Keppra**
Used with other seizure meds to treat partial seizures.
Common side effects include tiredness, weakness, and behavioural changes.
- **Lamictal**
Used to treat partial and some generalised seizures.
Has few side effects, but rarely people report dizziness, insomnia, or rash.
- **Lyrica**
Used to treat partial seizures.
Common side effects include dizziness, sleepiness (somnolence), dry mouth, peripheral edema, blurred vision, weight gain, and difficulty with concentration/attention.
- **Neurontin (Gabapentin)**
Used with other seizure meds to treat partial and some generalized seizures.
Few lasting side effects. During the first weeks of treatment tiredness and dizziness may be experienced
- **Dilantin (Phenytoin)**
Controls partial seizures and generalised tonic-clonic seizures. Also can be given by intravenously in the hospital to rapidly control active seizures.
Side effects include dizziness, fatigue, slurred speech, acne, rash, and increased hair (hirsutism).
- **Topamax**
Used with other medications to treat partial or generalised tonic-clonic seizures.
Side effects include sleepiness, dizziness, speech problems, nervousness, memory problems, visions problems, weight loss.
- **Trileptal**
Treats partial seizures.
Most common side effects are tiredness, dizziness, headache, blurred vision, or double vision.
- **Depakene, Depakote (valproate, valproic acid)**
Used to treat partial, absence, and generalised tonic-clonic seizures.
Common side effects include dizziness, nausea, vomiting, tremor, hair loss, weight gain, depression in adults, irritability in children, reduced attention, a decrease in thinking speed.
- **Zonegran**
Used with other medications to treat partial seizures.
Common side effects include drowsiness, dizziness, unsteady gait, kidney stones, abdominal discomfort, headache, and rash.

Possible Side Effects

Taking medications may result in different side effects being experienced. The following strategies have been generalised. Not all side effects occur with each medication.

NOTE - The department of Roads and Traffic Authority of New South Wales and other Australian states also advise that if seizures have been experienced and or medication is taken, a medical assessment is necessary before resuming driving activities. *(Please refer to the driving section of this website for more information)*