

Carpe Diem – Seize the Day Blog

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A generalized tonic-clonic seizure, sometimes called a grand mal seizure, is a disturbance in the functioning of both sides of your brain. This disturbance is caused by electrical signals spreading through the brain inappropriately. Often this will result in signals being sent to your muscles, nerves, or glands. The spread of these signals in your brain can make you lose consciousness and have severe muscle contractions.

Seizures are commonly associated with a condition called epilepsy. According to the Centers for Disease Control and Prevention, about 5.1 million people in the United States have a history of epilepsy. However, a seizure could also occur because you have a high fever, a head injury, or low blood sugar. Sometimes, people have a seizure as a part of the process of withdrawing from drug or alcohol addiction.

Tonic-clonic seizures get their name from their two distinct stages. In the tonic stage of the seizure, your muscles stiffen, you lose consciousness, and you may fall down. The clonic stage consists of rapid muscle contractions, sometimes called convulsions. Tonic-clonic seizures usually last 1–3 minutes. If the seizure lasts longer than five minutes, it is a medical emergency.

If you have epilepsy, you might begin to have generalized tonic-clonic seizures in late childhood or adolescence. This type of seizure is rarely seen in children under 2.

A one-time seizure that is not related to epilepsy could happen at any stage of your life. These seizures are normally brought about by a triggering event that temporarily alters your brain functioning.

A generalized tonic-clonic seizure may be a medical emergency. Whether the seizure is a medical emergency depends on your history of epilepsy or other health conditions. Seek immediate medical help if this is your first seizure, if you have been injured during the seizure, or if you have a cluster of seizures.

Causes of generalized tonic-clonic seizures

The onset of generalized tonic-clonic seizures could be caused by a variety of health conditions. Some of the more severe conditions include a brain tumor or a ruptured blood vessel in your brain, which can cause a stroke. A head injury could also trigger your brain to cause a seizure. Other potential triggers for a grand mal seizure could include:

- low levels of sodium, calcium, glucose, or magnesium in your body.
- drug or alcohol abuse or withdrawal.
- certain genetic conditions or neurological disorders.
- injury or infection.

Who is at risk for generalized tonic-clonic seizures?

You may be at a higher risk for having generalized tonic-clonic seizures if you have a family history of epilepsy. A brain injury related to a head trauma, infection, or stroke also puts you at higher risk. Other factors that could increase your chances of having a grand mal seizure include:

- sleep deprivation.
- an electrolyte imbalance due to other medical conditions.
- the use of drugs or alcohol.

Symptoms of a generalized tonic-clonic seizure

If you have a tonic-clonic seizure, some or all of these symptoms may occur:

- a strange feeling or sensation, which is called an aura.
- screaming or crying out involuntarily.
- losing control of your bladder and bowels either during or after the seizure.
- passing out and waking up feeling confused or sleepy.
- a severe headache after the seizure.

Typically, someone who has a generalized tonic-clonic seizure will stiffen and fall during the tonic stage. Their limbs and face will appear to jerk rapidly as their muscles convulse. After you have a grand mal seizure, you might feel confused or sleepy for several hours before recovering.

How are generalized tonic-clonic seizures diagnosed?

There are several ways to diagnose epilepsy or what caused your seizure:

Medical history

Your doctor will ask you questions about other seizures or medical conditions you have had. They might ask the people who were with you during the seizure to describe what they saw.

Your doctor might also ask you to remember what you were doing immediately before the seizure happened. This helps to determine what activity or behavior may have triggered the seizure.

Neurological exam

Your doctor will perform simple tests to check your balance, coordination, and reflexes. They will assess your muscle tone and strength. They will also judge how you hold and move your body and whether your memory and judgment seem abnormal.

Blood tests

Your doctor may order blood tests to look for medical problems that could influence the onset of a seizure.

Medical imaging

Some types of brain scans can help your doctor monitor your brain function. This could include an electroencephalogram (EEG), which shows the patterns of electrical activity in your brain. It could also incorporate MRI, which provides a detailed picture of certain parts of your brain.

Treating generalized tonic-clonic seizures

If you have had one grand mal seizure, it may have been an isolated event that does not require treatment. Your doctor could decide to monitor you for further seizures before beginning a long-term course of treatment.

Antiepileptic medications

Most people manage their seizures through medication. You will probably start off with a low dose of one drug. Your doctor will gradually increase the dose as needed. Some people require more than one medication to treat their seizures. It may take time to determine the most effective dose and type of medication for you. There are many medications used to treat epilepsy, including:

- levetiracetam (Keppra).
- carbamazepine (Carbatrol, Tegretol).
- phenytoin (Dilantin, Phenytek).
- oxcarbazepine (Trileptal).
- lamotrigine (Lamictal).
- Phenobarbital.
- lorazepam (Ativan).

Surgery

Brain surgery may be an option if medications are not successful in controlling your seizures. This option is believed to be more effective for partial seizures that affect one small part of the brain than for ones that are generalized.

Supplemental treatments

There are two types of supplemental or alternative treatments for grand mal seizures. Vagus nerve stimulation involves implantation of an electrical device that automatically stimulates a nerve in your neck. Eating a ketogenic diet, which is high in fat and low in carbohydrates, is also said to help some people reduce certain types of seizures.

Outlook for people with generalized tonic-clonic seizures

Having a tonic-clonic seizure due to a one-time trigger may not affect you in the long term. People with seizure disorders can often live a full and productive life. This is especially true if their seizures are managed through medication or other treatments.

It is important to continue using your seizure medication as prescribed by your doctor. Suddenly stopping your medication could cause your body to undergo prolonged or repeated seizures, which can be life-threatening.

People with generalized tonic-clonic seizures that are not controlled by medication sometimes die suddenly. This is believed to be caused by a disturbance in your heart's rhythm as a result of muscle convulsions.

If you have a history of seizures, some activities may not be safe for you. Having a seizure while swimming, bathing, or driving, for example, could be life-threatening.

Prevention of generalized tonic-clonic seizures

Seizures are not well understood. In some cases, it may not be possible for you to prevent a seizure if your seizures do not appear to have a specific trigger.

You can take steps in your daily life to help prevent seizures. Tips include:

- Avoid traumatic brain injury by using motorcycle helmets, safety belts, and cars with airbags.
- Use proper hygiene and practice appropriate food handling to avoid infections, parasitic or otherwise, that cause epilepsy.
- Reduce your risk factors for stroke, which include high blood pressure, high cholesterol, smoking, and inactivity.
- Pregnant women should have adequate prenatal care. Getting proper prenatal care helps to avoid complications that could contribute to the development of a seizure disorder in your baby. After you give birth, it is important to have your child immunized against diseases that can negatively affect their central nervous system and contribute to seizure disorders.

Editor's Note: The Carpe Diem – Seize the Day Blog will be distributed and posted weekly.
Always remember – **CARPE DIEM – SEIZE THE DAY!**

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