

Carpe Diem – Seize the Day Blog

Editor's Note: Content presented in the Carpe Diem – Seize the Day Blog is for awareness and informational purposes only, and it is not meant to be a diagnostic tool.

Let's take a deep dive and discuss temporal lobe epilepsy (TLE) and seizures this week. We will discuss TLE and its symptoms, causes, and risk factors. We will also examine how it is diagnosed and what the treatment options are. Lastly, the article will discuss living and coping with TLE.

Temporal lobe epilepsy is a condition marked by seizures that start in the temporal lobes of your brain. Medications can sometimes successfully stop the seizures. In cases in which medications are not successful, there are surgical options or nerve stimulators.

TLE is the most common form of focal onset seizures, affecting over fifty million people worldwide, according to a 2021 review. A focal onset seizure starts on only one side of the brain. In the case of TLE, that starting point is the temporal lobe.

You have two temporal lobes, one behind each ear. Your temporal lobe is responsible for processing memories, processing sounds, interpreting vision, and controlling your speech and language. The right and left sides are different from each other, and one or more functions may be disrupted during a seizure depending on where it starts.

There are two main types of TLE. Mesial temporal lobe epilepsy (MTLE): This involves the internal part of the temporal lobe, most often in the structure called the hippocampus. Nearly 80% of temporal lobe seizures are MTLE in origin, according to the 2021 review. These seizures can start at any age but most commonly start around the ages of 10 or 20.

The other main type of TLE is neocortical or lateral temporal epilepsy: These types of seizures start in the lateral or outer portion of the temporal lobe.

Symptoms will depend on which type of TLE you have and where in the temporal lobe the seizure starts. Some people describe having an aura right before a seizure.

An aura is part of a focal awareness seizure. This means you are aware of what is happening to you. Auras last about 30 seconds to 2 minutes, and the feelings experienced can be difficult to describe.

Here are some common descriptions:

- a rise in your stomach sensation or possibly nausea
- hallucinations of odd smells or sounds
- emotions like fear, panic, anxiety, joy, sadness, or anger
- déjà vu or an out-of-body feeling

- panoramic visions of past experiences
- hair standing on end and flushing of the skin
- rapid heart rate and dilated pupils

Sometimes the seizure may progress into another part of your brain, triggering a focal impaired awareness seizure. During this type of seizure, you lose some of your awareness for 30 seconds to 2 minutes.

Symptoms of a focal impaired awareness seizure include:

- blank staring expression
- repetitive movements like lip-smacking, blinking, grunting, shouting, or gulping
- repetitive hand movements
- confusion
- nonsensical speech or an inability to communicate

A focal impaired awareness seizure may spread into both sides of the brain and cause a tonic-clonic seizure. During a tonic-clonic seizure, you will lose consciousness and your body will become stiff and convulse. Sometimes you may bite your tongue and lose control over your bladder. After the seizure is over, you may feel sleepy and require time for rest.

For most people with TLE, the cause is not known. Conditions and factors linked to TLE include:

- scarring and hardening of the hippocampus
- brain tumor
- brain damage from trauma or stroke
- brain infection, such as meningitis or encephalitis
- inheriting genes linked to familial TLE
- differences in brain development or structure present at birth

According to the 2021 review and the Epilepsy Foundation, factors that can make you more susceptible to having temporal lobe epilepsy include:

- childhood febrile seizures (a seizure caused by a fever)
- trauma to the head resulting in loss of consciousness
- childhood meningitis or encephalitis
- stroke

The process of diagnosing seizures and TLE focuses on finding the specific area in the brain where the seizure is starting from. If your care team is also evaluating you for epilepsy surgery, testing may occur in two phases:

- **Electroencephalography (EEG):** A 2-hour evaluation that involves attaching electrodes to your scalp to monitor your brain waves. Your doctor may also want to perform a longer EEG study over several days, often in a hospital.
- **Magnetoencephalography (MEG):** A noninvasive test that measures the magnetic fields produced by the electric currents of the brain.

- MRI: A noninvasive scan that produces detailed images of your brain.
- Interictal positron emission tomography (SPECT): This scan shows blood flow in the brain.
- Neuropsychological assessment: This is a series of tests to evaluate different functions of the brain. This type of testing is best when taken at a comprehensive epilepsy center with a team of specialists.

Other testing only takes place if you have tried two antiseizure medications and neither one has been able to stop your seizures. The test is intracranial monitoring. Electrodes are surgically placed directly over the brain to determine the exact point where the seizure is coming from.

Your doctor will also want to know your full medical history, including any medications or supplements you take, and whether you have ever had trauma to the head.

Your doctor will then ask about your seizure experience. Questions can include:

- Where were you at the time of your seizure and what happened right before?
- Did you experience an aura before it started?
- How long did your seizure last?
- Were you aware of what was happening throughout the seizure?
- How did you feel after the seizure?

Your doctor may also want to talk with people who witnessed the seizure(s). How your body behaves during a seizure gives clues to what part of the brain it is coming from. It can be helpful if someone captures one of your seizures on video. After your doctor has completed taking down your health history, they will talk with you about the testing that needs to be done.

Treatment begins with medications and changes in diet. If these methods do not manage seizure activity, your care team may recommend surgical procedures or deep brain stimulation.

Your healthcare professional may try one or more medications and will possibly change your dosing to try to find a regimen that can stop your seizures. Let your doctor know if you plan to get pregnant, as some antiseizure medications can cause birth abnormalities.

The following is a list of antiseizure medications:

- carbamazepine (Carbatrol, Tegretol)
- oxcarbazepine (Oxtellar XR, Trileptal)
- levetiracetam (Elevsia XR, Keppra XR)
- lamotrigine (Lamictal)
- topiramate (Eprontia, Topamax)

Following a high fat, low carb ketogenic diet may help decrease or stop your seizures. A physician may recommend it, in which case a dietitian would help you create a plan and monitor your diet.

If two different medication regimens do not stop your seizures, you may be a candidate for surgery. A second reason for surgery is if a tumor is causing seizures. Surgery may stop all of your seizures if the cause is scarring of the hippocampus, according to the Epilepsy Foundation.

Temporal lobectomy (removal of your temporal lobe) is the most common, safe, and effective surgery.

Laser ablation is a minimally invasive technique. An MRI guides a laser to remove the specific part of your brain that is causing the seizure. This disruption can decrease the number of seizures you have.

If medications do not work or stop working and you are not a candidate for surgery, another option is a nerve stimulator.

A vagus nerve stimulator is implanted under the skin of your chest. The wires lead up to the vagus nerve in your neck. It sends brief electrical pulses to your nerve to decrease seizure activity.

A deep brain stimulator is an implanted electrode in your brain. The surgeon places the stimulator device under the skin of your chest. The stimulator sends signals to your brain to block the nerves from triggering a seizure.

The key to managing TLE is to decrease the number of seizures you have. Repeated seizures can cause memory problems and increase the chance of anxiety and lower quality of life. Two out of three people have success managing their seizures with epilepsy medication.

TLE is more likely to be resistant to epilepsy medications when there are signs of hippocampus scarring by MRI, which is also an indication for epilepsy surgery.

If medication or surgery do not stop seizures, nerve stimulation implants may help.

If you are considering surgery, get an evaluation at an epilepsy center if possible. According to the Epilepsy Foundation, seeking care early on increases the chances of success.

What are some coping tips for living with TLE? People with epilepsy typically have concerns about how their seizures will affect their everyday lives and relationships. Coping looks different for everyone, but living well is possible, even if you experience seizures.

Remember that you are not alone. Other people are going through the same thing. Contact us at Epilepsy Alliance Ohio for additional support information.

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

Steve.Hutton@epilepsy-ohio.org