

Epilepsy Surgery

“American physicians may be unaware of the safety and efficacy of epilepsy surgery, making it among the most underutilized of proven effective therapeutic interventions in the field of medicine.”

This statement from the Epilepsy Foundation of America® may sound like an exaggeration, until you examine the numbers. Epilepsy affects 2-3 million people in the United States. It is the third most common neurological disorder after Alzheimer’s disease and stroke.

About the UAB Epilepsy Center

The UAB Epilepsy Center, in conjunction with UAB Hospital, offers clinical, research, and education services to adults and children with epilepsy. Formed in 1986, we are one of the largest and most active epilepsy centers in the country and the only Level 4 Comprehensive Epilepsy Center in the Southeast.

Epilepsy surgery at UAB is world-renowned due in large part to contributions by UAB brain imaging researchers who have allowed more patients to become candidates for surgery and increase the likelihood of seizure-free outcomes. Our state-of-the-art facilities and equipment provide a full range of conventional and special tests.

For individuals who suffer from epilepsy, surgical procedures are available to reduce or eliminate seizures. However, undergoing surgery involving the brain raises many questions. The experienced staff in UAB’s Epilepsy Surgery program is equipped to answer your questions and provide you with the best care available.

Frequently Asked Questions about Epilepsy Surgery

What Is Epilepsy Surgery?

Epilepsy surgery helps patients with epilepsy who do not respond to medical treatment. The surgery involves removing the abnormal part of the brain that causes seizures, or cutting some of the connections within the brain to prevent the spread of seizures. Epilepsy surgery may make seizures less frequent and less severe, or, in some cases, cure epilepsy completely.

Why Does Epilepsy Surgery Work?

In the majority of patients considered for surgery, there is a small portion of the brain that causes seizures. By removing that area, seizures can be prevented or reduced.

Is Epilepsy Surgery Experimental?

Epilepsy surgery is not an experimental treatment; in fact, the first operation was performed more than 100 years ago. In the hands of experienced neurosurgeons, it can be an excellent procedure to reduce or eliminate seizures.

Is Epilepsy Surgery For Everyone?

Not everyone with epilepsy requires surgery. About 70 percent of patients with epilepsy can control their seizures with medications. The other 30 percent may continue to have seizures, despite medical treatment. Many of the patients in this 30 percent may qualify for surgery. In general terms, surgery is an alternative treatment for many individuals with seizures that do not respond to medication. Additional testing is required to determine if a patient is a surgical candidate.

What Kind Of Tests Will I Need?

Your doctor will discuss with you which of the following tests you will need as part of your surgical evaluation. With the exception of the video-electroencephalography (EEG) monitoring, intracranial monitoring, and cortical mapping, the other tests can be done as an outpatient procedure.

- Seizure monitoring with video and EEG
- Magnetic resonance imaging (MRI)
- Neuropsychological testing
- Psychology counseling
- Positron emission tomography (PET)
- Visual field testing
- Single photon emission computerized tomography (SPECT)
- Magnetoencephalography (MEG)
- Wada test
- Seizure monitoring with intracranial electrodes
- Cortical mapping

What Types Of Operations Are Performed For Seizures?

There are different types of operations used to treat seizures. Each operation is planned in accordance with your seizure type. The different types are:

Temporal Lobectomy

This is the most common operation for epilepsy. During this procedure, a neurosurgeon removes the portion of one temporal lobe that is causing your seizures. The surgery is done under general anesthesia, and the recovery time in the hospital is usually 24 hours.

Extratemporal Resection

Slightly less common, other parts of the brain are removed to treat seizures. These operations are usually done in areas of the brain that will not result in any neurological deficits, and can be done in the frontal lobe, occipital lobe or parietal lobe.

Vagal Nerve Stimulator (VNS)

This is a medical device that can be used for patients whose seizures begin in an area of the brain where surgery cannot be done safely, or for patients whose seizures begin all over the brain at one time. The device is placed under the skin (similar to a cardiac pacemaker) and has a small wire that wraps around the vagus nerve in the neck. This is an outpatient procedure done under general anesthesia. The VNS is considered a treatment option but not necessarily a cure. Some patients report a decrease in the severity and duration of their seizures. You will need to discuss this option with your doctor to determine if it is an appropriate option for you.

Single-Staged vs. Two-Staged Surgery

In some cases, there is a very clear abnormality on a patient's MRI that is the obvious cause of the seizures. In these cases surgery may be done in a single operation (single-stage) to remove the part of the brain causing the seizures. However, in most cases the exact area causing the seizures needs to be defined with intracranial electrode monitoring prior to the final surgery. This involves a first surgery (Stage 1) to place a grid of recording electrodes directly on the surface of the brain (intracranial electrodes), followed by several days of seizure monitoring. After the precise location and extent of the area causing seizures is determined, the patient returns to the operating room for a second surgery (Stage 2) to remove the electrodes and the part of the brain causing the seizures. Both surgeries are done in a single admission to the hospital that typically lasts 5 to 10 days.

What is Cortical Mapping?

Much of the brain can be operated on without causing any permanent neurologic deficits. However, there are a few very important areas that cannot be removed without causing loss of certain functions, such as weakness or decreased sensation in part of the body or difficulty with speaking or vision. We can map out where these areas are in the brain with Cortical Mapping. This involves sending small amounts of electrical current through electrodes on the surface of the brain across one centimeter at a time. If stimulating a certain location causes any symptoms, then we know that removal of this area may cause a deficit. We can use this information to map out exactly what part of the brain we can safely remove, and what part should be avoided in surgery.

What are the Results of Surgery?

Surgery for epilepsy is a safe and effective treatment for seizures. However, like all medical and surgical treatments, results may vary. Our surgical results at UAB are equal to or better than other national and international epilepsy surgery programs that report their outcomes.

For most patients undergoing temporal lobectomy, approximately 7 out of 10 will become free of disabling seizures. However, only about half of those patients are able to completely stop all oral medication. All surgery patients will need to take some medication for at least two years following surgery. For those patients who are not cured, most still report a significant improvement in their seizure control.

For patients undergoing extratemporal resections, the percentage of significant improvement is approximately 70 percent. Five out of ten patients will be seizure free following the surgery, and some patients will not experience improvement.

What Are The Risks With Surgery?

Your safety is our main concern, and doctors and surgeons always try to be conservative in planning and carrying out the surgical operation. However, like all surgeries, epilepsy surgery carries some risk. Your doctor and surgeon will discuss the potential risks and dangers associated with your particular surgery. In general, the risk of death is less than half a percent. The risk of infection, hemorrhage or paralysis is less than 1 percent. Although serious and permanent complications are rare, they can occur. You need to understand that even with the greatest of care, these complications are sometimes unpredictable and unavoidable.

Overall, the complication rate with epilepsy surgery is very low. Many complications are temporary and improve over a period of time.

Why Doesn't Surgery Always Work?

When epilepsy surgery does not work, it is typically because an area of the brain capable of producing seizures remains after the operation. Abnormal areas must sometimes be left because of the danger associated with removal. In other cases, there may be another place in the brain causing seizures that were not detected with presurgical testing.

How Long Do I Have To Be In The Hospital?

Your hospital time will vary depending on the type of operation performed. Standard surgeries that do not require intracranial monitoring are usually discharged from the hospital within 24 hours of the operation. Surgery requiring invasive monitoring can take up to 10 days.

What Happens After The Operation?

After the operation, you will need to continue your medication as prescribed prior to your surgery. You will follow up with your local doctor to have your staples removed about 10 days after surgery. Six weeks after your surgery, you will have a follow-up appointment with your neurologist. You can discuss any changes in your seizure medications at this visit. Most patients stay on at least one medication for 2 years following surgery.

How Much Recovery Time Do I Need?

If no complications occur during or from the surgery, most patients can return to work or school in 4 to 6 weeks after surgery, or sooner depending on the patient and after a discussion with the surgeon.

Additional Information

Many patients express a desire to talk with someone who has had surgery before. The UAB Epilepsy Center can provide you with names of patients who have undergone the entire procedure and who will be willing to talk to you by phone.

Resources

There are thousands of web sites with information related to epilepsy and epilepsy surgery. Many of these sites may contain information that does not apply to the epilepsy program at UAB. The following web sites provide relevant information related to epilepsy and epilepsy surgery.

1. Epilepsy Foundation of America www.epilepsyfoundation.org
2. www.epilepsy.com
3. www.nih.gov

UAB Epilepsy Center

205-996-4807

205-934-6430

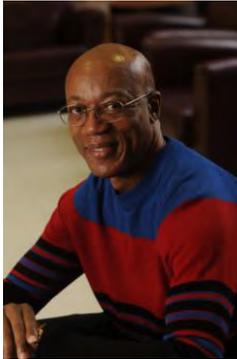
uabmedicine.org/epilepsy

Patient Testimonials



“I was initially referred to UAB by a prominent university medical center based in Florida because UAB is the only hospital in the Southeast that offers MEG testing. The MEG test was very important in the mapping of my seizure focal point and much needed for a successful surgery. When I arrived at UAB for the testing I quickly realized how proactive the staff and doctors were in listening and showing concern for my case. I find comfort in knowing the facts and tend to ask a lot of questions regarding my condition. My doctors were and continue to be very patient with me by addressing my many concerns. The surgery itself was a success and, despite my initial fear, actually very easy. Having surgery at UAB has changed my life 100% and things are back to normal for the first time since I started having intractable seizures over two years ago. I was so pleased with the concern shown and comfort provided by the staff at UAB that not only did I have my surgery here but have decided to travel to UAB for my continued care. “

- Stacey Henderson, UAB Epilepsy Surgery Patient



"I suffered from seizures nearly my whole life, that is, until I was referred to the UAB Neurology department. This one referral changed my whole life. Once I met with my neurologist and discussed my treatment options, it became clear that UAB was the place I needed to be. UAB is a well-known leader in technology and one of the few places in the Southeast that even offers epilepsy surgery. The procedure was explained in great detail by both my neurologist and my neurosurgeon. I was also able to talk to other people who had the same surgery. It was at that point that I was confident enough to move forward. I had the surgery over a year ago and I haven't had a seizure since. My life has improved so much! I am now able to do what I want to do when I want to do it. If anyone is considering epilepsy surgery, I would definitely recommend that they talk to the doctors at UAB because for me it has been the best choice I could make."

- Reginald Ivy, UAB Epilepsy Surgery Patient



"From the time I was a teenager to the time I was in my early sixties, I had been having these spacey feelings that I called waves. Early on these waves came once or twice a year but as time passed I would have one or two a day. I saw many doctors, from pediatricians to neurologists, had EEG's, CAT scans, the works, but everything turned up normal. Then one day I thought my life had come to an end, but actually it was the beginning of a new life for me. I had another wave, this time resulting in a heart attack and a grand mal seizure. After hospitalization, I was referred immediately to the UAB Epilepsy Center. While waiting to see the doctor, I had another grand mal seizure and heart attack, and two months later this happened again. I was told that surgery would be necessary if I wanted to live. My husband and children wanted the best possible care for me, so the search began for the best neurosurgeon. Some of the top hospitals and physicians in the country were called, all referring us back to UAB Hospital. Even one doctor asked, "Why are you calling us? We are usually the ones who are calling UAB!" So yes, I had surgery here at UAB. I've been free of seizures and heart attacks for almost five years. The doctors, nurses, case workers, everyone treated me and my family so dearly. My only regret is that I didn't have the surgery sooner...Look at what healthier years I could have had!"

-Suzanne Sheier, UAB Epilepsy Surgery Patient