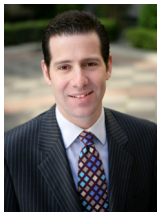
Weill Cornell Medicine
Neurological Surgery

THE WEILL CORNELL MEDICINE EPILEPSY TEAM
Three of the world's top neurosurgeons specializing in epilepsy surgery in adult and pediatric patients lead The Epilepsy Surgery Service at Weill Cornell Medicine.

Theodore Schwartz, M.D., is one of the pioneers in the field of epilepsy surgery. In addition to his clinical practice, Dr. Schwartz heads a research lab studying how seizures start and spread through the brain, which advances therapeutic approaches to treat or even cure epilepsy.
Phone: 212-746-5620

Caitlin Hoffman, M.D., is a pediatric neurosurgeon with fellowship training focused on children with epilepsy. Dr. Hoffman has expertise in both traditional surgery and the advanced, minimally invasvise procedures now available for patients with seizure disorders.
Phone: 212-746-2363



Michael Kaplitt, M.D., PhD., is one of the world's leading experts on innovative approaches to neuromotor disorders. A pioneer in testing gene therapy for Parkinson's disease, Dr. Kaplitt is at the forefront of deep-brain stimulation, laser surgery, and focused ultrasound.
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weillcornellbrainandspine.org/epilepsy

The Epilepsy Surgery Service
is part of the
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For more information, visit
weillcornellbrainandspine.org/epilepsy

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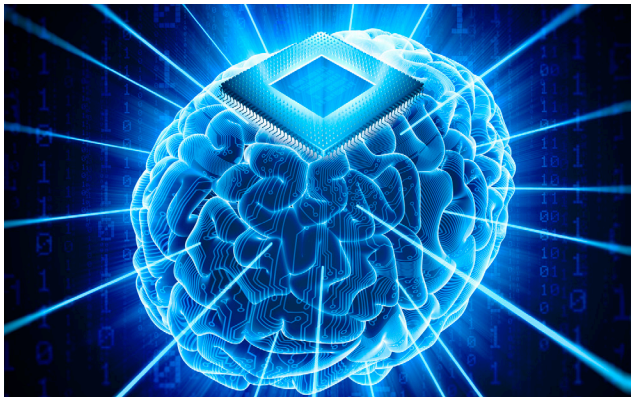
Weill Cornell Medicine
Neurological Surgery

Advanced Technology Provides New Surgical Options for Epilepsy

SURGERY FOR EPILEPSY?

Yes, it's true—there are surgical options for epilepsy. In fact, in carefully selected patients as many as 80 percent can be cured of seizures entirely. In other cases surgery may reduce the frequency and severity of seizures.

Epilepsy surgery is a complex procedure that starts with localizing the seizures to determine the precise spot in the brain where they originate. Localizing is followed by brain mapping to determine what functional areas of the brain may be affected by surgery. The surgery itself is a complex procedure requiring a highly skilled, experienced neurosurgeon.



Before epilepsy surgery, the patient's brain is mapped to identify what functions may be affected by surgery.

Neurosurgeons who specialize in epilepsy surgery can cure epilepsy by removing the source of the epilepsy within the brain. The surgeon must open the skull, performing what is called a "craniotomy," but in skilled hands the risks of this procedure are quite low. In special circumstances other procedures—such as lesionectomy, hemispherectomy, and corpus callosotomy—can be performed to treat different types of seizure disorders. The variety of surgical approaches mandates that a neurosurgeon specializing in epilepsy perform your surgery to achieve the best possible outcome.

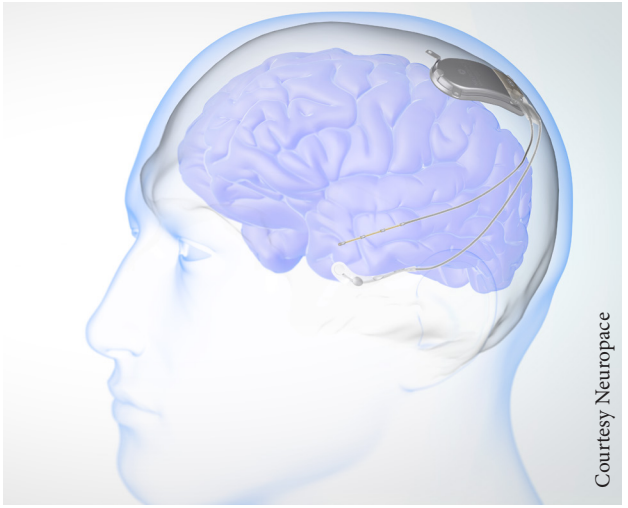
For a patient with a seizure disorder that has not responded well to medication, there is nowhere in New York where there is greater hope for a cure than at Weill Cornell Medicine.

HIGH-TECH SURGICAL OPTIONS

Neurostimulation

There are several techniques available for controlling seizures that do not offer the possibility of cure but can dramatically reduce seizure frequency and severity with minimal risks. Vagal nerve stimulation (VNS) responsive neurostimulation (RNS), and deep brain stimulation (DBS) are less invasive surgical options for controlling epilepsy. They all use an implanted device, similar to a pacemaker, to send signals to the brain to prevent seizures.

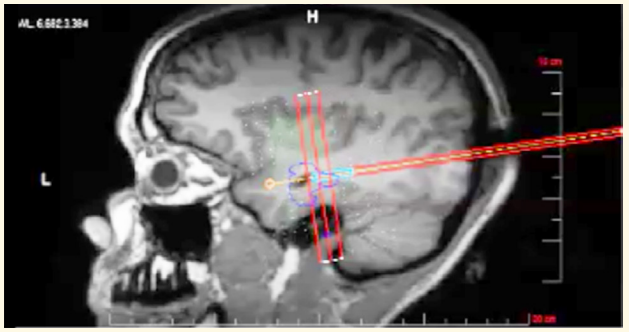
- VNS works by sending regular, mild pulses of electrical energy to the brain via the vagus nerve.
- RNS works by recording from and stimulating the brain directly in order to predict and interrupt seizures before they start.
- DBS stimulates deep brain structures involved in the seizure and prevents seizures from occurring.

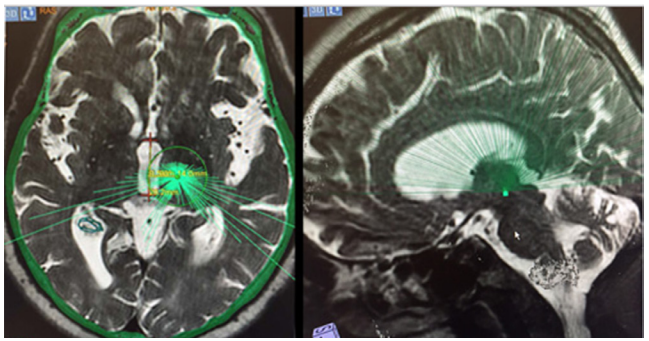


In responsive neurostimulation, a patient is implanted with a small device designed to monitor, detect, and prevent seizures before they start.

Laser Surgery

Laser interstitial thermal therapy (LITT) is an advanced new option that uses tiny beams of light to heat a seizure-provoking lesion and destroy it—without damaging surrounding healthy brain tissue and without subjecting patients to the potential side effects of radiation. This procedure represents the very latest generation of minimally invasive neurosurgery, as it requires only a very small opening in the skull to allow the neurosurgeon to insert the laser. At right: the path of the laser to the target.





Focused Ultrasound

Focused ultrasound uses MRI guidance to focus an array of 1,000 ultrasound waves on a precise location in the brain. Each beam is so small and low-energy that it passes harmlessly through healthy brain tissue, but the sum of the energy reaching the focus is enough to obliterate its target. It is FDA-approved for treating essential tremor, and Weill Cornell recently became the first in New York to offer it. It is currently considered experimental for epilepsy. At left: the beam array directed at a target.