UF&Shands
The University of Florida Academic Health Center

the SCIENCE of HOPE

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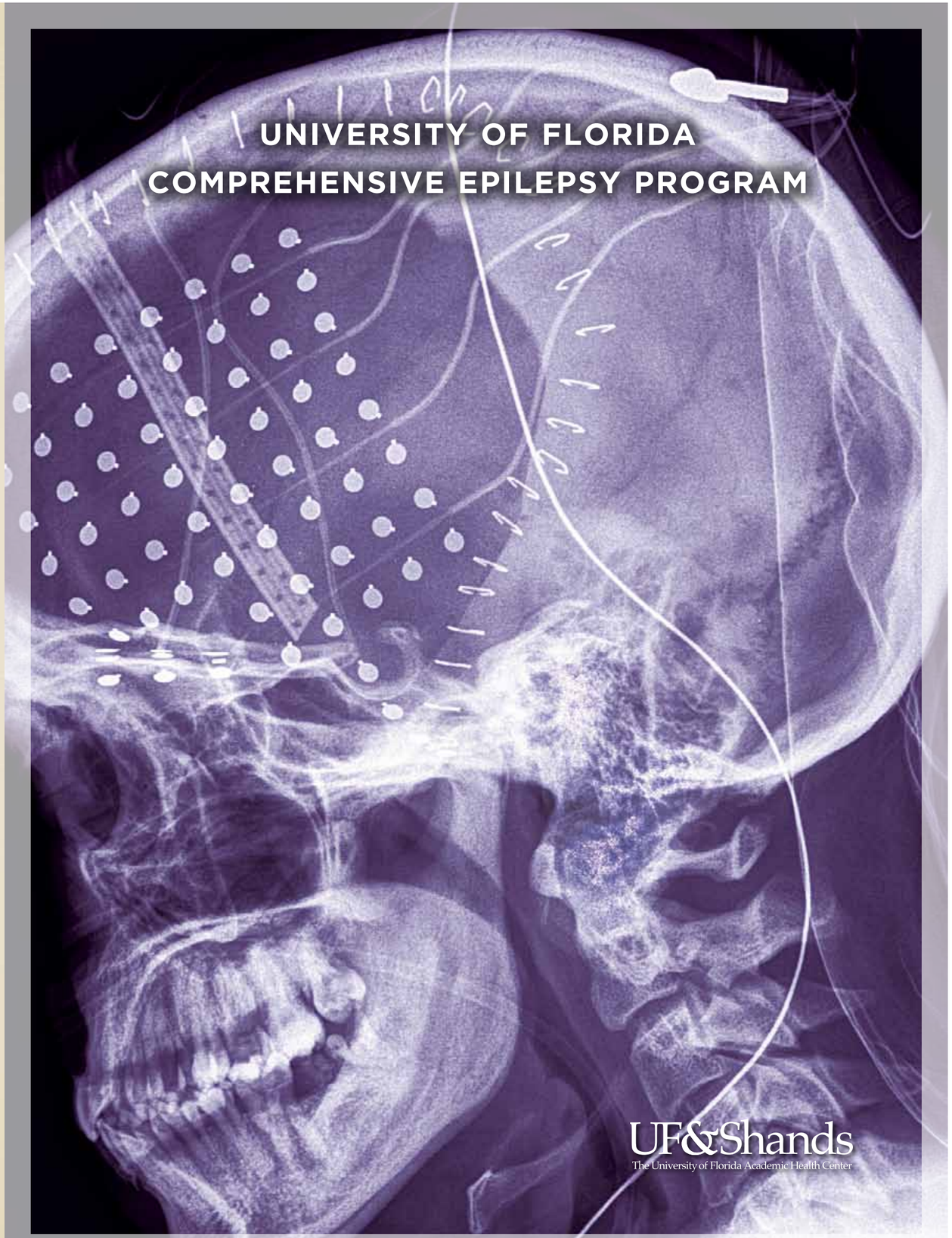

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Specialized care from recognized leaders

Established in 1992, the University of Florida Comprehensive Epilepsy Program brings together an interdisciplinary team of healthcare providers to deliver a full range of care for patients of all ages with epilepsy. These specialists also treat patients with related neurological conditions, including seizure disorders, syncope, migraine, stroke and sleep disorders.

The UF Comprehensive Epilepsy Program team is made up of professionals with varying backgrounds, all of whom specialize in diagnosing and treating epilepsy. They include adult and pediatric neurologists, adult and pediatric neurosurgeons, neuroradiologists, neuropsychologists and neuropathologists.

Every year, these experts treat approximately 7,500 adult and pediatric patients for seizure-related conditions. Since the program's founding, the team has performed more than 1,400 surgeries for epilepsy – more than any other treatment program in Florida.

Care for patients in the program, including diagnosis and treatment, is delivered primarily at Shands at UF and at the Gainesville Veterans Administration Medical Center.

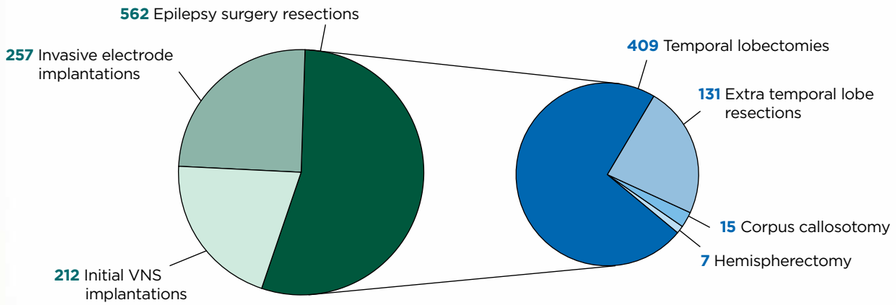
Resources for diagnosis

Accurate diagnosis of epilepsy and related disorders is the key to effective treatment. The UF Comprehensive Epilepsy Program team is experienced in the most advanced diagnostics and offers a full range of modalities.

- Epilepsy Monitoring Unit: This state-of-the-art facility at Shands at UF can provide continuous, 24-hour video EEG monitoring of up to six adult and four pediatric patients to evaluate epileptic seizures and non-epileptic events. It is staffed by dedicated nurse practitioners and certified EEG technologists supervised by several board-certified neuro-physiologists.
- 3T MRI: Delivers the highest resolution brain imaging to identify any brain malformations or injury that may generate a seizure disorder
- Positron Emission Tomography and Single Photon Emission Computed Tomography: Used to evaluate metabolic changes associated with seizures

University of Florida Comprehensive Epilepsy Program

Epilepsy Surgery Procedures since 1992



Opposite page: UF neurologist Jean Cibula, MD, UF neurosurgeon Steven Roper, MD, UF neurologists Stephan Eisenschenk, MD, and Ian Goldsmith, MD, in the Epilepsy Monitoring Unit at Shands at UF.

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• Functional MRI: Used to map language and memory functions in epilepsy, and eloquent primary motor, sensory, language and visual cortex

• Cerebral Angiography: State-of-the-art technology used for evaluating vascular malformations and for performing Wada procedures to determine language and memory function

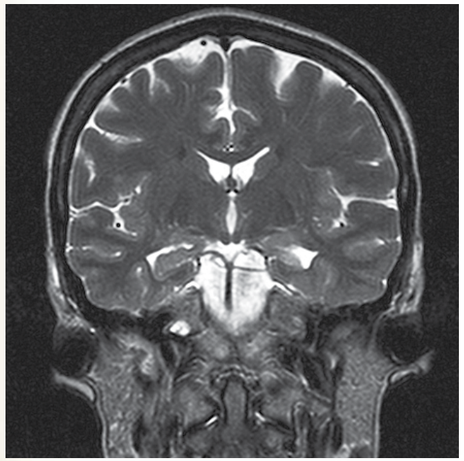
• Invasive Subdural and Depth Electrode Recordings: Performed to pinpoint the seizure focus to maximize the chances for seizure remission and minimize adverse outcomes

• Extraoperative and Intraoperative Brain Mapping: Used to optimize the accuracy of resections near the eloquent regions of the brain

• Comprehensive Neuropsychology and Clinical Psychology Assessments

Resources for treatment

The UF Comprehensive Epilepsy Program offers the complete array of nonsurgical and surgical treatment options for patients with epileptic seizures and other seizure disorders.



Coronal MRI of the brain (T2-weighted) demonstrating left mesial temporal (hippocampal) sclerosis.

Donna Lilly, ARNP, with a patient in one of the electroencephalogram rooms at Shands at UF.

Nonsurgical treatment

Nonsurgical approaches are the first line of treatment for epilepsy. The program includes the latest antiepileptic medications as well as experimental antiepileptic medications as part of research trials. The physician-monitored ketogenic diet program may also be an option, especially for younger patients who do not respond to medications.

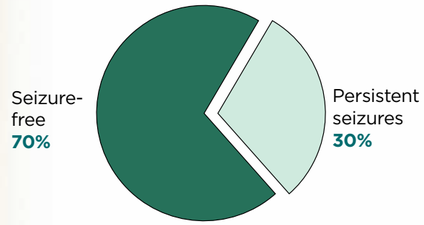
Surgical treatment

The specialists at the UF Comprehensive Epilepsy Program are experts in performing all the latest surgical techniques to treat epilepsy and seizure disorders. Using advanced stereotactic technology to pinpoint the location of the epileptic lesion, these procedures aim to remove the smallest possible amount of brain tissue to achieve control or to decrease the frequency and/or severity of seizures. They include:

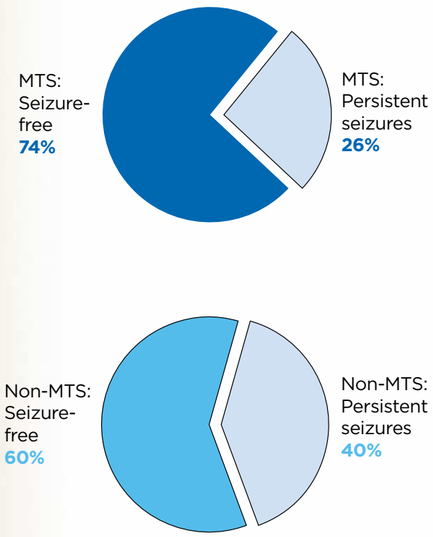
- Anterior temporal lobectomy
- Extratemporal resections
- Hemispherectomy
- Lesionectomy
- Corpus callosotomy

UF Comprehensive Epilepsy Program: Surgery Outcome after Anterior Temporal Lobectomy for Intractable Epilepsy (2007 American Epilepsy Society Meeting)

• Overall, 70% of patients were seizure-free 12 months post operatively



• When examining pathology independent from side of surgery, patients with mesial temporal sclerosis had a greater chance of being seizure-free (74%) than patients without MTS (60%)



Research to advance knowledge and enhance care

Research is an integral component of the UF Comprehensive Epilepsy Program, to increase understanding of these disorders and to improve diagnostic and treatment techniques. The program is supported by research from intellectual and physical resources of the McKnight Brain Institute of the University of Florida; as well as the College of Medicine, departments of Biomedical Engineering, and Computer and Information Science and Engineering at UF.

Ongoing research studies are being developed that focus on improving neuroimaging techniques, understanding the pathophysiology of seizures, both electrographically and structurally, and the neuroprosthetic control of brain activity through electrical stimulation and computers. Outcome studies are also ongoing to follow both non surgical and surgical treatments of seizures, along with assessments of

UF neurosurgeon Steven N. Roper, MD, demonstrating using microscopic equipment during an epilepsy surgery.

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cognitive changes in patients with refractory seizures.

Current research programs include:

- The use of MRI diffusion tensor imaging to identify neuronal networks connecting various regions of the brain that can be correlated with functional measures in patients with seizures
- Development of methods to analyze multispectral data, specifically DTI, T1 and T2 MRI brain scans, to assess the morphological changes that occur in refractory epilepsy
- Assessment of driving performance during seizures and the effects of antiepileptic drugs on driving performance, using a state-of-the-art driving simulator to determine which patients are at higher risk for motor vehicle accidents
- Assessment of cellular mechanisms of epilepsy
- Use of high-frequency EEG signal processing techniques to analyze abnormal brain discharges
- Study of cognitive changes in patients with seizures

How do I get more information about the UF Comprehensive Epilepsy Program?

The UF Comprehensive Epilepsy Program is made up of faculty from the UF Department of Neurosurgery, Neurology and Pediatric Neurology, all of who pride themselves in providing referring physicians and patients with easy access. To schedule a consultation, referring physicians should call the appropriate Department depending on the patient's age and disorder.

Citizens United for Research in Epilepsy, also known as CURE, has given its 2010 Falk Medical Research Trust Award to UF neurosurgeon Steven N. Roper, MD, to collaborate with the laboratory of McKnight Brain Institute executive director Dennis Steindler, PhD, to study the use of a versatile type of brain cell to restore brain function in an animal model of the disease.

Call the Department of Neurosurgery at 352.273.9000.

Patients are routinely seen on a next day basis if needed.

The department's website (www.neurosurgery.ufl.edu) provides information about all aspects of neurosurgery, including epilepsy care.

Call the Department of Neurology at 352.265.8408, or fax the referral to 352.265.8409 to arrange a consultation.

To arrange a pediatric neurology appointment, call the Pediatrics Consultation Center at 352.273.5625 or toll-free at 877.543.7783. You can also fax a referral to 352.273.5633.

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