

A world leader in movement disorders and neurorestoration

The University of Florida Center for Movement Disorders and Neurorestoration is founded on the philosophy that integrated, interdisciplinary care is the most effective approach for patients with movement disorders. The Center, therefore, delivers motor, cognitive and behavioral diagnoses and treatments in one centralized location. Care is coordinated and provided by leading specialists for a myriad of advanced medical and surgical services.

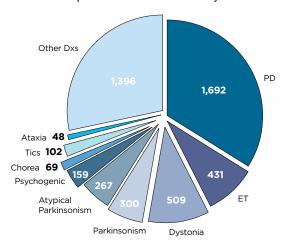
Built on the expertise of University of Florida faculty and researchers from 14 different specialty and subspecialty areas, the Center has earned a reputation for excellence that makes it an international destination for patient care, research and teaching in the field of movement disorders and neurorestoration. At UF, patients have access to the latest clinical/translational research studies, as well as the opportunity to contribute to future research. Since its creation less than a decade ago, the Center has treated more than 5,000 patients, the majority of whom continue to be followed by multiple specialties, creating one of the largest databases on movement disorder treatments available anywhere.

The international prominence of the Center for Movement
Disorders and Neurorestoration is reflected by the
multiple centers of excellence represented. These include
a National Parkinson Foundation Center of Excellence,

pictured left to right opposite page
Meredith DeFranco, DPT, Irene Malaty, MD, Ramon Rodriguez, MD,
Michael Okun, MD, Dawn Bowers, PhD, Sankarasubramon Subramony,
MD, Nikolaus McFarland, MD, PhD, Aparna Wagle-Shukla, MD, Herb
Ward, MD, Lisa Warren, MHS, OTR/L, Chris Hass, PhD, Kelly Foote, MD

Tyler's Hope Center for a Dystonia Cure, and an NIHdesignated headquarters of the nationwide Clinical Research Consortium for Spinocerebellar Ataxias.

Comprehensive Care Center 5000+ patients seen and actively followed



The patients we treat

Patients come to the Center from every corner of the globe and they are referred by physicians who recognize that movement disorders are more than neurological problems and that the challenges they present are more than medical. At the Center, we care for all aspects of the patient's disease through the use of coordinated interdisciplinary care, including:

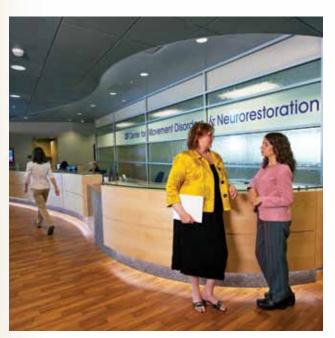
- Parkinson's Disease
- Tremor disorders (essential tremor, outflow tremor, MS tremor, Holmes tremor, trauma-related tremor and others)
- Dystonia (DYT-1 and others); genetic dystonia; primary, secondary and tardive dystonias
- Parkinsonism (progressive supranuclear palsy; Lewy body disease; corticobasal ganglionic degeneration; multiple system atrophy; trauma)
- Chorea (Huntington's disease, neuroacanthocytosis and others)
- Tic disorders (Tourette's syndrome, chronic motor tics and others)
- Myoclonus
- Ataxias (genetic and sporadic)
- Neuropsychiatric disorders (obsessive compulsive disorder, depression and others)

How we treat patients

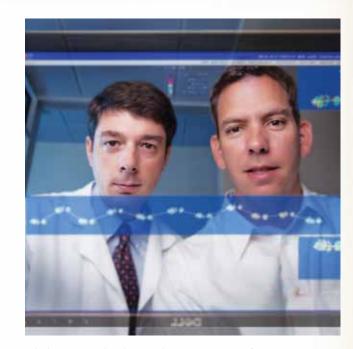
Because the Center recognizes the far-reaching impact of movement disorders on each patient's life, our comprehensive care cuts across specialties and disciplines to address the full spectrum of a patient's needs, from diagnosis and treatment options, through rehabilitation as well as restoration of function.

This unique interdisciplinary approach brings together
University of Florida faculty and researchers from specialties including:

- Neurology
- Neurosurgery
- Psychiatry
- Radiology/Imaging
- Clinical and Health Psychology
- Physical and Occupational Therapy
- Rehabilitation Medicine
- Applied Physiology and Kinesiology
- Epidemiology and Health Policy Research
- Nuclear and Biomedical Engineering



Dawn Bowers, PhD, professor, UF Department of Clinical and Health Psychology and the UF Department of Neurology with Irene Malaty, MD, assistant professor, UF Department of Neurology in the Center's new lobby.



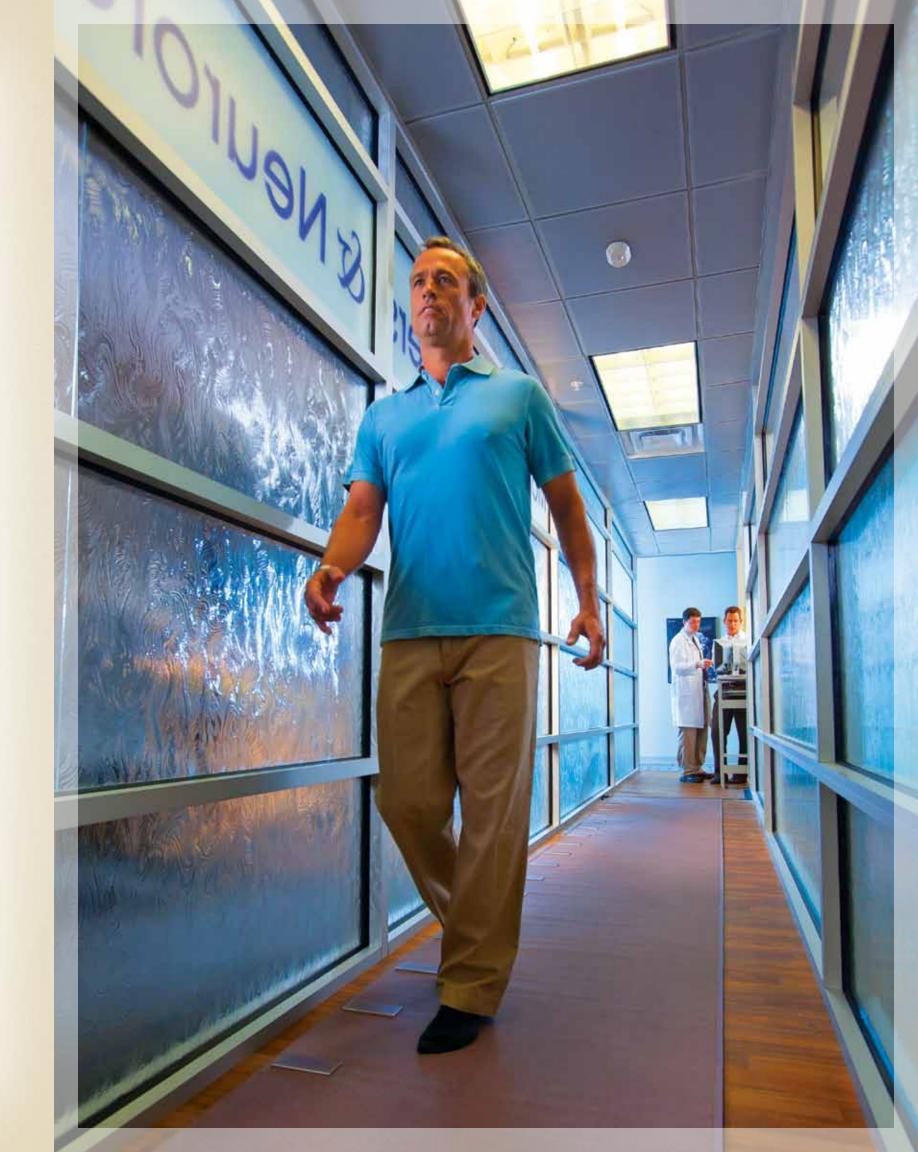
Nikolaus McFarland, MD, PhD, assistant professor, UF Department of Neurology, and Chris Hass, PhD, assistant professor, UF Department of Applied Physiology and Kinesiology, reading output image of patient gait and balance.

- Communication Sciences and Disorders
- Neuroscience
- Gait and Balance
- Speech and Swallowing
- Neuropsychology
- Engineering
- Biostatistics

Where we treat patients

To facilitate a high level of integrated care, the Center for Movement Disorders and Neurorestoration coordinates all patient services from one central location at the University of Florida. This provides a seamless experience for patients from the very first contact to their continued treatment and follow-up. The centralized facility also helps to expand the collaboration between members of the team from different specialty areas, including both treatment and leading edge research.

UF physicians assess gait as patient travels this sophisticated gait monitoring mat.





The Center strives to make appointments, services and accommodations as convenient as possible for patients and their families throughout the course of their care. Patients undergoing on-site outpatient treatment can elect to stay at the UF Hilton, located right on campus and just a few steps from the Center. Inpatient surgical procedures can be performed in state-of-the-art facilities at Shands at the University of Florida. Outpatient surgical procedures can be performed at the Shands Florida Surgical Center located adjacent to the Center.

In addition, the Center provides outreach services to the surrounding communities and for many patients in need.

In the forefront of surgical and deep brain stimulation treatment

UF physicians and scientists at the Center include leaders in deep brain stimulation (DBS), lesion surgery and other innovative modalities for the surgical treatment of movement and neuropsychiatric disorders. Supported by the National Institutes of Health, the DBS program is one of the most prominent in the nation with one of the largest interdisciplinary teams in the world. These experts have performed more than 500 DBS procedures, and the program is among the busiest and most sought after centers in the US.

Currently DBS is being used to treat Parkinson's disease, essential tremor, dystonia, and obsessive-compulsive disorder. In addition, the team has been pioneering the use of DBS for Tourette's, Huntington's disease, ataxia, multiple sclerosis tremor, gait disorders, cluster headache and depression.

25-year-old Meghan O'Donnell during deep brain stimulation surgery performed by UF neurosurgeon Kelly Foote, MD.

The DBS operating suite features advanced brain imaging technology, microelectrode recording equipment, and sophisticated 3-D stereotactic mapping and imaging protocols to precisely target specific areas of the brain, most of these invented at UF. DBS therapy is carefully tailored to each patient's individual needs and the Center is expert at applying advanced techniques such as multiple leads, lesion therapy and novel stimulation paradigms. A full-time staff provides patients with ongoing programming of DBS devices and follow-up. Many novel DBS devices are tested at the Center.

In addition to DBS procedures, ablative surgical treatments are also performed to treat movement and neuropsychiatric disorders.



Pamela Martin, RN, UF Department of Neurosurgery programming lead on DBS patient at Shands Florida Surgical Center.

A hub for excellence

National Parkinson Foundation Center of Excellence

The Center for Movement Disorders and Neurorestoration is home to a National Parkinson Foundation Center of Excellence, which offers a range of signature interdisciplinary programs to improve the lives of patients with Parkinson's disease.

The DBS Fast Track program is designed to evaluate patients and put them on the road to DBS treatment with minimal delay. In addition, the Center provides physical therapy, occupational therapy, speech, swallow and social services programs; a Parkinson Depression and Apathy Clinic; educational and clinical programs as part of a Parkinson's Day Center; and an annual Parkinson Symposium.

Tyler's Hope for a Dystonia Cure

Tyler's Hope is a not-for-profit, Gainesville-born, organization dedicated to finding a dystonia cure. The Center brings together the world's best doctors and researchers to provide a model for the best possible interdisciplinary cure of the dystonia patient. Treatments include strategies to address dystonia of the hands, arms, legs, neck, trunk, eyelids, face or jaw. All the latest treatment options are available in one place including DBS and other neurosurgical procedures, and botulinum toxin treatments using EMG-guidance. In addition, patients receive comprehensive evaluation and treatment for speech and language disorders, occupational therapy, and treatment for anxiety, depression and mood disorders which, are often associated with dystonia. UF researchers interface directly with the clinicians in the search for better remedies and cures.

Other Interdisciplinary Care and Research

The Center also has significant interdisciplinary research programs in Tourette's, ataxia, atypical Parkinsonism (PSP, MSA, CBGD).

Integrated care

An important element in the care of patients with movement disorders is providing services to improve the quality of their lives during and after treatment. At the Center, our programs integrate a comprehensive range of assess-



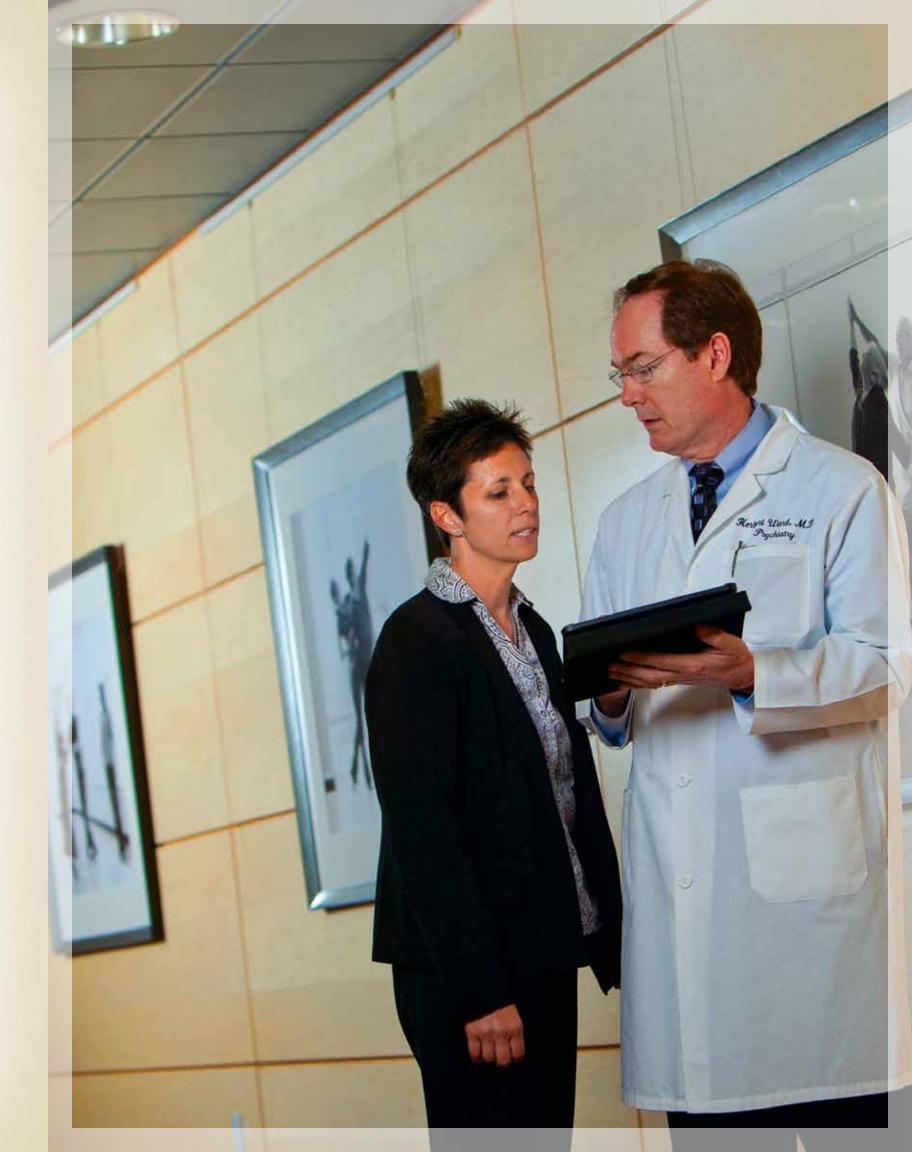
Lisa Warren, MHS, OTR/L, working with a patient in the rehab area. $\,$

ments and therapies including speech and swallowing therapy, physical therapy, gait training, and neuropsychological evaluations. The goal is to provide all patients with the services needed to enable them to function at the highest possible level.

Research as the key to care

A critical component in the success of the Center for Movement Disorders and Neurorestoration is the focus on research, including clinical trials, patient tracking and advanced scientific studies into the causes of these movement disorders with the eventual goal to develop meaningful treatments and one day, cures. Our researchers are supported and funded by numerous organizations including the National Institutes of Health, Tyler's Hope for a Dystonia Cure, The National Parkinson Foundation, the Smallwood Foundation, the Parkinson's Alliance, the

Christine Sapienza, PhD, professor and chair, UF Department of Communication Sciences and Disorders, consulting about a patient case with Herbert Ward, Jr., MD, associate professor, UF Department of Psychiatry.



Michael J. Fox Foundation, and a host of other philanthropic support.

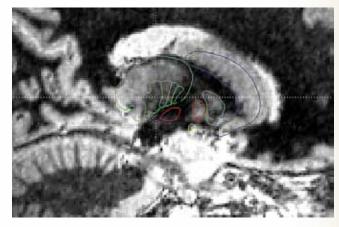
Patients who receive care at the Center are tracked during and after their treatment, creating our INFORM patient database. With data on more than 5,000 patients and still growing, this is one of the largest databases on movement disorder treatments and outcomes available anywhere.

All patients also have the option to participate in clinical trials, adding to our knowledge about movement and neuropsychiatric disorders. Our Clinic Trials Center is associated with the Parkinson's Study Group, the Huntington's Study Group, the Dystonia Study Group, NIH-designated headquarters of the nationwide Clinical Research Consortium for Spinocerebellar Ataxias, the Tourette Syndrome Society trials and the DBS Society. It also participates in an NIH initiative to provide neuroprotective therapies.

In addition, the University of Florida is heavily invested in genetics research and device development to advance both the diagnosis and treatment of movement disorders.

Specific research highlighted includes:

- Development of the core understanding of why movement and neuropsychiatric disorders occur
- Development of devices and better stimulation paradigms
- Development of new imaging and hardware for improving DBS surgery
- Creation of a living research database of patients' outcomes, tissue and genetics
- Developing ways to improve walking, talking, thinking and living easier with a movement or neuro psychiatric disorder
- Addressing the cognitive and behavioral aspects of the disease
- Devising gene therapy, stem cell and optogenetic strategies



Above is a Fast Gray Matter Acquisition T1 Inversion Recovery (FGATIR) MRI scan with structures of the basal ganglia that are targeted for deep brain stimulation (DBS) outlined. This MRI technique was developed at UF and continues to be a vast improvement for targeting over standard imaging methods used at other institutions.

How do I get more information or refer a patient?

At the University of Florida Center for Movement Disorders and Neurorestoration, we pride ourselves on providing referring physicians and patients with easy access to information, specialists and other resources. Our centralized location makes it convenient to coordinate consultations, appointments and services.

To arrange for a consultation, referring physicians can call the Center at 352.294.5000. Patients can often be seen on a next-day basis when needed. In addition, extensive information about all the services provided through the Center is available on our website at http://mdc.mbi.ufl.edu.

Returning patients can be seen on a "walk-in" basis. New patients can be seen within a week.



On the cover Title of artwork: Pathways of Cognition

The image shows a number of major white matter pathways in the human brain that are important for cognition and memory. It represents how science can be art. This art was created from diffusion-weighted imaging MRI provided by a federally funded project examining white matter and cognition in Parkinson's disease (Pl: Catherine Price, Ph.D.; NINDS K23NS060660). White matter visualization methods involved techniques from the laboratory of Thomas Mareci, Ph.D., Department of Biochemistry and Molecular Biology, McKnight Brain Institute, University of Florida, as well a structural imaging from FreeSurfer and TrackVis computer programs. The image was created by Jared Tanner, M.S., doctoral student, Department of Clincial and Health Psychology, University of Florida, Gainesville, Florida, who is funded as part of Dr. Price's NINDS K23NS060660.



the SCIENCE of HOPE

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