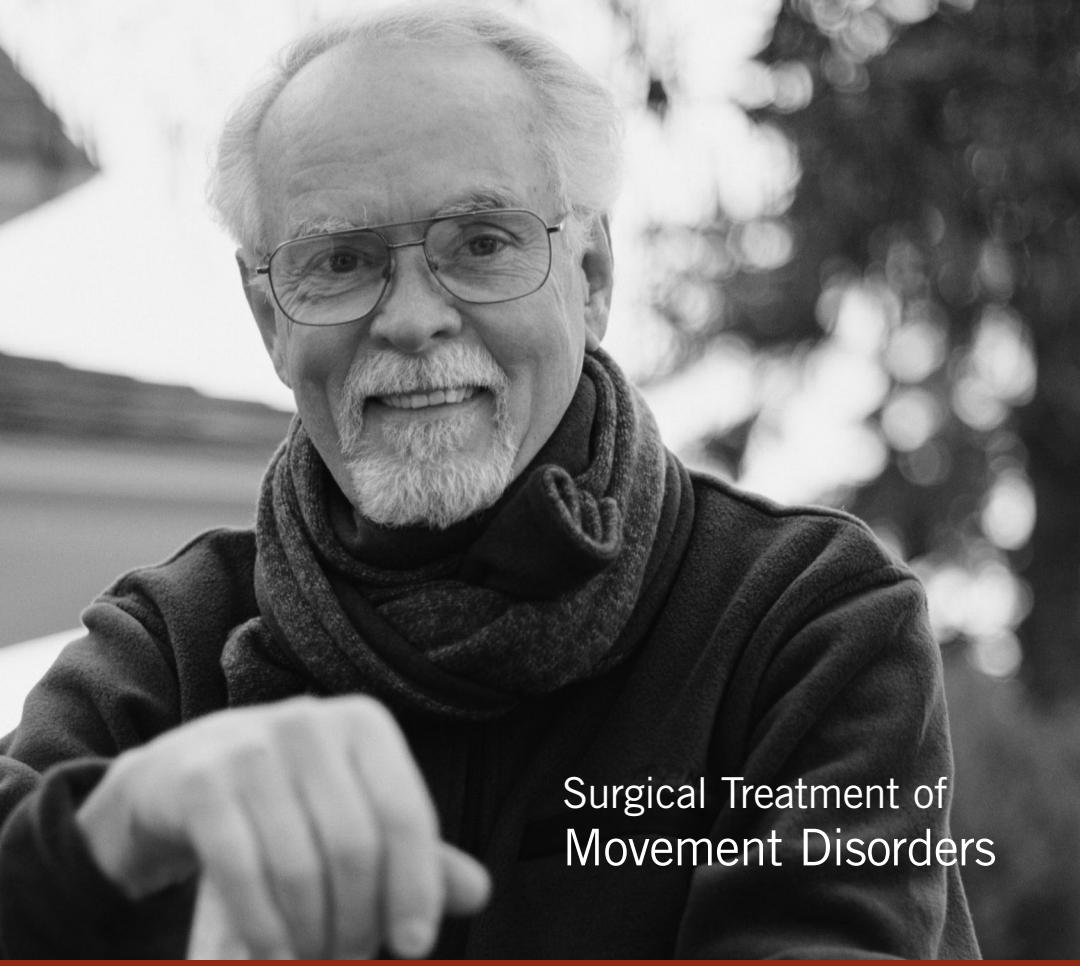
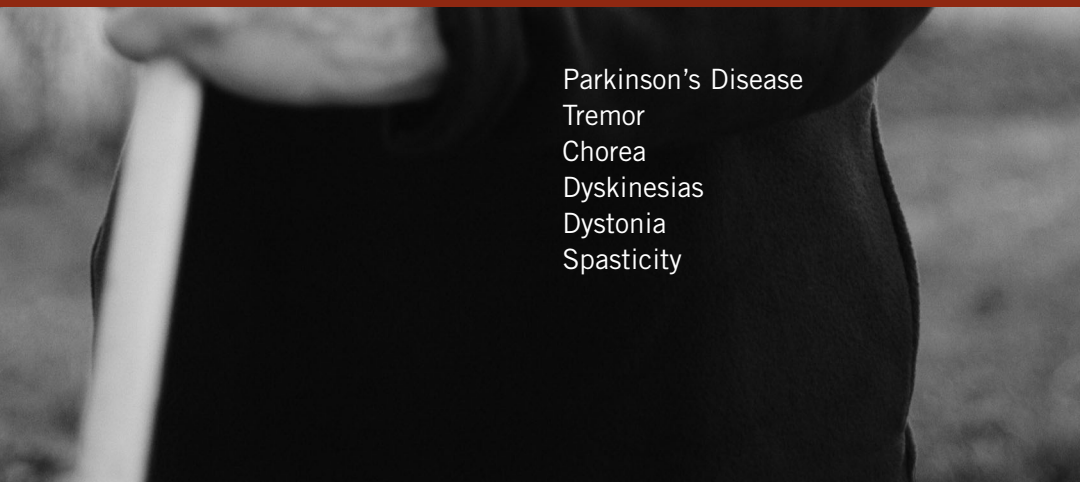


Surgical Treatment of Movement Disorders

DEPARTMENT OF
NEUROLOGICAL SURGERY
AT WEILL CORNELL MEDICAL COLLEGE



Parkinson's Disease
Tremor
Chorea
Dyskinesias
Dystonia
Spasticity

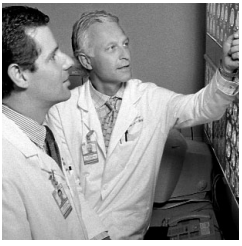
Neurologic Movement Disorders

- *Chorea* is characterized by jerky, arrhythmic, spasmodic movements of the body. Chorea is most commonly associated with Huntington's disease and Sydenham's chorea.
- *Dyskinesias* (Paroxysmal) are conditions characterized by sudden involuntary abnormal movements. These may range from rapid, jerky movements to slow or repetitive, patterned movements.
- *Dystonia,* the third most common movement disorder, involves involuntary muscle contractions which force certain parts of the body into abnormal and sometimes painful movements or postures.
- *Essential Tremor,* the most common type of tremor, is due to an abnormal communication between certain areas of the brain, including the cerebellum, thalamus, and brain stem.
- *Parkinson's Disease* is a slowly progressive disease of the nervous system characterized by four symptoms: rigidity of the limbs; slowness in movement with difficulty initiating movement and paucity or incompleteness of movement; tremor of the limbs; and instability resulting from impairment of postural reflexes.
- *Spasticity* is a condition in which certain muscles are continuously contracted. This contraction causes stiffness or tightness of the muscles and may interfere with movement, speech, and manner of walking.

WALKING NORMALLY... FEEDING ONESELF... EVEN SMILING CAN BE A DIFFICULT AND FRUSTRATING TASK FOR SOMEONE WITH A MOVEMENT DISORDER... WE CAN HELP.

Movement Disorders, including Parkinson's disease, essential tremor and dystonia, often prevent people from performing normal daily activities and can limit independent functions. Medications can control symptoms in many patients but over time they often become less effective or cause intolerable side-effects.

Fortunately, the Center for Stereotactic and Functional Surgery in the Department of Neurological Surgery at Weill Cornell Medical College offers the finest and most advanced surgical care to help improve mobility and independence.



OUR GOAL... TO COMBINE THE FINEST PERSONALIZED COMPREHENSIVE CARE WITH THE MOST ADVANCED NEURO-SURGICAL TECHNOLOGY... WE'RE HERE TO HELP.

Our Physicians Doctors in the Department of Neurological Surgery are faculty members of Weill Medical College of Cornell University and attending physicians at NewYork Weill Cornell Medical Center of NewYork-Presbyterian Hospital. Under the leadership of Michael G. Kaplitt, M.D., Ph.D., we are experts in treating movement disorders and leaders in bringing therapies of the future to our patients today.

Our neurosurgeons utilize the most recent advances in medical science and technology to diagnose and treat movement disorders with unprecedented accuracy and effectiveness. By combining a sophisticated understanding of the brain's circuitry, leading-edge technology to map the brain, and the skill to perform new neurosurgical techniques, our patients are provided the best possible treatment for improving tremor, rigidity, and uncontrolled movement.

Movement Disorders These conditions are grouped into two categories, those exhibiting disordered or excessive movement (termed "hyperkinesia" or "dyskinesia"), and those characterized by slowness, a lack of movement, or even "freezing" in place (termed "hypokinesia," "bradykinesia," or "akinesia").

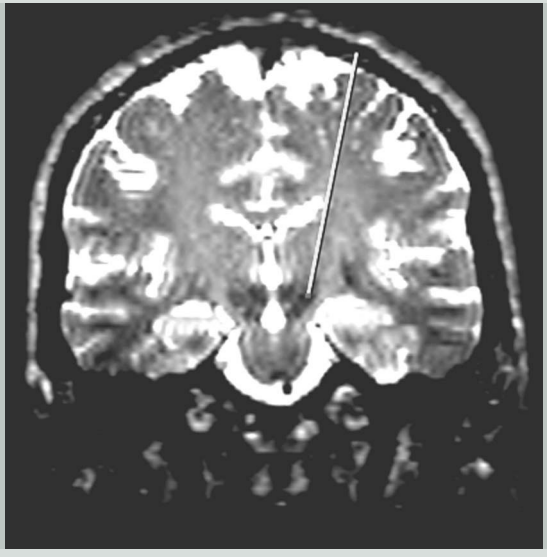
Not all people with movement disorders will benefit from neurosurgery. Our team of neurosurgeons and medical specialists individually review each patient's medical status before a recommendation is made. This includes reviewing your medical history, as well as the results from previous tests and new ones performed by our staff, to give the medical care team the clearest and most up-to-the-moment picture of your neurological condition. All patients of the Department of Neurological Surgery benefit from multiple medical perspectives both before and after surgery.

Treatment Options Our neurosurgeons help provide relief for patients who experience the tremor, rigidity, and slowness that are commonly associated with many different types of movement disorders. Our panel of expert physicians will recommend the best approach for each individual patient to help alleviate debilitating symptoms. For some patients, the recommended procedure is to surgically target lesions in the brain.

For most, suppressing the abnormal electrical feedback in the brain with tiny surgically implanted electrodes can control symptoms. Patients with Parkinson's disease, dyskinesias, essential tremor, and dystonia can be helped with a technique called deep brain stimulation (DBS), in which electrodes are precisely placed in the subthalamic nucleus, globus pallidus, or thalamus. Using advanced imaging technology, our physicians are able to visualize the inner structures of the brain with unprecedented detail. The ability to see in three-dimensions inside the brain helps the neurosurgeon precisely plan the entire operation before surgery to optimize targeting and reduce complications. Our surgeons choose the ideal target based upon the patient's disease and symptoms.

DBS Process Deep Brain Stimulation requires two separate surgeries. The first involves inserting and securing the electrodes inside the brain. A second surgery places a small battery under the skin of the chest and connects it to the electrodes via a thin wire running beneath the skin from the head down the neck and over the chest. Patients should understand that the stimulator requires precise adjustments for the strength, duration, and frequency of the electric signal. In the

Our multidisciplinary team of neurosurgeons, neurologists, neuropsychologists, and nurse practitioners work alongside other specialists to provide the finest care to each patient.



Our Director, Dr. Michael G. Kaplitt, is leading the world's first trial of gene therapy for Parkinson's disease. The clinical research program at Weill Cornell is designed to bring treatments of the future to our patients today.

weeks and months following surgery, a skilled medical professional will work with the patient to adjust these settings for optimal effectiveness.

Innovative Therapies The Department of Neurological Surgery is bringing to our patients ground-breaking approaches to improve the diagnosis and treatment of brain disorders.

The Department is conducting the first-ever clinical trial involving gene therapy to treat Parkinson's Disease. This promising technology has the potential to revolutionize our approach to treating a whole range of neurological disorders.

We are also conducting a series of clinical trials in order to expand the medical benefits of Deep Brain Stimulation (DBS) to a greater variety of neurological disorders. The Department's Laboratory of Molecular Neurosurgery actively investigates the effects of DBS on brain cell biology and is developing molecular techniques to improve our understanding and treatment of neurodegenerative disorders.

Partnership with Patients Our patients are true partners with their physicians. Our neurosurgeons and medical care team take as much time as necessary to help patients and their families understand every aspect of their care, answering questions pertaining to the diagnostic and surgical procedures, explaining the relative risks and benefits of their medical options, and helping them prepare for what to expect both during and after surgery. We stay in touch with our patients long after they have returned home, monitoring their condition, providing medical assistance, and helping them maintain the highest possible quality of life.

LET US HELP YOU...

Department of Neurological Surgery
Center for Stereotactic and Functional Surgery
Movement Disorders Division:

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Website: www.med.cornell.edu/neurosurgery

Michael G. Kaplitt, M.D., Ph.D. graduated from Princeton University with a degree in molecular biology and Russian studies. He received his Ph.D. from the Rockefeller University and his M.D. from Cornell University Medical College. He completed his Fellowship in Functional Neurosurgery at the University of Toronto. He is an internationally recognized expert in gene therapy and movement disorder surgery.

Kristin M. Strybing, R.N., M.S.N., F.N.P-C., received a B.A. in Psychology with a concentration in Spanish from the University of California at Santa Barbara. She also received a Master of Science in Nursing from Columbia University School of Nursing. Kristin is the clinic coordinator for the Movement Disorders Division.

DIRECTIONS TO THE DEPARTMENT OF NEUROLOGICAL SURGERY

By Car Coming from FDR North, take the 61st Street exit and make a right turn onto York Avenue. Coming from FDR South, take the 71st Street exit and make a left turn onto York Avenue. The main entrance is located at 525 East 68th Street, directly east of York Avenue.

Parking Valet parking is available at the East 68th Street entrance and at garages located on York Avenue between 68th and 70th Streets.

By Subway Take the 6 train to the 68th Street/Lexington Avenue Station. Walk four blocks east to York Avenue. The main entrance is located at 525 East 68th Street, directly east of York Avenue.

By Bus Via York Avenue, take the M31 to 69th Street. Via 1st Avenue, take the M15 to 67th Street. Walk one block east to York Avenue. The M66 crosstown bus arrives on the corner of 68th Street and York Avenue. The main entrance is located at 525 East 68th Street, east of York Avenue.

Inside the Building Once inside the 68th Street entrance, proceed straight until you are in the main lobby and see the Information Desk. Walk past the Desk and straight to the end of the hallway. Take the Starr (ST) elevators to the 6th floor. Room 651 is on your left.

Overnight Accommodations are available at the New York Hospital Helmsley Tower next door: 212-472-8400.

Department of Neurological Surgery
Weill Cornell Medical College
Starr Building, Room 651
525 East 68th Street, Box 99
New York, New York 10021

24-hour Toll-Free Number:
1-866-4CNS-SURG (1-866-426-7787)

WEILL CORNELL PHYSICIANS
Leaders in Medical Science. First in Patient Care.

NewYork Weill Cornell Medical Center
Weill Medical College of Cornell University
NewYork-Presbyterian Hospital