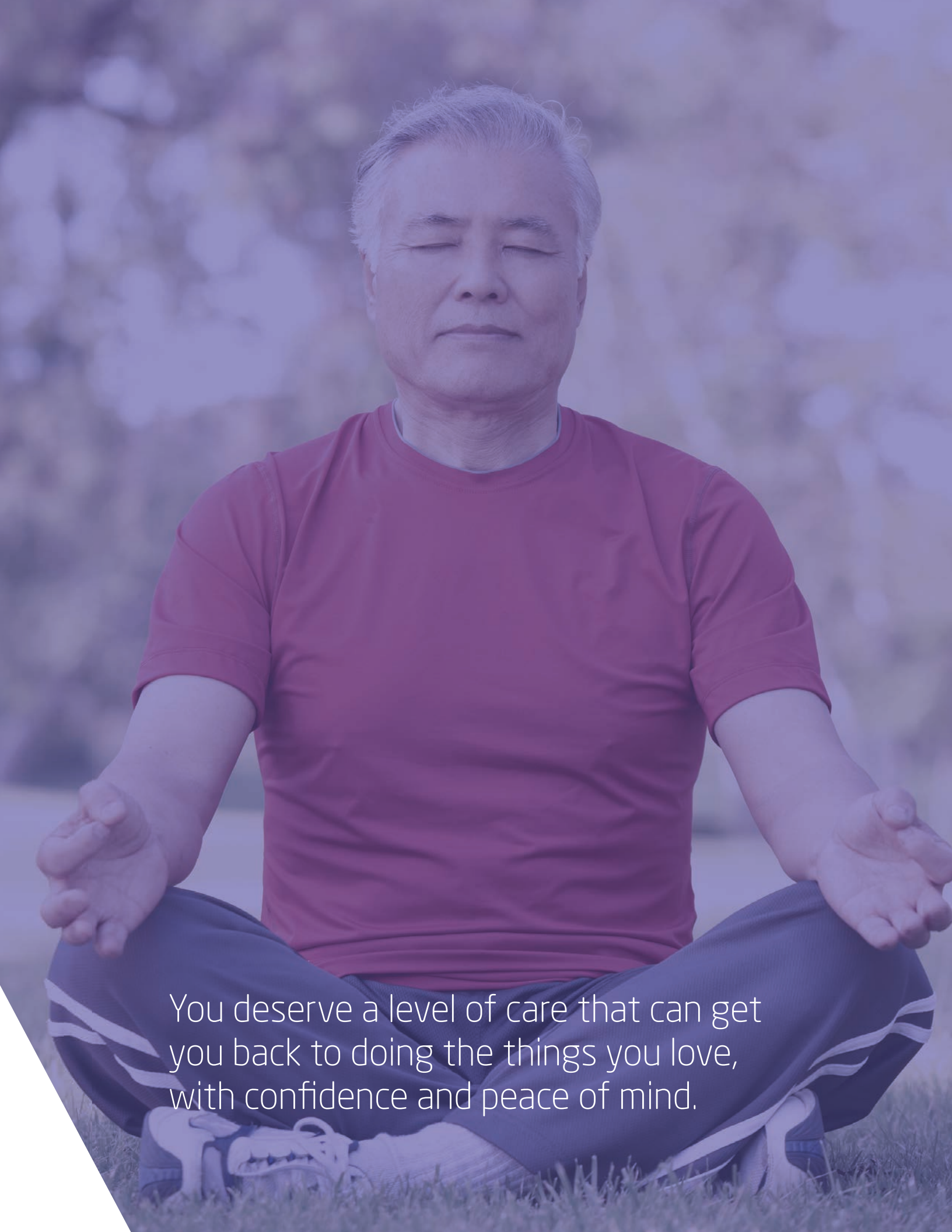




Helping You Move Forward with Confidence

Central DuPage Hospital Movement Disorders and
Neurodegenerative Diseases Center





You deserve a level of care that can get you back to doing the things you love, with confidence and peace of mind.

Your first step to a better life

Your movement matters—at home, at work, doing the common tasks that everyone can take for granted. If you have a movement disorder, you deserve a level of care that can get you back to doing the things you love, with confidence and peace of mind. The Northwestern Medicine Central DuPage Hospital Movement Disorders and Neurodegenerative Diseases Center uses an interdisciplinary team approach to provide individualized care that optimizes your treatment, outcomes and experience. Your care is provided by a focused and experienced team that includes specially trained neurologists, neurosurgeons, neuropsychologists, neuroradiologists, nurses, counselors and rehabilitative specialists who offer advanced treatment options and access to support and resources.

Being educated regarding your illness will allow you to take an active part in your treatment.

Frequent educational seminars and open forums are available, and are considered to be an integral part of each patient's treatment.

The team at the Movement Disorders and Neurodegenerative Diseases Center works with you to attain improved quality of life, maximum independence and hope for the future.

Movement disorders

Movement disorders are a group of neurological illnesses characterized by the loss of voluntary movement. Some movement disorders result in excessive movement while others may result in decreased movement, and some may have features of both.

Although quite different in presentation, one thing all movement disorders have in common is a dysfunction of a region of the brain known as the basal ganglia.

While the exact cause of these disorders is unknown, excellent treatments exist.

A brief description of some of the more common movement disorders seen at the Movement Disorders and Neurodegenerative Diseases Center are included in the table to the right.



Common Movement Disorders

Parkinson's disease (PD)	PD is a slowly-progressing neurodegenerative disease in which motor symptoms (tremor, stiffness, slowness and balance) result from the loss of dopamine-producing neurons in a region of the brain known as the substantia nigra. It is now well recognized that other neurotransmitter systems may also be affected in PD, resulting in changes in mood, thinking, sleep and other body functions that are considered under automatic control. Symptoms can vary considerably from patient to patient and therefore, treatment must be individualized. Treatments range from oral medications to deep brain stimulation (DBS). DaTscan imaging can help to assess dopamine loss.
Dystonia	Dystonia is a neurologic condition in which there are sustained muscle contractions that can cause involuntary twisting and repetitive movements resulting in abnormal postures that sometimes can be painful. Dystonia can be focal (involve only one area of the body) or may include many body parts. Treatments include oral medications, botulinum toxin injections and DBS.
Essential Tremor (ET)	ET is considered one of the most common movement disorders, appearing as a tremor of both hands – most prominently when performing activities such as writing, eating or drinking. Although most often encountered in later adulthood, this condition can occur at any age. Many of those affected by ET have other family members with the same condition. Treatments include oral medications, occupational therapy and DBS.
Tourette's syndrome (TS)	TS is an inherited neurological disorder that often begins in childhood and results in sudden, rapid and repetitive movements (motor tics) and vocalizations (vocal tics). Tics, although under partial voluntary control, are very difficult to suppress. In addition to the tics, some patients may experience psychiatric and behavioral problems. Treatment consists of oral medications and psychiatric and behavioral counseling.
Huntington's disease (HD)	HD is a hereditary neurodegenerative disorder that results in involuntary abnormal movements, gait and balance problems, behavioral and psychiatric difficulties along with progressive cognitive decline. Genetic testing is available to confirm the diagnosis. Treatment can be challenging and consists of oral medications and behavioral counseling along with psychiatric treatment.
Chorea	Chorea is an abnormal involuntary movement consisting of continual, irregular movements that flow from one body part to another. Chorea can be seen as a manifestation of other primary neurologic illnesses, or can be a result of toxic exposures as well as metabolic disturbances. Treatment consists of oral medications, correcting any underlying medical problems and sometimes DBS.
Hemiballismus/ Hemichorea	This refers to large amplitude (ballistic) involuntary movements involving one side of the body. In certain cases the movements can take the form of chorea. These movements can be constant, painful and disabling. The most common cause is a stroke in the region of the subthalamic nucleus and/or fiber pathways traversing nearby. Certain metabolic derangements such as hyperglycemic states in diabetics can produce a similar clinical picture and may be reversible with glucose control. Treatment consists of using medications that block dopamine transmission in the basal ganglia and DBS placed in the globus pallidus pars interna.

Diagnosing movement disorders

In most cases, correctly diagnosing a specific type of movement disorder depends on the clinical skill and experience of the neurologist. Other specialists such as psychologists, psychiatrists, neuroradiologists and behavioral neurologists are called upon when needed. In some movement disorders, specific and specialized blood and diagnostic testing can help with the diagnosis. Imaging techniques can also be helpful.

Magnetic resonance imaging (MRI)—MRI is a diagnostic technique that uses a magnetic field to produce pictures of structures inside the brain. MRI is a painless technique that usually takes about 20 minutes and can provide valuable information about the structure and function of the brain.

DaTscan—The Movement Disorders and Neurodegenerative Diseases Center was one of the first centers in the country to offer DaTscan, a unique diagnostic tool for patients with difficult-to-diagnose movement disorders. This nuclear medicine scan is painless and can be used to determine if there is a dopamine deficiency. The test can potentially lead to a more accurate and early diagnosis of Parkinsonism and essential tremor, at which time treatment can begin.

Treatment of movement disorders

Treatment strategies are individualized to meet the needs of each patient. Treatments offered vary based on the clinical symptoms, other medical illnesses that the patient may have and psychosocial factors. The movement disorders team has experience with advanced treatments such as DBS, duopa, botulinum toxin injections and pharmacological (medication) regimens. These treatments may be combined in order to achieve optimal results.

Botulinum toxin injections for dystonia

Botulinum toxin injections (Botox®, Xeomin®, Myobloc®, Dysport®) are used to relieve muscle contractions and spasms. Some of the focal dystonias where botulinum toxin injections can be beneficial include blepharospasm (involuntary eyelid closure), spasmodic torticollis (muscle contractions of the neck resulting in involuntary head

turning), graphospasm (writer's cramp), among many others. Other conditions where these injections can be helpful are hemifacial spasm (contractions of the muscles of half of the face), spasticity (resulting from stroke, multiple sclerosis or trauma) and drooling. This procedure involves injecting very small amounts of botulinum directly into the muscle responsible for the involuntary contractions. Injections are typically repeated every three to four months.

Deep brain stimulation for movement disorders

Deep brain stimulation (DBS) is approved by the Food and Drug Administration (FDA) as a surgical treatment for difficult-to-manage Parkinson's disease, essential tremor and dystonia. DBS should be considered when medications do not adequately control symptoms.

DBS delivers high-frequency electrical stimulation to precise areas of the brain, thereby blocking abnormal signals that result in the symptoms caused by the illness. In the case of Parkinson's disease (PD), two brain regions have been identified where DBS is appropriate, the subthalamic nucleus (STN) and the internal segment of the globus pallidus (GPi). In essential tremor, the ventral intermediate nucleus (Vim) of the thalamus is the optimal target. In dystonia, the preferred target is the GPi. Although DBS is not curative, in most cases it can effectively control symptoms for many years.

The DBS program at Central DuPage Hospital is among the busiest programs in the country. If DBS is determined to be appropriate for a patient, a dedicated team of experienced neurologists, neurosurgeons, neurophysiologists, neuroradiologists, neuropsychologists and specialized nurses combine efforts in order to achieve an optimal outcome for each patient.

Carbidopa/Levodopa Intestinal Gel (Duopa™)

Levodopa is the most efficacious medication for the treatment of Parkinson's disease and it is absorbed in the small bowel. Unfortunately, as Parkinson's disease progresses, poor gastric emptying and impaired motility of the gastrointestinal tract limits the reliable delivery of oral carbidopa/levodopa to the small bowel, resulting in



unacceptable motor fluctuations and dyskinesias. When symptoms become difficult to manage, it is appropriate to consider the carbidopa/levodopa concentrated intestinal gel (Duopa™). With this technique, the concentrated levodopa is delivered directly to the site of levodopa absorption via a tube placed into the small bowel by a specially trained gastroenterologist or surgeon (an outpatient procedure). The patient “wears” a small pump that is programmed to deliver the exact amount of levodopa required, on a continuous basis over the course of their waking day. Additionally, the pump is programmed to deliver a larger morning dose to begin the day. Additional doses can be delivered at the patient’s discretion.

If Duopa™ is determined to be appropriate for a patient, a dedicated team of experienced neurologists, neuropsychologists, gastroenterologists, surgeons and specialized nurses combine efforts in order to achieve an optimal outcome for each patient, based on their particular symptoms.

Clinical trials

Clinical research at the Movement Disorders and Neurodegenerative Diseases Center bridges the findings of basic science, enlightens understanding of diseases and makes vital contributions to the development of new and better therapies. Through the combined efforts of our patient volunteers, clinical investigators, various disciplines and departments, we aim to improve the prevention, diagnosis and treatment of neurological disorders and diseases.

To learn more about clinical research available at the Movement Disorders and Neurodegenerative Diseases Center, please call 630.933.6107.



M. McGraw, MD

Therapies

Movement disorders are complex, and getting the best results often requires a multidisciplinary approach that can include the following therapies:

Big and Loud—To help you move and speak as effortlessly as possible, physical therapists, occupational therapists and speech pathologists are specially trained in Lee Silverman Voice Treatment (LSVT®) Big and Loud Therapy. LSVT is an effective treatment program proven to help individuals living with PD, giving them new hope for improved communication and movement, providing benefits in work, family and social activities.

LSVT Big—Physical therapists or occupational therapists use LSVT Big to address the unique movement impairments for people with PD. Therapists work with individuals to improve major motor skills, like walking, arm and leg movement and balance.

LSVT Loud—Speech-language pathologists improve vocal loudness by stimulating the muscles of the voice box (larynx) and speech mechanism through a series of Loud exercises. Therapy does not train people to shout or yell—rather it trains a healthy, louder voice with no strain.

Social Workers—PD and other movement disorders can impact many different aspects of your daily life. A social worker can help coordinate an individualized health plan

developed with your full participation—one that addresses the unique issues you're facing, such as medication regimen, exercise, your career, interacting with family and friends, nutrition and coping emotionally with a chronic illness. Additionally, social workers at Central DuPage Hospital provide psychotherapy for patients, spouses and families dealing with chronic neurological illness.

Home Health—Sometimes the best course of treatment for you comprises therapies provided where you're the most comfortable: in your own home. A preferred provider of Central DuPage Hospital, Northwestern Medicine Home Health & Hospice offers a customized program for patients with PD, including traditional home therapy as well as innovative techniques to improve balance, coordination and walking to reduce the risk of falls. From physical, occupational and speech therapy to Lee Silverman Voice Treatment (LSVT®) Big and Loud Therapy, the specially trained and certified staff can help you speak and move more easily, confidently and effectively.

Additional resources and support

At the Movement Disorders and Neurodegenerative Diseases Center, you get the benefits of receiving care from a regional hub for research, information and support for Parkinson's disease and other movement disorders. Resources available to you include:

Support Groups—Support and knowing you are not alone with your illness can make a big difference in recovery. Central DuPage Hospital hosts a monthly Parkinson's disease 101 support group meeting for PD patients and their caregivers. Educational seminars on the latest evidence-based treatments from both medical and rehabilitation perspectives are presented. Each meeting also includes time to openly discuss concerns, accomplishments and resources, and hear from other healthcare specialists who participate as guest speakers.

Additional support groups offered include an Essential Tremor Support Group, Neurologic Music Therapy Group and an Exercising with Parkinson's Group. Please call 630.933.4234 for more information, or to register.

Parkinson's Caregivers Conference—Juggling the many roles in life is never easy. It can be even more difficult when caring for a person with Parkinson's disease. Learn how to handle the challenges of being a caregiver while also caring for yourself. Join us for this annual conference featuring experts in dealing with the medical and social aspects of caring for a loved one with Parkinson's disease.

Parkinson's Patient and Family Conference—When it comes to the fight against Parkinson's disease, knowledge is power. Join us for this annual event featuring movement disorder specialists from the Movement Disorders Center. This interactive presentation will give you the opportunity to ask questions of your multi-disciplinary team, and will show you ways that specialized, comprehensive care and advanced treatment can provide a brighter outlook for Parkinson's patients.

Dr. Michael Rezak's Blog—Michael Rezak, MD, PhD, is medical director at the Neurosciences Institute of Central DuPage Hospital and writes a blog on the Parkinson's Disease Research Society's website. He details the latest treatments, therapies, events and information available to patients with movement disorders. The blog is at parkinsonsprogress.org/author/dr-michael-rezak.





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