**Alpha-synuclein**
A protein normally found in neurons and the main component of protein clumps called Lewy bodies. Researchers believe that Lewy bodies are associated with neuron death. A mutation in the gene that directs the production of the alpha-synuclein protein is the basis for a rare, inherited form of PD.

**Akinesia**
Inability to move, or difficulty in initiating or maintaining a body motion.

**Autonomic dysfunction**
A problem with the functioning of the autonomic nervous system, which controls unconscious body functions that affect bladder and bowel movements, sweating, sexual function and blood pressure.

**Basal ganglia**
Region deep within the brain consisting of large clusters of neurons responsible for voluntary movements such as walking and movement coordination. Many of the motor symptoms of PD are brought on by loss of or damage to dopamine neurons in this region, which encompasses the striatum, the subthalamic nucleus and the substantia nigra.

**Biomarkers**
Measurable, biological characteristics used to determine the risk, presence or progression of disease. Ex: high blood pressure is a biomarker of potential heart disease. No biomarker of PD has been validated, but researchers are working toward such a tool.

**Bradykinesia**
Slowing down and loss of spontaneous and voluntary movement. One of the cardinal symptoms of PD. From the Greek brady, slow, and kinesia, movement.

**Clinical trials**
Organized medical studies that test safety and efficacy of new treatments, such as medications or surgical.

**Cognitive dysfunction**
Loss of intellectual functions (thinking, remembering, and reasoning) severe enough to interfere with daily activities. May include executive dysfunction and/or changes in personality, mood and behavior. Typically does not respond to dopamine-replacement therapy and ranges from mild impairment to dementia.

**Compulsive Behavior**
Irresistible impulses to act, regardless of rationality. Some compulsive behaviors — excessive gambling or shopping, hyper sexuality, binge eating — have been associated with dopamine agonists used to treat PD.

**Deep brain stimulation (DBS)**
A surgical procedure that uses a surgically implanted, battery-operated medical device (“neurostimulator” — similar to a heart pacemaker and approximately the size of a stopwatch) to deliver electrical stimulation to targeted areas in the brain that control movement, blocking the abnormal nerve signals that cause tremor and PD symptoms. At present, the procedure is used primarily for patients whose symptoms cannot be satisfactorily controlled with medications.

**Dementia**
Decline in memory and/or intellectual functioning severe enough to interfere with social or occupational functioning. Some patients experience dementia, generally at later stages of disease progression. Does not respond to dopamine replacement therapy.

**Depression**
Mental state, and non-dopamine-responsive symptom of PD, characterized by feelings of despondency and a lack of ability to initiate activity.

**Dopamine**
Neurotransmitter chemical produced in the brain that helps control movement, balance and walking. Lack of dopamine is the primary cause of PD motor symptoms.
Dopamine agonist
Class of drugs commonly prescribed in PD that stimulate dopamine receptors and produce dopamine-like effects. These drugs are sometimes associated with compulsive behaviors.

Dysarthria
Slurred or otherwise impaired speech.

Dyskinesia
Involuntary, uncontrollable, excessive movements that are a common side effect of long-term levodopa treatment for PD. These movements can be lurching, dance-like or jerky; can involve any part of the body (e.g., extremities, head and neck); and are distinct from the rhythmic tremor commonly associated with PD.

Dysphagia
Difficulty swallowing that results from difficulty coordinating and controlling the muscles responsible for moving food from the mouth through the esophagus to the stomach. In later stages of disease, this can increase the risk of food or liquid "going down the wrong tube," which can cause pneumonia.

Dystonia
An abnormal, involuntary, often painful sustained posture or muscle cramping. Can involve any body part — hand, foot, head. It can exist as a separate disease or be part of PD, especially when medication wears off.

Essential tremor
Movement disorder that may be confused with PD. A fast tremor that is most pronounced when using the hands, as with writing or eating. This is in contrast to tremor of PD, which is most pronounced when the limb is at rest.

Executive dysfunction
Disturbances in “executive functions,” which are brain processes that allow a person to plan and initiate activities toward a goal, regulate behaviors, exercise judgments, maintain attention and concentration, problem solve and multitask. Many people with PD experience some type of executive dysfunction. Does not respond to dopamine-replacement therapy.

Facial masking
Decreased facial expression and blinking. A form of bradykinesia.

Familial Parkinson’s disease
PD that runs in families and is thought to have a primarily genetic cause. Accounts for less than 5% of PD cases worldwide.

Festination
Involuntary quickening of steps and shuffling, which makes it difficult for a person to stop moving.

Freezing
Abrupt and temporary inability to move. Frequently occurs when beginning to walk, moving through doorways or turning around.

Gait difficulty or dysfunction
Refers to any abnormality of walking associated with Parkinson’s — ex: imbalance, shuffling, or freezing.

Idiopathic Parkinson’s disease
Most common form of PD, accounting for 95% of cases, likely arising from a combination of genetic and environmental factors. Idiopathic PD does not run in families, unlike other (much rarer) forms of PD.

Levodopa
Most commonly administered drug to treat PD motor symptoms. In the brain, levodopa is converted into dopamine — the brain chemical that is lacking in PD.

Lewy bodies
Abnormal protein clumps that accumulate in brain cells in PD. Researchers believe that Lewy bodies play a role in the degeneration and death of dopamine neurons. At autopsy, the presence of Lewy bodies is used to confirm a PD diagnosis.

Lewy Body Dementia
Lewy bodies develop in the brain regions involved in thinking, memory and movement. Causes progressive decline in mental abilities, changes in alertness and attention, and may include visual hallucinations. May include symptoms such as rigid muscles, slow movement and tremors.

Micrographia
Small, cramped handwriting.

Mild cognitive impairment
Also known as MCI, a decline in memory and/or intellectual functioning that is not as severe as dementia. MCI occurs frequently and may progress to dementia.
Monoamine oxidase B (MAO-B) inhibitors
Drugs that enhance effects of dopamine-replacement therapy by preventing enzymes from breaking the medications down. Some studies suggest that MAO-B inhibitors may slow the progression of PD but this has not been proven in the clinic.

Motor Fluctuations
Inconsistent and sometimes unpredictable responses to levodopa. This can include wearing “off.”

Movement disorders
Conditions that interfere with movement. Some, like PD, are characterized by lack of movement, others excessive movement. Conditions categorized as movement disorders include PD, essential tremor, multiple system atrophy, progressive supranuclear palsy, Huntington’s disease, Tourette’s syndrome and cerebral palsy.

Movement disorders specialist
Neurologist with specific training in the subspecialty of movement disorders, including PD.

Neurodegeneration
Slow and progressive death (degeneration) of certain brain cells in conditions such as PD, Alzheimer’s disease and Lou Gehrig’s disease (ALS).

Neurologist
Physician specializing in diseases and disorders of the brain, spinal cord, nerves and muscles, including stroke, PD, epilepsy, Alzheimer’s and muscular dystrophy.

Neuron
Nerve cell that transmits information within the central nervous system. Parkinson’s involves death of and/or damage to dopamine neurons.

Neuroprotective
Providing protection to or stimulating the regrowth of any part of the body’s nervous system. No currently available treatment for PD has been proven to provide a neuroprotective or neuroregenerative effect. Available PD treatments are symptomatic.

Neurotransmitter
Specialized chemical messenger (e.g., dopamine, norepinephrine, serotonin) that allows nerve cells to communicate with each other. Most neurotransmitters play different roles throughout the body, many of which are not yet known.

Non-motor symptoms
Additional symptoms that affect characteristics other than movement. These include cognitive impairment, sleep problems and depression and typically do not respond to dopamine-replacement therapy.

Olfactory dysfunction
Reduced or impaired ability to smell; can be an early sign of PD. Researchers study olfactory dysfunction as a possible avenue toward a biomarker of PD.

On-Off phenomenon
Sudden loss of activity of levodopa lasting minutes to hours after a brief period of effectiveness. The term also sometimes refers to a cyclical response to medication where the patient can function adequately at times but is too stiff and immobile to function at other times.

Parkinson’s disease
Chronic, neurodegenerative disorder that affects one in 100 people over age 60. The cardinal symptoms are bradykinesia, resting tremor, rigidity and postural instability or gait dysfunction, but most patients experience non-motor symptoms, as well. While the average age at onset is 60, many people are diagnosed much younger. There is no objective test, so the rate of misdiagnosis can be relatively high. Estimates vary, but research indicates that at least 1 million people in the U.S., and more than 5 million worldwide, have PD.

Parkinsonism
Generic term for slowness and mobility problems that result from or look like PD. Several conditions that are not actually PD, including multiple system atrophy or Shy-Drager syndrome, and progressive supranuclear palsy, as well as a number of medications, can result in parkinsonism and a misdiagnosis of PD.

Physical therapy
Use of exercises and physical activities to help condition muscles and restore strength and movement. Physical therapy may be useful to maintain balance and flexibility as part of an overall PD treatment regimen.

Pill-rolling
Description of the typical resting tremor of the hands, so named because the alternating movements of the thumb and forefinger give the appearance of rolling a small object between the fingers.
Postural instability
Difficulty standing or walking, dizziness, imbalance or incoordination, which can lead to falls. Does not respond to dopamine-replacement therapy.

Resting tremor
An unwanted and uncontrolled movement that affects a limb at rest and stops for the duration of a voluntary movement. One of the cardinal clinical features of PD.

Rigidity
Abnormal stiffness in a limb or other body part. One of the cardinal clinical features of PD, rigidity is often most apparent when a clinician moves a patient’s limb.

Serotonin
Brain chemical that may be deficient in some cases of depression and whose role in PD is under investigation.

Sinemet
Brand name of the most commonly prescribed version of the drug levodopa, consisting of a combination of levodopa and carbidopa.

Sleep disorders
Chronic troubles with amount, duration or quality of sleep. Many people with PD do not feel rested and have daytime sleepiness. Both PD and medications can contribute to sleep disturbances.

Speech disorders
Symptoms of slurring words, decreased volume and tone of speech, and hoarseness of voice that affect up to 90% of people with PD at some time in the course of their disease. Speech therapy is the recommended treatment as these symptoms do not respond to dopamine-replacement therapies.

Striatum
Sometimes called the corpus striatum, it is the largest component of the basal ganglia, and controls movement, balance, and walking. Loss of dopamine here is responsible for many of the symptoms of PD.

Substantia nigra
Latin for "black substance," the substantia nigra is a part of the basal ganglia that is rich in dopamine-producing nerve cells and the pigment neuromelanin. Loss of nerve cells from this region leads to a dopamine deficit and subsequently to Parkinson’s symptoms.

Subthalamic nucleus
Nerve center near the substantia nigra. May be targeted for deep brain stimulation to reduce symptoms.

Support Groups
Many people find that support groups are tremendously effective in helping them cope with the daily realities of having PD. Visit wiparkinson.org for a listing of groups in your area.

Symptomatic
1. Term used by people with PD to describe the state in which they are strongly affected by symptoms and in which their medication or treatment regimen is providing little to no relief.
2. Pertaining to treatments that affect the symptoms of a disease but not the underlying actions that cause the disease to progress. All currently available therapies for PD are symptomatic, meaning that they do not slow the biological disease progression.

Thalamus
A mass of gray matter (nerve cells) located deep in the brain. Responsible for motor control and serves as a relay center for sensory signals.

Tremor
Involuntary, uncontrollable, rhythmic movements (fast or slow) that may affect the hands, head, voice or other body parts. Resting tremor is one of the cardinal clinical features of PD.

Wearing off
Refer to times when medication loses benefit and symptoms return. As disease progresses, this can come on before the next medication dose is due. Onset can be gradual or sudden and unpredictable.

Young-onset Parkinson’s disease
A rare form of PD characterized by onset of symptoms before age 50.