

# Parkinson Disease

**P**arkinson disease involves the nervous system, specifically, movement and control of muscles. Parkinson disease affects more than 1 million individuals in the United States. Because it is more common in older persons, the **incidence** (number of new cases) of Parkinson disease is increasing as the population grows older. Parkinson disease was first described in 1817 and was originally called “shaking palsy.” Medical researchers later discovered that parkinsonian symptoms were due to degeneration of nerve cells in an area of the brain called the **substantia nigra**. These cells supply **dopamine**, a chemical that modulates movement, to other areas of the brain called the **basal ganglia**. Parkinson disease is progressive and leads to severe limitations in activity and quality of life if the disorder is not treated. **Neurologists** (doctors who specialize in treating diseases of the nervous system) and **neurosurgeons** (doctors who specialize in surgery of the nervous system) individualize each person’s treatment to manage the symptoms and slow the progress of Parkinson disease. The January 21, 2004, issue of *JAMA* includes an article about treatment of Parkinson disease.

## SYMPTOMS

- Rigidity—stiffness of arms, legs, face, and posture
- Tremor—shaking of the head, face, arms, legs, and hands; not everyone who has Parkinson disease has a tremor
- Slowness of movement—also called **bradykinesia**
- Instability—unstable gait, poor balance

## MEDICAL TREATMENT

- Levodopa (a synthetic medication) replaces dopamine for patients with Parkinson disease, improving symptoms of tremor and rigidity.
- Carbidopa helps reduce adverse effects of levodopa and increases the amount of dopamine in the brain (and not in the rest of the body).
- Several other medications are available to decrease symptoms or slow the progression of Parkinson disease.
- Antidepressants may be prescribed if depression occurs.

## SURGICAL THERAPY

- **Pallidotomy**—a probe delivering electrical current is used to create a permanent **lesion** (scar) in a specific area of the brain (the **globus pallidus**) to lessen rigidity, tremor, and abnormal movements (**dyskinesias**).
- **Thalamotomy**—electrical current creates a small, permanent lesion in the area of the brain called the thalamus. This helps reduce tremor and rigidity.
- **Deep brain stimulation**—an electrode is placed into a specific deep brain structure. Electrical current is delivered continuously to control tremor, rigidity, or bradykinesia. This requires a small generator (like a heart pacemaker) to be placed under the collarbone.

An operation may help persons with Parkinson disease, especially if medical therapy has failed to slow the disease process or if intolerable adverse effects occur from medications. Because these operations involve the brain, there are significant risks involved. The risks and benefits of surgical therapy should be discussed with a neurologist and neurosurgeon. This type of surgery does not replace medical therapy, but it may lessen the amount and types of medications a patient takes.

## FOR MORE INFORMATION

- National Institute of Neurological Disorders and Stroke  
[www.ninds.nih.gov](http://www.ninds.nih.gov)
- American Parkinson Disease Association  
888/400-2732  
[www.apdaparkinson.org](http://www.apdaparkinson.org)
- Parkinson’s Disease Foundation  
800/457-6676  
[www.pdf.org](http://www.pdf.org)
- National Parkinson Foundation  
[www.parkinson.org](http://www.parkinson.org)

## INFORM YOURSELF

To find this and previous JAMA Patient Pages, go to the Patient Page link on *JAMA*’s Web site at [www.jama.com](http://www.jama.com). Many are available in English and Spanish. A Patient Page on Parkinson disease was published in the October 18, 2000, issue.

Sources: National Institute of Neurological Disorders and Stroke, American Parkinson Disease Association, National Parkinson Foundation, Parkinson’s Disease Foundation

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