

## Parkinson's Disease: The Basics

### WHAT IS PARKINSON'S DISEASE?

Parkinson's disease (PD) is a neurologic condition caused by insufficient levels of dopamine, a chemical that is essential for normal movements, in the brain. The disease affects about 1 percent of people older than 60 years of age, and it affects more men than women. In early-onset Parkinson's disease, symptoms appear before the age of 50. Some reports suggest that 10 percent of all cases are early onset.

### WHAT ARE THE RISK FACTORS?

- ▶ **Age:** The disease ordinarily begins in middle or late life, and the risk continues to increase with age.
- ▶ **Heredity:** Having a close relative with the condition increases the chances that you'll also develop the disease; however, your risks are still small unless you have many relatives in your family with the condition.
- ▶ **Sex:** Men are more likely to develop the disease than women.
- ▶ **Exposure to toxins:** Ongoing exposure to herbicides and pesticides may put you at a slightly increased risk.

### WHAT ARE THE SYMPTOMS?

Recent research has found that Parkinson's disease begins years and possibly decades before motor problems appear. The earliest motor symptom usually involves a subtle tremor in the hands. Other symptoms may include:

- ▶ Loss of the ability to smell, trouble swallowing, a soft voice
- ▶ Trembling in the hands, arms, legs, jaw, and face, along with rigidity of muscles in the arms, legs, and trunk
- ▶ Slow movements that may sometimes "freeze" entirely for a few seconds
- ▶ Smaller handwriting
- ▶ Trouble with balance and coordination
- ▶ Depression and other mood changes, difficulty sleeping
- ▶ Difficulty planning and carrying out tasks, memory problems
- ▶ Constipation

### HOW IS IT TREATED?

While there is no cure, the motor problems can be controlled through medications that restore dopamine function. A common combination involves levodopa, which the nerve cells in the brain can use to make dopamine, and carbidopa, which delays the conversion of levodopa into dopamine until it is in the brain. Other drugs are often used to facilitate the action of dopamine-enhancing medications. Over time, levodopa and related drugs may produce involuntary movements (dyskinesias). Some patients benefit from deep brain stimulation, in which electrodes are implanted deep in their brain and attached by a wire to a device implanted under their skin. The device sends electrical pulse signals to the electrodes, which may help reduce symptoms as well as the dyskinesias that sometimes develop from drugs used to treat the disease.

### WHAT RESEARCH IS BEING DONE?

Current research funded by the National Institute of Neurological Disorders and Stroke ([ninds.nih.gov](http://ninds.nih.gov)) is using animal models to study how the disease progresses and to develop new drug therapies that can delay, prevent, or reverse the disease. Scientists looking for a cause continue to search for possible environmental factors, such as toxins, that may trigger the disorder, and to study genetic factors.

For more Neurology Now articles on Parkinson's disease, go to [bit.ly/NN-ParkinsonsDisease](http://bit.ly/NN-ParkinsonsDisease).

For more resources and support, contact:

- ▶ American Parkinson Disease Association: [apdaparkinson.org](http://apdaparkinson.org); 800-223-2732
- ▶ The Michael J. Fox Foundation for Parkinson's Research: [michaeljfox.org](http://michaeljfox.org); 800-708-7644
- ▶ The Parkinson's Foundation: [parkinsonsfoundation.org](http://parkinsonsfoundation.org); 800-457-6676, 800-4PD-INFO (473-4636)

SOURCES: NATIONAL LIBRARY OF MEDICINE; NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE; NEUROLOGY NOW.