

Parkinson's Disease: The Basics

WHAT IS PARKINSON'S DISEASE?

Parkinson's disease (PD) is a neurologic condition caused by insufficient levels of dopamine in the brain. The neurotransmitter (chemical messenger), dopamine, is essential for normal movements. PD 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
- Diminished facial expression, a soft voice, and small handwriting
- Trembling in the hands, arms, or legs that tends to begin on one side of the body
- Rigidity of muscles in the arms, legs, and trunk
- Slower movement; in advanced stages, hesitancy or transient freezing of movement may develop
- Trouble with balance and coordination
- Depression and other mood changes, difficulty sleeping
- Difficulty planning and carrying out tasks, memory problems

HOW IS IT TREATED?

While there is no cure, the motor problems can be controlled with medications that restore dopamine function. A common medication is a combination of levodopa, which nerve cells in the brain use to make dopamine, and carbidopa, which delays conversion of levodopa into dopamine until it reaches the brain. Many other dopamine-enhancing medications are also available for treating PD. Over time, levodopa and related drugs continue to relieve symptoms. However, the majority of patients develop motor fluctuations (periods where the effects of the drug wear off) as well as involuntary movements (dyskinesias). Some patients benefit from deep brain stimulation, where electrodes are implanted deep in the brain and attached by a wire to a stimulator device implanted under the skin. The device sends electrical signals to the electrodes, which reduces fluctuations and dyskinesias.

WHAT RESEARCH IS BEING DONE?

Current research funded by the National Institute of Neurological Disorders and Stroke (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 study genetic and environmental factors that may trigger the disorder.

For more *Brain & Life* articles on Parkinson's disease, go to BrainLifeMag.org/Parkinsons.

For more resources and support, contact:

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

PUBLICACIONES EN ESPAÑOL: *Brain & Life* en Español y Basics en Español disponibles ya en BrainandLife.org; Enfermedad de Parkinson: Esperanza en la Investigación: bit.ly/NINDS-Parkinsons-Espanol

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