



Parkinson's Disease

VA Research has six Centers of Excellence focused on Parkinson's disease, based in Houston, Philadelphia, Portland, Richmond, San Francisco, and Los Angeles. Researchers at these sites are studying the biochemical pathways involving dopamine—a brain chemical implicated in Parkinson's disease—and testing a variety of treatment approaches, including medication, surgery, and electrical stimulation.

Examples of VA research advances

- **Deep-brain stimulation being tested**—VA is co-leading a clinical trial comparing drug therapy with deep-brain stimulation. In deep-brain stimulation, thin wires are implanted in the brain and electrical pulses are delivered from a pacemaker-like device to the areas of the brain where tremors originate. The procedure appears to dramatically improve movement symptoms for some patients.
- **Sleep trouble in Parkinson's tied to specific brain cells**—The sleep abnormalities seen in many people with Parkinson's disease—sleep attacks during the day and poor sleep at night—may be due to a lack of brain cells that make a chemical called hypocretin, according to research by a team with VA and the University of California, Los Angeles. In the study, the researchers examined 16 brains from cadavers—5 from normal adults and 11 in various stages of Parkinson's. They found an increasing loss of hypocretin cells with disease progression—up to a 62-percent loss in stage 5 Parkinson's.
- **Adult stem cells may replace depleted brain cells**—VA researchers in Richmond are exploring the use of adult stem cells that, when transplanted into the brain, may transform into dopamine-producing neurons to help combat Parkinson's.
- **Possible link to toxins**—At least two groups of VA researchers are studying whether exposure to neurotoxins may trigger Parkinson's disease.

Facts About Parkinson's Disease

Parkinson's disease is a disorder of the central nervous system resulting in rigidity of the muscles, delayed movement, poor balance, and tremors. It affects as many as 1.5 million Americans, mostly people over age 50. Some 50,000 new cases are diagnosed annually. VA treats at least 40,000 veterans with this debilitating disorder each year. Parkinson's patients have a progressive loss of the brain chemical dopamine, caused by the death of dopamine-producing nerve cells. Experts suspect that a combination of genetic and environmental factors are responsible for this loss.

