



Parkinson's Disease (PD)

PD is a slowly progressive neurodegenerative brain disorder associated with certain pathological brain changes (accumulation of alpha-synuclein protein as Lewy bodies within neurons and progressive loss of dopamine (DA) producing neurons in an area of the brain called the substantia nigra). DA is a chemical that relays messages between brain areas to help regulate muscle movements, cognition and emotions. When 60 to 80% of the DA producing cells are lost, symptoms of PD appear. Symptoms begin gradually, often on one side of the body. Symptoms can be **motor** (tremor, stiffness, slowness of movement, poor balance), **non-motor** (cognitive changes, depressed mood, sleep problems, autonomic dysfunction) or **mixed** (speech and swallowing difficulty). Most symptoms take years to develop, and people live for years with the disease. PD itself is not fatal, but complications from PD are serious.

Risk Factors

Most (80%) cases of PD are idiopathic. The rest represent secondary parkinsonism related to possible causes that affect DA production in the brain.

Inheritance: *There is no conclusive evidence that PD is a hereditary condition, apart from exceptionally rare cases with many affected family members. About 10 percent of people with PD will have a relative who is also affected. It is thought that some people may have genes that increase the possibility of developing PD.*

Age: *PD usually begins around age 60, but it can start earlier. Risk increases with age.*

Gender: *PD is more common in men than in women. It is not known whether this is due to genetic factors, hormones or differences in behavior.*

Health and lifestyle: *There is a small increase in risk of PD in people exposed to certain herbicides and pesticides, and among those who have had prior head injuries or certain brain infections. Other factors that may be linked to higher risk of PD include rural living, well water, and manganese. **However, there is no conclusive evidence that any environmental factor, alone, can cause PD.** Most individuals exposed to these factors will not go on to develop PD.*

Treatment

There is no cure for PD. A variety of medicines can help symptoms, especially early in the disease. Surgery and deep brain stimulation (DBS) can help severe cases. With DBS, electrodes are surgically implanted in the brain. They send electrical pulses to stimulate the parts of the brain that control movement. Some forms of physical activity and rehabilitation have shown some effectiveness at improving symptoms. Moderate to vigorous exercise may help slow progression, and improve mobility in those already diagnosed with the disease. No diet can treat PD, but a healthy and balanced diet may improve general well-being and manage symptoms such as constipation.

Risk Reduction

Avoiding prolonged exposure to certain agricultural pesticides, and avoidance of head traumas may reduce risk of PD. Drinking coffee or tea, nicotine from cigarettes, regular use of anti-inflammatory medications, adequate vitamin D levels and exercise all appear to be associated with lower risk of PD. Research suggests moderate to vigorous exercise may have a neuroprotective effect, reducing the risk of developing PD.

(From: National Institutes of Health, National Parkinson Foundation, Centers for Disease Control and Prevention)