

# [Parkinson’s disease essay](https://assignbuster.com/parkinsons-disease-essay/)

Parkinson’s disease refers to a progressive neurological disorder that affects one’s movement, causing shaking (tremor), rigidity (muscle stiffness), slowed movement, and impaired balance among other dominant symptoms. Parkinsonism is the condition that brings about a syndrome of movement abnormalities witnessed in Parkinson’s disease (as listed above), usually emanating from the absence/death of brain nerve cells that produce dopamine (Christensen 1). Dopamine is a chemical that transmits impulses which facilitate the coordination of body movements. As the symptoms become more pronounced, individuals suffering from Parkinson’s disease may experience difficulties in walking, speech, or completing certain basic tasks. Patients suffering from Parkinson’s disease may also exhibit other problems like depression, chewing and swallowing trouble, sleep disorders, and speech problems (Public Health and Genetics Information Series 1-2).

The disease usually affects people above the age of 60 years, but it can still begin earlier. With all the research and studies conducted on this disease, it still has no exact cure (Mayo Clinic 2011). However, several factors seem to play a crucial role in bringing about Parkinson’s disease in individuals. Firstly, while Parkinson’s disease is sporadic in most individuals, medical researches and scientific studies reveal that about 15-20% of individuals suffering from this disease have a family member with the disease, especially those who display symptoms at an early age (Public Health and Genetics Information Series 2). These studies have further identified several genes (in families with hereditary PD) that researchers believe play a key role in afflicting Parkinson’s disease upon individuals. The study of these genes will help demystify the causes of Parkinson’s disease and could lead to new therapies. As of now, they have identified five such genes, which include SNCA, PARK2, PARK7, PINK1, and LRRK2. Moreover, some evidences that link certain environmental toxins to the onset of the disease also exist, and some are still under intensive research.

Scientists contend that internal or external toxins may specifically destroy the brain cells that produce dopamine, triggering Parkinson’s disease (Public Health and Genetics Information Series 2). Some of the toxins linked to Parkinson’s include manganese, carbon disulfide, carbon monoxide, and some pesticides. Scientists also believe that oxidative stress may cause Parkinson’s disease. Inthis case, the brain may lack the necessary mechanisms to rid itself of the free radicals present in it, resulting in increased reactions between the free radicals and other molecules such as iron. This reaction damages tissues and neurons that produce dopamine, effectively igniting the on-set of Parkinson’s disease (Public Health and Genetics Information Series 2). The other conditions and/or medications that can cause Parkinson’s disease include antipsychotics, street drugs, blood vessel disorders, and Shy-Drager syndrome (SDS).

Just like there is no known cause of Parkinson’s disease, there is no cure for the disease as well (Mayo Clinic 2011; Public Health and Genetics Information Series 3). However, some forms of medication can help to reduce certain symptoms of the disease, and sometimes surgery may be recommendable. Moreover, a physician may recommend lifestyle or behavioral changes like exercise, healthy diet, and physical therapy in addition to medications. Most of the medications physicians will prescribe aim at helping a patient with walking, tremor, and movement by boosting the supply of dopamine to the brain (Mayo Clinic 2011). However, over time, the benefits associated with the drugs often become less consistent or diminish, although they keep symptoms under a fair control. Levodopa is an example of medication that physicians usually prescribe. This drug is the most effective in treating Parkinson’s disease, and it is a drug that physicians exclusively combine with other medications. Levodopa is a chemical substance that occurs spontaneously in the body, but when taken by mouth as a pill, it gets to the brain where it gets converted to dopamine. When levodopa combines with carbidopa, the compound forms the drug called Sinemet (Public Health and Genetics Information Series 3). The purpose of the carbidopa is to prevent the premature conversion of levodopa to dopamine outside the brain, which would cause nausea (Mayo Clinic 2011). However, as the disease grows, the effectiveness of levodopa may destabilize or wear off, necessitating medical adjustments.

Levodopa has several side effects, some of which include dyskinesia (involuntary movements). It may also lower the patient’s blood pressure when standing (Mayo Clinic 2011). Another form of medication used to control Parkinson’s disease is Dopamine agonist. These drugs do not convert to dopamine like levodopa, but rather mimic dopamine’s effects in the brain, causing neurons to react in the same way they would react were dopamine present. Dopamine agonists are, however, not as effective as levodopa, although they last longer. Examples include pramipexole, ropinirole as well as apomorphine (Mayo Clinic 2011, Public Health and Genetics Information Series 3). Their side effects include hallucinations, water retention, sleepiness, and lower blood pressure in a standing posture. Dopamine agonists may as well boost one’s compulsive behaviors like hypersexuality, compulsive overeating, or gambling. Patients who begin experiencing these anomalies should talk to their physicians. Other forms of medication available include MAO-B inhibitors, Catechol-O-methyltransferase (COMT) inhibitors, anticholinergics, and glutamate (NMDA) blocking drugs (Mayo Clinic 2011). Apart from medication, physicians may recommend some behavioral changes and physical therapy in order to aid the aversion of Parkinson’s disease symptoms. Exercise maintains function in Parkinson’s disease by improving mobility, muscle tone, and range of motion. It will also maintain muscle strength and agility, making the patient feel capable and confident. In cases involving patients with advanced Parkinson’s disease, surgery (Deep Brain Stimulation) may be recommended, whereby an electrode gets implanted in the patient’s brain sector that controls movement. A pacemaker-like device placed below the skin on the patient’s upper chest and connected to the electrodes by a wire that runs under the skin regulates the electrode. This method stabilizes medication fluctuations as well as eliminating dyskinesia (Public Health and Genetics Information Series 4). However, this procedure may lead to brain hemorrhage or stroke.

Parkinson’s disease falls under the category of the most regular movement disorders. It affects 1% of people above the age of 60 years in the U. S., and it is about 1. 5 to 2 times more prevalent in men than in women (Public Health and Genetics Information Series 1). The disease has significant negative economic impacts, including income loss, cost of healthcare, and the cost of treatment, all of which amount to about $1. 1 billion globally. Parkinson’s disease is chronic and progressive (Christensen 2). Although some patients suffer severe disabilities, others suffer minor motor disruptions. In addition, tremors form the principal symptom in some patients, while tremor is just a minor complaint for others who experience alternative more troublesome symptoms (Christensen 3). As such, no person can predict with certainty what symptoms different individuals will exhibit. Moreover, the severity of the symptoms varies from one individual to the other.