


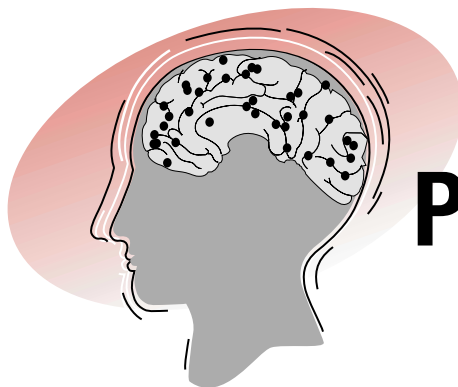
## About the author...

 Société Parkinson du Québec  
Parkinson Society Quebec

The Parkinson Society of Quebec (PSQ) is a non profit organization dedicated to enhancing the lives of people with Parkinson's. You can reach the Society by phone at (514) 861-4422 or 1-800-720-1307 or on their web site at: [infoparkinson.org](http://infoparkinson.org)

They also offer many services:

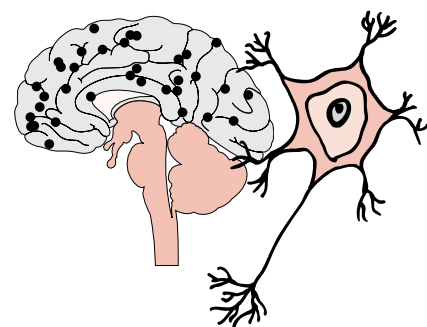
- > Assistance in creating and promoting peer support groups, exercise sessions, and carepartner programs
- > Publication and distribution of information material, the InfoParkinson Bulletin and the national magazine The Parkinson Post
- > Training health professionals
- > Conferences on Parkinson's Disease
- > Research support



# PARKINSON'S DISEASE

## What is Parkinson's Disease?

Parkinson's Disease (PD) is a progressive neurodegenerative illness characterized mainly by problems with movement. Unlike the situation which exists in many other neurological diseases, the abnormality at the basis of Parkinson's is known. It is the loss of cells in a part of the brain called substantia nigra (black substance). These cells are responsible for producing a chemical called dopamine which acts as a messenger between the brain cells that control movement, hence its name of neurotransmitter. It is estimated that by the time the diagnosis is made, approximately 80% of the dopamine-producing cells have already stopped functioning. The resulting significant



decrease in dopamine leads to the appearance of the symptoms of Parkinson's disease.

Fortunately, there are many drugs available today to offset the lack of dopamine. It is therefore possible to adequately control the disease's symptoms and thus, maintain an excellent quality of life for many years after the disease has been diagnosed. Unfortunately, there is no medication to slow or stop the progression of the disease.

### HOW PREVALENT IS PARKINSON'S?

It is estimated that nearly 100,000 people in Canada have Parkinson's, with 25,000 cases in Quebec. Symptoms generally appear around age 60 but can also appear in the young adult. However, the number of cases increases with age, with the disease affecting 1% of the population over 65 and increasing to 2% in the population aged 70 and older.

Generally, regardless of the age at which the disease appears, the symptoms are quite similar, although certain differences are recognized when it starts before age forty. It seems that dystonia (involuntary muscle contraction) is more frequent in younger people and that the motor fluctuations and dyskinesia (involuntary movements) associated with levodopa treatment appear much earlier in this group. On the other hand, trembling is less common in younger people and cognitive disorders (memory impairment, concentration difficulties) are also more rare.

### THE CAUSES OF PARKINSON'S DISEASE

It is not known exactly what causes Parkinson's disease. Some hypotheses offer interesting explanations without however explaining its exact origin.

Let's first look at the environmental (toxic) hypothesis whereby products of the environment would contribute to the development of Parkinson's. Some researchers claim that people in rural areas are more at risk of developing Parkinson's, placing the blame on factors such as well water and pesticides. Once

again, these statements have never been proven and are strictly assumptions.

The genetics theory stems from the discovery in recent years of genes involved in Parkinson's disease. We know that people who have one parent with Parkinson's present a higher risk of having the disease themselves. Recent studies have shown that the genetic contribution is particularly significant in those who develop Parkinson's disease when they are young.



Who is right? Who is wrong? The truth lies probably in a combination of toxic and genetic factors. Moreover, the people most likely to develop Parkinson's disease are perhaps those with a genetic predisposition who, once exposed to certain environmental toxins, will develop symptoms of Parkinson's disease.

### SYMPTOMS OF PARKINSON'S DISEASE

The clinical appearance of Parkinson's disease is marked by four key, or cardinal, signs:

- 1- trembling at rest
- 2- akinesia and bradykinesia
- 3- rigidity
- 4- postural instability



**1 Trembling at rest**

Trembling at rest is the most recognized sign of Parkinson’s disease. In 70 % of patients, it is the first sign to appear. Trembling generally starts unilaterally (meaning on only one side of the body) in the hand or foot. It appears as alternate flexion and extension of the fingers; adduction and abduction of the thumb as when crumpling something. As the disease progresses, the trembling may eventually affect the opposite arm and leg as well. The main characteristic of this trembling is that it improves during the execution of voluntary movements. This «resting» feature distinguishes it from other forms of trembling.

**2 Akinesia/ bradykinesia (slowness)**

Akinesia and bradykinesia are signs which, clinically, are defined as scarcity (akinesia) and slowness (bradykinesia) of movements. In the face, these signs appear as a decrease in facial expression and blinking of the eyes. Some people are affected by an excess of saliva in the mouth, a direct result of slowed swallowing. The voice may become monotonous and low. There are also difficulties in the execution of movements as well as slowness of execution. This results in a decrease in fine dexterity, and the person may experience difficulty buttoning clothes or shaving, will walk slower and have a tendency to take small steps.

**3 Rigidity**

Rigidity is an increase in muscle tone. Most often, the patient reports stiffness and describes no other clinical symptoms of rigidity. Rigidity is mainly a sign noted by the physician during a physical exami-

nation and is especially useful in establishing a diagnosis. Rigidity may appear as a decrease in arm swing on the side of the body affected by Parkinson’s disease.

**4 Postural instability**

Postural instability is a late sign of Parkinson’s disease, which appears after many years of progression. The person will have problems with balance which will cause increasingly frequent falls. This is probably the most disabling symptom as mobility is reduced and the person’s safety during movement. If postural instability appears very early, it is most likely symptomatic of a disease other than classic Parkinson’s, that is to say idiopathic.

In summary, the main features that enable a diagnosis of the disease are the presence of two of the following three factors: trembling at rest, bradykinesia, and rigidity. Lastly, it is important to know that a person with Parkinson’s may also experience any of the following symptoms:

- Seborrheic dermatitis (greasier skin, especially around the nose and eyebrows, and a greasier scalp)
- Increased sweating
- Decreased sense of smell
- Constipation
- Increase in urinary frequency
- Dizziness when standing (orthostatic hypotension)
- Non-specific sensory symptoms – numbness, pain, burning sensation, restlessness and fatigue
- Sleep disorder
- Depressive condition.



**DEVELOPMENT OF PARKINSON'S DISEASE**

How the disease will develop in time is hard to predict. Some people with Parkinson's see their symptoms progress over many decades while others will see their condition deteriorate faster. Chart below summarizes the typical progress of Parkinson's in a patient who is not being treated. It provides a very simplified picture of the typical evolution: the disease starts on one side, then affects both sides, and eventually, balance difficulties appear. However, with today's medicine (medication or surgery), few people ever reach stage 5.

|                |   |
|----------------|---|
| <b>STAGE 1</b> | Symptoms are unilateral and include at least two of the three following symptoms: trembling at rest, rigidity, and akinesia.                            |
| <b>STAGE 2</b> | Symptoms become bilateral and can include speech problems, deformed posture and trouble walking.  |
| <b>STAGE 3</b> | Bilateral symptoms worsen and balance difficulties can appear. The person's autonomy is usually not affected.   |
| <b>STAGE 4</b> | Disability is evident, but the person's autonomy is usually not affected. Bradykinesia has increased and fluctuations (if present) are more pronounced. |
| <b>STAGE 5</b> | The person is confined to a wheelchair or bedridden.  |

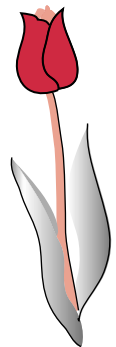
Chart: The « typical » evolution of PD – Hoehn and Yahr Scale (1967)

**AVAILABLE MEDICAL TREATMENTS**

Today, there are many classes of medication available to treat the symptoms of Parkinson's disease. These classes of medication call for two strategies:

- > Replacing the missing neurotransmitter, dopamine
- > Rebalancing the levels of acetylcholine and dopamine.

Talk to your doctor about your treatment.



The Collection "Between You & I" is published by a group of Residents' Committees (*Users' Committee in accordance with the Act*) from some Residential and long term care centres (CHSLD).

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*The masculine form used in this document implies the feminine form and has been used solely to facilitate reading.*