

# What Is Parkinson's?

Parkinson's disease (PD) is a neurodegenerative disorder that affects predominately dopamine-producing (“dopaminergic”) neurons in a specific area of the brain called substantia nigra.

Symptoms generally develop slowly over years. The progression of symptoms is often a bit different from one person to another due to the diversity of the disease.

People with PD may experience:

- Tremor, mainly at rest and described as pill rolling tremor in hands. Other forms of tremor are possible
- Bradykinesia
- Limb rigidity
- Gait and balance problems

The cause remains largely unknown. Although there is no cure, treatment options vary and include medications and surgery. While Parkinson's itself is not fatal, disease complications can be serious. The Centers for Disease Control and Prevention (CDC) rated complications from PD as the 14th cause of death in the United States.

The first step to living well with Parkinson's disease is to understand the disease and the progression:

It is possible to have a good to great quality of life with PD. Working with your doctor and following recommended therapies are essential in successfully treating symptoms by using dopaminergic medications. People with PD need this medication because they have low levels or are missing dopamine in the brain, mainly due to impairment of neurons in the substantia nigra.

It is important to understand that people with PD first start experiencing symptoms later in the course of the disease because a significant amount of the substantia nigra neurons have already been lost or impaired. Lewy bodies (accumulation of abnormal alpha-synuclein) are found in substantia nigra neurons of PD patients.

Scientists are exploring ways to identify biomarkers for PD that can lead to earlier diagnosis and more tailored treatments to slow down the disease process. Currently, all therapies used for PD improve symptoms without slowing or halting the disease progression.

In addition to movement-related (“motor”) symptoms, Parkinson's symptoms may be unrelated to movement (“non-motor”). People with PD are often more impacted by their non-motor symptoms than motor symptoms.

Examples of non-motor symptoms include apathy, depression, constipation, sleep behavior disorders, loss of sense of smell and cognitive impairment.

In idiopathic Parkinson's disease, progression tends to be slow and variable. Doctors often use the Hoehn and Yahr scale to gauge the progression of the disease over the years. The scale was originally implemented in 1967 and it included stages zero to five, where zero is no signs of Parkinson's and five is advanced PD. It was later changed to become the modified Hoehn and Yahr scale.

## Causes

Scientists believe a combination of genetic and environmental factors are the cause of Parkinson's disease (PD). PD is an extremely diverse disorder. While no two people experience Parkinson's the same way, there are some commonalities. PD affects about one million people in the United States and ten million worldwide. The main finding in brains of people with PD is loss of dopaminergic neurons in the area of the brain known as the *substantia nigra*.

## Genetics

Genetics cause about 10 to 15 percent of all Parkinson's. Over the years, scientists have studied DNA from people with Parkinson's, comparing their genes. They discovered dozens of gene mutations linked to Parkinson's.

PD GENERation: Mapping the Future of Parkinson's Disease, is a first-of-its-kind national initiative that offers free genetic testing for clinically relevant Parkinson's-related genes and free genetic counseling to help participants better understand their results.

## Environmental Factors

The interactions between genes and the environment can be quite complex. Some environmental exposures may lower the risk of PD, while others may increase it. Environmental risk factors associated with PD include head injury, area of residence, exposure to pesticides and more.

Parkinson's is caused by a combination of genes, environmental and lifestyle influences. The interaction of all three components determines if someone will develop Parkinson's.

## Who Has Parkinson's

- Nearly one million people in the U.S. are living with Parkinson's disease (PD), which is more than the combined number of people diagnosed with multiple sclerosis, muscular dystrophy and Lou Gehrig's disease (or Amyotrophic Lateral Sclerosis). This is expected to rise to 1.2 million by 2030.
- Approximately 60,000 Americans are diagnosed with PD each year.
- More than 10 million people worldwide are living with PD.
- Incidence of Parkinson's disease increases with age, but an estimated four percent of people with PD are diagnosed before age 50.
- Men are 1.5 times more likely to have Parkinson's disease than women.

## 10 Early Signs of Parkinson's

SYMPTOMS	WHAT IS NORMAL?
<p><b>TREMOR</b></p> <p>Shaking can be normal after lots of exercise, if you are stressed or if you have been injured. Shaking could also be caused by a medicine you take.</p> <p>Have you noticed a slight shaking or tremor in your finger, thumb, hand or chin? A tremor while at rest is a common early sign of Parkinson's disease.</p>	<p>Shaking can be normal after lots of exercise, if you are stressed or if you have been injured. Shaking could also be caused by a medicine you take.</p>
<p><b>SMALL HANDWRITING</b></p> <p>Has your handwriting gotten much smaller than it was in the past? You may notice the way you write words on a page has changed, such as letter sizes are smaller, and the words are crowded together. A change in handwriting may be a sign of Parkinson's disease called micrographia.</p>	<p>Sometimes writing can change as you get older, if you have stiff hands or fingers or poor vision.</p>
<p><b>LOSS OF SMELL</b></p> <p>Have you noticed you no longer smell certain foods very well? If you seem to have more trouble smelling foods like bananas, dill pickles or licorice, you should ask your doctor about Parkinson's.</p>	<p>Your sense of smell can be changed by a cold, flu or a stuffy nose, but it should come back when you are better.</p>
<p><b>TROUBLE SLEEPING</b></p> <p>Do you thrash around in bed or act out dreams when you are deeply asleep? Sometimes, your spouse will notice or will want to move to another bed. Sudden movements during sleep may be a sign of Parkinson's disease.</p>	<p>It is normal for everyone to have a night when they 'toss and turn' instead of sleeping. Similarly, quick jerks of the body when initiation sleep or when in lighter sleep are common and often normal.</p>

SYMPTOMS	WHAT IS NORMAL?
<p><b>TROUBLE MOVING OR WALKING</b></p> <p>Do you feel stiff in your body, arms or legs? Have others noticed that your arms don't swing like they used to when you walk? Sometimes stiffness goes away as you move. If it does not, it can be a sign of Parkinson's disease. An early sign might be stiffness or pain in your shoulder or hips. People sometimes say their feet seem "stuck to the floor."</p>	<p>If you have injured your arm or shoulder, you may not be able to use it as well until it is healed, or another illness like arthritis might cause the same symptom.</p>
<p><b>CONSTIPATION</b></p> <p>Do you have trouble moving your bowels without straining every day? Straining to move your bowels can be an early sign of Parkinson's disease and you should talk to your doctor.</p>	<p>If you do not have enough water or fiber in your diet, it can cause problems in the bathroom. Also, some medicines, especially those used for pain, will cause constipation. If there is no other reason such as diet or medicine that would cause you to have trouble moving your bowels, you should speak with your doctor.</p>
<p><b>A SOFT OR LOW VOICE</b></p> <p>Have other people told you that your voice is very soft or that you sound hoarse? If there has been a change in your voice you should see your doctor about whether it could be Parkinson's disease. Sometimes you might think other people are losing their hearing, when really you are speaking more softly.</p>	<p>A chest cold or other virus can cause your voice to sound different, but you should go back to sounding the same when you get over your cough or cold.</p>
<p><b>MASKED FACE</b></p> <p>Have you been told that you have a serious, depressed or mad look on your face, even when you are not in a bad mood? This is often called facial masking. If so, you should ask your doctor about Parkinson's disease.</p>	<p>Some medicines can cause you to have the same type of serious or staring look, but you would go back to the way you were after you stopped the medication.</p>
<p><b>DIZZINESS OR FAINTING</b></p> <p>Do you notice that you often feel dizzy when you stand up out of a chair? Feeling dizzy or fainting can be a sign of low blood pressure and can be linked to Parkinson's disease (PD).</p>	<p>Everyone has had a time when they stood up and felt dizzy, but if it happens on a regular basis you should see your doctor.</p>

SYMPTOMS	WHAT IS NORMAL
<p><b>STOOPING OR HUNCHING OVER</b></p> <p>Are you not standing up as straight as you used to? If you or your family or friends notice that you seem to be stooping, leaning or slouching when you stand, it could be a sign of Parkinson's disease (PD).</p>	<p>If you have pain from an injury or if you are sick, it might cause you to stand crookedly. Also, a problem with your bones can make you hunch over.</p>

## Diagnosis

There is no “one way” to diagnose Parkinson’s disease (PD). However, there are various symptoms and diagnostic tests used in combination. Making an accurate diagnosis of Parkinson’s — particularly in its early stages — is difficult, but a skilled practitioner can come to a reasoned conclusion that it is PD. It is important to remember that two of the four main symptoms must be present over a period of time for a neurologist to consider a PD diagnosis:

- Shaking or tremor
- Slowness of movement, called bradykinesia
- Stiffness or rigidity of the arms, legs or trunk
- Trouble with balance and possible falls, also called postural instability

Often, a Parkinson’s diagnosis is first made by an internist or family physician. Many people seek an additional opinion from a neurologist with experience and specific training in the assessment and treatment of PD — referred to as a movement disorder specialist.

The Parkinson’s Foundation recommends that a person with symptoms resembling those of PD consider making an appointment with a movement disorder specialist. To find a specialist in your community, call **their free Helpline at 1-800-4PD-INFO (473-4636) from Monday to Friday, 9:00 AM ET to 8:00 PM ET.**

# Treatment

There is no standard treatment for Parkinson's disease (PD). Treatment for each person with Parkinson's is based on his or her symptoms.

Treatment options include:

- Prescription Medications
- Physical Therapy
- Occupational Therapy
- Surgical Treatment Options
- Medical Marijuana
- Over the Counter and Complementary Therapies
- Exercise
- Clinical Therapies

Other treatments include lifestyle modifications, like getting more rest and exercise.

There are many medications available to treat the Parkinson's symptoms, although none yet that reverse the effects of the disease. It is common for people with PD to take a variety of these medications — all at different doses and at different times of day — to manage symptoms.

While keeping track of medications can be a challenging task, understanding your medications and sticking to a schedule will provide the greatest benefit from the drugs and avoid unpleasant “off” periods due to missed doses.

For more information on Parkinson's go to [www.parkinson.org](http://www.parkinson.org)