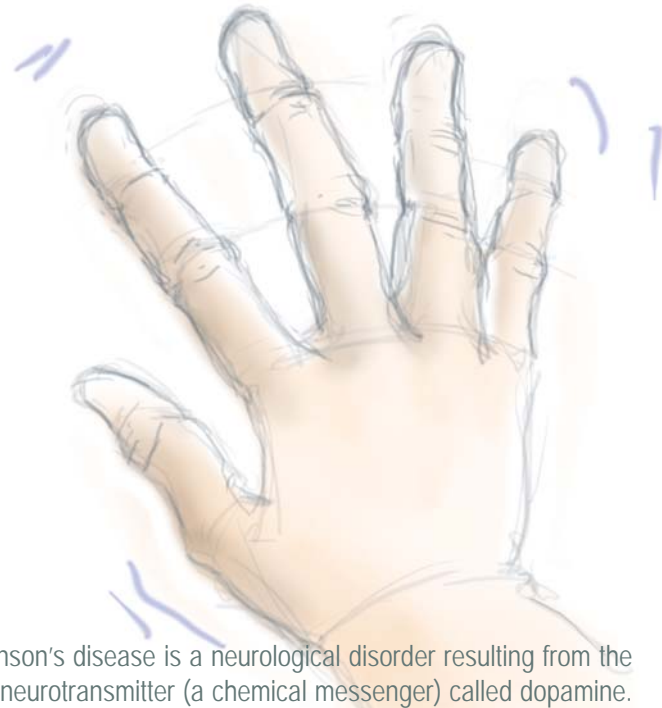




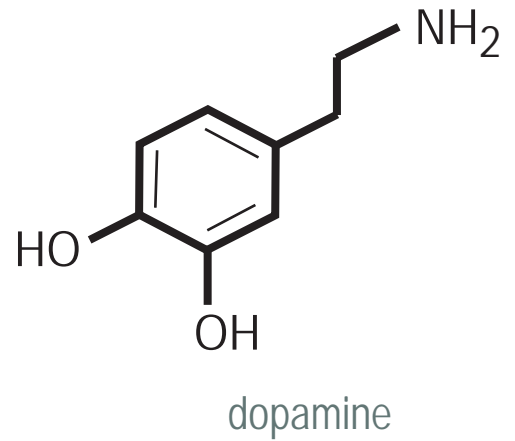
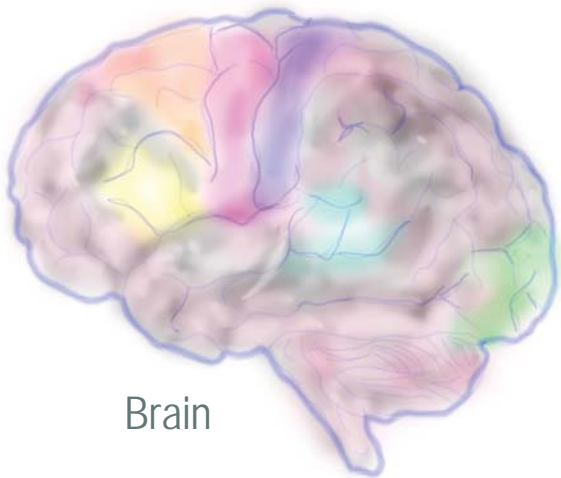
(dopamine)



**P**arkinson's disease is a neurological disorder resulting from the lack of a neurotransmitter (a chemical messenger) called dopamine. Dopamine is normally produced by certain nerve cells in the brain and is essential for balance and movement coordination. Degeneration of these nerve cells lead to a series of movement disorders associated with Parkinson's disease. In the United States, approximately 50,000 new cases of Parkinson's disease are diagnosed each year.

#### What are the symptoms of Parkinson's disease?

- Trembling in the hands, arms, legs, jaw and face
- Muscle stiffness in limbs and neck
- Slowness and difficulty in initiation of movement
- Impaired balance and coordination
- Problems with speech
- Loss of automatic movements such as blinking, smiling, and arm swinging when walking
- Problems with memory and mental clarity in later stages



#### What causes Parkinson's disease?

It is still unclear what causes the dopamine-producing nerve cells to degenerate, but scientists suspect that Parkinson's disease may be related to certain genetic and environmental factors. Although the vast majority of Parkinson's cases are not directly inherited, having a close relative with Parkinson's does increase a person's chances of developing the disease. Environmental factors such as ongoing exposure to toxins also put a person at a higher risk.

#### Who gets Parkinson's disease?

Parkinson's disease affects both men and women, and there are no social, ethnic, economic, or geographic boundaries. Incidences of Parkinson's disease increase with age. Cases in young adults are very rare. The average age of onset is 61, but it may begin as early as age 40 or before.

#### How is Parkinson's disease diagnosed?

There is no standard test to conclusively diagnose Parkinson's disease. In the early stages of the disease, diagnosis is difficult because the symptoms can be caused by other problems. However, an experienced physician or neurologist can make the diagnosis based on a detailed medical history and neurological examination. A variety of blood tests and brain scan can help to rule out other conditions that have similar symptoms.

#### How is Parkinson's disease treated?

There are a number of effective medications that help to reduce and control symptoms. Most Parkinson drugs are designed to imitate or prolong the effects of dopamine, or increase the supply of dopamine in the brain. Benefits of drugs may decrease over time, and medication adjustment is needed.

In some cases, surgical therapy may be helpful, especially for patients who have an unstable response to medications. Deep Brain Stimulation is the most common surgical procedure to treat Parkinson's disease. It involves placing a small electrode into the areas of the brain that control movement. The abnormal signals that cause the symptoms of Parkinson's disease are blocked by the electrical stimulation.

## Living with Parkinson's disease

1.

### 1. Staying Active

Exercise can improve balance, muscle tone, joint flexibility, bone strength, and blood circulation. Some exercise tips:

- Include stretching exercises; try Tai Chi, Yoga, and massage
- Wear comfortable shoes and clothing
- Avoid exercises that may cause pain or injury
- Set realistic goals and pace yourself
- Learn to recognize when you are tired
- Talk a physical therapist to develop an appropriate exercise program

2

### 2. Avoiding Falls

People with Parkinson's disease may fall more easily due to impaired balance and coordination. Some helpful suggestions:

- Walk or move slowly and carefully
- Strike the floor with your heel first when taking a step
- Make a U-turn instead of turning your body over your feet
- Avoid carrying things while walking
- Don't walk backwards
- Don't lean or reach

3.

### 3. Coping with Speech Problems

People with Parkinson's disease may notice that their voices become very soft, making it hard for others to understand what they are saying. Some helpful suggestions:

- Take a breath before you start to speak, and pause between phrases
- Use shorter sentences
- Speak louder than you think is necessary
- Encourage others to let you know if they cannot understand what you have said
- Ask your doctor to refer you to a speech therapist

Although Parkinson's is not generally considered to be a fatal disease, it does get worse over time. For the majority of patients, Parkinson's disease progresses very slowly. Over the years, new symptoms may develop or older ones may become more severe. In some cases, the disease can progress more rapidly. It is therefore recommended that patients receive regular evaluations for disease monitoring and medication adjustment.



