



## The Basics of Multiple Sclerosis

Multiple sclerosis (MS) is a disease that affects the central nervous system (CNS): the brain, spinal cord, and optic nerves. The damage caused by MS creates lesions or "scars" that can be seen on your brain and spinal cord. The process of developing lesions is called "sclerosis." So, MS actually means "many scars."

### What Happens in MS?

The CNS is made up of nerve cells that send signals to each other. Each nerve cell is covered with a protective coating called myelin. Myelin acts like insulation on an electrical wire. Myelin lets signals pass between nerve cells at high speeds. In MS, disease activity damages the myelin. This process is called "demyelination."

This damage leads to a breakdown in the signal. The symptoms you experience with MS are a result of this communication breakdown. Disease activity can also damage the underlying nerve cell, leading to permanent symptoms and disability.

### What Causes MS?

The cause of MS is unknown. It is thought to be an autoimmune disease. Normally, the immune system helps fight foreign invaders such as viruses and bacteria. In an autoimmune disease, something triggers the immune system to attack the body itself. Some health care providers think that MS may be triggered by an infection—probably a virus. However, MS is not contagious.

It is thought that this trigger activates a type of white blood cell called a "T cell." Once activated, the T cell starts to multiply. T cells cross the blood-brain barrier (BBB) to the brain and spinal cord. The T cells then begin a process that attacks and damages nerve cells in the CNS.

### Who Gets MS?

- 2.5 million people around the world have MS
- Approximately 400,000 people in the United States are diagnosed with MS
- More than twice as many women as men have MS
- Most people are aged between 20 and 50 years when they are diagnosed with MS
- MS is more common in people of Northern European descent, but people from all backgrounds get MS

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