

Six things to know about multiple sclerosis

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Multiple sclerosis (MS) is a disorder of the nervous system that affects about 1 million people in the United States. It usually begins between the ages of 20 and 40 and is the most common disabling neurological disorder of young adults.

Though there's no known cure for MS, treatments can help reduce flare-ups and manage symptoms. Claire Riley, MD, medical director of the Columbia University Multiple Sclerosis Center, where researchers are investigating new treatments, explains the basics of this disease.

1. What is multiple sclerosis (MS)?

Multiple sclerosis is a chronic disease. It's a disorder of the nervous system—[brain](#), [spinal cord](#), optic nerves—one of the most important systems that keep your body working, like the quarterback of the body's team.

When someone has MS, their immune system attacks the [myelin](#), the fatty substance that surrounds nerves in the brain and spinal cord to insulate them from destructive substances. This attack causes inflammation. Nerves then struggle to perform their main function: sending electrical signals to and from the brain.

Over time, MS can cause permanent damage or deterioration of the nerves. Myelin breakdown can lead to scar tissue buildup, known as sclerosis.

2. Why does MS happen?

We're still determining why. Research suggests that MS may be caused by a combination of genetic vulnerabilities and environmental factors. MS is not inherited—like the way we inherit eye color—but vulnerabilities in dozens of genes linked to MS may be passed down. Viral infections may also be involved. It's known, for example, that people infected with the Epstein-Barr virus during adolescence or adulthood have a higher risk of developing MS than people infected in childhood.

3. What are symptoms of MS?

MS symptoms vary depending on the location of the scars in the brain or spinal cord. Some people with MS have minor symptoms, like slight numbness or tingling of the fingertips. Other people with MS have severe symptoms, like losing the ability to walk independently. Either way, MS is a chronic condition.

MS symptoms include:

- Dizziness
- Fatigue (This is the symptom most likely to drive people out of the workforce; it's difficult to treat and presents a particular challenge because it is invisible)
- Muscle weakness
- Numbness or tingling
- Tremors or involuntary muscle movements (spasms)
- Difficulty concentrating and slowed processing speed
- Speech changes
- Vision changes, such as double vision or visual loss

4. How do you diagnosis MS?

There is no one test to diagnose MS. The first step is to localize the symptoms to a particular part of the nervous system by history and exam. Then, we look for evidence on MRI scans of brain and spinal cord, such as damage in two or more areas of the central [nervous system](#) that happened at different points in time. Then we exclude other causes of symptoms with lab tests, including blood and spinal fluid.

5. What's the best way to treat MS?

Mitigating risk factors is important: Avoid smoking, maintain a healthy body mass index, and get regular exercise.

Treating comorbidities like hypertension and diabetes is important in maintaining brain health and reducing the activity of [multiple sclerosis](#).

Our most effective therapies regulate the immune system to stop autoreactivity and inflammation directed against the myelin sheath that is so damaging in MS. Therapies may accomplish this in very different ways, but the common thread is breaking the cycle of autoreactivity.

6. What's the question everyone who has MS asks their doctor?

Most people want to know, "What behavioral changes can I make to improve outcomes?"

For most people the answer is: regular exercise, healthy diet, maintain a healthy weight, and do not smoke. Control of these factors can help.

Provided by Columbia University

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