



Understanding Multiple Sclerosis



Tim, diagnosed in 2004.



What Is Multiple Sclerosis?

Multiple sclerosis (MS) is a neurologic disorder that affects the central nervous system (CNS). The CNS includes the brain and spinal cord. In MS, the body's immune system begins to attack the nerves in the CNS. Nerves are like wires carrying information to and from the brain. Most nerves are covered with a layer called myelin. Myelin acts like insulation around the nerves. It allows signals to travel rapidly. In MS, the immune system attacks the myelin. This weakens or blocks the signals, leading to difficulty with normal brain or spinal cord functioning. The CNS partly recovers from these attacks, but the recovery is often incomplete.

Although MS is a long-term and serious condition, many people live full, successful, and satisfying lives with the disorder. Most people with MS have a normal or near-normal life span. Many people with MS do not become severely physically disabled.

Who Develops Multiple Sclerosis?

MS mainly occurs in young adults. The average age at diagnosis is 30. MS affects women more than men. It is more common among whites than those of African, Asian, or Hispanic descent. MS also occurs more often in people who live farther from the equator.

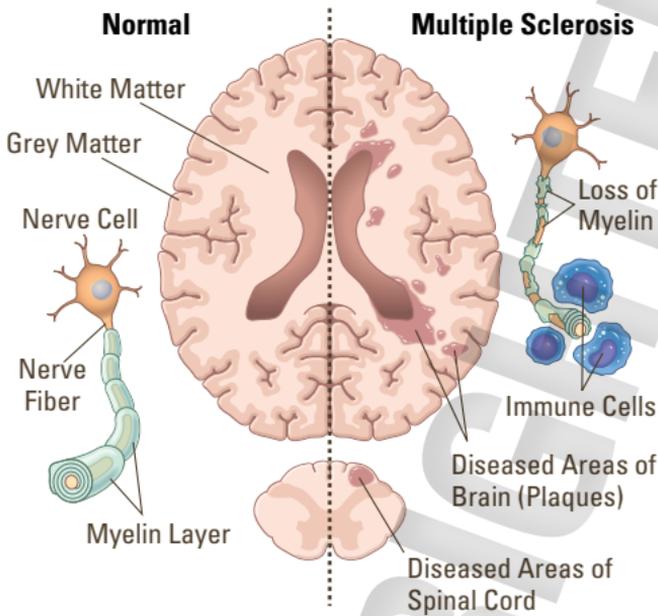
What Causes Multiple Sclerosis?

MS is an autoimmune disease whose cause or trigger is unknown. Autoimmune means the body's immune system attacks the central nervous system. Early exposure to some types of viruses or other infections has been linked to MS, but the evidence is mixed. While not a genetic disease, there may be genetic factors that make some people more likely than others to develop MS. MS is not contagious.

Did you know?

Neurologists are medical doctors who specialize in disorders of the brain and nerves. They are the specialists who most often diagnose and treat people with multiple sclerosis.

Cross Section of the Brain and Spinal Cord



What Are the Symptoms of Multiple Sclerosis?

There are several patterns of MS. At first, most people have **relapsing-remitting MS**. This means symptoms come and go. People can feel normal or close to how they felt before the MS attack until another happens. Symptoms usually build up over a period of hours to days. They can last for a few days or weeks and then go away, or remit. Attacks happen at irregular times. Some people do build up disability from repeated attacks.

Symptoms include:

- Vision loss
- Double vision
- Numbness or tingling
- Weakness or fatigue
- Unsteady walking

Over time, many people with relapsing-remitting MS develop a secondary form of the disorder. It is called **secondary-progressive MS**. This means symptoms slowly worsen, with no remissions. Attacks may still occur.

Only about 10 percent to 15 percent of people with MS have a very disabling form called **primary-progressive MS**. Symptoms gradually and progressively worsen from the onset. No relapses occur, and no recovery is noticeable. The rate of progression is very individual.

How Is Multiple Sclerosis Diagnosed?

Symptoms of MS can be like those of many other disorders. Therefore, a physician diagnoses MS by taking a detailed history and doing a neurologic examination and by ruling out other conditions. A neurologist or primary care physician may:

- Ask you carefully about your symptoms and when they occurred
- Test your neurologic function (such as walking, strength, reflexes, and sensitivity to touch)
- Examine your eyes for signs such as abnormal vision, abnormal appearance of the back of the eye, abnormal pupil responses, and changes in the way the eyes move
- Order magnetic resonance imaging (MRI) of the brain and often of the spinal cord to look for the lesions of MS
- Conduct a spinal tap (lumbar puncture) to see if abnormal immune activity in the spinal fluid is present and at times to rule out other disorders
- Test your blood to rule out other disorders

What Are the Treatment Options?

Many medications are available today to help people with MS. Some work to slow the progress of the disease and reduce the number of attacks. These are called disease-modifying treatments. Other medications can be helpful in managing some of the symptoms of MS, such as fatigue, stiffness, pain, bladder or bowel problems, or mood difficulties. Other treatments can also help shorten the course of symptoms during an attack.

The American Academy of Neurology recommends that treatment with one of the disease-modifying medications be considered as early after the diagnosis as possible. Talk with your neurologist about which of these treatments is best for you. Disease-modifying drugs are not designed to make you feel better, but they are likely to reduce the chances of you having relapses and getting worse.

Partnering with Your Neurologist

To provide the best care, your neurologist needs to know all about your symptoms and medical history. Likewise, you need to get answers to your questions. Keeping a notebook about your condition and bringing a few well-organized questions to your appointments can be helpful.

Living with Multiple Sclerosis

The experience of MS can be made more manageable. By engaging in healthy behaviors, you may reduce your MS symptoms and also improve your health and mood. Here are some tips:

Ask about physical therapy. Physical therapy can lessen some of the symptoms of MS, such as weakness or problems with balance. A physical therapist can demonstrate movement techniques and equipment that can make daily tasks easier or safer. Talk to your neurologist or primary care physician.

Avoid heat. Many people find that hot weather, a hot bath or shower, or a fever temporarily makes their symptoms worse. Avoid midday heat, bathe in warm rather than hot water, and use ice packs, iced drinks, and cool baths to reduce symptoms.

Eat a healthy, balanced diet. The recommended diet for people with MS is the same one recommended for all adults. That means plenty of fruits and vegetables, whole grains, high-fiber foods, cutting back on fat, and avoiding foods and drinks with added sugar.

Stop smoking. If you smoke, stop now. Recent studies have suggested that smoking may make MS get worse faster.

Exercise. Exercise can improve overall health and may prevent complications that arise from inactivity. Exercise can also improve your sleep, mood, and general functioning. Talk to your neurologist or primary care physician before starting an exercise program.

Reduce stress. There is no clear evidence that stress makes MS worse, but nobody feels well when they're stressed out. Learning ways to relax, accept what can't be changed, set life priorities, and simplify life can be helpful.

Connect with others. Many groups are available for people with MS, both in person and online. These can provide emotional support and helpful information. See the **Resources** section or talk to your neurologist or primary care physician about support groups in your area.

For Family and Friends

MS can take a toll on the family, too. If you care for a family member or friend with MS, take care of yourself, as well. Avoid the feeling that you have to do it all yourself. Get help from family, friends, and professionals. There are many support groups for caregivers. See **Resources** for organizations to contact.

Help Us Cure Brain Disease

Make a Donation to Research

The American Brain Foundation supports vital research and education to discover causes, improved treatments, and cures for brain and other nervous system diseases. To learn more or to make a donation to support research, visit www.CureBrainDisease.org.

Make Your Voice Heard

To keep research advancing toward future cures and treatments for brain disease, it is important for people affected by neurologic disorders to advocate for more research funding. Contact your members of Congress and ask them to support neurology research by increasing funding for the National Institutes of Health (NIH). Look up your Congressional representatives at www.senate.gov and www.house.gov. Your voice can make a difference.

Take Part in Research

People are needed for clinical trials that can help find new treatments for neurologic disorders. Clinical trials are research studies. They help ensure that new drugs are both safe and effective. Ask your neurologist how to volunteer for a clinical trial. You can also find trials through patient organizations or the American Academy of Neurology website at www.aan.com/view/clinicaltrials.

Resources

American Academy of Neurology

www.aan.com/patients

(800) 879-1960

The American Academy of Neurology website for patients and caregivers offers a wealth of articles, information about events and resources, and links to support groups, clinical trial information, and more.

Neurology Now® magazine

www.neurologynow.com

(800) 879-1960

Free magazine for patients and caregivers, courtesy of the American Academy of Neurology. Stories about people living with neurologic disorders, the latest information on resources and treatments, and more.

Multiple Sclerosis: A Guide for Patients and Families

www.aan.com/patients

(800) 879-1960

Free DVD and guidebook from the Foundation for the American Academy of Neurology for people who are newly diagnosed.

Multiple Sclerosis Association of America

www.msassociation.org

(800) 532-7667

Multiple Sclerosis Foundation

www.msfocus.org

(888) MSFOCUS / (888) 673-6287

National Multiple Sclerosis Society

www.nmss.org

(800) 344-4867



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