

# What is Multiple Sclerosis?

---

2 credit hour course

Multiple Sclerosis, or MS, is a chronic disease, a neurological disorder that affects the Central Nervous System, or CNS. The CNS, comprised of the spinal cord and brain, has nerve fibers called axons. These axons are surrounded by a layer of insulation called myelin.

When someone develops MS, their own immune system attacks and destroys the myelin. When this is lost, the ability of the nerve cells in the brain and spinal cord to communicate with one another is either lost or impaired. Along with the loss of myelin, the axons themselves can be damaged, causing a permanent loss of function in the person.

How severe a case is will vary from person to person. There is no way to predict how each individual will handle the disease. It is because of this that MS has been divided into four different categories:

*Relapsing-Remitting.* The individual has symptoms that last for a few weeks to a few months. Gradually the symptoms will disappear with partial to complete recovery. When the symptoms are gone the person is in *remission*. Eventually the symptoms will appear once again, causing a *relapse*.

*Secondary-Progressive.* This starts with a relapsing-remitting course that will become more progressive and include some relapses and slight remission. More symptoms will appear with each relapse. The individual's condition will continue to decline.

*Primary -Progressive.* The individual's condition continues to gradually decline with no hope of *remission*.

*Progressive-Relapsing.* This occurs in individuals with primary progressive MS. The condition will gradually continue to decline, more relapses bring more damage.

## What Causes MS?

At this time, the cause of MS is not known. Testing and research however has begun to shed light on several factors that may be involved:

### Immune System Reaction

The immune system, which normally protects us from disease and infection, malfunctions, it begins to attack itself. While some researchers believe that myelin tends to be the focus of the attack, it is not exactly clear if this is the case. Advances are being made however. In the last few years, the immune cells carrying out these attacks have been identified, as well as some of the factors that cause them to do so.

### **Virus or Infection**

There is some research that suggests a virus or some type of infection may play a role in the cause of MS. There are various studies that suggest an infection of some sort must be encountered before the age of 15 for MS to show up in an individual later in life. There are ongoing studies of several viruses and bacteria to determine whether they may play a role in the formation of MS.

### **Environment**

Research into disease patterns has shown that MS turns up more frequently in people living away from the equator, the farther away you go, the more cases that are recorded. Studies have shown that people who are born in an area with higher rates of MS, who then move to an area with lower rates before the age of 15, will show less risk of acquiring the disease. This leads to speculation that MS is affected by environmental factors such as air quality, water purity, soil composition and diet to name a few.

There are some scientists that believe vitamin D is the key. The closer people live to the equator, the more exposure to sunlight, thus giving their bodies more vitamin D. This has led scientists to theorize that large amounts of vitamin D help strengthen the immune system, helping to prevent the formation of MS.

### **Genetics**

MS has proven to be very difficult to study when genetics are involved. While there has been no evidence to show that MS is hereditary, having a family history of it does not mean a person is more likely to develop it. Researchers speculate that a person who develops MS has genetic tendencies to react adversely to certain environmental triggers, be it allergies or something else. However, there has been no evidence to support this theory.

## **Who Gets MS?**

In the United States there are currently near half a million people who have been diagnosed with MS. Worldwide the number is near three million. Close to two hundred people are diagnosed with MS every week throughout the world. Doctors in the U.S. however do not have to report new cases of MS, and symptoms can go unreported for some time.

Women appear to develop MS more frequently than men. Caucasians also seem to be more susceptible to the disease than other races. It has been frequently diagnosed in people between the ages of 20 and 50, as well as younger and elderly.

### [SYMPTOMS OF MS](#)

The signs and symptoms that someone may have MS are dependent on the damaged area. Listed below are some of the conditions that could signal the development of MS:

**Fatigue**-This tends to be the most common symptom among individuals who have developed the disease. Nearly 80% of those with MS experience bouts of fatigue.

**Vision problems**- Person complains of blurred vision, blindness in one eye can also occur.

**Tingling, prickling, and numbness**- Nearly half of MS patients complain of these, and are often times the earliest symptoms of MS.

**Balance & Coordination**- These are common problems with MS. Many times a person with the disease will sway or swagger.

**Tremors**- Nearly 50% of those who suffer from MS report some type of shaking or trembling of the limbs or the head. This tends to impair mobility and can affect balance and coordination.

**Cognitive & Emotional Dysfunction**- This affects nearly half of those with MS. Memory, reasoning, speech and speed of information processing. Emotional fluctuations are also common, including depression and euphoria.

**Bowel & Bladder**- Increased frequency of urination, constipation, diarrhea and incontinence. Nearly two-thirds of patients with MS experience some type of dysfunction during course of disease.

**Sexual Difficulties**- Nearly 80% of men and women with MS report changes in their sexual lives. Some of these changes include loss of sexual drive, loss of interest, diminished orgasmic response and impaired sensation.

**Mood Swings**-Many people call the mood swings associated with MS “emotional incontinence”, have little or no control over their emotions. In many individuals with MS, sudden laughing, crying, angry outbursts and rapid mood swings may occur. Fortunately, these conditions can often be managed with medication.

**Paralysis**-While some form of paralysis is common in individuals with MS at some stage of their disease, it is not certain who will develop it, or how extensive it will be. Muscle weakness is common; it can be years before there is any significant impact.

## DIAGNOSIS

At the present time there are no tests that a doctor can perform to determine if a person has MS or will contract it in the future. Currently, diagnosis of MS in an individual involves both clinical and paraclinical evidence. Clinical evidence involves investigating patient history as well as conducting a neurological exam. Paraclinical evidence makes use of MRI's, Spinal Taps and Evoked potentials to help determine if a patient has MS.

Doctors will commonly ask the patient about past medical history, what surgeries they have undergone, any allergies they may have, where they have lived, medications taken, substance abuse and family medical history.

Patients will also undergo a thorough neurological exam where the doctor will look for reflex issues, as well as checking for optic nerve damage if the patient has balance and gait issues.

There must be evidence of lesions or plaques in two separate areas of the Central Nervous System, evidence they have occurred at different times, and also that these lesions or plaques have no other explanation for being there.

In many cases, there is no reason to go beyond a neurological exam. Many doctors however will conduct more testing to confirm their diagnosis. Beyond this, an MRI of the brain is often used to help rule out any other causes.

## Your Role As A Caregiver

When working with a patient that has MS, there are many conditions that you should be aware of. Below is a list of symptoms that you, as a caregiver of someone with MS, should learn, watch for and act on accordingly, following your Plan of Care.

**Balance**-Balance problems will cause the patient to feel unsteady, with difficulty maintaining their equilibrium. The patient may have trouble walking, appearing unsteady. Keep a close watch on your patient if they have balance issues, especially during transfers.

**Bladder Dysfunction**-Bladder Dysfunction is fairly common in patients with MS. Proper management is necessary to help prevent urinary tract infections (uti's) and urinary retention which may damage the bladder or kidneys. It is important to monitor the patient urinary functions, especially if they have a catheter. Follow the Plan of Care established by the doctor and RN.

**Bowel Dysfunction**-Patients with MS may experience constipation as a result of low fluid intake, lack of bulk in their diet, lower physical activity and medication side effects. Diarrhea may also occur due to intestinal issues. It is important to remember that many people with MS have decreased sensation and are able to sit on a bedpan or toilet for long periods of time, forgetting they are even there. Monitor the patient closely.

**Cognitive Changes**-MS patients may experience loss of memory, have trouble processing information, problems with attention span and concentration, as well as impaired judgment. It is also important to note that language and intelligence are for the most part unaffected. Several things can help. Repeat information to the patient and write down important things. Encourage the use of things like calendars, notebooks and other items to help the patient remember things. Set daily routines are extremely helpful in helping the patient to remember things.

**Fatigue**- One of the most common symptoms that MS patients have to deal with is fatigue. Patients may experience normal fatigue, depression fatigue and fatigue from neuromuscular overuse. Like many other symptoms of MS, fatigue can fluctuate throughout the day. The patient may be able to function at normal levels early in the day but require aid in the afternoon due to fatigue. Careful attention should be placed on monitoring a patient's temperature when a sudden increase in fatigue occurs. This could be the sign of an infection.

**Sensory Disturbances**-Numbness and tingling are common in MS. Some patients with MS may experience sensitivity to touch or experience abnormal sensations in response to touch. Sensory disturbances may present safety concerns in bathing and feeding, smoking and wheelchair usage. Numbness may delay or even prevent a patient from reporting incontinence. It is important to check the patient daily for injuries, such as pressure sores. This will reduce the chances for skin breakdown.

**Spasticity**-The important thing to remember is that spasms are involuntary. The best course of action when the patient has a spasm is to stop whatever it is that you are doing with them and wait until the spasm passes before proceeding. Slow, deliberate movements are also important. Avoid sudden movement of the patient's limbs.

**Speech Impairment**-Speech difficulties are common in patients with MS, manifesting in slurred speech or alteration of rhythm. Be patient when communicating with them; try not to rush the individual, finish sentences and pretend to understand when you do not.

**Swallowing Difficulties**-The ability to swallow liquids and foods properly can also occur with MS. Many times this will require a "thickening" agent to be mixed with liquids to allow for easier swallowing. Always make sure to add the thickener to the liquid just before serving. Also, be patient when feeding the individual, slow down and be polite. If they are bound to a wheelchair it is advised to be well versed in the Heimlich maneuver in the event of choking.

**Tremors**-Tremors, like spasms, can greatly impair the patient's ability to function. Common aides to fight the effect of tremors in the patient are providing good support during movement, and stabilizing certain areas of the body to minimize the effects of the tremors.

**Vision**-MS can affect vision in many ways. Difficulty focusing blurred vision and double vision. The inability to control eye movement can cause vertigo and dizziness. Keep items in the same place; try not to move things around too much.

**Weakness**-Muscles tend to shrink and weaken from disuse in MS patients. Helping manage weakness in a patient in conjunction with spasticity and fatigue will help greatly. Make sure that you are careful in your transfer techniques. Weakness in a patient can cause sudden buckling of the lower limbs, clumsiness, loss of power and slowness of movement.

# Test Questions

---

1. MS is defined as a chronic disease, a neurological disorder that affects the \_\_\_\_\_.  
  - A. Respiratory system
  - B. CNS
  - C. DNA
  - D. Reproductive system
2. CNS stands for Central \_\_\_\_\_ System.  
  - A. Neurologic
  - B. Nasal
  - C. Nervous
  - D. Natal
3. Nerve fibers in the CNS are called \_\_\_\_\_.  
  - A. Atoms
  - B. Axons
  - C. Axiom
  - D. Axis
4. Insulation surrounding the axon is called:  
  - A. Myopia
  - B. Myrrh
  - C. Myelin
  - D. Mythos
5. How many categories of MS are there?  
  - A. 1
  - B. 2
  - C. 3
  - D. 4
6. Categories of MS include the following except:

- A.** Primary-Progressive
  - B.** Relapsing-Remitting
  - C.** Obsessive-Compulsive
  - D.** Secondary-Progressive
7. The following may all be factors contributing to MS except:
- A.** Genetics
  - B.** Environment
  - C.** Virus
  - D.** Allergies
8. MS has been proven to be hereditary. T F
9. The number of people in the world diagnosed with MS is 6 million. T F
10. Men appear to develop MS more often than women. T F
11. Symptoms of MS can include all the following except:
- A.** Severe bruising
  - B.** Vision problems
  - C.** Mood swings
  - D.** Tremors
12. Cognitive Dysfunction can include depression and \_\_\_\_\_.
- A.** Bleeding
  - B.** Euphoria
  - C.** Numbness in feet
  - D.** Skin tone
13. Nearly 50% of patients with MS report some type of shaking or trembling of the limbs. T F
14. 50% of men and women with MS report some type of sexual difficulty. T F

15. Currently, diagnosis of MS involves both clinical and \_\_\_\_\_ evidence.
- A. Paralegal
  - B. Paralysis
  - C. Paraclinical
  - D. Paramedic
16. In an MS patient with bladder dysfunction, it is very important to watch for Urinary Tract \_\_\_\_\_.
- A. Inflections
  - B. Incontinence
  - C. Infection
  - D. Injection
17. One example of something that may help an MS patient remember things is:
- A. Post-It Notes on the refrigerator
  - B. speaking in a loud voice
  - C. calendars
  - D. daily routines
18. A patient with MS may experience all the following except:
- A. Normal fatigue
  - B. Depression fatigue
  - C. Neuromuscular fatigue
  - D. Thermonuclear fatigue
19. Numbness and tingling are common with MS. T F
20. The inability to control eye movement in a MS patient can cause dizziness and \_\_\_\_\_.
- A. Blindness
  - B. Migraines
  - C. Vertigo
  - D. Hysteria

**How to Apply for Course Credit:**

Please fill out the information below and mail it in with your test answers and payment of **\$10** to:

Health People, Inc.  
12501 Bel-Red Road, Suite 214  
Bellevue, WA 98005

Upon verifying completion, we will mail you the certificate for **2 CEU** credits to the address you provide.

Name \_\_\_\_\_

Institution/Facility \_\_\_\_\_

Mailing Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

Date of Course Completion \_\_\_\_\_

(this date will appear on your certificate)

Signature \_\_\_\_\_

**Payment Type:**

Check made payable to Health People, Inc.

Credit Card Payment:  Visa  MasterCard

-----  
Credit Card Number \_\_\_\_\_ Month Year Expire Date \_\_\_\_\_

X \_\_\_\_\_  
Signature (as it appears on the credit card)