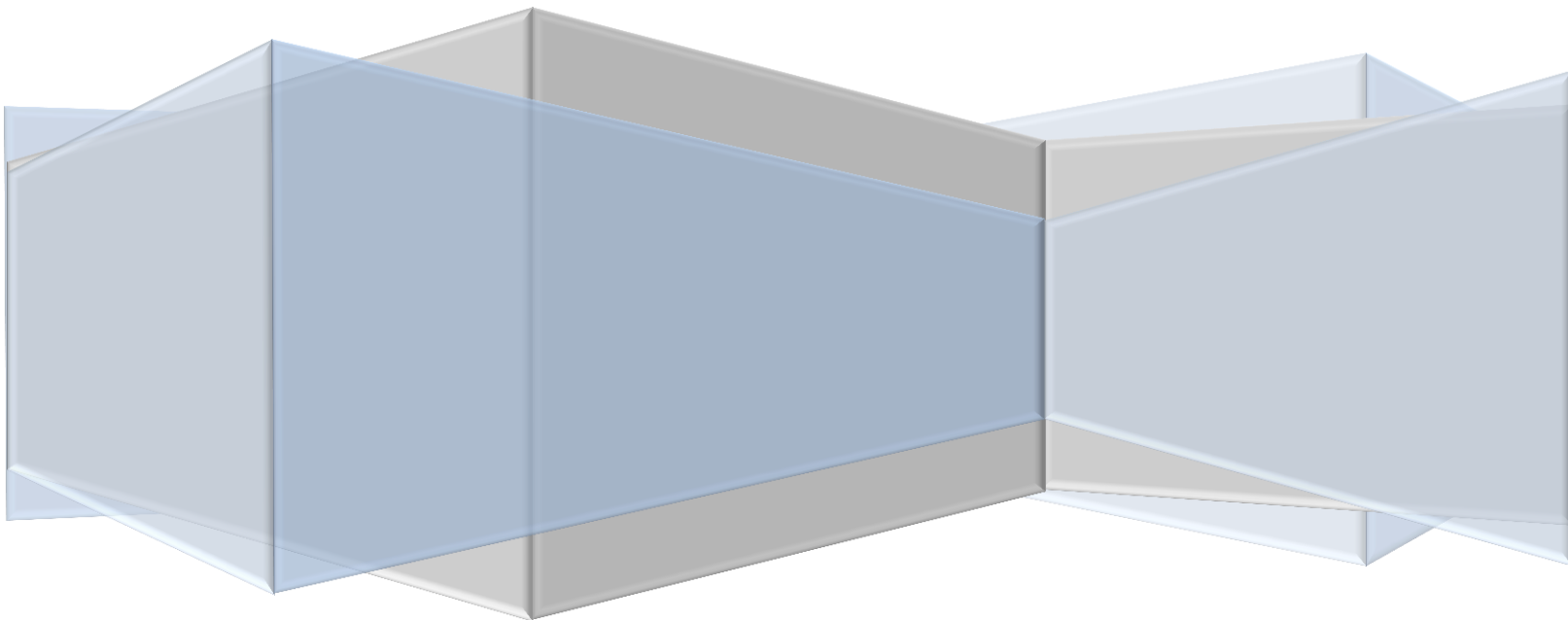




EACH BRAIN MATTERS
THE CENTER FOR NEUROSCIENCES FOUNDATION

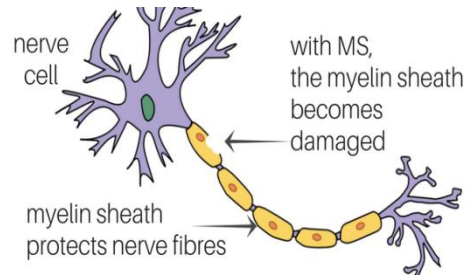
Multiple Sclerosis Information

The Center for Neurosciences Foundation

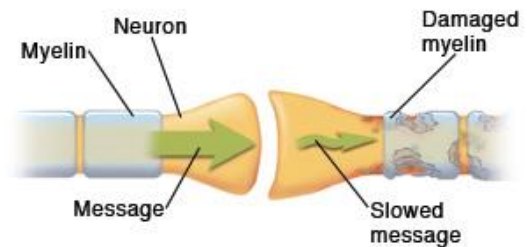


Multiple Sclerosis Overview

Multiple sclerosis (or MS) is a chronic, often disabling disease that attacks the central nervous system (brain and spinal cord). Symptoms may be mild, such as numbness in the limbs, or severe, such as paralysis or loss of vision. The progress, severity, and specific symptoms of MS vary among individuals and are unpredictable. While there is no known cure for MS, new treatments and advances in research are giving hope to people who are affected by the disease.



MS is thought to be an autoimmune disease. The body's own defense system attacks myelin, the fatty substance that surrounds and protects the nerve fibers of the brain, optic nerves, and spinal cord (the central nervous system). The damaged myelin may form scar tissue (sclerosis). Often the nerve fiber is also damaged. When any part of the myelin sheath or nerve fiber is damaged or destroyed, nerve impulses traveling to and from the brain are distorted or interrupted. MS is not a fatal disease and individuals with MS have near-normal life expectancies. Most people with MS learn to cope with the disease and are able to live productive lives.



Types of Multiple Sclerosis

There are four primary types of multiple sclerosis. While each diagnosis is characterized by specific identifiers, it is important to remember that MS affects patients differently and there will be great variety between patients even if they have the same diagnosis.

Clinically Isolated Syndrome (CIS)

CIS is a first episode of neurologic symptoms caused by inflammation or loss of myelin. The symptoms must last at least 24 hours. This does not meet the criteria for an MS diagnosis as some people who experience this never develop MS. If CIS is accompanied by lesions on the brain (seen on MRI), there is a higher likelihood of a second episode and diagnosis.

Relapsing Remitting Multiple Sclerosis (RRMS)

RRMS is the most common course of Multiple Sclerosis, and about 85% of all MS patients are initially diagnosed with this type. It is characterized by clear attacks, often called relapses, of new or increasing neurologic symptoms. These relapses are followed by periods of partial or complete symptom recovery or remissions. During remission it is common for some symptoms to resolve, while others may remain and become permanent. The severity of the symptoms,

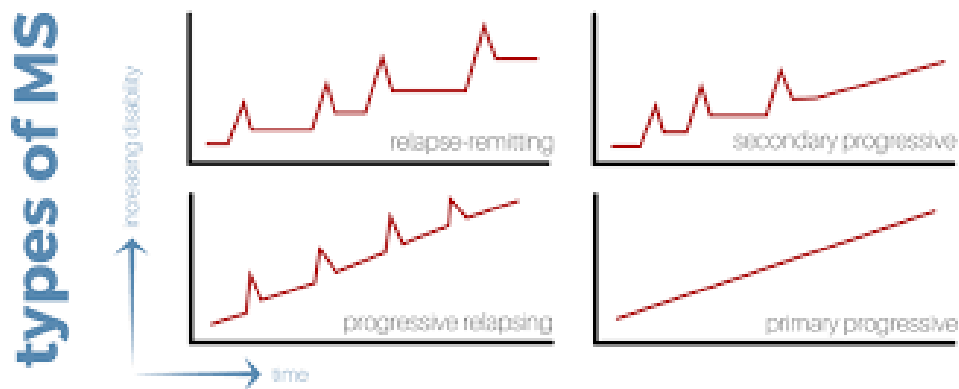
nerves that are affected, level of recovery and the time between relapses varies from patient to patient.

Secondary Progressive Multiple Sclerosis (SPMS)

SPMS is also characterized by relapses followed by periods of recovery, however unlike RRMS, the symptoms don't disappear between attacks. This diagnosis marks a transition from relapses and remissions with symptoms that come and go to symptoms that progressively worsen. This results in a steady worsening of the condition and accumulation of disability. Many patients who are diagnosed with RRMS will eventually progress to SPMS.

Primary Progressive Multiple Sclerosis (PPMS)

PPMS is different from RRMS and SPMS in that it does not present as relapses and remissions but rather steadily worsening symptoms from the time of onset. There are no periods of decreasing symptom intensity and no remission periods. This type of MS only affects around 10-15% of patients, and those patients are typically diagnosed later in life than other types of MS. Similar to the other types of MS, the severity of symptoms and speed of progression varies greatly from patient to patient.



Symptoms

Symptoms can vary greatly from person to person and over time within the same person. They can appear in any combination and range from mild, moderate, to severe. Multiple Sclerosis symptoms often come and go in periods called attacks, exacerbations, or relapses. These symptoms include



- Tingling
- Numbness
- Painful sensations
- Slurred speech
- Blurred or double vision
- Muscle weakness
- Poor balance or coordination
- Muscle tightness or spasticity
- Tremors
- Paralysis- permanent or temporary
- Bowel or bladder problems
- Sexual function problems
- Fatigue
- Forgetfulness
- Difficulty concentrating
- Mood swings
- Susceptible to depression

Treating MS

Although there is currently no cure for MS there are many ways to treat both MS and the symptoms caused by it. Treatment options include medications, physical therapy and exercise, vocational and cognitive rehabilitation, nutritional diet, adequate rest, and counseling.

Medications:

The FDA has approved 6 medications to treat MS. These medications do not cure the disease but are useful in modifying the disease course. These medications can reduce the frequency and severity of relapses, reduce the accumulation of lesions in the brain and spinal cord, and can slow the accumulation of disability for many patients. There are also several medications available to help with specific symptoms. If you are having a particularly hard time managing specific symptoms or have questions regarding your medications, it is important to discuss this with your physician who is aware of your conditions.

Diet:

As with any chronic disease, it is important to maintain a healthy lifestyle which includes a healthy nutritious diet. There is no specific diet that has been proven to modify the course of the disease, however there is evidence that a well-balanced diet may help with certain symptoms such as low energy levels, bladder and bowel functioning and general health. Many MS specialists simply recommend a diet that is high in fiber and low in fat similar to the general population.

Exercise:

Similar to a healthy diet, exercise is necessary to maintain overall health and is helpful in managing symptoms. Patients who exercise regularly often report improved strength, better bowel and bladder function, less fatigue and depression, a more positive attitude and increased desire to participate in social activities. In addition, studies have also found that exercise can improve cognitive function and regulate moods. Any exercise program should be tailored to your specific need and should take into account any restraints you have. It is also recommended to avoid doing physical activity during hotter periods of the day as this may cause excessive fatigue.

Stress management:

Any chronic disease increases our everyday stress levels, and MS is no exception. The stress of disease is exacerbated with MS due to diagnostic uncertainties, unpredictability of the disease course, invisibility of some symptoms, the constant need to adjust and readjust to your level of functioning and loss of control or individualism. Scientifically there is not solid evidence that stress impacts symptoms of MS, although it is widely accepted by most patients that stress has a large role in the course of the disease. There are many ways to manage stress that will vary greatly between patients, some may enjoy exercising while other may need to talk through everything. Regardless of how you manage your stress it is important to recognize if your stress is actually depression which should be discussed with your physician.

REHABILITATION

Physical Therapy

Physical therapy can be beneficial for patients with MS in many ways with an emphasis on walking and mobility, building strength, and working on balance and posture to help decrease levels of pain and fatigue. Although the overarching goals are similar, the treatment plan will vary between patients depending on their specific needs and the progression of their MS. Seeing a physical therapist is recommended at the time of diagnosis in order to get a baseline evaluation, your physician may refer you or you can request a referral. Along with helping patients maintain their independence and optimal functioning, physical therapy can sometimes also include exercises to address urinary issues.

Occupational Therapy

Occupational therapy is also considered an important part of managing your Multiple sclerosis, it focuses on enhancing your ability to do daily activities and home and work-related tasks. Often this type of therapy includes strengthening and stretching exercises and activities that are specifically designed to improve coordination and other skills tailored to your level of functioning. An occupational therapist can help you manage fatigue by introducing strategies that allow you to maximize activities without exhausting yourself.

Cognitive Rehabilitation

Cognitive rehabilitation focuses on the patient's abilities to think, reason, concentrate, and remember. This may help patients establish realistic goals and help develop ways to compensate for memory, concentration, and organizational problems. Although cognitive functioning is not able to be restored, working with a cognitive therapist and utilizing their strategies may help manage the symptoms. If you are having troubles misplacing things, forgetting names, concentrating on simple tasks, or problem solving cognitive therapy can be beneficial to you in everyday life.