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# Multiple sclerosis

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## Key facts

- **Multiple sclerosis (MS) affects function in cognitive, emotional, motor, sensory, or visual areas and occurs as a result of a person's immune system attacking their brain and spinal cord.**
- **It is estimated that over 1.8 million people have MS worldwide.**
- **People of all ages can be affected, but it is more common in young adults and in females.**
- **MS can improve or stabilize by being treated with medicines early in the course of the disease and treatments will be different for each person depending on the severity of the disease and symptoms.**

## Overview

Multiple sclerosis (MS) is a condition that happens when the immune system attacks the brain and spinal cord.

Symptoms of MS vary from person to person and depend on the location and severity of nerve fibre damage. These often include vision problems, tiredness, trouble walking and keeping balance, and numbness or weakness in the arms and legs. Symptoms can come and go or last for a long time.

The causes of MS are not known but a family history of the disease may increase the risk.

While there is no cure for MS, treatment can reduce symptoms, prevent further relapses and improve quality of life.

MS can present in a variety of ways including:

- **clinically isolated syndrome (CIS):** describes an episode of neurologic symptoms that are the first clinical sign of possible MS;
- **relapsing remitting (RRMS):** the most common form of MS characterized by intermittent attacks of symptoms (relapses), followed by a short or long period of no clinical attacks (remissions);
- **secondary progressive (SPMS):** after living with RRMS for a long period of time, relapses decrease and symptoms continue progressively without relapses or remissions; and
- **primary progressive (PPMS):** starting from the initial symptoms, the disease gradually progresses and gets worse without any clear relapses or remissions.

MS is not always easy to diagnose in its early stages. Typically, people who have been diagnosed with MS will have been through several diagnostic stages, which can be an unsettling and frightening experience.

## Symptoms

Symptoms of multiple sclerosis can be different from person to person. They can come and go or get worse over time. MS can affect any part of the central nervous system.

MS symptoms can worsen with heat or during other infections such as urinary tract or respiratory infections.

Symptoms can include:

- **vision problems**
- **difficulty walking or keeping balance**
- **difficulty thinking clearly**
- **numbness or weakness especially in the arms and legs**
- **muscle stiffness**
- **depression**
- **problems with sexual function or urination**
- **feeling very tired.**

# Causes

MS is an inflammatory demyelinating condition that results from an autoimmune attack on myelin, the fatty insulation that surrounds the nerves in the brain and spinal cord. This disrupts the electrical impulses that are sent through the nerves to the rest of the body and results in scars (plaques or sclerosis).

It is not known what triggers the immune system to attack myelin, but genetic and environmental factors are thought to play a role. MS happens most commonly in young to middle-aged adults, more in females than males, and is more common in higher latitudes, possibly due to sun exposure and vitamin D.

# Diagnosis

MS is a diagnosis of exclusion and there are no definitive diagnostic tests. Magnetic resonance imaging (MRI) can help with diagnosis by showing plaques or sclerosis on the brain and spinal cord. Other tests such as lumbar puncture, optical coherence tomography (OCT) and visual evoked potentials can also help support the diagnosis.

# Treatment and care

Treatments for MS will be different for each person. They depend on the stage of the disease and symptoms.

The goals of MS treatment are to reduce the frequency and severity of relapses, slow disease progression, manage symptoms, and improve quality of life.

Specific MS disease modifying therapies (DMTs) are started as early as possible to slow disease progression and prevent relapses.

Steroids are sometimes used in the short term to treat relapses. Other medicines can be used to reduce the symptoms of MS such as fatigue, muscle tightening, depression and urinary or sexual problems. These medicines do not change the course of the disease but help manage the symptoms.

Rehabilitation specialists can help improve functioning, quality of life and reduce muscle stiffness and spasms.

Many people feel fatigue with multiple sclerosis. Ways to manage fatigue include:

- **regular exercise**
- **healthy sleep patterns**

- **avoiding medicines that make fatigue worse.**

In the past twenty years treatment options for MS have improved dramatically. In high income countries many oral, intravenous and injectable options exist to treat MS. However, most of these medications are not available in low- and middle-income countries and there is still a lack of treatment options for progressive types of MS.

People with MS and their families should be encouraged to seek services and guidance from local and national Organizations of Disabled People (ODPs) and other disability focused organizations, which can provide vital advice about legal rights, economic opportunities and social engagement to ensure that people disabled by MS or other neurological disorders are able to live full and rewarding lives.

## WHO Response

In May 2022, the World Health Assembly endorsed the Intersectoral global action plan on epilepsy and other neurological disorders 2022–2031. The action plan addresses the challenges and gaps in providing care and services for people with epilepsy and other neurological disorders such as MS that exist worldwide and ensure a comprehensive, coordinated response across sectors. This includes raising policy prioritization and strengthening governance, providing effective, timely and responsive diagnosis, treatment and care, implementing strategies for promotion and prevention, fostering research and innovation and strengthening information systems.

WHO also supports countries to manage MS by:

- **working to include MS medications in WHO Essential Medicines Lists (EML);**
- **collaboration with civil society such as Multiple Sclerosis International Federation (MSIF) on broad issues and advocacy including through World MS Day (May 30);**
- **creation of the Atlas of Multiple Sclerosis for use by people with MS, health professionals and MS groups and organizations to stimulate and inform campaigns for improvements in the services and support provided to people with MS and those with an interest in their well-being and quality of life; and**
- **supporting countries to implement guidelines and strengthen health systems to improve the rehabilitation services for people with neurological disorders.**