Prompt treatment of infection is very important...especially respiratory and urinary tract ailments.

Physiotherapy, exercise programs and muscle retraining can help patients recovering from acute attacks, and can relieve tightening in muscles.

Fitting and training in use of walking aids or other devices help many people with MS to be more independent.

Psychotherapy and counselling - individual and group therapy help people with MS and families cope with depression, anxieties and limitations caused by MS. Periods of remission, with the uncertainty about how long improvement will last, may make adjustment to this unpredictable disease particularly difficult.

Medication - Drugs sometimes are used primarily to relieve specific symptoms. For example, *muscle relaxers* may relieve spasms. Some other drugs sometimes seem to help reduce severity and duration of acute attacks. There are now three *Beta Interferon treatments* (Avonex®, Betaferon®, Rebiff®) and a *Glatiramer Acetate treatment* (Copaxone®) for people with relapsing/ remitting multiple sclerosis.

On-Going Re-evaluation: The course of MS is unpredictable; needs and disabilities change. So continuing medical supervision is essential. Not all medical problems are due to MS, and a doctor can determine if they are symptoms of another illness that requires treatment

At present there is no known cure for multiple sclerosis. Research continues

into the mysteries of MS - cause, cure, prevention. For example:

Studies on myelin how it's formed and how it changes with MS are being carried out

Experiments, gathering information, continue in hopes of discovering the cause of MS

Studies in immunotherapy are being conducted.

Money, time and patience are the keys to overcoming MS. There is more information about MS research on the research pages and more links at the top of this page.

People with MS can lead independent, active, satisfying lives, in spite of occasional disability.

A mild form of MS occurs in 1 out of 3 people with MS. They have few serious symptoms for many years after onset.

Remissions are the rule - 9 out of 10 people with MS have few or no symptoms for months, even years.

MS can be minimized with proper management

Three out of four people with MS are still active and can take care of their daily needs many years after a firm diagnosis of MS.

Most people with MS live near normal life spans.

It's not what a person with MS has lost...it's what he or she has left that counts.

Information contained in this booklet is meant for informational purposes only and should not substitute the visit to your doctor nor his/her advice for your health care.

Accuracy of the content is current to the date of printing.

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# MULTIPLE SCLEROSIS (MS)





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## What is Multiple Sclerosis?

Multiple Sclerosis (MS) is a condition of the central nervous system; the nerves of the brain and spinal cord. MS is not contagious. Incidence is greatest amongst people in the 20 to 40 year age group.

It is called Multiple because many parts of the brain and spinal cord are affected. It is called Sclerosis which is a Greek word meaning 'hardened tissue', that interrupts signals traveling through the central nervous system. The disease involves 'sclerosed' or hardened tissue in the damaged areas of the brain and spinal cord.

Damage and inflammation of the protective sheath of fatty tissue (myelin) which surrounds the nerve fibres of the central nervous system cause temporary or permanent interruption of the nerve impulses. As a result, the brain's ability to control functions such as seeing, walking and talking may be impaired.

There is no standard pattern for the symptoms caused by MS. The type and degree of any disabilities depends on the parts of the nervous system affected. Symptoms can be mild or severe and come and go unpredictably.

Many people who have MS can expect to lead active, productive lives. Others who experience more severe forms of the condition may eventually require extensive nursing care.

The central nervous system acts like a

telephone switchboard, sending electrical messages along the nerves to various parts of the body. These messages control all our everyday movements. Multiple sclerosis disrupts the smooth flow of messages.

Most healthy nerve fibres are insulated by myelin, a fatty substance which aids the flow of messages. In MS, the myelin breaks down and is replaced by scar tissue. This distorts or even blocks the flow of messages.

Body functions become uncontrolled because messages either don't get through correctly or sometimes go to the wrong area.

It is a puzzle because the cause is unknown and there is no way to know who might get MS. MS isn't inherited, though it is thought that some people's genetic make up may make them more susceptible to MS. Environment may also be involved. MS researchers believe that factors in a child's development up to the age of 15 are important. Many people with MS have had viral illnesses as a child or teenager. Most lived their first 15 years in areas with cold winters. Scientists have three theories:

#### Virus Attack

When viruses enter the body, they multiply rapidly inside body cells.

Symptoms appear quickly with most viruses. Certain slow-acting viruses also reappear later, causing new symptoms.

Other slow acting viruses stay inside the body for months or years before triggering illness. MS might be caused by some slow-acting viruses, or might be a delayed reaction to a common virus.

### Immune Reaction

Our bodies have a built-in defense system which destroys invaders like viruses and bacteria.

This defense system can backfire and start attacking the body's own cells: this is called an auto-immune reaction.

MS might involve an auto-immune reaction in which the body attacks its own tissues by mistake.

#### **Combination**

MS might involve both viruses and immune reaction.

When viruses invade the body they take over body cells.

The body defense system might become confused because some viruses take over parts of cells...and it might attack both host cells and virus.

Since there's so much we don't know about MS, we can't predict who might get it. However, there is a pattern in who's more likely to develop it.

<u>Young Adults</u> - symptoms usually appear between ages 20 and 40, i.e. in the prime of their life. MS seldom strikes people under 15 or over 55.

<u>People in temperate zones</u> - Where you live may affect your chances of developing MS, although nobody knows why. Multiple sclerosis occurs more often between 40 degrees and 60 degrees north and south of the equator. The closer an area to the equator, the fewer the cases of MS. Scotland, Canada, Southern New Zealand and Southern Australia have a higher incidence of MS. If you migrate from a cold climate after you are 15, your chances of getting MS stay the same as those of your birthplace.

<u>Women</u> - More women that men develop MS. There are about two women to every man diagnosed with the disease. MS isn't connected with pregnancy. Women with MS can have children. In this situation the advise of a general practitioner or appropriate specialist should be sought.

The symptoms of MS vary greatly from person to person and from time to time in the same person. Note: Any of these symptoms could mean other illnesses...CHECK WITH A DOCTOR!

Symptoms may include:

- Loss of co-ordination
- Extreme fatigue or unusual tired feeling
- Numbness or pins and needles
- Staggering
- Dragging of feet
- Eye trouble...seeing double or uncontrolled eye movements
- Speech difficulties... such as slurring
- Shaking of hands.

Early symptoms are usually slight and go away without treatment. But as time goes on, they might become more numerous and

#### severe.

The typical pattern is a short period of acute symptoms, followed by an easing or disappearance of symptoms for weeks, months or even years. Some people have mild attacks that never return.

Symptoms vary depending on the part of nervous system affected. For example MS in the spinal cord might cause weakness, numbness and paralysis of the arms and legs

Detecting multiple sclerosis can be difficult, but it's made easier these days with modern diagnostic methods.

Laboratory tests and scanning techniques have made it easier to detect MS.

*Early symptoms* are often so slight that the person doesn't go to a doctor.

Doctors look for *two basic signs* before confirming MS:

Signs of central nervous system damage, for example numbness or tingling of hands and feet and unexplained tiredness.

*Come and Go pattern* - Symptoms of MS usually appear and disappear without warning - unlike those of other nervous system diseases.

There is much that can be done to help people who have multiple sclerosis remain independent, comfortable and productive. Like everyone else, people with MS need to stay active, eat a nutritious diet and get adequate rest.

