

# pt connection

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## Multiple Sclerosis

### INTRODUCTION

Multiple Sclerosis (MS) is a disease of the brain and the spinal cord (Central Nervous System) which affects more than 400,000 people in North America. The disease starts between the ages of 20 and 40 with the average onset around 30 years of age. Multiple Sclerosis affects more women than men.

MS destroys a vital part of the CNS called Myelin. Myelin is the protective coating insulating the nerve fibers, which transmit impulses from the brain to other cells in the brain and spinal cord. In MS, myelin breaks down and is replaced by SCLERA (scar tissue). This blocks the flow of messages distorting body functions. The severity and range of symptoms vary widely. (see Fig. 1)

### WHAT CAUSES MS?

We still do not know what causes MS. It is thought that MS is caused by a combination of factors. Some thoughts to the cause of MS include:

1. **Climate:** Persons living toward the equator have a decreased risk of MS compared to persons living in seasonal climates.
2. **Age:** Studies suggest that there may be a connection between the incidence of MS and where a person lived for the first fifteen (15) years of their life.
3. **Genetics:** Family members of someone who has MS have a higher risk of contracting the disease than someone who does not have a family member with MS. MS is more common among Caucasians. MS is not strictly an hereditary disease caused by one genetic defect. Researchers have not yet found the location of the hereditary factors involved in MS.
4. **Immunology:** MS is believed to be an autoimmune disease. It is thought that people with MS have inflammatory reactions against the myelin in their own brain and spinal cord.
5. **Virus:** MS is not contagious. Viruses may be the predisposing "environmental factor" in MS.

It is thought that MS does not have a single cause, but a combination of factors is likely to be responsible for the disease.

### HOW DOES MS PROGRESS?

MS symptoms may occur suddenly. After an exacerbation, more than 75% of people with MS will improve without treatment. Some MS patients do not have exacerbations and remissions, but have a continuous progression of symptoms that do not reside. MS is different for every person.

There are different types of MS that are most common:

1. **Relapsing-Remitting:** This is the most common type of MS (85%). Exacerbations occur and then it relapses in which complete or partial recovery occurs.

**2. Secondary Progressive:** This presents as a relapsing form of MS in early to mid stage. Recovery from each relapse is less complete. The stages of disability gradually worsen. Approximately 1/3 of the people diagnosed with MS have this form.

**3. Primary Progressive:** Characterized by gradual decline from the beginning of the disease. This type shows no exacerbations or remissions. Over the years, there is a gradual loss of physical cognitive function.

Affects approximately 10% of the MS population and is usually diagnosed between the ages of 40 and 60.

**4. Progressive Relapsing:** Rare form. It shows progression from the beginning but with attacks occurring on occasion. 5% of people with MS have this type.

Multiple Sclerosis is not usually a fatal disease. However, it is such a variable disease that it is nearly impossible to predict how MS will affect a person in the future. The life expectancy of a person with MS is close to that of the general population.

## HOW IS MS DIAGNOSED?

A neurologist usually diagnoses MS. Information from the patient's medical history, neurological examination, and laboratory tests are used to make the diagnosis. Laboratory tests may include a lumbar puncture (spinal tap), evoked potentials (EP), and an MRI of the brain and spinal cord. MRI is now the leading indicator to help differentiate MS from other conditions. The diagnosis of MS is characterized by two or more episodes that last at least 24 hours and occur at least a month apart, and episodes that show a progressive course of symptoms over a period of six months.

## HOW IS MS USUALLY TREATED?

MS cannot be cured. This does not mean that it cannot be treated. At present, the most information is known regarding the treatment for the relapsing - remitting form of MS. Patients can alter and slow the disease process with newly approved ABC drugs (Avonex, Betaseron, Copaxine). (see Fig. 2 Therapeutic Treatment Options)

There are fewer treatments for the more progressive types of MS in which the person has no periods of recovery. Sometimes chemotherapeutic medica-

**Figure 1**

- |                                  |   |
|----------------------------------|---|
| 1. Decreased or double vision    | 8. Problems with thinking, memory, or attention |
| 2. Fatigue                       | 9. Weakness                                     |
| 3. Pain, numbness, or tingling   | 10. Problems with coordination and balance      |
| 4. Bladder and/or bowel problems | 11. (+) Babinski sign                           |
| 5. Sexual dysfunction            | 12. Hyperreflexia                               |
| 6. Stiffness                     |   |
| 7. Dizziness or vertigo          |   |

tions that are used in high doses to combat cancers are used to affect the progression of MS. However, (azathioprine, methotrexate, cyclophor-

phamias, and mitoxantrone) these drugs have not been approved for the treatment of MS.

## OTHER PROFESSIONALS THAT HELP PEOPLE WITH MS

MS can affect many different body functions and from time to time there may be a need to see other healthcare professionals including:

- **Ophthalmologist** for eye problems such as blurred or double vision or inflammation of the optic nerve
- **Urologist** for bladder problems, male sexual problems
- **Gynecologist** for female sexual problems
- **Physical Therapist** for assistance with balance and walking deficits as well as muscle strengthening and flexibility to improve activities of daily living

## MOVING WITH MS

It is recommended that people with MS discuss any exercise program with their physician prior to initiating the program. They should not begin an exercise program during an exacerbation unless otherwise advised by their doctor.

People with MS should learn to pace themselves for a slow and steady gain. Elevation of body temperature by exercise may increase spasticity and/or fatigue. Active exercise involving low resistance at a slow rate produces less temperature increase than high resistive techniques. Frequent rest periods are required so they do not overexert themselves. An exercise program must be individualized for a person with MS.

An exercise program may consist of PROM and stretching exercises, active and active resistive exercises, and coordination and balancing exercises.

PROM and stretching exercises are appropriate for people that cannot move their extremities through full ROM secondary to joint restriction or muscle weakness. Active and active assisted exercises are appropriate for people that can actively move their extremities. These exercises help increase blood flow, prevent joint deformities, and strengthening musculature.

Coordination and balance exercises are designed to help automatic reactions of the body for maintaining balance as well as promote coordination fluidity of movement. Your body's ability to maintain its balance

will be challenged during these exercises. (see exercise insert)

Setting realistic goals is extremely important so people can still perform meaningful tasks. Rehabilitation should go hand in hand with drug therapy. Rehabilitation sessions should be planned accordingly.

## CONCLUSION

The future looks hopeful for people with MS. A person with MS who takes a proactive attitude can make a positive impact on the disease as well as the quality of his/her life.

## Figure 2: THERAPEUTIC TREATMENT OPTIONS FOR RELAPSING-REMITTING MS



	<b>AVONEX®</b> < Interferon beta-1a >	<b>BETASERON*</b> < Interferon beta-1b >	<b>COPAXONE†</b> < glatiramer acetate >
<b>Description</b>	■ A form of interferon beta produced in mammalian cells	■ A modified form of interferon beta produced in bacteria	■ A synthetic mixture of four amino acids
<b>Indication</b>	<ul style="list-style-type: none"> <li>■ Slows the accumulation of physical disability</li> <li>■ Decreases the frequency of clinical exacerbations</li> </ul>	■ Reduces the frequency of clinical exacerbations	■ Reduces the frequency of relapses
<b>Impact on Active Brain Lesions</b>	■ Effect demonstrated	■ Effect demonstrated	■ Data inconclusive; may have a delayed effect
<b>Dosing Frequency</b>	■ 1 injection per week < IM >	■ 3-4 injections per week < SC >	■ 7 injections per week < SC >
<b>Adverse Events‡</b>	<ul style="list-style-type: none"> <li>■ Flu-like symptoms</li> <li>■ Muscle ache</li> <li>■ Fever</li> <li>■ Chills</li> </ul>	<ul style="list-style-type: none"> <li>■ Injection-site reactions</li> <li>■ Flu-like symptom complex</li> <li>■ Weakness</li> <li>■ Chills</li> </ul>	<ul style="list-style-type: none"> <li>■ Injection-site reactions</li> <li>■ Flushing</li> <li>■ Chest pain</li> <li>■ Weakness</li> </ul>
<b>Clinical Trial Discontinuation rate</b>	■ 4% due to adverse events	■ 8% due to adverse events	■ 8% due to adverse events
<b>People on Therapy in the U.S.§</b>	■ 63,700	■ 20,800	■ 24,000

IM = intramuscular SC = subcutaneous

‡ The adverse events listed represent a limited subset of all the reported adverse events of all three drugs. Refer to the WARNINGS, PRECAUTIONS, and ADVERSE REACTIONS sections of the

package inserts of all three drugs for a complete list of adverse events and for full prescribing information.

§ Source: Trinity Partners, Patients on Therapy as of March 2000.



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# NEWS *briefs*

OSPTA continues to emphasize patient satisfaction and clinical outcomes. For the 3rd quarter, patient satisfaction was 98%. Our clinical pathways were met 71% of the time. For all diagnoses, the average number of visits was 9.41. Our patient's functional status improved 50%, their perceived improvement was 72%, and they experienced a 56% reduction in their pain.

For more information concerning OSPTA clinical outcomes, please feel free to call any of our of offices.

OSPTA welcomes physical therapists Michael Bacasa, PT, Brian Dzurenda, PT, and Ramzi Hutchinson, PT.

The location of the Plum office is: 3253 Frankstown Road • Pittsburgh, PA 15239 • (724) 733-0513

The location of the Bethel Park office is: 4846 Library Road • Bethel Park, PA 15102 • (412) 835-2259

The Elizabeth office has begun offering Occupational Therapy.

Belle Vernon (724) 929-5774	Bethel Park (412) 835-2259	Brownsville (724) 785-5262	California (724) 938-0310	Charleroi (724) 483-4886
Clairton/ Jefferson Medical (412) 466-8811	Elizabeth (412) 751-0040	Greensburg (724) 837-2151	Mt. Pleasant (724) 547-5150	Perryopolis (724) 736-7415
Plum (724) 733-0513	Upper St. Clair/ Mt. Lebanon (412) 276-6637	White Oak (412) 672-2352	VOR/ Monongahela (724) 258-6211	VOR/ Speers (724) 489-8111