



## REHABILITATION IN MULTIPLE SCLEROSIS

This fact sheet is provided to help you understand the current evidence regarding rehabilitation for treating multiple sclerosis (MS).

The American Academy of Neurology (AAN) is the world's largest association of neurologists and neuroscience professionals. Neurologists are doctors who identify and treat diseases of the brain and nervous system. The AAN is dedicated to promoting the highest quality patient-centered neurologic care.

Experts from the AAN carefully reviewed the available scientific studies on rehabilitation in MS. The following information\* is based on evidence from those studies. The information summarizes the main findings of the 2015 AAN Comprehensive Systematic Review: Rehabilitation in MS.

To read the comprehensive systematic review, visit [AAN.com/Guidelines](http://AAN.com/Guidelines).

### What is MS?

MS is a disease of the central nervous system. In MS, the immune system attacks tissue in the brain and spinal cord. The damaged tissue is called the myelin sheath, a covering that protects nerve fibers. The resulting damage affects how the nerves carry electrical signals from the brain and spinal cord.

The cause of MS is unknown. Experts think both genetic and environmental factors may play a role. MS affects women more often than men. Typically, symptoms first appear between ages 20 and 50. However, MS can develop in people of younger or older age.

MS symptoms range from mild to severe. Some people experience worse symptoms than others. Symptoms include:

- Bladder problems
- Bowel problems
- Depression and other mood changes
- Difficulty with walking or balance
- Fatigue
- Nerve pain and paresthesia—sensation of burning, coldness, heat, prickling, numbness, itching, or tingling
- Problems with cognitive function—thinking ability, memory
- Sleep problems
- Spasticity—stiffness, spasms, or uncontrollable shaking of muscles
- Speech and swallowing problems
- Tremor—uncontrolled shaking in various parts of the body
- Vision problems

### There are four main types of MS:

- Relapsing-remitting, or RRMS—Unpredictable periods of new or worsening symptoms (relapses). Each relapse is followed by a period of partial or full return to the person's level of functioning before the relapse (remission). Most people with MS are first diagnosed with this form
- Primary-progressive, or PPMS—Slow but continual worsening of functioning from the beginning. There are no relapses or remissions
- Secondary-progressive, or SPMS—Begins as RRMS and develops into a steadier progression of disability without relapses
- Progressive-relapsing, or PRMS—Slow but continual worsening of functioning from the beginning. Occasional relapses occur along the way

### How is MS treated?

MS treatment typically involves the use of prescription drugs and rehabilitation.

Two main types of drug therapy are available:

- Disease-modifying therapies—these reduce the number of relapses and may help slow disease progression
- Symptomatic therapies—these do not affect the course of the disease but help to relieve some of the symptoms

There are many types of rehabilitation therapies that are used in treating MS. Some examples are:

- Physical therapy (PT)
- Breathing/respiration therapy
- Exercise therapy
- Balance therapy
- Speech therapy
- Occupational therapy
- Cognitive rehabilitation (rehabilitation of thinking and memory problems)
- Use of devices such as mobility aides and cooling garments

MS is a lifelong disease with no known cure. However, many people with MS can manage the disease by using both disease-modifying and symptomatic treatments.

## I have MS and want to learn how to manage my symptoms. Which rehabilitation therapies can help?

Experts from the AAN studied which rehabilitation therapies help treat MS. The experts looked at all the scientific studies on MS rehabilitation therapies. The main findings are below.

- Moderate evidence\* shows that eight weeks of home or outpatient PT can help improve:
  - Balance
  - Disability
  - Gait (walking)
- Weak evidence\* shows that six weeks of comprehensive cross-specialty outpatient rehabilitation may help improve:
  - Disability
  - Function

For any of these rehabilitation therapies, researchers need to find out more about their benefits. More information is needed on:

- Length of time needed for the activity
- Intensity of the activity
- Outcome for function
- How long the benefit will last
- How long therapies should continue
- When therapies need to be repeated

For some rehabilitation therapies, there is not enough information to show if they are helpful. This lack of evidence does not mean the approaches do not work. Rather, they need further study to show if they can be helpful.

See the table below for all therapies with evidence supporting or not supporting their use.

**Table: Evidence for Rehabilitation Therapies**

Therapy	Symptom	Strength of Evidence*
Weekly home PT or outpatient PT (eight weeks)	Can help balance, disability, gait	Moderate
	Not likely to help upper-arm dexterity (function)	Moderate
Comprehensive cross-specialty outpatient rehabilitation (six weeks)	May help disability, function	Weak
Individualized inpatient exercise (three weeks) followed by home exercises (15 weeks)	May help disability	Weak
Motor and sensory balance training or motor balance training (three weeks)	May help static (still) balance or dynamic (in motion) balance	Weak
Motor balance training (three weeks)	May help static (still) balance	Weak
Breathing-enhanced upper-extremity exercises (six weeks)	May help timed gait (walking) and forced expiratory volume in one second (breathing/respiration measure)	Weak
	May not help disability	Weak
Inspiratory (breathing) muscle training program (10 weeks)	May help maximal inspiratory pressure (breathing/respiration measure)	Weak

## This systematic review was endorsed by the MS Foundation.

\*After the experts review all of the published research studies, they describe the strength of the evidence supporting each recommendation:

*Strong* evidence = more than one high-quality scientific study

*Moderate* evidence = at least one high-quality scientific study or two or more studies of a lesser quality

*Weak* evidence = the studies, while supportive, are weak in design or strength of the findings

*Not enough* evidence = either different studies have come to conflicting results or there are no studies of reasonable quality

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