Outpatient Rehabilitation for Multiple Sclerosis

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Learning About Rehabilitation

What does rehabilitation do?

Rehabilitation, or rehab, helps people gain back body functions they have lost due to medical conditions or injury. Rehab helps people with Multiple Sclerosis (MS) stay as independent and active as possible. It includes different kinds of exercises and treatments to improve movement, strength, balance, and daily activities. The goal is to help you manage your symptoms, stay mobile, and maintain a better quality of life.

When to start therapy:

- Your doctor has sent a referral for physical, occupational, or speech therapy.
- You are healthy enough to go to outpatient therapy.
- Goals have been set to help improve your daily activities.
- Therapy is expected to help you get better.
- You can continue with a home program after therapy.

When therapy will end:

- If you do not agree with the care and advice you are given.
- If therapy is no longer helping you.
- If you and your therapist expect different things from treatment.
- If you want training on equipment your therapist does not know or have.
- If you ask for treatments that are not part of skilled therapy.

What is "evidence-based practice" and why is it important?

When it comes to exercise, there are many options to choose from. Certain exercise types may be recommended based on what you like, your goals, and how your body reacts to exercise. Looking at the benefits seen in research studies is also important. Therapists use research results (called "evidence") to decide which exercises will help you the most with your goals.

Cycle of rehab

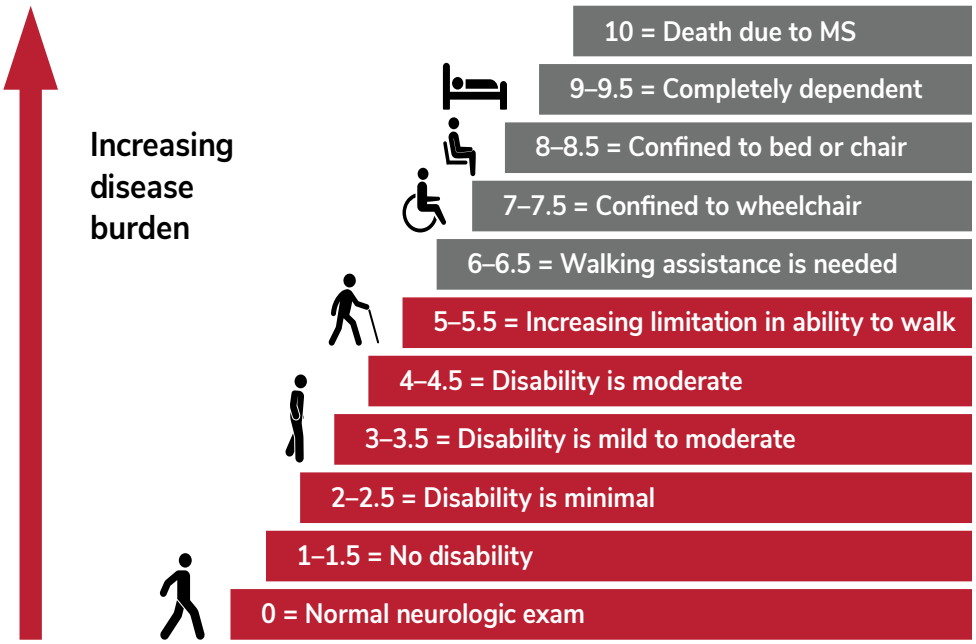
Rehab for MS often starts when symptoms impact daily activities. With skilled therapy and commitment to exercises, you can improve and end therapy once you reach your goals. If you stop exercising on your own after therapy, you might lose the progress you made and will need therapy again.

To break the cycle, stay committed to your exercises. If MS progresses, adjust and work with your therapy team.

What do these terms mean?

These are some terms you may hear from your healthcare team:

- **Evidence-based practice:** Treatment that is based on up-to-date research to help you reach the best results in the shortest amount of time.
- **Skilled therapy:** Activities needed to improve your medical condition that are guided by a therapist to help you to become independent.
- **Unskilled therapy:** Any activity that does not need a therapist's knowledge or skills. It is not considered medical treatment or medically needed.
- **Episode of care:** A set length of time (episode) for treatment (care) that is guided by reaching specific goals.
- **Home Exercise Program (HEP):** A set of activities prescribed for you by your therapist to be done outside of therapy to help you reach your goals and manage health problems.
- **Spasticity:** Muscle stiffness, tightness, or spasms caused by over-active reflexes in the nervous system.
- **Vestibular system:** A system of the body that provides sensory information to your brain about where your body is relative to everything around you. It creates a sense of balance and coordinates how your body moves.
- **Rating of Perceived Exertion (RPE):** A grading system used to give yourself a score of how hard you worked during exercise.
- **Repetitions (reps):** The number of times you complete a full movement of an activity.
- **Sets:** The number of times you complete a group of repetitions (reps) before resting.
- **Expanded Disability Status Scale (EDSS):** Measures how severe symptoms are for a person with MS. It can be used to track progress or changes.
  - Scores are based on changes in walking ability.
  - Disability is rated on a scale from 0 to 10, with higher numbers showing more severe disability.



Who is on a Rehab Team?

Therapy is used to help improve specific skills that are lost or damaged due to MS. MS can cause problems with muscle control and strength, vision, and balance. It can also affect your thinking. Your therapy needs may change over time as your symptoms change.

There are many types of therapy that can help you function better when you have MS.

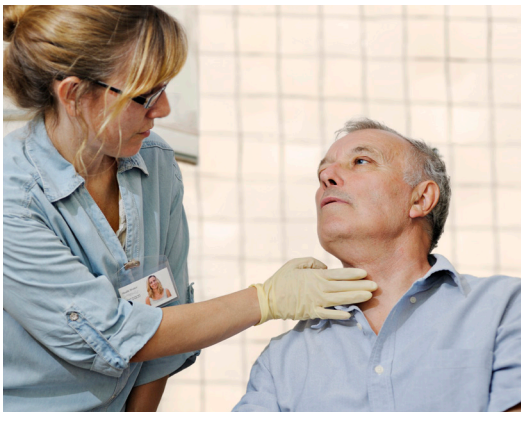
Physical therapy

- Training to help you with standing, walking, getting in and out of bed, and moving in general
- Creates an exercise program for you at the gym or at home that are based on your MS-related challenges and goals
- Training on equipment that helps you move better or safer
- Training to help with controlling your bladder or bowels (Pelvic Health Physical Therapy)
- Treatment for dizziness (Vestibular Physical Therapy)

Occupational therapy

- Therapy to help you do your daily activities, like getting dressed, bathing, and using the toilet
- Training to use tools that help with doing these daily activities
- Creates an custom exercise program to improve the use of your hands or arms
- Vision training
- Driving training and modifications to use your vehicle

Speech therapy



- Therapy for speech problems
- Therapy for issues with swallowing
- Therapy for trouble with thinking
- Training on the use of technology to talk, even if you have speech problems

Role of Exercise in Rehab

Why is exercise important for people with MS?

Exercising at home keeps you physically active and more able to do the things that are important to you. Working with a rehab therapist can help identify factors that impact your ability to exercise in good and bad ways.

Your exercise plan may be changed as you work with a therapist to make sure you are safe and have the right level of challenge.

What does a home-based exercise program do?

Doing a home-based exercise program 5 days a week can help you improve:

- Balance
- Walking speed
- Endurance
- Mental health
- Quality of life

There is evidence from research to support it!

Not all people with MS need rehab to manage fatigue.

People with moderate to severe MS symptoms who use a device to walk, such as a cane or walker, often benefit from starting a supervised or prescribed exercise program.

What types of exercises help?

All exercises can provide some type of benefit. What you do depends on what you would like to improve.

To see benefits from exercise:

- Stretch daily
- Walk 2 to 5 days a week for 10 to 30 minutes
- Build muscle strength 2 to 3 days a week
- Switch between different muscle groups (legs, arms, back, and abdominals)

Exercise Tip: Able and Willing

The “best” type of exercise for you is the type that you are able and willing to do on a regular basis!

What are the different ways to exercise?

Aerobic Exercise

Exercises that challenge your heart and lungs (cardiovascular system) are labeled as aerobic exercise, or "cardio." Examples include: walking, swimming, cycling, dancing, or jogging.

This form of exercise is highly recommended for all people with MS who have mild to severe mobility problems.

Research shows that doing aerobic exercise when you have MS can help. It can help you walk farther (endurance) and feel less tired while walking.

Exercise Tip: Cardio

Taking rest breaks while walking (instead of walking nonstop) increases the total distance you can walk.

Resistance Exercise

Exercises that challenge your muscle strength are labeled as resistance exercise, or "strengthening." Examples include: exercising with dumbbells, resistance bands, pushing your body weight (such as a squat), resisted breathing exercises, or lifting items around your house (like a soup can).

Resistance exercises should start "low and slow," meaning low resistance, and moving through the exercise slowly. You progress to more challenging weight or positions over the next few weeks.

Doing this kind of exercise is really important because stronger muscles can help you walk faster and stay balanced.

In research studies, people with MS who did resistance exercises for 2 to 3 months greatly improved their leg strength, walking speed, grip strength, control of hand movement, and walking endurance.

If you stop strengthening exercises, you can lose the improvement you gained after as little as 12 weeks.

Exercise Tip: Strengthening

Doing several sets with fewer repetitions and taking breaks in between helps you do more strength exercises without getting too tired.

Flexibility Exercise

Exercises that involve extending your muscles through their entire length are called flexibility exercise, or "stretching." Your muscles are naturally flexible and will allow you to make bigger movements with ease when they are not tight. When a muscle is tight, it is not able to move your body as far or as easily, which makes walking or standing up harder. Examples include: fully straightening your knee to stretch the back of your thigh, or fully bending your knee and hip to your chest to stretch the back of your hip.

Flexibility exercises are needed to reduce discomfort and problems moving caused by tight muscles and joints.

Research studies have found that some types of flexibility exercises are more helpful than others.

- Long periods of standing (30 minutes or more), with or without use of a device, helps improve ankle and hip mobility.
- Holding certain positions for long periods helps you stretch if you have trouble moving on your own:
  - Lying face down helps straighten joints and muscles
  - Lying on your side can help bend joints and muscles

Exercise Tip: Stretching

Don't stay in one position too long! Many stretches throughout the day can be more helpful than one long period of stretching.

Aquatic Exercise

Any type of exercise that is done in a pool is labeled as aquatic exercise, or "pool exercise." All forms of exercise can be done in a pool, including stretching, strengthening, cardio, and balance activities.

This form of exercise is often chosen because pool water can assist and resist your movement. Our bodies float toward the surface, which can provide support and make it easier to move, preventing falls. The water can also resist your movements, which builds muscle strength.

In research studies, people with MS who completed exercise in a pool had:

- Less fatigue
- Less pain
- Less depression
- Better balance
- Better walking ability
- Better endurance

Exercise Tip: Pool Exercise

Exercising in water that is 80 to 84 degrees keeps your body temperature low and reduces your risk of overheating.

What exercises help with fatigue?

What exercises are best?

Aerobic exercise (cardio)

- Large impact on decreasing fatigue
- Improvement occurs with medium to high intensity cardio activity
- Activities: walking, swimming, cycling

Resistance exercise (strengthening)

- Medium impact on decreasing fatigue
- Activities: exercises in a pool, body-weight resistance, free weights, resistance bands, workout machines

How can therapy help?

- Education and training on ways to save energy
- Recommendations for adaptive equipment, which may help reduce the energy used to move and do daily tasks
- Prescribe and provide training on a home exercise program based on your specific needs
- Adapts your current exercise routine based on changes in your ability to exercise

What can make fatigue worse?

- Pain
- Not enough physical activity
- Sleep problems
- Depression
- Side effects of medicines
- Anxiety
- Exposure to MS triggers (heat, stress, illnesses, or infections)
- Other MS symptoms (muscle spasms, tremors, or bladder problems)

Exercise Tip: Fatigue

People with mild or moderate MS symptoms can reduce their fatigue a lot just by saving energy!

Research showed with energy-saving practices, the benefits showed up right away and lasted for a year.

Learn some energy saving practices at go.osu.edu/pted1823.

What exercises help with tightness?

What exercises are best?

- Stretching daily or as often as you are able
- All stretches should be held for at least 60 seconds
- Specific positions held for a long time, such as standing or lying face down
- Equipment can help with this at times, such as a standing device (see the picture to the right)
- Positions should be held for at least 30 minutes a day
- Vibration and electrical stimulation tools have no effect on tightness caused by muscle spasms

How can therapy help?

- Creating stretching program for you to do every day, based on your specific needs and ability
- Training you and your care partner(s) in a safe stretching program that works
- Training on use of tools or positions to adjust the way you stretch

What can make tightness worse?

- Muscle spasms (spasticity)
- Trouble moving all or part of your body
- Long periods of sitting
- Pain
- Pressure injuries (skin wounds)
- Poor posture

Exercise Tip: Tightness

Stretching every day, throughout the day, is the best way to improve flexibility.

Learning to stretch for yourself

Skilled therapy treatment includes teaching and training you so that you can learn to stretch on your own or with a partner. It does not include ongoing therapy to have the therapist stretch your muscles for you.

The goal of therapy is to help you be as independent as possible, whether you do activities alone or with the help of a care partner once you have learned how to do them.

What exercises help with weakness?

How can therapy help?

- Teaches you how to pace yourself when doing activities and how to save energy
- Plans strength training that progresses to be more challenging for you
- Creates a home exercise program for your ongoing strength training after rehab ends
- Adjusts an exercise routine to fit your needs
- Trains you on equipment and tools to help you exercise with less fatigue or balance concerns

Studies have shown that doing strengthening exercises can help you use your arms and legs better. Results concluded:

- 6 to 8 weeks of exercises improved leg strength, walking speed, and endurance.
- 24 weeks of exercises improved grip strength and hand use.

What exercises are best?

This depends a lot on which of your muscles are weak and why. Muscles can feel weak because they have not been used much, are tight, have poor nerve-to-muscle communication, or because MS has damaged the nerves.

Studies have looked at if strengthening exercises can improve nerve-to-muscle communication, but there is no clear answer yet.

Strength training will not improve MS lesions.

Muscles to focus on to improve your mobility:

- Strengthening the muscles in the center of your body keeps you stable (abdominal muscles and buttocks or “glute” muscles).
- Strengthening glute muscles can help improve your walking speed.

What can make weakness worse?

- Having fatigue
- Little exercise or physical activity
- Overuse of muscles
- Illness
- Extreme hot or cold temperatures

Keep the progress you made!

Keep up the good work! If you stop doing strengthening exercises, your muscle strength will start to decrease after just 2 weeks.

Exercise Tip: Weakness

Doing fewer reps per set - with longer rest periods between activities - may help you do more strengthening exercises with less fatigue.

Rehab for Balance and Falls

How can therapy help?

- Provides safe activities to practice at home to improve your balance over time
- Balance training can limit relying on your vision or hand support to be steady
- Trains you and prescribes devices and tools to adapt how you move and do daily activities
- Trains your vestibular system (sometimes called your “inner ear”) which helps you know where your body is without using your vision

What exercises are best?

Choosing the best exercise depends on why you lose your balance. For example, if you have trouble lifting your leg, strengthening exercises can help.

- It is important to practice activities that directly impact your balance. The more you practice, the more likely your body will adjust to the activity.
- If your balance is worse when you are tired, cardio can improve how long your muscles are able to work with ongoing activity.
- Strengthening your stomach and buttock muscles helps you keep the center of your body stable for better balance.
- Wearing a “functional electrical stimulation” (FES) device to help pick up your foot can lead to fewer falls from tripping.
- Using your finger to lightly touch a stable surface while you move can improve your balance. This is also how a device used for walking helps balance, such as a cane.

What can make balance worse?

- Vision, sensation, or bladder problems
- Fatigue
- Decline in your thinking ability (cognition)
- Using a device in an unsafe way while walking
  - You can be trained to use the device safely at home and out in the community.
- Walking with a device that does not give you enough support
- Walking around or over items on the floor

Exercise Tip: Balance

Research shows that doing the Free From Falls balance program (available online at www.NMSS.org) can improve your balance for at least 6 months after the program.

What equipment might be used in rehab?

Electrical stimulation

Functional Electrical Stimulation (FES) Cycling

Image used with permission. Della Reynolds, Multiple Sclerosis, Restorative Therapies RT300 Rider.

What Is It?
Arm or leg muscles are stimulated by electrical current with cycling, which can be assisted by a motor.

Research Has Found:
Adding FES during exercise may help people with low levels of fitness and medium or severe disability. People often expect more benefit from FES than is realistic.

Bottom Line:
FES cycling does not benefit enough to be a first choice in rehab, but it is safe for people with progressive or relapsing types of MS.

Neuromuscular Electrical Stimulation (NMES)

What is it?
A device using low levels of electrical current to stimulate muscles during specific strengthening exercises.

Research Has Found:
NMES used during strength training does not improve results (walking distance, balance, or walking speed).

Bottom Line:
It is not likely to help with rehab because it can cause your muscles to work too hard.

Functional Electrical Stimulation (FES) for Foot Drop

What is it?
A device you wear that acts like a brace with wireless technology. It signals your muscle to lift your ankle while walking or using the stairs.

Research Has Found:
The benefit is similar to a prescribed exercise program. It needs more brain power than an ankle brace.

Benefits: It is lightweight, covers little skin area to prevent an increase in body temperature, allows you to use your muscles with help, and it is better at improving walking speed than an ankle brace.

Bottom Line:
FES can help, but it needs to be used all the time. There's no improvement when walking without it. For severe walking problems, a brace will work better.

Supported movement

Exoskeleton (Robotic-Assisted Wearable Device)

What Is It?
A device you wear that uses a motor to help you stand and walk.

Research Has Found:
This is more helpful than general balance or walking exercises and is just as helpful balance or walking exercises designed for you. Exercise without an exoskeleton led to better balance long-term.

Bottom Line:
It may be used in therapy if you want to improve your walking speed, balance, or endurance and you have severe problems moving. It is often not a first choice as it cannot be done at home.

Bodyweight Support (BWS) Treadmill Training

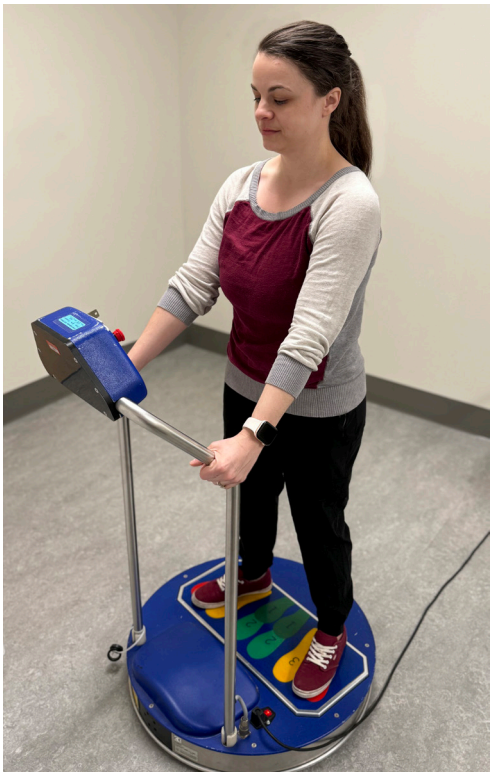
What is it?
Walking on a treadmill while wearing a harness, with rehab specialists helping to move your legs.

Research Has Found:
People with severe walking problems can see small improvements in daily activities, fatigue, balance, endurance, and walking pattern. But if someone helps you move, you do not do as much on your own, which limits the health benefits.

Bottom Line:
This treatment does not provide as much benefit as exercises that make you move your own muscles and could be done outside of the rehab clinic.

Other equipment

Vibration Platform



What is it?

A device you stand on which vibrates at a specific speed, usually very quickly.

Research Has Found:

There is limited to no improvement compared to the benefits of active movement, stretching, and exercise.

Bottom Line:

A positive impact on symptoms or change in movement is not expected. It would likely not be used in rehab. Instead, you would focus on activities you could learn to do on your own.

Exercise with Gaming Consoles (Exergaming)

What is it?

Video games or virtual reality headsets that involve being physically active.

Research Has Found:

They are as helpful as regular exercise, and more helpful than no physical activity or exercise.

Bottom Line:

They help improve balance and could be included in your rehab if you would like.

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