

Minimizing Your Risk of Falls

A GUIDE FOR PEOPLE WITH MS



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Why do some people with MS fall?

Multiple sclerosis is an unpredictable, often disabling disease of the central nervous system that disrupts the flow of information within the brain, and between the brain and body. An estimated 2.3 million people live with MS worldwide. It is associated with a wide range of symptoms. A common effect of MS is impaired mobility including difficulty walking.

Because of mobility challenges and other symptoms, people with MS may be at significant risk for falls and the potentially life-changing consequences of fall-related injuries. Studies have shown that approximately half of middle-aged and older individuals with MS experience at least one fall over a six-month period.

Various physical symptoms place people with MS at risk of falling, but there are psychological risks as well. As MS changes over time and walking becomes more difficult, you may find that you resist accepting help. Being able to walk confidently and independently is important, so the idea of losing that independence may be frightening. Tools and tips that can prevent future falls will help to keep you more independent rather than take your independence away... being receptive to them is half the battle.

Risk factors for falling

Biological risk factors:

Understanding MS symptoms

In MS, damage to the myelin sheath (a substance that protects nerve fibers) in the central nervous system — as well as to the nerve fibers themselves — interferes with the transmission of nerve signals between the brain and spinal cord and other parts of the body. This disruption leads to the following symptoms that may put a person with MS at risk for falling:

Walking, balance and coordination problems

Difficulties with walking are the result of several factors:

- **Weakness** — Muscle weakness is common in MS and can cause gait problems such as toe drag or foot drop. Weakness can also cause knee, hip or ankle instability, which in turn can cause a fall.
- **Spasticity** — Spasticity is one of the most common symptoms of MS and is a major contributor to falls. The term **spasticity** refers to feelings of stiffness and a reduced ability to maintain smooth, controlled movements of a limb. It may be as mild as a feeling of tight muscles, or may be so severe as to produce painful, uncontrollable spasms. Although spasticity can occur in any limb, it is much more common in the legs. When spasticity is present, a great deal of energy must be expended while walking.
- **Loss of balance** — Balance problems typically result in a swaying or uncoordinated type of walking known as **ataxia**.

- **Dizziness and vertigo** — Dizziness can also occur in MS. This may appear as the feeling of being off balance or lightheaded. Much less often, there is a sensation that one’s surroundings are spinning; this condition is known as **vertigo**.
- **Sensory deficits** —Numbness and other sensory disturbances are often the first presenting symptoms of MS. Numbness can make it difficult to be aware of the position of one’s feet or other body parts in space, and may make it difficult to walk on uneven or unstable terrain. Tingling or burning sensations may occur, which can also interfere with function.
- **Tremor** — Fine, rapid, back and forth movements of the limbs and the head can occur with MS. These tremors can often interfere with balance and coordination.

Fatigue

Fatigue is another common symptom of MS, occurring in more than 80% of people with the disease. MS fatigue is commonly described as a feeling of exhaustion that is unrelated to an individual’s level of exertion. This differs from muscle fatigue that results from exertion. When present, fatigue can worsen all of the other symptoms that contribute to mobility problems thus increasing the risk of falling.

Heat Intolerance

Even a very slight increase in body temperature can temporarily worsen MS symptoms and contribute to an increased risk of falling. An increase in temperature may result from either illness-related fever or from a temporary elevation in body temperature caused by hot weather, high humidity, exercise or other exertion, hot baths, or heated swimming pools.

Vision Problems

Difficulty with vision is the first symptom of MS for many people. Double vision, blurring, poor contrast or loss of peripheral vision can compromise a person's ability to walk safely, increasing the risk of tripping.

Cognitive Changes

The term **cognition** refers to a range of high-level brain functions. Cognitive changes are common in people with MS; approximately 50% may experience some difficulty with their cognition over the course of their disease. These problems may include difficulty focusing, maintaining and shifting attention, processing information quickly, and learning and remembering new information. Changes may also be seen in organization, planning and problem-solving skills, as well as the ability to accurately perceive one's environment. The chance of falling is increased when cognitive challenges interfere with a person's ability to focus on walking.

Bowel and Bladder Dysfunction

Although they don't directly affect mobility, bowel and bladder dysfunction may cause an individual who has problems with urgency and/or frequency to rush to the bathroom. Nighttime trips to the bathroom or when a person is drowsy (and less attentive to fall hazards) and in the dark can be particularly dangerous.

Medications

People with MS may take a number of medications to manage both the MS disease process and their MS-related symptoms. **All** medications have side effects, and everyone responds differently to specific medications. A person who is taking several medications — particularly, those that have fatigue, weakness or dizziness as a side effect — may be at increased risk for falls. It is important for people to check the labels of medications and talk to their doctor or pharmacist about how they might affect mobility and safety.

Behavioral risk factors

Deconditioning and inactivity

A sedentary lifestyle, for anyone, leads to deconditioning. Inactivity can result in the loss of muscle tone and weakness, as well as poor posture and impaired balance. Inactivity also results in decreased bone density, which increases the risk of fracture. Deconditioning may also affect cardiovascular fitness, which can have numerous negative effects on health. Identifying problem areas with the assistance of an experienced physical therapist or occupational therapist and developing an exercise routine can be effective in helping to reduce falls and fall-related injuries.

Fear of falling or overconfidence

Falls and injuries from falls can be frightening. Fear is a natural, protective response, and the most common response is to try to avoid situations that produce fear.

Although that kind of avoidance may keep an individual away from dangerous situations, it can also lead to inactivity and isolation, and lead one to severely curtail activities that they enjoy. On the other hand, overconfidence may result in behaviors that increase the risk of falling — rushing, being inattentive to possible hazards, and assuming that falling is just part of living with MS. A more effective approach involves recognizing factors that increase one's fall risk while actively seeking ways to reduce or minimize them in order to maintain involvement in enjoyable activities. Simple modifications to an existing routine or activity may be able to reduce risks.

Environmental risk factors

Eliminating hazardous conditions in the home and office is an important strategy in fall prevention. This may include removing clutter and reducing the risk of tripping by removing throw rugs, fixing poor lighting, or adding supportive features such as grab bars or handrails on stairs, in bathrooms and in home entryways where there are steps.

Public places are filled with potential hazards, including uneven pavement, potholes and steep ramps, to name just a few. Any of these can make it difficult to maintain safe footing, leading to slips, trips or falls. Paying close attention to one's environment and navigating carefully are the most effective ways to prevent injuries. Wearing sturdy shoes with good traction is helpful. It may be necessary to use a mobility aid such as a cane, walker or scooter especially on uneven ground or in unfamiliar surroundings.

Managing your fall risk

Although completely eliminating falls is unrealistic, many of them occur under predictable circumstances. Many falls can be prevented by identifying the key risk factors that contribute to an increased risk for falls and then taking steps to minimize or eliminate them.

A number of strategies can help to reduce your risk of falling. These can include:

- Identify problem areas in your home, workplace and community environments. (See table on page 9 — “Fall-proofing your home and environment”)
- Think about symptoms that may be contributing to your fall risk. For example, might fatigue be a problem? Be aware of your high and low energy times during the day, and consult with an occupational therapist about energy management techniques. What other symptoms do you currently experience that might contribute to your risk of falling? Are these symptoms well-managed? If not, talk to your healthcare professional about how you can minimize these symptoms.
- Use the right mobility device — be sure it fits you correctly and you know how and when to use it properly. Be prepared! You may not need a cane in the morning, but may need it later in the afternoon when you experience greater fatigue. (See page 17—“How to know when you need a mobility device”)

- Know what to do if you do fall. (See page 19 — “If you should fall”)
- Think about your clothing and shoes — are wide-legged or long trousers a possible trip risk? Are flip-flops, high heels or open-back shoes creating more risk for you? Would a pair of sunglasses decrease glare without compromising your ability to see clearly?
- Consider an exercise program designed to reduce fall risk — one that concentrates on balance, core strength, posture and gait. Talk to your doctor and/or a physical therapist about a program that is right for you.
- Explore ways to build confidence and reduce risk by using fall prevention techniques. If the fear of falling is preventing you from participating in activities you enjoy, discuss these fears with your doctor, physical therapist or a counselor. Are the fears realistic?

Fall-proofing your home and environment

Tips for a safe home

Entryways and interior doorways

- ❑ Check entryways, thresholds and doors to identify slippery or uneven surfaces. Consider how your traction on these surfaces may change depending on weather conditions. Omit throw rugs if they put you at a risk of falling.
- ❑ Place reflective or contrasting, non-skid strips on stairs and steps.
- ❑ Railings on both sides of the stairs will provide good support as you enter; railings should extend beyond the first and last step.
- ❑ Install a ramp or threshold ramp to avoid falls on steps or on a doorway lip.
- ❑ Doorways should be clear and wide enough for you to move through them without tripping or bumping into anything.
- ❑ Install lever door handle hardware that will allow you to open a door within minimal strength and dexterity, and with one hand.

In the bathroom

- ❑ Install grab bars on bathroom walls beside tubs, showers and toilets. Towel racks, shower doors and sinks are not designed to hold the weight of a person and can break, resulting in serious injury. Shower doors can also slide unexpectedly and cause a fall.
- ❑ Consider installing a raised toilet seat if you have difficulties getting on and off the toilet.
- ❑ Apply non-skid appliqués or place a non-slip pad in the shower or tub to reduce your risk of a falling while bathing or showering.
- ❑ Avoid throw rugs or tack them down securely with double sided tape.
- ❑ Keep your bathroom well lit. Turn on a light at night or use a night light.
- ❑ Consider using a shower chair or transfer bench with a back and non-skid leg tips if your balance, strength or energy level is a problem.
- ❑ Place a chair or a bench in the bathroom to sit on after bathing to complete the drying off process.
- ❑ Lever faucet handles and a handheld showerhead can make bathing easier and provide better control and balance.
- ❑ Place soap in an old nylon that is tied to a grab-bar or get soap-on-a-rope. This will prevent having to bend down to pick up dropped soap.
- ❑ Exposure to very hot water in the shower or bath may temporarily increase fatigue or weakness. Use caution when getting out of the shower or tub after you are finished.

In the bedroom

- ❑ Turn on lights to avoid walking through dark areas, and make sure you can easily reach the light switch when you enter a room.
- ❑ Make sure that the light by your bed is within easy reach, or keep a flashlight handy.
- ❑ Use nightlights or sensor lights along the path from the bedroom to the bathroom.
- ❑ Keep the path clean around your bed and other walkways, and keep dresser drawers and closet doors closed to avoid running into them.
- ❑ Keep a phone by your bed or carry a mobile phone. Post emergency numbers at every telephone.
- ❑ If you must get up at night, sit on the side of the bed for a moment and get your bearings before standing and getting out of bed.
- ❑ If your pets sleep in the bedroom, be aware of where they are before you get up to avoid tripping over them.

In the kitchen

- ❑ Store frequently used items at a level that avoids stretching, bending and lifting. Put lightweight or least-used objects on top shelves.
- ❑ If you must use a stepstool, use one with stable, non-slip steps and a bar to hold on to — don't stand on a chair.
- ❑ Use a long-handled reacher to get lightweight items down from high shelves or pick things up from the floor.

- ❑ If you have a vision problem, use contrasting color tape on the border of counter tops to avoid bumping into them.
- ❑ A cart can be handy for moving items about so that you don't have to carry them.
- ❑ Clean up spills (dry or wet) on hardwood or linoleum floors immediately. Use a reacher and a towel to avoid bending.

On stairways

- ❑ Put sturdy handrails on both sides of steps — and use them.
- ❑ Fix loose or uneven steps.
- ❑ Make sure the lighting at the top and bottom of your stairway is adequate.
- ❑ Install lights and light switches at both the bottom and the top of the stairs.
- ❑ Periodically check carpets and runners on the stairs to ensure that they are fastened solidly.
- ❑ Make sure you can easily detect the edge of each step. Place brightly colored tapes on the edge of the steps if needed. Consider adding treads or another skid-resistant surface on non-carpeted steps to avoid slipping.
- ❑ Do not leave objects on the stairs. Keep all areas where you walk tidy. Be cautious of pets underfoot.
- ❑ Avoid carrying objects up or down stairs. If you absolutely must transport something, move it from one step to the next as you proceed.
- ❑ Consider a chair lift to avoid unnecessary challenges to your balance or unnecessary energy expenditure.

In other living areas

- ❑ Arrange your furniture to allow a clear path for walking and in a layout that reduces the number of steps needed to enter and exit the room.
- ❑ Avoid any type of furniture on wheels or swivels.
- ❑ Clear your home of clutter. A pile of shoes by the front door, wet towels on the floor of the bathroom, a stray newspaper or stack of books or magazines, or a dog toy on the floor all can be significant fall hazards.
- ❑ Be aware of pets that may be behind you or get underfoot when walking, backing up, or going up and down stairs. Train your dog not to jump up on you (even the small ones).
- ❑ Turn on lights to avoid walking through dark areas. This will help your balance.
- ❑ If glare is a problem, use shades or globes on light fixtures, frosted bulbs, indirect lighting, partially closed blinds and curtains.
- ❑ If it is not possible to remove throw rugs, they should have non-skid backing. Avoid placing them at the bottom or top of the stairs.
- ❑ Keep electric cords, telephone wires and other electrical connectors near the walls and away from walking paths. Use lamps that are easy to turn off and on, with switches that can easily be reached and turned or pushed.
- ❑ If your chairs or sofas are low to the ground, consider pushing them against a wall for stability while getting up, or replace them with taller furniture that has ample arm rests and leg support. Consider raising the height of furniture or using firmer cushions to make transfers easier. Furniture with armrests will also make transfers easier.

- ❑ Contrast in paint, furniture and carpet colors is helpful. Place reflective strips to identify uneven surfaces.
- ❑ If you have a land line phone, keep it easily accessible and allow a number of rings before an answering machine comes on, giving you a chance to answer.

Tips for staying safe in your community environment

- ❑ Wear flat or low-heeled shoes with rubber soles for more solid footing. Avoid leather soles.
- ❑ If possible, plan to have a friend accompany you if you know you will be out for a long period of time. That way, you will have someone who can offer an arm or hand if you need extra support or feel fatigued.
- ❑ Be especially careful during and after stormy weather. Wear boots with non-skid soles. If you're wearing a scarf or hat, make sure it doesn't block your vision or make it difficult for you to hear traffic.
- ❑ When moving on slippery surfaces, take slower, smaller steps. Point your feet slightly outward, keeping your center of balance.
- ❑ Avoid the edge of the sidewalk so that you don't fall off if bumped or if you lose your balance.
- ❑ A heavy backpack or other load can challenge your sense of balance. Avoid carrying too much and leave your hands and arms free to better balance yourself. When you must carry items, hold them in front and close to your belly button area (which is your center of gravity). Use gloves and keep your hands out of pockets.

- ❑ Bright sunny days can create a glare that makes it difficult to see. Be sure to wear the correct eyewear while walking. Bifocals or reading glasses make it harder to see hazards on the ground. During the daytime, wear sunglasses to help reduce glare.
- ❑ Moving from light to dark areas, or vice versa, can cause temporary vision problems, and it may take time for your eyes to adjust. When moving inside from the outdoors, move slowly and be sure to remove your sunglasses so you can see any hazards that may be in the way.
- ❑ Poorly lit areas can make it difficult to see obstacles and notice changes in the walking surface. Move slowly where the light is dim and carefully watch your path of travel. In the evenings, walk where there is plenty of light to help see where you are going.
- ❑ Uneven surfaces and changes in ground height are major causes of trip accidents. Even a small change in walking surface of ¼ inch is enough to cause a trip. Curbs, cracks in the sidewalk, ramps and single steps pose possible tripping hazards. Stop at curbs and check the height before stepping up or down.
- ❑ Watch for bumps, potholes, sidewalk cracks, changes in sidewalk levels or other obstacles that can cause you to trip.
- ❑ When on public transportation — buses, trains, subways, planes — always use handrails when available. Be especially careful in stepping over gaps between where you stand and the vehicle you are boarding. Wait until the vehicle stops moving before getting up to exit.

- ❑ Obstructed aisles or walkways in stores and other crowded places present tripping hazards or may require frequent changes of direction, throwing you off balance. Use care when walking in crowds — being jostled by others can upset your balance.
- ❑ In parks or backyards, loose, irregular surfaces such as gravel, sandy paths and wooden walkways can make it difficult to maintain your footing. Adjust your stride to a pace that is suitable for the walking surface. A shortcut across the lawn or through a flowerbed may not be the best choice.
- ❑ When crossing streets, be careful at curb cuts. The incline and uneven surface may lead to a fall. Take your time when crossing streets — hurrying to cross before the light changes puts you at risk. Stop at islands in the middle of the street when available and wait for the next opportunity to walk.
- ❑ Hold handrails and move slowly when going up or down outdoor stairs. Watch for uneven or irregular steps.
- ❑ In parking lots and garages, be aware of curbs, car stops, speed bumps, parking posts, ramps and any other changes in elevation.

How to know when you need a mobility device

You may need a mobility device (or a change in your current mobility device) if:

- you are experiencing frequent falls, near falls or loss of balance
- you hold on to furniture or walls while walking
- you are expending too much energy when walking
- you avoid certain activities because of mobility difficulties or fear of falling
- you have difficulty maintaining your balance when standing still or moving
- you become fatigued when standing for extended periods of time

When falls are a problem, a mobility device may be needed to enhance your function so you will be able to be safer, be more independent, and do more of the things you want to do.

These devices range from **orthotics** (braces that position a weak or spastic foot properly and compensate for **foot drop**) to canes or walking sticks, crutches, walkers, scooters and wheelchairs. It is important to select one that will best meet **your** needs. Consult a physical or occupational therapist to select the correct device to enhance your mobility. They can help you adjust the device for optimal fit and teach you to use it appropriately and safely.

Be prepared **before** a fall happens

- ✓ Don't wait until you fall to figure out how to get up. Work with a physical therapist to learn the best ways to get up and off the floor in case a fall should occur. Use several scenarios to cover various circumstances.
- ✓ Have the phone numbers of neighbors and/or relatives handy — carry them, as well as emergency numbers (local fire and/or police) in your wallet. Place them near your phone and program them into your mobile phone. Enter an 'in case of emergency' (ICE) number in your phone in case you are unable to make a call.
- ✓ If you fall often, consider getting a personal response system. There are many personal emergency response systems that are controlled with a personal help button on a wristband, waist clip, or pendant. Contact the National MS Society at 1-800-344-4867 for referrals to emergency response system companies.

You can do something **now** to reduce your risk of falling — find a physical therapist familiar with MS, participate in a fall prevention program, (the Society offers an eight-week program entitled: Free from Falls), and scan your home and workplace for potential hazards. To learn more, contact the National MS Society at 1-800-344-4867.

If you should fall

- ✓ Take a few deep breaths and take an inventory of your body to be sure you haven't been seriously hurt. Relax for a minute to get over the shock of falling. Don't try to get up right away, even if well-meaning bystanders rush to get you upright. Getting up too quickly or in the wrong way could make an injury worse.
- ✓ If you think you are injured, don't attempt to get up. Ask someone to call 911 right away. If you are alone and able to do so, use your mobile phone to call for help. If you don't have a phone with you and can't get up, shout for help.
- ✓ Let others help you. Calmly tell those around you how you intend to get up and how they can assist you. Maintaining your composure will keep you in charge.
- ✓ Try to bring some humor to the situation. Humor relaxes you and those around you and makes it easier to recover yourself.
- ✓ Say thank you. Express gratitude to anyone who has helped. Graciousness goes a long way.
- ✓ Let your doctor and other members of your healthcare team know you've fallen. It's important to talk to your doctor about your fall so he/she can work with you to understand the possible causes and minimize the risk of future falls.

The National Multiple Sclerosis Society (“Society”) is proud to be a source of information on multiple sclerosis related topics. The information provided is based on professional advice, published experience, and expert opinion, but does not constitute medical or legal advice. For specific medical advice, consult a qualified physician. For specific legal advice, consult a qualified attorney.

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Early and ongoing treatment with an FDA-approved therapy can make a difference for people with multiple sclerosis. Learn about your options by talking to your healthcare professional and contacting the National MS Society at [nationalMSSociety.org](https://www.nationalmssociety.org) or 1-800-344-4867.

The Society publishes many other resources about various aspects of MS. Visit [nationalMSSociety.org/brochures](https://www.nationalmssociety.org/brochures) or call 1-800-344-4867.

Other popular resources include:

- Preventive Care Recommendations for Adults with MS
- Gait or Walking Problems: Basic Facts
- Disease-Modifying Therapies for MS
- Living with MS
- Exercise as a Part of Everyday Life
- Managing MS through Rehabilitation
- Controlling Spasticity in MS
- Vision Problems: Basic Facts
- At Home with MS: Adapting Your Environment

The National MS Society's mission is for people affected by MS to live their best lives as we stop MS in its tracks, restore what has been lost and end MS forever. To fulfill this mission, the Society funds cutting-edge research, drives change through advocacy, facilitates professional education, collaborates with MS organizations around the world, and provides services designed to help people with MS and their families move their lives forward.



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