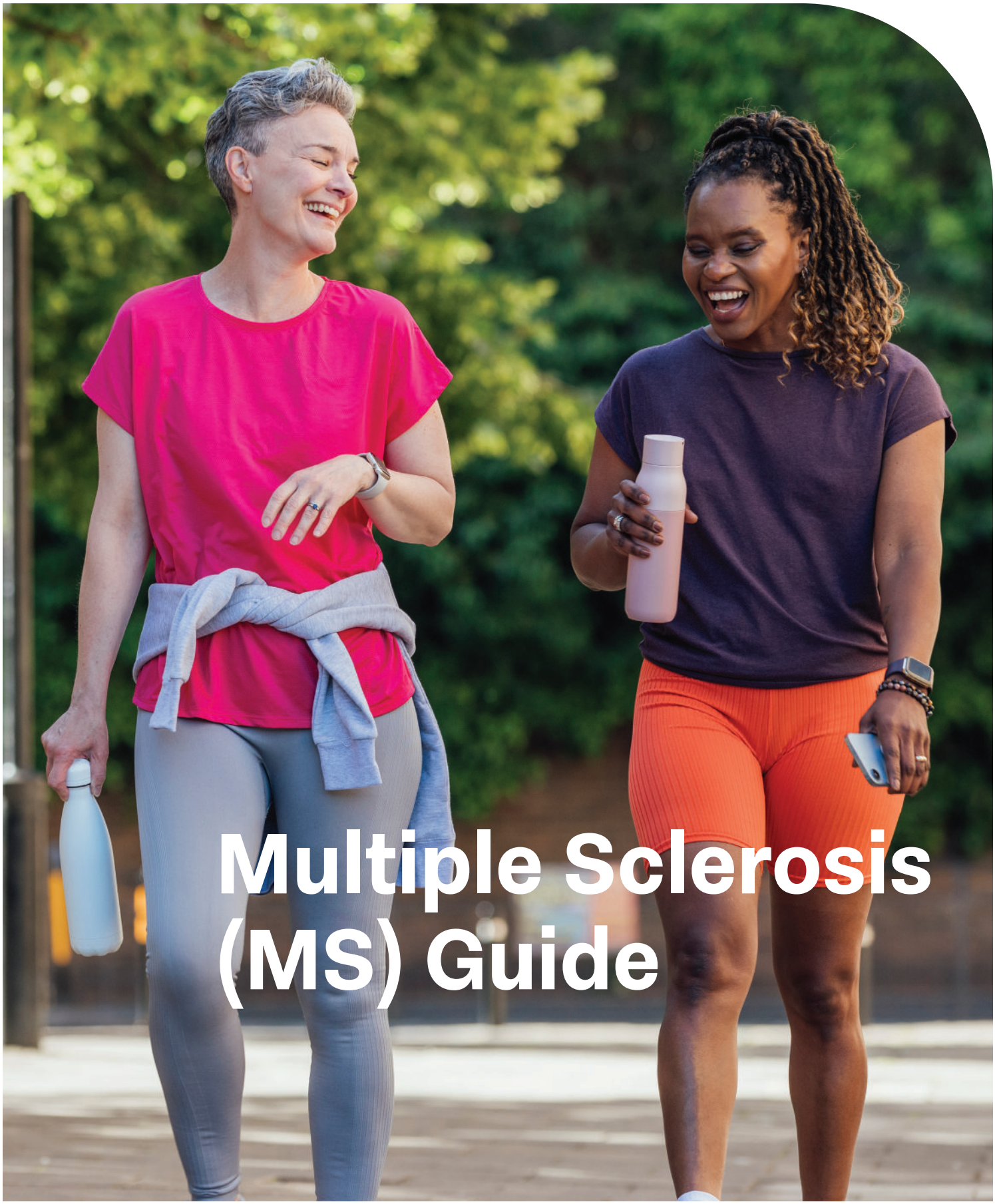

# Multiple Sclerosis (MS) Guide

??? (5/25)

TidalHealth™

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# Welcome

Dear Patient,

We understand you have been given a diagnosis of Multiple Sclerosis (MS), and you likely have many questions about this condition. You may experience a range of emotions, including uncertainty, fear and frustration, as you process what this means for your future. These feelings are completely normal, and we are here to support you every step of the way.

As you begin to learn more about MS, we want to provide you with practical information that will help you make informed decisions and maintain your health as effectively as possible.

Our goal is to provide the best possible care while empowering you with knowledge and resources to manage your condition.

Sincerely,

Your Healthcare Team

MyChart

## Your secure online health connection

To activate MyChart account:

- Go to tidalhealth.org/mychart
- On the right side of the screen click on

**Sign Up (no activation code)**

- Follow instructions
- MyChart helpline 410-543-7450
- You will be sent required questionnaires through MyChart to complete as necessary



# Understanding multiple sclerosis

## What is MS?

Multiple Sclerosis (MS) is a chronic disease that affects the central nervous system (CNS), which includes the brain and spinal cord. It is considered an autoimmune disease, meaning the body's immune system mistakenly attacks its own tissues.

In MS, the immune system targets and damages myelin, the protective covering around nerve fibers. Myelin functions like insulation on an electrical wire, allowing signals to travel smoothly from the brain to the rest of the body. When myelin is damaged or destroyed (a process called demyelination), the nerves can't transmit signals properly, leading to a variety of symptoms. After an attack, lesions can usually be seen on MRI like a scar.

Over time, repeated immune attacks can cause increasing nerve damage, making it more difficult for the nervous system to function correctly.

## Types of MS

MS affects each person differently. Some people experience mild symptoms, while others may have significant disability over time. The course of the disease can be unpredictable, but researchers have identified four main types of MS.

1. **Relapsing-remitting MS (RRMS) – most common**
   - About 85% of people with MS are initially diagnosed with RRMS.
   - Characterized by "relapses" (attacks of new or worsening symptoms) followed by remission (partial or full recovery).
   - During remission, the disease is not actively progressing.
   - Over time, RRMS can transition into secondary progressive MS (SPMS).
2. **Secondary progressive MS (SPMS) – gradual worsening**
   - SPMS usually follows RRMS.
   - In the early stages, people still experience relapses, but remissions become less complete.
   - Eventually, symptoms gradually worsen over time, even without relapses.
3. **Primary progressive MS (PPMS) – steady decline**
   - About 10-15% of MS cases begin as PPMS.
   - Unlike RRMS, people with PPMS do not have clear relapses and remissions.
   - Symptoms gradually worsen from the start, usually affecting mobility.
   - Fewer treatment options exist for PPMS compared to RRMS.
4. **Clinically isolated syndrome (CIS) – first episode of MS-like symptoms**
   - CIS refers to a single episode of neurological symptoms that lasts at least 24 hours.
   - The symptoms are caused by inflammation or demyelination in the CNS.
   - Some people with CIS go on to develop MS, while others do not.
   - If an MRI shows lesions similar to MS, the risk of developing MS is higher.

## What causes MS?

The exact cause of MS is unknown, but researchers believe it results from a combination of genetic and environmental factors.

**Possible risk factors for MS:**

- **Genetics:** Having a family member with MS slightly increases the risk.
- **Epstein-Barr virus (EBV):** Recent studies suggest a strong link between being exposed to EBV (the virus that causes mononucleosis) and MS.
- **Low vitamin D levels:** People who live farther from the equator have a higher risk of MS, possibly due to less sun exposure. Many people with MS are deficient in vitamin D at the time of diagnosis.
- **Smoking:** Smoking increases the risk of developing MS and worsens disease progression.
- **Obesity in early life:** Studies suggest that being overweight in childhood or adolescence increases MS risk.
- **Sex:** MS is three times more common in women than in men, suggesting a hormonal influence.

**What are MS lesions?**

In MS, lesions (also called plaques) occur in areas where myelin has been damaged. These lesions are visible on MRI scans and are most commonly found in:

- **The brain** (especially near the ventricles, the part of the brain filled with spinal fluid).
- **The spinal cord**, often affecting mobility and coordination.
- **The optic nerves**, which can lead to vision problems (i.e. optic neuritis).

Some lesions are active, meaning they light up with gadolinium contrast, and are currently inflamed. Others are inactive, meaning they are older and no longer causing immediate damage, though they may still cause symptoms.

## Common symptoms of MS

MS symptoms vary depending on which part of the central nervous system is affected. Some people experience mild symptoms, while others have more severe challenges.

**Most common MS symptoms:**

- **Muscle weakness and coordination problems:** Difficulty walking or dexterity problems in the hands
- **Numbness or tingling:** Often in the arms, legs or face
- **Fatigue:** One of the most common and disabling “invisible” symptoms
- **Vision problems:** Blurry vision or double vision
- **Cognitive issues:** Trouble with memory, attention or processing speed (“brain fog”)
- **Bladder and bowel dysfunction:** Urgency, frequency, incontinence or constipation
- **Speech and swallowing difficulties:** Less common, but these can occur in later stages
- **Temperature sensitivity:** Some people feel worse in heat (Uhthoff’s phenomenon)
- **Emotional changes:** Anxiety, depression or mood swings

Symptoms can come and go, depending on whether MS is in an active phase (relapse) or a stable phase (remission).



## MS disability progression: then vs. now

**Twenty to 30 years ago (before effective therapies)**

Before the introduction of disease-modifying therapies (DMTs) in the 1990s, MS was often more aggressive and disabling. Most patients with relapsing-remitting MS experienced frequent relapses, leading to accumulated disability over time.

Without treatment:

- 50% of patients developed secondary progressive MS (SPMS) within 10 to 15 years, leading to steady worsening of mobility, cognition and independence.
- Many patients required a cane, walker or wheelchair within 20 to 25 years of diagnosis.
- Frequent relapses caused vision loss, weakness, balance issues and bladder dysfunction, with limited recovery.
- There were no medications to slow disease progression, only steroids for acute attacks.

**Today (with modern MS therapies)**

With the availability of highly effective DMTs, the trajectory of MS has dramatically improved.

Now:

- Relapse rates have dropped by 50-70%, reducing disability accumulation.
- Fewer patients transition to secondary progressive MS within 10 to 15 years.
- Many people with MS remain fully active and independent decades after diagnosis.
- Highly effective treatments like Ocrevus, Kesimpta and Tysabri significantly slow disease progression.
- Patients have more control over symptoms and long-term outlook, with better mobility and cognitive function.
- Today, someone diagnosed with MS has a normal life expectancy.

**The bottom line**

MS is still a lifelong condition, but the likelihood of significant disability is much lower today than it was just two decades ago. With early and aggressive treatment, many people with MS can maintain a high quality of life and remain independent longer than ever before. In many cases, other people may never know about an MS diagnosis unless the person living with MS chooses to disclose it.

# Managing MS symptoms

MS affects each person differently. Some individuals have mild symptoms that come and go, while others experience more persistent or severe challenges. Symptoms vary based on where MS lesions form in the central nervous system and can impact mobility, vision, cognition, energy levels and more.

While there is currently no cure for MS, many symptoms can be managed effectively through medications, rehabilitation therapies and lifestyle adjustments. The goal of symptom management is to maximize function, minimize discomfort and maintain quality of life.

## Common symptoms of MS and how to manage them

Below are some of the most common MS symptoms, along with strategies for helping manage them.

1. **Fatigue**
   - **What it feels like:** Extreme tiredness that isn't relieved by rest and worsens with activity
   - **Why it happens:** MS-related nerve damage, inflammation and energy depletion
   - **How to manage it:**
     - Use techniques to conserve energy (prioritize tasks, take frequent breaks).
     - Partake in regular physical activity (gentle exercises like yoga and swimming).
     - Optimize sleep habits (consistent bedtime, avoid caffeine late in the day).
     - Medications like amantadine or modafinil may help some people.
2. **Numbness and tingling (paresthesia)**
   - **What it feels like:** Burning, tingling or loss of sensation, often in the arms, legs or face
   - **Why it happens:** Damaged nerves send abnormal signals to the brain.
   - **How to manage it:**
     - Use cooling techniques (avoid heat exposure, use cooling vests).
     - Take part in physical therapy to maintain mobility and prevent muscle weakness.
     - Neuropathic pain medications like gabapentin or pregabalin may help if the tingling is painful.
3. **Muscle weakness and mobility issues**
   - **What it feels like:** Difficulty walking, muscle stiffness (spasticity) or trouble with coordination
   - **Why it happens:** Nerve damage prevents signals from reaching the muscles.
   - **How to manage it:**
     - Do physical therapy to strengthen muscles and improve coordination.
     - Use assistive devices (canes, walkers, braces) for fall prevention.
     - Stretch and do flexibility exercises to reduce stiffness.
     - Medications like baclofen or tizanidine may be used to ease spasticity (muscle tightness and spasms).
4. **Vision problems**
   - **What it feels like:** Blurry vision, double vision or sudden vision loss in one eye.
   - **Why it happens:** MS can cause optic neuritis (inflammation of the optic nerve).
   - **How to manage it:**
     - Report any sudden vision changes to your neurologist.
     - Steroid treatments may help with optic neuritis.
     - Use contrast and magnification tools to improve visual clarity.
5. **Cognitive issues ("brain fog")**
   - **What it feels like:** Difficulty with memory, problem-solving, attention and processing speed.
   - **Why it happens:** MS lesions can affect areas of the brain responsible for thinking.
   - **How to manage it:**
     - Do brain exercises (puzzles, memory games).
     - Maintain a structured routine with reminders and notes.
     - Reduce distractions and avoid multitasking.
     - Consider cognitive rehabilitation therapy if needed.
6. **Depression and anxiety**
   - **What it feels like:** Persistent sadness, mood swings or excessive worry
   - **Why it happens:** MS affects areas of the brain that regulate mood, and coping with a chronic illness can be stressful.
   - **How to manage it:**
     - Take part in counseling or therapy (cognitive behavioral therapy can be effective).
     - Use medications, if needed (antidepressants or antianxiety treatments).
     - Exercise regularly to boost mood and reduce stress.
7. **Bladder and bowel issues**
   - **What it feels like:** Frequent urination, urgency, constipation or difficulty emptying the bladder
   - **Why it happens:** MS lesions disrupt nerve signals to the bladder and intestines.
   - **How to manage it:**
     - Schedule bathroom breaks and practice timed voiding.
     - Increase fiber intake and stay hydrated for bowel regularity.
     - Medications or pelvic floor therapy may help with bladder control.

**8. Pain and spasticity**

- **What it feels like:** Muscle spasms, cramps, burning nerve pain or stiffness.
- **Why it happens:** MS affects nerves, controlling movement and pain perception.
- **How to manage it:**
  - Do stretching exercises and massage therapy
  - Use heat or cold therapy (heating pads or ice packs).
  - Medications like baclofen or Botox injections for spasticity may help.

**9. Speech and swallowing difficulties**

- **What it feels like:** Slurred speech, trouble pronouncing words or difficulty swallowing
- **Why it happens:** MS lesions in the brain stem can affect speech and muscle coordination for swallowing.
- **How to manage it:**
  - Speech therapy can improve pronunciation and swallowing techniques.
  - Modify food textures (softer foods, thickened liquids) if needed.

**10. Heat sensitivity (Uhthoff's phenomenon)**

- **What it feels like:** Worsening of MS symptoms in hot weather, after exercise or during fevers
- **Why it happens:** Heat can temporarily worsen nerve conduction.
- **How to manage it:**
  - Use cooling vests, fans or air conditioning to stay cool.
  - Avoid hot showers and hot tubs.
  - Plan activities for cooler parts of the day.



## Recognizing and managing MS relapses

**What is an MS relapse?**
A relapse (also called a flare-up or exacerbation) is when you experience new symptoms that last for at least 24 hours, are constantly present (not coming and going), and are not due to an underlying infection or stress. If an MRI is obtained, it will usually show a new, enhancing lesion.

**What to do during a relapse:**
- Call TidalHealth Neurosurgery to report new symptoms to your neurologist.
- Check for infections (like urinary tract infections), which can mimic a relapse.
- Your provider may recommend steroid treatments (IV or oral corticosteroids).
- Rest and avoid overexertion while recovering.

**What is an MS pseudo-relapse?**
A pseudo-relapse is a temporary worsening of MS symptoms without new disease activity on an MRI or lasting nerve damage. Unlike a true relapse, which is caused by new inflammation in the central nervous system, a pseudo-relapse occurs when old symptoms resurface, or typical symptoms worsen due to external factors such as:
- Heat or humidity (Uhthoff's phenomenon)
- Infections (especially urinary tract infections)
- Stress or fatigue
- Dehydration
- Recent illness or fever

Pseudo-relapses improve once the trigger is addressed. For example, cooling down, treating an infection or getting adequate rest can help symptoms resolve. Unlike a true relapse, pseudo-relapses are not treated with high-dose steroids because there is no new inflammation within the nervous system.

**How to tell the difference between a relapse and a pseudo-relapse:**
- A true relapse lasts at least 24 hours, occurs without an infection or fever, and typically a new lesion is seen on an MRI.
- A pseudo-relapse is a short-term recurrence of old symptoms and is triggered by some sort of stressor on the body.

If you're experiencing worsening symptoms and aren't sure if it's a relapse or a pseudo-relapse, contact your healthcare provider. They can help determine the cause and recommend appropriate treatment.

# MS treatment and medications

**Why treat MS?**
While there is no cure for MS, treatment can slow disease progression, reduce relapses and manage symptoms. When treatment is started early, and particularly when highly effective therapies are started within the first few years of symptom onset, long-term disability is greatly reduced. Treatment for MS today is very different than it was even a decade ago. There are many treatment options, and the best treatment can be tailored to your specific situation.

The main treatment categories include:

- **Disease-modifying therapies (DMTs):** Immune therapies that reduce relapses and prevent disability
- **Symptom management:** Address specific MS symptoms (fatigue, pain, etc.).
- **Lifestyle modification:** Changes to diet, physical activity, social habits, etc.

## Disease-modifying therapies (DMTs) for MS

DMTs reduce the frequency and severity of MS relapses and help prevent new lesions from forming on the brain and spinal cord. In the long term, this equates to less disability since less lesions are forming. Prevention is the name of the game in MS because we currently do not have good treatments to reverse damage once inflammation has occurred in the brain or spinal cord.

**How do DMTs work?**
Most DMTs suppress or modify the immune system to reduce inflammation and slow MS progression. Different medications target different parts of the immune system. There are over 25 medicines for MS, which can be overwhelming.

Your neurologist will help determine which DMT is the best fit for you. This recommendation will be based on many factors, including age, gender, MRI findings (including whether you have any lesions in the spinal cord), other medical conditions you might have, whether you already have any disability from a prior relapse, and your preference on how the medication is taken and how frequently it is administered.

**Low-efficacy DMTs** (First-line therapies with lower efficacy and lower risk)

| Drug name | How it's given | How often | Major side effects |
|---|---|---|---|
| Interferon beta-1a (Avonex) | Injection (into the muscle) | Once per week | Flu-like symptoms, depression |
| Interferon beta-1a (Rebif) | Injection (under the skin) | Three times per week | Flu-like symptoms, depression |
| Interferon beta-1a (Plegridy) | Injection (under the skin) | Every two weeks | Flu-like symptoms, depression |
| Interferon beta-1b (Betaseron) | Injection (under the skin) | Every other day | Flu-like symptoms, liver problems |
| Glatiramer acetate (Copaxone, Glatopa) | Injection (under the skin) | Three times per week | Injection site reaction, chest tightness |

In studies, these medicines reduce new lesions on MRI by **~60%** and reduce new clinical relapses (i.e., new symptoms) by **~30%. 18-20%** of people on these medicines have NO evidence of any MS disease activity after two years on the medicine.

**Medium-efficacy DMTs**

| Drug name | How it's given | How often | Major side effects |
|---|---|---|---|
| Dimethyl fumarate (Tecfidera) | Pill (by mouth) | Twice daily | Skin flushing, GI upset, diarrhea |
| Diroximal fumarate (Vumerity) | Pill (by mouth) | Twice daily | Skin flushing, GI upset |
| Teriflunomide (Aubagio) | Pill (by mouth) | Once daily | Hair thinning, liver problems, birth defects |
| Fingolimod (Gilenya) | Pill (by mouth) | Once daily | Slow heart rate (first dose), liver problems, infections |
| Ponesimod (Ponvory) | Pill (by mouth) | Once daily | Liver problems, infections |
| Ozanimod (Zeposia) | Pill (by mouth) | Once daily | Liver problems, infections |
| Siponimod (Mayzent) | Pill (by mouth) | Once daily | Headache, liver problems, infections |

In studies, these medicines reduce new lesions on MRI by **~80-90%** and reduce new clinical relapses (i.e., new symptoms) by **~45-55%**. **25-40%** of people on these medicines have NO evidence of any MS disease activity after two years on the medicine.

**High-efficacy DMTs** (High-efficacy therapies used for aggressive disease or when first-line agents fail)

| Drug name | How it's given | How often | Major side effects |
|---|---|---|---|
| Ocrelizumab (Ocrevus) | Infusion (into vein) | Every six months | Infusion reaction, infections |
| Ublituximab (Briumvi) | Infusion (into vein) | Every six months | Infusion reaction, infections |
| Ofatumamab (Kesimpta) | Injection (under the skin) | Every month | Injection site reactions, infections |
| Natalizumab (Tysabri) | Infusion (into vein) | Every four weeks | Infusion reaction, PML (if JCV antibody+) |
| Cladribine (Mavenclad) | Pill (by mouth) | Two short courses over two years | Decreased blood counts, infections, cancers |
| Alemtuzumab (Lemtrada) | Pill (by mouth) | Five days first year, three days second year | Decreased blood counts, autoimmune problems, infections |

In studies, these medicines reduce new lesions on MRI by **90-95%** and reduce new clinical relapses (i.e., new symptoms) by **~70%**. **~50%** of people on these medicines have NO evidence of any MS disease activity after two years on the medicine.

## Symptom-specific treatments

MS symptoms vary widely, so treatment is personalized. Below are common symptoms and their medications.

**Fatigue**
- **Amantadine:** Helps with MS-related fatigue
- **Modafinil (Provigil)/armodafinil (Nuvigil):** Used for excessive daytime sleepiness
- Stimulants may help some people, but they are used sparingly due to side effects.
- A sleep study may be recommended if you snore or have periods when you stop breathing at night, since untreated sleep apnea is a leading cause of fatigue.

**Muscle spasticity and stiffness**
- **Baclofen:** A muscle relaxant that reduces spasticity
- **Tizanidine (Zanaflex):** Helps with muscle tightness and spasms
- **Botox injections:** Used for severe spasticity

**Pain and neuropathic symptoms**
- **Gabapentin (Neurontin)/pregabalin (Lyrica):** Used for nerve pain
- **Duloxetine (Cymbalta):** Helps with nerve pain, headache prevention and depression
- **NSAIDs/acetaminophen:** Can help with mild musculoskeletal pain

**Bladder issues**
- **Oxybutynin/tolterodine:** Treats overactive bladder
- **Mirabegron (Myrbetriq):** Helps with urgency and frequency
- A urology referral may be recommended if you have symptoms of both overactive bladder and urinary retention, as treatment for one may make the other worse.

**Cognitive issues (“brain fog”)**
- **Cognitive therapy:** Brain exercises and structured routines
- **B vitamins and omega-3s:** May support brain health
- **Exercise and sleep optimization:** Essential for mental clarity
- Screening for thyroid disease, low vitamin B12

**Depression and mood changes**
- **Selective serotonin reuptake inhibitors (SSRIs):** Such as fluoxetine (Prozac) or sertraline (Zoloft)
- **Counseling and cognitive behavioral therapy (CBT):** Beneficial for coping with MS

## Managing MS relapses

**What is a relapse?**
A relapse (or flare-up) is the development of new MS symptoms, which gradually develop and last at least 24 hours, and are typically associated with a new lesion on MRI.

**How are relapses treated?**
1. **High-dose corticosteroids (methylprednisolone):** IV steroids for three to five days to reduce inflammation
2. **Oral prednisone:** Sometimes used instead of IV steroids
3. **Plasma exchange (PLEX):** For severe relapses not responding to steroids (this is rarely used)

Relapse symptoms often improve over weeks to months, but some residual effects may remain. Physical or occupational therapy may be recommended.



## Alternative and complementary therapies

Many people with MS explore additional therapies alongside conventional treatment. While these do not cure MS, they may help with symptom relief and overall well-being.

1. **Diet and nutrition for MS**
   - **Vitamin D:** Many people with MS need 2,000 to 5,000 IU daily to maintain normal vitamin D levels in the blood.
   - **Omega-3 fatty acids:** Found in fish oil and may help with inflammation
   - **Anti-inflammatory diets:** Mediterranean diet and others that emphasize whole foods, lean meats and healthy fats/oils
   - **Hydration:** Helps with fatigue and bladder health
2. **Exercise and movement**
   - **Low-impact activities:** Swimming, yoga and stretching can maintain flexibility.
   - **Physical therapy:** Strengthens muscles and improves mobility
   - **Balance training:** Reduces fall risk.
   - **Mind-body therapies**
   - **Meditation and mindfulness:** Helps manage stress and anxiety
   - **Acupuncture:** May help with pain and spasticity
   - **Massage therapy:** Can relieve muscle stiffness and stress
3. **Supplements and herbal remedies**
   - **Alpha-lipoic acid:** May have neuroprotective properties.
   - **CoQ10:** Helps with energy production
   - **Magnesium glycinate:** Supports muscle relaxation and nerve function
   - **Melatonin:** May improve sleep quality if taken two to three hours before bedtime

Always check with your doctor before starting supplements, as some may interact with medications.

## Key takeaways

- DMTs help slow disease progression and reduce relapses.
- Symptom-specific treatments improve quality of life.
- Steroids can treat relapses, but prevention is key.
- Lifestyle changes, exercise and complementary therapies support overall well-being.

# Nutrition and MS

## The role of nutrition in MS

While no specific diet can cure MS, research suggests that certain dietary choices may help reduce inflammation, support brain function and manage symptoms.

A healthy diet can:
- Improve energy levels and combat MS-related fatigue.
- Support brain and nerve health.
- Reduce inflammation that may worsen MS symptoms.
- Help maintain a healthy weight, which is important for mobility.
- Support the immune system and reduce the risk of infections.

## Diet

There is no one "best" diet for MS, but there is the most research supporting the Mediterranean diet. Generally, any diet that limits processed foods and added sugars – and that you will be able to follow – will be the best diet for you.

**The Mediterranean diet: Anti-inflammatory and brain-boosting**
The Mediterranean diet focuses on whole, nutrient-dense foods and is linked to lower inflammation and better brain health.

Key foods to eat:
- **Fruits and vegetables:** Rich in antioxidants and vitamins
- **Fatty fish (salmon, sardines, mackerel):** High in omega-3 fatty acids, which may help reduce inflammation
- **Healthy fats (olive oil, nuts, avocados):** Support brain and nerve function
- **Whole grains (brown rice, quinoa, oats):** Provide sustained energy
- **Lean proteins (eggs, poultry, beans, lentils):** Essential for muscle maintenance

Foods to limit:
- **Processed foods and refined sugars:** Can increase inflammation
- **Red and processed meats:** Linked to increased inflammation in some studies
- **Trans fats and fried foods:** Harmful to cardiovascular and brain health

## Important nutrients

**Vitamin D: The "MS Vitamin"**

Why it's important:
- Low vitamin D levels are linked to increased MS risk and disease activity.
- Vitamin D helps regulate the immune system and may protect against further nerve damage.

How to get it:
- Sun exposure (15-30 minutes a day when possible)
- Foods rich in vitamin D (fatty fish, eggs, fortified dairy or plant-based milk)



How to get it:
- Supplements (most MS specialists recommend 2,000-5,000 IU of vitamin D3 daily)

**Get your vitamin D levels checked regularly. Your doctor may recommend higher doses if your levels are low.**

**Omega-3 fatty acids: Reduce inflammation and support brain health**

Sources:
- Fatty fish (salmon, tuna, sardines)
- Chia seeds, flaxseeds, walnuts
- Fish oil supplements (1,000-2,000 mg/day)

**B vitamins: Energy and nerve function**

Why they're important:
- B vitamins support nerve function and energy production.
- Low B12 levels can cause MS-like symptoms, such as fatigue and numbness.

Sources:
- Meat, eggs, dairy (for B12)
- Leafy greens, whole grains (for B-complex vitamins)
- Supplements if needed **(avoid high doses of B6, as it can cause nerve damage)**

**Magnesium: Muscle and nerve function**

Why they're important:
- Helps relax muscles and reduce spasms
- Supports nerve transmission and cognitive function

Sources:
- Nuts, seeds, dark leafy greens, whole grains
- Magnesium supplements (consult your doctor for the right dosage)

**Probiotics and gut health: Supporting the immune system**

Why they're important:
- A healthy gut microbiome may help regulate immune function in MS.

Sources:
- Yogurt, kefir, kimchi, sauerkraut and kombucha
- Probiotic supplements (check for multi-strain formulas with at least 10 billion CFU)

## Foods to avoid

- **Highly processed foods:** Can increase inflammation
- **Sugary drinks and sweets:** Can cause energy crashes and worsen fatigue
- **Excessive dairy:** Some people with MS report worsened symptoms.
- **Alcohol and caffeine in excess:** Can worsen bladder issues and fatigue
- **Artificial sweeteners:** Some may trigger neurological symptoms in sensitive individuals.

**Keeping a food journal can help identify foods that worsen your symptoms.**

## Hydration

**Staying hydrated is crucial for MS symptom management.**

- Aim for six to eight glasses of water daily.
- Herbal teas can be a good alternative.
- Avoid excessive caffeine and alcohol.

**If bladder issues make drinking water difficult, try smaller, frequent sips throughout the day.**

## Key takeaways

- A nutrient-dense, whole-food diet can help manage MS symptoms.
- Vitamin D, omega-3s and magnesium are key nutrients for MS.
- Limiting processed foods and added sugars may reduce inflammation.
- Staying hydrated supports overall health and energy levels.

# Physical activity

## Why exercise matters

Exercise is one of the most effective ways to maintain strength, improve mobility and reduce MS symptoms. Studies show that regular physical activity can:

- Reduce fatigue and increase overall energy levels.
- Improve balance and coordination to prevent falls.
- Strengthen muscles and maintain mobility.
- Boost cognitive function and memory.
- Reduce stress, anxiety and depression.
- Improve bladder and bowel function.
- Slow disease progression in some cases.

The key to exercising with MS is to listen to your body, pace yourself and choose activities that match your ability level. The best exercise for you is the one that you are going to do – find something you enjoy and try to do it consistently.

## Best types of exercise

1. **Low-impact aerobic exercise – build endurance and heart health**
   - **Examples:** Swimming, walking, cycling, seated aerobics
   - **Why it helps:** Improves cardiovascular health, increases energy and reduces fatigue
   - **Tips:**
     - Start slow and gradually increase intensity.
     - Use cooling vests or exercise in air-conditioned spaces to avoid overheating.
     - If walking is difficult, try pool therapy or stationary cycling.
2. **Strength training – maintain muscle and mobility**
   - **Examples:** Bodyweight exercises, resistance bands, light weights
   - **Why it helps:** Prevents muscle weakness and supports joint stability
   - **Tips:**
     - Focus on functional movements (squats, leg lifts, chair stands).
     - Use light weights and higher repetitions to prevent overexertion.
     - If grip strength is an issue, try wrist weights or adaptive equipment
3. **Balance and coordination exercises – prevent falls**
   - **Examples:** Tai chi, standing on one leg, heel-to-toe walking
   - **Why it helps:** Strengthens stabilizing muscles, improving walking ability
   - **Tips:**
     - Hold on to a chair or countertop for support.
     - Practice weight shifting exercises to improve balance.
     - Tai chi has been shown to improve coordination and reduce falls in MS patients.
4. **Stretching and flexibility – reduce stiffness and spasticity**
   - **Examples:** Yoga, Pilates, simple daily stretches
   - **Why it helps:** Loosens tight muscles and improves range of motion
   - **Tips:**
     - Stretch gently and consistently, especially after long periods of sitting.
     - Yoga poses like child's pose, seated twists and cat-cow stretches are great for MS.
     - Foam rolling or massage therapy may also help with muscle tightness.
5. **Adaptive exercises – modified movements for limited mobility**
   - **Examples:** Chair exercises, seated resistance training, assisted standing
   - **Why it helps:** Keeps muscles engaged for those with more advanced MS.
   - **Tips:**
     - Seated leg lifts, arm curls and core exercises can be done in a chair or bed.
     - Hand cycles (arm-powered stationary bikes) provide cardio exercise for those with limited leg mobility.
     - Consult a physical therapist for customized adaptive workout plans.

## Exercise modifications based on MS symptoms

| MS symptom | Exercise tips |
|---|---|
| Fatigue | Exercise in short sessions (10-15 minutes) and focus on seated exercises. |
| Spasticity and stiffness | Stretch daily and use slow, controlled movements. |
| Weakness in legs | Use pool therapy or cycling to reduce strain. |
| Balance issues | Try seated or supported exercises (e.g., chair yoga). |
| | Exercise in cool environments, and use cooling vests or fans. |

The goal is to keep moving without overexerting yourself. Rest when needed and stay hydrated.

## Using mobility aids

If your MS affects your balance or leg strength, mobility aids can help maintain independence and prevent falls.

**Types of mobility aids**
- **Cane:** Helps with balance, especially for one-sided weakness
- **Walker/rollator:** Provides more support than a cane and includes a seat for rest breaks.
- **Ankle-foot orthosis (AFO) brace:** Helps foot drop (difficulty lifting the foot)
- **Wheelchair/scooter:** For longer distances or advanced MS

**Choosing the right aid:**
- If you occasionally lose balance, a cane or walker may be enough.
- If you struggle with long distances, consider a mobility scooter for outings.
- A physical therapist can assess your needs and recommend the best device.
- Mobility aids are tools for independence, not limitations. They help conserve energy and reduce fall risk.

## Fall prevention tips

**Modify your home:**
- Remove loose rugs and clutter to prevent tripping.
- Install grab bars in the bathroom for stability.
- Use nonslip mats in the shower and kitchen.

**Safe walking practices:**
- Take small steps and avoid sudden turns.
- Use handrails when available.
- Wear sturdy, nonslip shoes.

**Conserve energy:**
- Plan activities for times of day when you have the most energy.
- Use a chair while cooking or getting dressed to avoid standing for long periods.

If you've had multiple falls or feel unsteady, ask your doctor for a fall risk assessment.



## Key takeaways

- Exercise improves mobility, reduces fatigue and supports brain health.
- Low-impact activities like swimming, walking and yoga are excellent for MS.
- Strength training helps maintain muscle function and independence.
- Mobility aids help conserve energy and prevent falls.
- Making your home safer reduces the risk of accidents.

# Emotional well-being and mental health with MS

## The emotional impact of MS

Living with MS is not just a physical challenge—it also affects your emotions, relationships and mental health. Adjusting to a chronic illness can bring up feelings of:
- **Uncertainty:** Not knowing how MS will progress
- **Frustration:** Struggling with physical limitations
- **Depression and anxiety:** Changes in mood, worry about the future
- **Anger or resentment:** Feeling like life is unfair
- **Acceptance:** Finding ways to move forward and live well with MS

These feelings are completely normal. The key is to acknowledge them and seek support when needed.

## Common mental health challenges

**1. Depression and MS**

Why it happens:
- MS affects parts of the brain that regulate mood.
- Chronic stress and uncertainty can lead to depression.
- Some MS medications (like interferon) may contribute to depressive symptoms.

Signs of depression:
- Persistent sadness or hopelessness
- Loss of interest in activities you once enjoyed
- Fatigue and sleep disturbances
- Difficulty concentrating or making decisions
- Feelings of worthlessness or thoughts of self-harm

**Ways to manage depression:**
- Talk to a therapist or counselor.
- Consider using antidepressant medication (if recommended by your doctor).
- Stay active — exercise has been shown to improve mood.
- Engage in hobbies and social activities.
- Join an MS support group to connect with others.

**2. Anxiety and stress in MS**

**Why it happens:**
- Fear of disease progression
- Worry about finances, employment and relationships
- Uncertainty about treatment effectiveness

**Signs of anxiety:**
- Constant worry or racing thoughts
- Trouble sleeping
- Feeling overwhelmed or unable to relax
- Physical symptoms like rapid heartbeat, sweating or dizziness

**Ways to reduce anxiety and stress:**
- **Mindfulness and meditation:** Apps like Calm and Headspace can help.
- **Breathing exercises:** Deep breathing can calm the nervous system.
- **Break tasks into smaller steps:** Avoid feeling overwhelmed.
- **Reduce stimulants:** Caffeine can increase anxiety symptoms.
- **Cognitive behavioral therapy (CBT):** A type of therapy that helps change negative thought patterns.

## Strategies for coping with MS

**1. Finding meaning and purpose**
- Set small, achievable goals to maintain motivation.
- Get involved in volunteering or advocacy for MS awareness.
- Consider journaling to process emotions and track progress.

**2. Staying connected**
- Surround yourself with supportive friends and family.
- Join an MS support group (in-person or online).
- Consider therapy for emotional support and guidance.

**3. Practicing self-compassion**
- Don't blame yourself for having MS—it's not your fault.
- Celebrate small victories and progress, even on difficult days.
- Allow yourself rest days without guilt.

Adjusting to MS takes time. Give yourself grace and patience.



**A note about online support groups**

For some people newly diagnosed with MS, joining support groups or online forums can be overwhelming rather than helpful. While these spaces can provide valuable information and connection, they may skew toward negative experiences, as individuals facing more severe challenges are more likely to seek support and share their stories.

This can create a misleading impression that disability or rapid progression is inevitable, which is not the reality for most people with MS today — especially with effective treatments available.

If you find that online forums increase your anxiety rather than offer reassurance, it may be best to limit your time in these spaces and instead seek information from your healthcare team or trusted sources. Connecting with others who have a more balanced or hopeful perspective on living with MS can be more beneficial as you adjust to your diagnosis.

## Relationships and MS

MS affects not only the person diagnosed but also their loved ones. Open communication and mutual support are key to maintaining healthy relationships.

**1. Talking to family and friends about MS**

**How to start the conversation:**
- Be honest about what you're experiencing.
- Explain that MS symptoms can vary from day to day.
- Let them know how they can support you (help with errands, emotional support).
- Sometimes, loved ones may not fully understand MS at first. Give them time and resources to learn.

**2. MS and intimate relationships**

**Challenges:**
- Fatigue and pain may affect physical intimacy.
- Mood swings or depression can create emotional distance.
- Partners may feel unsure how to help.

**Solutions:**
- **Open communication**: Discuss concerns and needs with your partner.
- **Find new ways to connect:** Emotional intimacy is just as important as physical.
- **Talk to a therapist:** Couples counseling can help with navigating challenges.

MS does not mean the end of romance — adaptation and communication can keep relationships strong.

## Mental health resources

**Crisis support:**
- **988 Suicide & Crisis Lifeline (U.S.):** Call 988 for 24/7 support.
- **National MS Society Emotional Support Hotline:** 1-800-344-4867

## Mental health resources continued

**Online support groups and communities:**
- **MS Society support groups:** www.nationalmssociety.org
- **MS Connection:** www.msconnection.org
- **MS Facebook groups** – Search for "multiple sclerosis support."

You are not alone. If you are struggling, reach out — help is available.

## Key takeaways

- MS affects mental health, but depression, anxiety and mood swings can be managed.
- Coping strategies include therapy, mindfulness and maintaining a support system.
- Open communication strengthens relationships and reduces stress.
- Caregivers need support, too — resources are available.
- Seeking help is a sign of strength, not weakness.

# Legal, financial and future planning

Living with MS involves not only medical and lifestyle adjustments, but also important legal and financial considerations. Planning ahead can reduce stress, protect your rights and ensure you receive the care and support you need in the future.

## Legal rights and workplace accommodations

Many people with MS continue working for years after diagnosis. However, some may need workplace accommodations or may eventually transition to disability benefits.

### 1. Know your rights – Americans with Disabilities Act (ADA)

The ADA protects individuals with MS from discrimination in the workplace and ensures access to reasonable accommodations.

**What the ADA covers:**
- Employers must provide reasonable accommodations if MS affects job performance.
- Protects against wrongful termination due to MS symptoms.
- Ensures equal access to public spaces and services.

**Examples of workplace accommodations for MS:**
- Flexible work schedules (for fatigue management)
- Remote work options (if commuting is difficult)
- Ergonomic chairs or standing desks (to reduce pain/spasticity)
- More frequent breaks (to manage symptoms)
- Cooler work environments (for heat sensitivity)



**How to request accommodations:**
- Inform your employer's human resources department (you do NOT have to disclose full medical details).
- Provide a doctor's note recommending accommodations.
- Work with HR to find a reasonable solution.

## Disability benefits, insurance

If MS makes it difficult to work, you may qualify for disability benefits.

### 1. Social Security Disability Insurance (SSDI) – long-term disability benefits

**Who qualifies?**
- You must have worked and paid Social Security taxes.
- Your MS symptoms must prevent you from working full-time.
- Your condition must be expected to last at least 12 months.

**How to apply:**
- Apply online at www.ssa.gov or visit a local Social Security office.
- Submit medical records, MRI reports and doctor's statements proving disability.
- Expect a three- to six-month processing time (many cases are initially denied).

Tip: If denied, consider hiring a disability lawyer to appeal.

### 2. Supplemental Security Income (SSI) – Financial aid for low-income individuals

- This is for people with limited income and assets.
- No work history is required.
- It covers basic living expenses (housing, food, healthcare).

### 3. Private long-term disability insurance

If you have long-term disability insurance through an employer or private plan, you may qualify for monthly payments.

**Check your policy for:**
- Coverage start dates (some require six to 12 months off work before benefits begin).
- Definition of disability (some plans require total disability; others allow partial work).

If your claim is denied, an attorney can help appeal.

## Financial planning and MS

**Managing healthcare costs**

**Medication costs:**
- Many MS medications are expensive.
- Patient assistance programs (from drug manufacturers) may lower costs.
- Copay assistance foundations help cover out-of-pocket costs.

**Health insurance tips:**
- Review your plan for MS medication coverage.
- Check if physical therapy, mobility aids and home modifications are covered.
- Consider Medicare or Medicaid if you qualify.

The National MS Society offers financial assistance programs. Visit www.nationalmssociety.org for more information.

## Resources for legal and financial assistance

**Legal help**
- **National Disability Rights Network** – www.ndrn.org
- **ADA National Network** – www.adata.org

**Financial assistance**
- **National MS Society** – www.nationalmssociety.org
- **NeedyMeds** (for medication costs) – www.needymeds.org

**Disability benefits help**
- **Social Security Administration** – www.ssa.gov

## Key takeaways

- MS is covered under the ADA, and workplace accommodations can help maintain employment.
- Disability benefits (SSDI, SSI) may provide financial support if working becomes impossible.

## Final thoughts and next steps

**Living well with MS**

While MS presents challenges, you are not alone. With the right medical care, lifestyle adjustments and support network, many people with MS lead full, active and meaningful lives.

**Next steps:**
- Stay proactive about treatment and symptom management.
- Reach out for support (friends, family, MS groups).
- Take care of your mental and emotional well-being.
- Plan for the future with legal and financial safeguards.

Remember: You are stronger than MS. With the right knowledge, support and resources, you can continue to thrive.



# Notes


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