



# Multiple Sclerosis and Sleep

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Over 2 million people worldwide live with multiple sclerosis (MS), a chronic neurological disease affecting the brain, spinal cord, and optic nerves that makes it difficult for the body to move. Because MS itself makes one feel fatigued, it can mask symptoms of other sleep disorders, such as insomnia, sleep apnea, restless leg syndrome, and hypersomnia. Worse, not getting sufficient sleep can worsen other symptoms of MS, as sleep is critical to proper cognitive functioning, muscle restoration, mood regulation, and more.

## Sleep disorders associated with multiple sclerosis

Many of the symptoms of multiple sclerosis (MS) contribute to or cause sleep problems, which in turn worsen symptoms of MS. For example, part of the brain damage from MS may cause sleep issues by

interfering with the [internal circadian clock](#) that regulates the sleep-wake cycle.

[Individuals with MS](#) may be three times more likely to experience disturbed sleep, and are twice as likely to report a lower quality of sleep.

The most common sleep disorders associated with MS include:

- [Fatigue](#): Affecting 90 percent of individuals with MS, fatigue describes a chronic or extended period of tiredness that's distinct from normal sleepiness. Unlike normal sleepiness, which usually goes away after a few hours of sleep, fatigue is not relieved by getting sleep.
- [Insomnia](#): Sleep-onset insomnia describes difficulty falling asleep, which may be due to the pain or discomfort caused by MS, depression, or something else. Individuals with MS often experience fragmented sleep – known as sleep-maintenance insomnia – due to awakenings from muscle pain and spasms during the night.
- [Obstructive sleep apnea](#): OSA describes potentially dangerous sleep-disordered breathing where the individual literally stops breathing during sleep due to a blockage of the airways. Because individuals assume it's "just" snoring or don't wake up

from apnea episodes, OSA is highly underdiagnosed, although experts estimate it affects as many as 1 in 15 people.

- **Restless leg syndrome**: RLS describes a strong urge to move the lower limbs, accompanied by pain, discomfort, or a “pins and needles” sensation. Symptoms typically worsen at night or during rest periods, when a person is lying down. Walking or stretching relieves the sensations.
- **Narcolepsy**: Characterized by chronic frequent daytime sleepiness, a person with narcolepsy experiences spontaneous bouts of “sleep attacks” which can last from several seconds to over thirty minutes. Symptoms don’t go away even if the individual gets a normal amount of sleep at night. Currently there is no cure for narcolepsy.
- **Hypersomnia**: This is the opposite of insomnia. People with hypersomnia sleep too much, for excessively deep or long periods of time. Individuals with hypersomnia have difficulty waking up and don’t feel refreshed from sleep, which may lead to **excessive napping** during the day (that in turn may cause insomnia).
- **Nocturia**: This condition describes excessive rousing from needing to urinate during the night, causing fragmented sleep and

disrupting the sleep cycle. One symptom of MS is reduced bladder control, which can cause this nighttime incontinence.

## Diagnosing sleep disorders in MS

Sleep disorders are common among individuals with multiple sclerosis (MS). Unfortunately, a large number of these are underdiagnosed, as demonstrated by these findings from a [2014 study](#) of 2,375 individuals with MS:

- 37.8 percent of participants had obstructive sleep apnea (OSA), but only 4 percent were diagnosed.
- 31.6 percent suffered from insomnia, but only 11 percent were diagnosed.
- 36.8% had restless legs syndrome (RLS), but only 12 percent were diagnosed.

Many of the symptoms of MS mask deeper sleep issues. For example, Sleep disorders like OSA and RLS further intensify insomnia and result in [worsened fatigue](#).

Pain from MS can cause insomnia and disturbed sleep. It's normal for the body to shift positions during the night in order to relieve strain on the skin and tissue. However, many individuals with MS have difficulty moving themselves around, so they make wake up during

sleep from discomfort, whereas a person without MS could move while asleep.

Individuals with MS are also likelier to have [depression](#), which often goes hand in hand with fragmented sleep, insomnia, and/or hypersomnia.

If an individual believes they may have a sleep disorder, a doctor can help with diagnosing (perhaps through the use of an overnight [polysomnography](#) exam in a sleep lab that measures the brain waves) and preparing a treatment plan.

## What is multiple sclerosis?

Multiple sclerosis (MS) is a neurological disorder affecting the brain, spinal cord, and optic nerves. When a person has MS, their immune system attacks myelin – a material that forms a protective sheath around your nerve fibers. As the myelin breaks down, it can result in nerve damage and scar tissue that makes it difficult for the body to move and for the brain to send signals to their body to perform various functions.

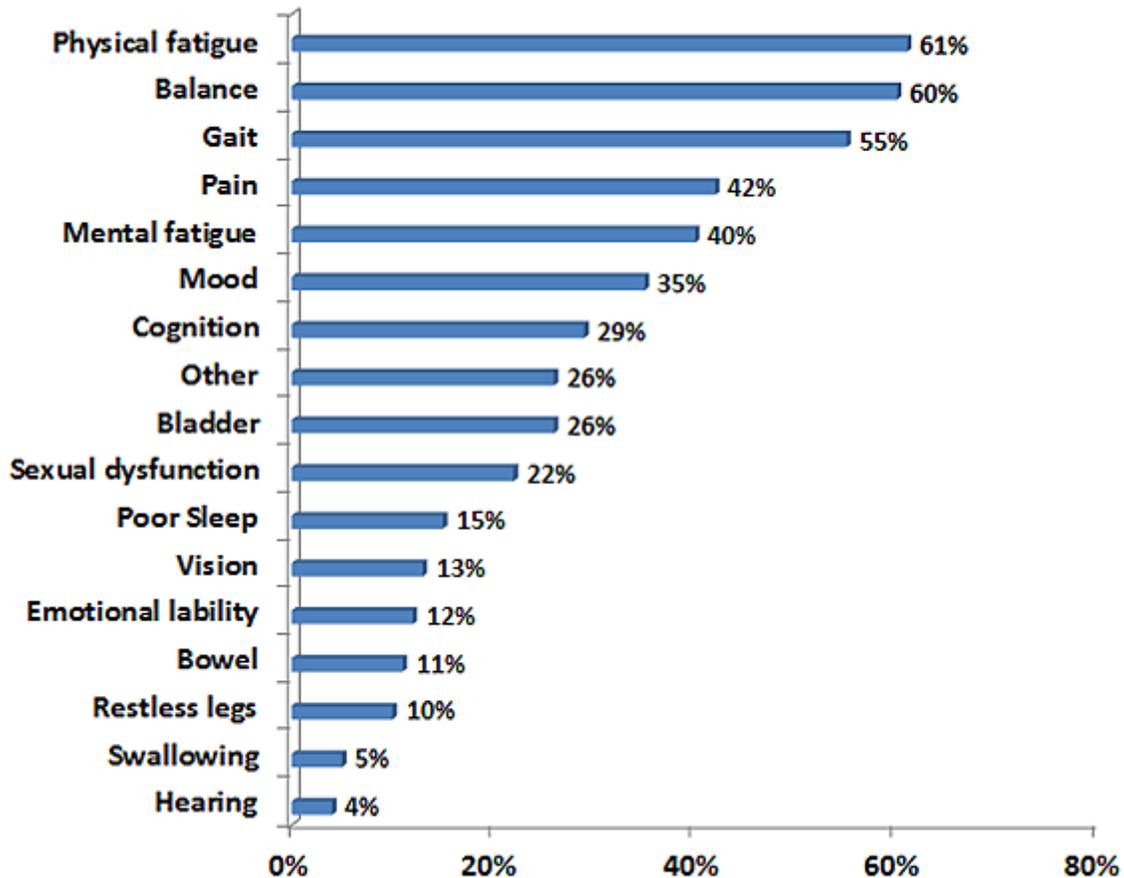
## Symptoms of multiple sclerosis

MS affects people differently. Some individuals symptoms consistently worsen over time, while others experience relapses that are immediately worse, followed by periods of improvement.

Individuals with MS experience mental, emotional, and physical symptoms, which contribute to, cause, or exacerbate sleep issues:

SYMPTOMS OF MS	SLEEP ISSUES
Difficulty walking	Fatigue
Muscle weakness, numbness, or tingling	Insomnia
Vision problems	Sleep apnea
Sexual dysfunction	Hypersomnia
Reduced bladder and bowel control	Restless legs syndrome
Generalized pain	Narcolepsy
Reduced balance and coordination	Nocturia
Depression	
Difficulty focusing	
Poor memory	

## Most Common MS Symptoms



Source: [MS Unites](#)

### What causes multiple sclerosis?

It is estimated that 2.3 million people worldwide have multiple sclerosis (MS). While the cause of MS is still unknown, [some people](#) tend to be at higher risk of contracting the disorder than others:

- [Women](#) are 2 to 3 times more likely than men to have MS.
- Caucasian people are twice as likely to have MS than people from other racial backgrounds.

- People who live in northern climates are five times likelier to have MS than people who live in the tropics.
- Smokers are at greater risk than non-smokers.
- Certain genes are more correlated with the disease.
- People with a viral infection that compromises their immune system may be more likely to get the disease (or if they already have it, the viral infection may cause a relapse).

### How is multiple sclerosis diagnosed?

Individuals first start to see signs of MS between age 20 and 40.

Because many of the symptoms of MS can be confused with other disorders, a series of tests is typically performed by a neurologist to confirm a MS diagnosis and rule out other causes. These tests include a standard wellness check, blood tests, MRI scan, cerebrospinal fluid analysis, and an evoked potentials test which measures activity in the brain.

### Is there treatment for multiple sclerosis?

Currently, there is no cure for MS. However, there are a variety of prescription drug, therapy, and other treatment options to help individuals manage their symptoms.

Vitamin D may strengthen the immune system and stave off MS.

Some studies have shown that individuals at risk of MS are less likely to get the disease after moving to sunnier climates.

There are a variety of prescription drugs available that slow nerve damage or address specific symptoms of MS.

Physical therapists work with MS patients to develop strength and balance exercises so they can move around better. Some individuals with MS may use a cane or walker to help them move around.

Occupational therapy can provide alternate ways of doing things to make life easier.

## **MS and fatigue**

Fatigue is the most commonly reported symptom of multiple sclerosis (MS), affecting as many as [90 percent](#) of individuals at some point during the disease. Individuals with MS experience two types of fatigue:

1. General tiredness that may worsen in the afternoon or after an activity
2. Muscular tiredness after repeated activity such as walking

Researchers still aren't sure what causes MS-related fatigue, although there are a few theories. One is that their weakened immune system

causes the fatigue. Both individuals with MS and individuals with fatigue have [high levels of cytokine](#), which perform a key role in cell communication during inflammation and infection.

Another theory focuses on the brain. The fatigue may be a result of the brains of individuals with MS having to work harder to perform the same tasks as others without MS, or it could be due to the way the brain communicates with itself and other parts of the body when the person has MS.

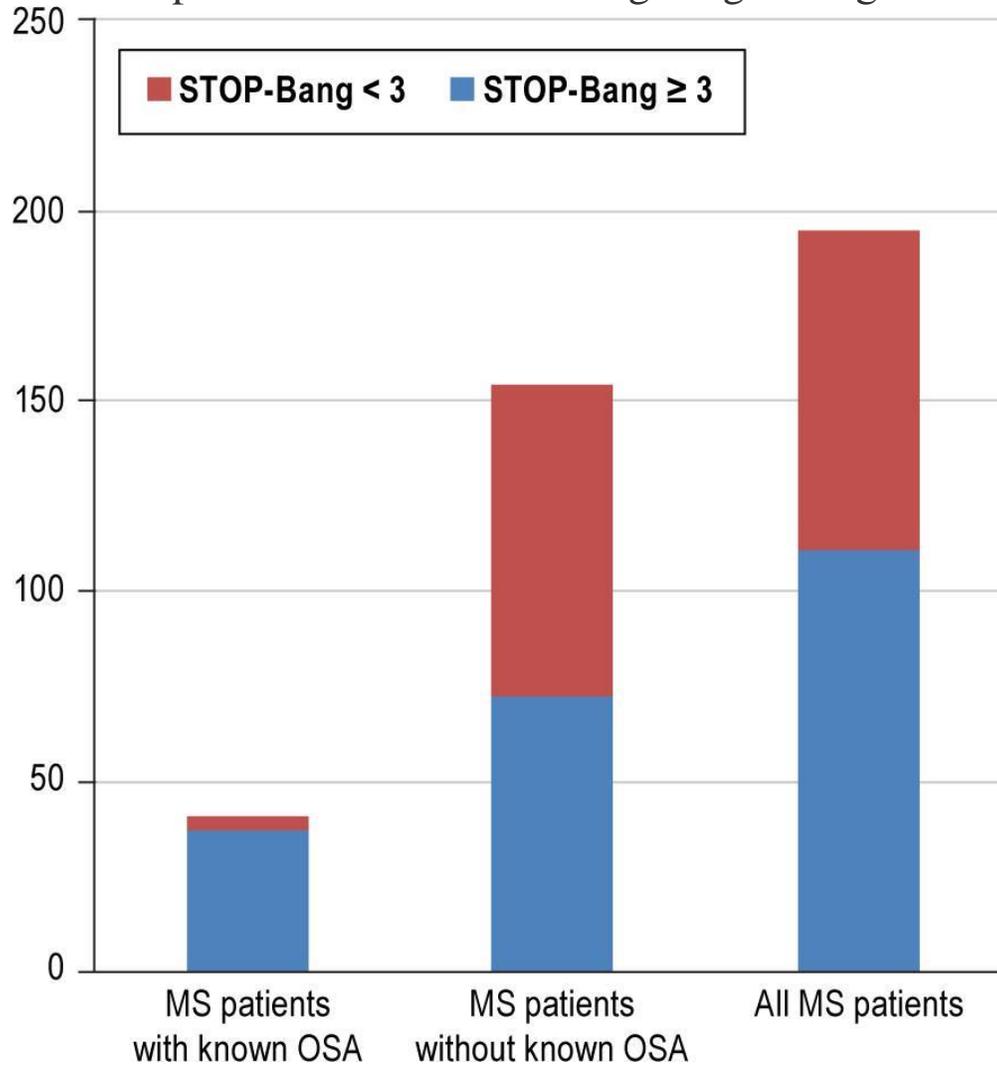
MS-related fatigue could also be caused by the other sleep issues comorbid with MS, such as sleep apnea. Over half of the MS patients in a [2014 study](#) demonstrated symptoms of sleep apnea. Researchers are still researching to determine if there is a cause-and-effect relationship sleep apnea and fatigue.

## **MS and sleep apnea**

Obstructive sleep apnea (OSA) disproportionately affects individuals with multiple sclerosis (MS). For comparison, 3 percent of the general population has OSA, but estimates for MS are as high as 20 percent.

Sleep apnea describes sleep-disordered breathing caused by a blockage of the airways. This blockage literally stops the flow of

oxygen, forcing your brain to wake you up in order to start breathing again. The disruption makes it difficult to get a good night's sleep.



*STOP-Bang is a diagnostic test used for sleep apnea. High scores indicate a high probability of OSA. (Source: [Journal of Clinical Sleep Medicine](#))*

Individuals with MS can have a tendency to be overweight due to a variety of factors caused by the disease: the fatigue makes it exhausting to exercise, and it's more challenging for the brain to tell the body to move. Plus, some of the steroids prescribed to treat MS can cause weight gain.

Being overweight is a major risk factor for sleep apnea, because the fatty tissue sits over your airways and creates a blockage that results in sleep apnea.

Even if they are not overweight, individuals with MS are more likely to have sleep apnea because brain damage from the disease may prevent the brain from properly controlling breathing during sleep.

Snoring, choking, and gasping during sleep are all common indicators of sleep apnea. Concerned individuals should consult their doctors for a diagnosis and treatment plan.

## **MS and restless legs syndrome**

Also known as Willis-Ekbom Disease, restless leg syndrome (RLS) is characterized by an uncontrollable urge to move the legs during rest or when lying down.

Individuals with multiple sclerosis (MS) are much likelier to have RLS than the general population. One [study](#) found over 30 percent of MS patients also had RLS, nearly [three times](#) as prevalent as the general population. Women in particular are more likely to have either RLS or MS than men, and [women with MS](#) are 3 to 4 times more likely to have RLS or severe RLS than women without MS.

Sometimes individuals with MS also have [periodic limb movement disorder](#) (involuntary muscle twitching during sleep) but this could be muscle spasticity associated with the disease. A polysomnogram test will be able to tell the difference.

### Is it RLS or MS?

- **Extensor spasms:** In MS, extensor spasms occur when a limb stiffens and the individual cannot bend their joint. Eventually the limb will jerk away, and at times the movement can be so intense as to cause a person to fall out of their bed or chair. In MS extensor spasms are involuntary movements that are caused by movement, whereas the urge to move the limbs in RLS goes away partially or completely with movement.
- **Parasthesias:** In MS, paresthesias describe unpleasant tingling and/or numbing sensations in the lower legs and feet. They usually occur during the day, and movement intensifies the sensation. In contrast, movement relieves similar tingling sensations caused by RLS, which occur at night rather than during the day.

While most cases of RLS are idiopathic, a [2013 study](#) concluded that one possible secondary cause could be MS. MS patients in the study were 5 times likelier to present RLS than individuals in the control

group, leading researchers to suggest that RLS could be a first sign of MS, although it is also common in more advanced stages of the disease.

## MS and narcolepsy

Multiple sclerosis (MS) is the fourth common cause of narcolepsy.

What causes narcolepsy among MS patients?

Currently there are two theories: the common genetic links between MS and narcolepsy, and [nerve damage](#) to hypocretin neurons from MS lesions in the hypothalamus.

## Sleep solutions for MS

There are various products designed to provide relief from symptoms of multiple sclerosis (MS) and co-morbid sleep disorders.

[Turning beds and low-profile beds](#)

### **Who they help:**

Individuals with MS who experience fragmented sleep or insomnia due to RLS or difficulty getting in and out of bed or changing position while asleep

### **How they help:**

- **Turning beds** enable a person to rotate the bed so they can change sleeping positions.
- Designed low to the ground, **low-profile beds** are usually 10 inches in height or shorter. If an individual with MS falls out of bed from RLS or extensor spasms, these beds minimize injury by reducing the height from which they fall.

[Bed rails, grab handles, rope ladders, and floor pads](#)

### **Who they help:**

Individuals with MS who experience fragmented sleep or insomnia due to RLS or difficulty getting in and out of bed or changing position while asleep

### **How they help:**

- **Bed rails** are fitted to the side of a bed frame and serve a dual purpose for individuals with MS: They both prevent individuals from falling out of the bed and incurring injury, as well as providing something for them to grab onto when trying to change position or get in and out of bed.
- **Bed rail pads** fit over the rails to provide a more cushiony surface, should the individual come into contact with them while sleeping.

- **Floor pads** are an alternative option if bed rails aren't feasible. These are placed on the floor around the sides of the bed to provide cushioning in the event of a fall.
- **Grab handles** can either be free-standing or attached to the sides of the bed or adjacent wall. They help individuals with MS get in and out of bed and change positions.
- **Rope ladders** lay flat against the bed from one side, allowing an individual to slowly pull themselves up to sit upright, rung by rung.

#### [Waterproof mattresses and bedding](#)

#### **Who they help:**

Individuals with MS who experience fragmented sleep or insomnia due to nocturia

#### **How they help:**

- **Waterproof mattresses, bedding, and pillowcases** reduce cleanup and provide a more comfortable sleeping environment for individuals with nighttime incontinence. They're made from durable materials like polyurethane that are designed not to develop odors or stains, as long as they are cleaned regularly.

- If the individual uses a bedpan, **hand blocks** are pairs of small weighted handles that are attached to the headboard or bed frame. Individuals can push down on these to lift themselves up.

### Products for RLS

#### **Who they help:**

Individuals with MS who experience fragmented sleep or insomnia due to RLS

#### **How they help:**

- **Weighted blankets** offer a soothing effect that can calm the symptoms of RLS and also induce sleep for insomniacs. For fitting, choose a blanket that weighs 10 percent of your body weight and add one pound.

### CPAP machines and anti-snoring devices



Source: [Wikipedia](#)

#### **Who they help:**

Individuals with MS who have sleep apnea

## How they help:

- **Anti-snoring mouthpieces** fit between the teeth like a dental retainer to reduce snoring.
- **Chinstraps** and **nasal plugs** also help alleviate snoring.
- Sleeping on your side minimizes the risk of sleep apnea by keeping the airways open. Specialized **anti-snoring pillows** may have a wedge shape or be a full-body pillow designed to keep you in a side sleeping position. Typically made from memory foam and hypoallergenic materials, they're also washable.
- **Continuous positive air pressure (CPAP) machines** are often recommended for individuals with severe OSA. These machines fit a mask over the face which is connected to a machine to ensure steady airflow throughout sleep.

## Sleep tips for MS

Individuals with MS may find the following tips helpful to achieve a more restful night's sleep:

### 1. **Set and follow a bedtime routine.**

Regulate your sleep patterns by going to bed and waking up at the same time every day (even on weekends).

### 2. **Create an optimal sleep environment.**

Invest in the sleep products above. Remove electronics from the bedroom and limit your exposure to [blue light](#) 60 minutes before bed. Keep the bedroom dark and cool (in the mid 60 degrees Fahrenheit).

### **3. Eat and exercise well.**

Individuals with MS who exercise regularly report fewer sleep issues. Better diet and exercise regimen can also help manage weight and prevent obesity which leads to OSA. For individuals with poor bladder control, limiting your fluid intake before bedtime may prevent nighttime incontinence.

### **4. Limit naps to under 30 minutes.**

While excessive napping can be indicative of hypersomnia, short power naps of 20 minutes can help reduce fatigue.

### **5. Consider light therapy.**

[Light therapy boxes](#) have proven effective in helping insomniacs and hypersomniacs reset their circadian clock. Sitting in front of the device in the morning can help wake you up from sleep.

### **6. Explore other treatment options.**

There are medication options for both sleep disorders and symptoms of MS. Counseling can also help with managing the emotional side effects of sleep issues, such as depression. Cognitive behavioral

therapy has proven effective for treating insomnia. Meditation techniques and relaxation exercises can also help.

## MS blogs and forums

- [Barbara Stensland](#) wrote a book about her experience living with multiple sclerosis, and continues to write at her blog of the same name *Stumbling in Flats*. She also lists other [MS blogs](#) on her site.
- [This Is MS](#) is an online forum dedicated to multiple sclerosis, divided into three simple main topic categories: general, treatment, and life. The forum has been around for over a decade and boasts over 17,000 members to date.
- Daily Strength offers health-based support groups for all kinds of issues. Their [Multiple Sclerosis Support Group](#) has over 700 members.
- [MS Connection](#) is an online support community of over 25,000 members offering online forums, support groups by location and interest, and one-on-one trained peer volunteer network.

## MS non-profit organizations

- The Multiple Sclerosis Society is a UK based organization. Their [online forums](#) connect researchers, volunteers, and individuals and caregivers of people with MS.
- The [National Multiple Sclerosis Society](#) offers a local directory where you can search by state to find local self-help groups, volunteer opportunities, and chapter headquarters and a helpline 800-344-3867.
- The [Multiple Sclerosis Association of America](#) offers a Live Chat toll-free helpline (800-532-7667 Monday-Friday 8:30am-5pm Eastern) staffed by social workers and counselors and runs the Swim for MS fundraisers.