

# May 2021 Newsletter



## Managing Muscle Spasticity and Spasms

Spasticity and muscle spasms can have a big impact on quality of life and daily activities for many people with MS. A recent [survey](#) of over 10,000 participants in the

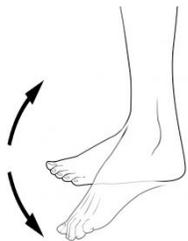


[North American Research Committee on Multiple Sclerosis \(NARCOMS\) registry](#) showed over 80 percent reported experiencing spasticity. More than 35 percent of respondents were moderately or greatly bothered by stiffness, spasms, or pain, predominantly in the legs. Data suggest the level of spasticity corresponded with an individual's level of disability, bladder dysfunction, and fatigue related to MS. Most reported receiving treatment for spasticity (mainly oral medications, stretching, home exercise, and physical therapy), yet fewer than half reported being satisfied with their current treatment.

Spasticity and spasms can occur in any muscle. Nerve pathways that connect the brain, spinal cord and muscles work together to coordinate smooth movement. When demyelination occurs along one of these nerves, signals are interrupted and the affected muscle can remain in its shortened state, making the limb it controls feel stiff or tight and often difficult to move (spasticity). When spasticity is severe it can be very difficult to bend a limb at all. If a limb becomes fixed in one position it is known as a **contracture**.

Disrupted nerve messages can also cause over activity of muscles, leading to spasms. This is

a sudden involuntary tightening or contraction of a muscle which may cause a limb to kick out or jerk towards the body. There are several different types of muscle spasm. **Flexor spasms**, as the name implies, cause a limb to bend and **extensor spasms** cause a limb to extend. A spasm that causes a limb to be pulled in towards the body (for example, making it difficult to separate the thighs) is called an **adductor spasm**. Spasms affecting the trunk can cause the back to arch off of a bed or away from the back of a chair.



It isn't unusual for individuals with tight or hyperactive muscles to also experience pain, weakness and [clonus](#) (involuntary muscle contractions). The intensity of symptoms can vary from person to person, and in the same person over time (even throughout the day). This can impact many physical activities such as walking, transferring, sexual activity, washing, dressing, and picking up objects. If muscle spasticity/spasms and their accompanying symptoms cause an individual to fall, their safety may be compromised. These troublesome symptoms may also have an emotional impact, for example on mood or self-image. It's important to note that muscle stiffness can sometimes be helpful, especially for individuals with leg weakness. It can provide stability and strength when standing, walking or moving from one position to another.

A number of factors play a role in the amount of stiffness and spasms an individual may experience. For example, lack of movement often worsens spasticity. Unpleasant sensations, such as hunger, pain or a full bladder/bowel can have the same effect, as can anything that constricts the limbs, such as a cast, brace or tight-fitting clothing. Some women find that their spasticity is worse during a



menstrual cycle. Any infection can aggravate stiffness and spasms until it has resolved, including urinary tract infections, an infected tooth and common illnesses like a cold, flu or stomach bug. Being overtired or stressed can also temporarily worsen symptoms, as can being too hot or too cold. People with MS may also experience higher levels of spasticity during an exacerbation, or when they are treated with certain [disease modifying therapies](#) or [antidepressant medications](#). Some find it helpful to keep a journal of when spasticity occurs, including their activities and other environmental factors. Being aware of and managing potential triggers for spasticity is key to successful treatment. Once they are dealt with, muscle stiffness and spasm may ease without medication.

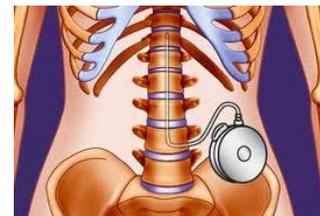
A variety of drug-free approaches are often used to treat muscle spasticity and spasms. [Research](#) shows that physical activity is helpful in this regard, however it's important to note that people with MS should consult with their healthcare team before beginning a new exercise regimen on their own. As discussed in our [November 2019 newsletter](#), a physical therapist can teach specific stretches and exercises to help relax muscles, provide advice on



posture or different ways of moving and positioning the body to keep comfortable. An occupational therapist can provide guidance on making daily tasks easier. Research results on the effectiveness of hot and cold therapy for stiff muscles are mixed. A [2019 study](#) suggests that ice

packs are effective at providing relief. On the other hand, a [2013 study](#) concludes applying heat makes muscles more flexible and cold treatment may have the opposite effect. Yoga, massage and relaxation techniques like meditation and deep-breathing exercises can also be beneficial to improve flexibility.

A variety of medications are also used to treat spasticity, often in combination with non-drug approaches when they don't provide sufficient relief. [Baclofen](#) is commonly prescribed to treat this condition. It can be taken orally, or via infusion directly into the spinal cord (intrathecally). This involves the placement of a catheter into the space around the spinal cord (the thecal sac). The catheter connects to a reservoir and pump that is surgically implanted in the abdomen and programmed to continuously deliver baclofen directly to the spinal cord. The pump is comfortable for most people and doesn't hamper movement. Refills are done by subcutaneous injection into the pump's port. A [2017 review](#) found up to 75 percent of patients experience adverse side effects including fatigue, dry mouth, dizziness and nausea when taking oral baclofen. When given intrathecally, much more of the medicine reaches the spinal cord (so less is needed), resulting in fewer side effects. Researchers conclude that, while oral baclofen is effective in the management of spasticity, intrathecal baclofen is a viable option for those that cannot tolerate taking it orally, or those that do not respond to the maximum recommended oral dose.



Other drugs used to treat increased muscle tone include [Zanaflex](#) (tizanidine), [Dantrium](#) (dantrolene), [Klonopin](#) (clonazepam) and [Neurontin](#) (gabapentin). [Valium](#) (diazepam) is

also effective in this regard, however it has the potential for dependence and addiction. All of these medications cause sleepiness, dry mouth, dizziness and fatigue, which can be problematic. Timing when to take these medications during the day will often maximize their effectiveness. For some, taking a dose a few minutes before getting out of bed works best. For others, it may be better to wait until after getting up because some leg stiffness is necessary to get out of bed safely.



Intramuscular injections of [BOTOX](#) (botulinum toxin) or [phenol](#) are used to treat those with spasticity affecting a small area (focal spasticity), or those who do not get relief from oral medications.

These injections are usually administered during a clinic visit.

Botulinum toxin and phenol are powerful neurotoxins that temporarily block connections between the nerves and the muscles, resulting in short-term relaxation of the targeted muscle. A BOTOX injection typically takes effect in three to seven days and lasts for three to six months. It's important to note that it's possible to build up antibodies to BOTOX, making it less effective over time. Phenol typically takes effect immediately and lasts four to twelve months.

Surgery is sometimes used to help manage spasticity. As mentioned above, individuals requiring intrathecal baclofen must have their pump implanted in the abdomen. Surgical procedures, such as lengthening tendons or fusing joints, can also be used to correct any permanent deformities that spasticity may cause.

As mentioned in our [September 2018 newsletter](#), it is becoming more common for people with MS to use cannabis to alleviate many of their symptoms, including muscle spasms and spasticity. There have been numerous studies conducted to evaluate its effectiveness in this regard. The [CAMS \(Cannabinoids in MS\) study](#) looked at 630 people with MS that were assigned to receive a cannabis product or placebo twice daily for 15 weeks. Those taking cannabis reported significantly greater improvements in spasticity, spasms, and sleep compared to those taking placebo.



The [MUSEC \(MS and Extract of Cannabis\) trial](#) looked at patients' perceptions of changes in muscle stiffness. In this study, 279 people with MS took either a cannabis product or placebo for 12 weeks. Those taking cannabis had almost twice as much relief from muscle stiffness as those taking placebo and they also had improvements in

spasms and sleep. [Sativex](#) (nabiximols), a cannabis-based oral spray, is the only drug approved for treating MS symptoms. According to a [review](#) published by the American Academy of Neurology (AAN), Sativex, [oral cannabis extract](#) and [tetrahydrocannabinol](#) (THC) are at least somewhat effective at reducing MS-related spasticity and pain. Researchers conclude there is not enough evidence to assess the effectiveness of smoked cannabis for treating MS symptoms or the long-term safety of marijuana use. It should also be noted that medical marijuana is only legal in some states, which affects its accessibility.

Muscle stiffness typically interferes with movement and function, but it can sometimes be helpful. One of the biggest challenges in making treatment decisions is achieving the optimal level of muscle tone for a given individual. Recognizing and fully addressing aggravating triggers for spasticity is important. Once resolved, further treatment may not be necessary. There are a variety of drug and non-drug approaches available which can be used together to achieve the best outcome. The ideal therapy will differ from person to person, and in the same person from time to time. It's essential for people with MS to work with an [interdisciplinary healthcare team](#) to manage muscle spasticity and spasms. Open communication with one's healthcare providers about symptoms, daily challenges and the effectiveness of treatments will help provide clarity in how to achieve the best outcome and quality of life.

