

Spasticity is a symptom of multiple sclerosis (MS) that causes your muscles to feel stiff, heavy and difficult to move. A spasm is a sudden stiffening of a muscle which may cause a limb to kick out or jerk towards your body.

As many as 90% of people with MS will experience spasticity at some point – for most, occasional symptoms only. For one in five people, spasticity and spasms regularly affect their activities and one in eight describe their symptoms as severe.

With the right advice and support, spasticity and spasm issues can be minimised or managed effectively to maintain a healthy and active lifestyle.

Spasticity and spasms in MS

Spasticity means over activity in muscles and is a common MS symptom.

Muscles normally have an internal springiness, like a lightly wound spring. In a muscle with spasticity, it's as if the spring is wound too tightly. Besides stiffness, spasticity can cause difficulty moving or unwanted, involuntary movement.

Spasticity can affect your motor performance or skills - basically any actions that involve muscle use. It can impact walking, bathing, dressing and other daily activities. If untreated, spasticity can cause muscle shortening, tightness, stiffness and weakness which may further impact your movement.

Spasticity can affect any muscle. Most common is the calf, back of thigh (hamstrings), front of thigh (quadriceps), inner thigh, muscles that bend the elbow (biceps), muscles that pull the arm against the body and the muscles that bend the wrist and fingers. Spasticity makes you use lots of energy and can lead to fatigue and/or potential pain or tightness in and around joints, and lower back pain.

Lower limbs are more often affected than upper as outlined in the following illustrations.

The four types of spasm and result:

1. **Flexor spasm** - limb bends, such as the leg moving upwards towards the body.



2. **Extensor spasm** - limb extends, such as the leg straightening away from the body.



Spasticity and spasms continued

3. **Adductor spasm** - limb pulled in towards the body, such as difficulty separating thighs.

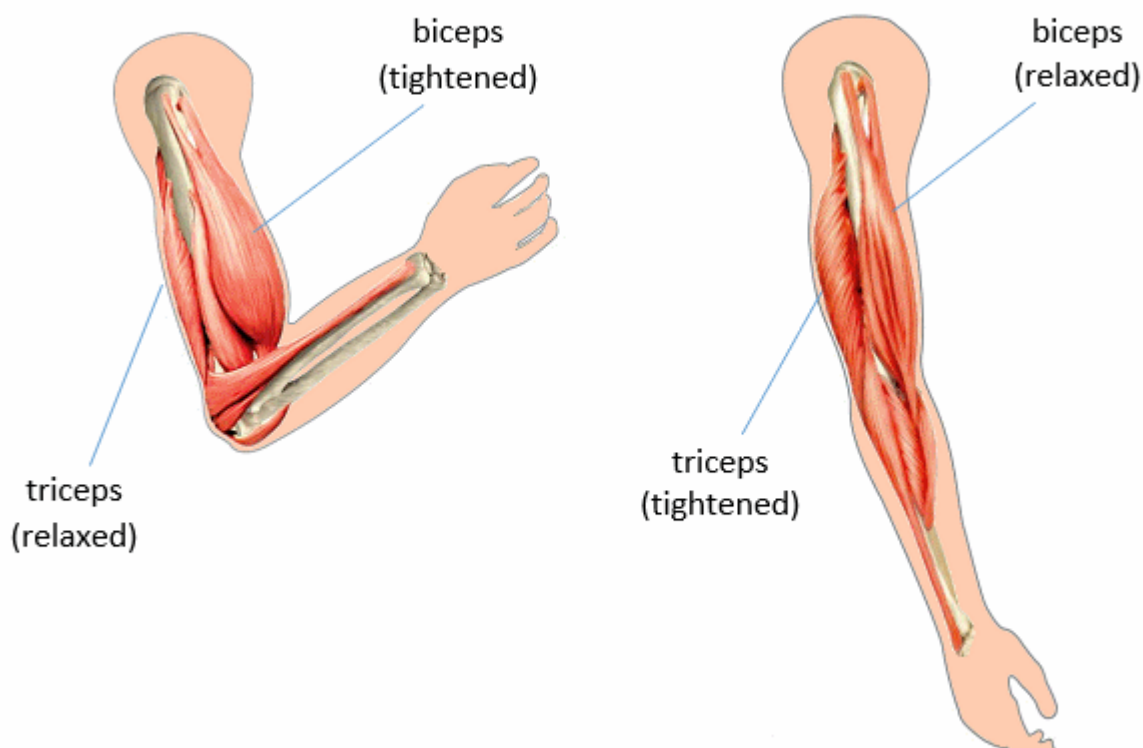


4. **Spasms affecting the trunk** - back or trunk can arch off a bed or away from the back of a chair



What causes spasticity and spasms?

An increase in muscle tone (the level of tension or resistance to movement in a muscle) causes spasticity and spasms. Muscle tone enables you to move your limbs or hold a position. For instance, to bend your arm, you must shorten or tighten the biceps muscle at the front of the arm (increasing the tone) and at the same time lengthen or relax the triceps muscle at the back of the arm (reducing the tone). Then to straighten the arm you do the reverse, as the following illustrations demonstrate:



Nerve pathways that connect your brain, spinal cord and muscles, work together to coordinate smooth movement. If nerve signals between a muscle and the brain are interrupted by damage caused by MS, the muscle can remain in its shortened state, making the affected limb feel stiff or tight and often difficult to move. If a limb becomes fixed in one position it is called a **contracture**. Disrupted nerve messages can also cause over activity of muscles and loss of coordination leading to spasms.

Depending on where in your brain or spinal cord MS affects your nerves, spasticity can affect any muscle in the body.

What is the difference between spasticity and spasms?

Stiff, heavy and difficult to move muscles typify **spasticity**. If severe, it can be hard to bend a limb at all.

A **spasm** is a sudden involuntary tightening or contraction of a muscle.

As mentioned, any muscle can be affected, but spasms and spasticity of the arms, legs or the trunk and back are most common.

Spasticity and spasms can range from mild to severe and vary over time, even throughout the day. The symptoms can be annoying, uncomfortable and unpredictable. Some people find them painful, and besides affecting walking, spasticity and spasm symptoms may cause falls.

Other common associated symptoms include:

- **Pain**

Whilst spasticity and spasms aren't always painful, if it does occur it can feel like a pulling or tugging of the muscles, particularly around joints, or a lengthy episode of cramp. Sometimes spasticity and spasms change how you sit or lie which can also lead to pain. Movement and stretching exercises can help manage this.

- **Weakness**

The damaged nerve pathways can make muscles stiff or weak. The result can be some stiff and some weak muscles in the same limb. Sometimes, removing spasticity entirely isn't helpful as it leaves just weakness, and may make it harder for you to walk or move from bed to a chair. An assessment of your spasticity, perhaps by a physiotherapist, will identify if the stiffness in a limb is helping to counterbalance the weakness and helping you function.

- **Clonus**

Clonus is a repetitive, up and down movement, typically a constant foot tapping. You can reduce the effects of clonus by moving your leg or putting more weight through it, possibly by standing or perhaps leaning forward.

Spasticity can be aggravated by high temperature and humidity, infections, and tight clothing can even be a trigger.

What should I do if I experience spasticity and spasm issues?

If you have spasticity or spasm issues and/or a worsening of this symptom talk to your MS Nurse or GP, and at your next visit, tell your neurologist. This is particularly important if you experience:

- Pain or discomfort
- Posture issues (e.g. difficulty sitting, standing or lying down comfortably in bed)
- Movement interference (e.g. walking or transferring from one spot to the other)
- Interference with daily activities or personal care (e.g. eating, dressing or hygiene)
- Emotional or sleep disturbance.

Like MS, spasticity and spasm vary from person to person, so an individual approach is best. With the right advice, you can minimise or manage the effects. This symptom doesn't always require medical treatment, but early recognition and management can help to prevent complications. Spasticity and spasms may worsen with MS progression, so it's best to discuss any concerns with your healthcare team.

What can I do if I have spasticity and/or spasms?

Managing my spasticity and spasms

Key to managing the negative effects of spasticity and spasms is the need for **a)** movement or stretching and **b)** being aware of potential trigger factors that may worsen the symptoms.

a) Movement and stretching

It's important to keep muscles, ligaments and joints as flexible as possible. This can be done through stretching, active movement (moving your limbs) or passive movement (your limbs are moved by a carer, physiotherapist or automated exercise machine). A physiotherapist can advise on how best to maintain flexibility, teach specific stretches to incorporate into your daily routine, and ways of moving and positioning your body to prevent muscle tightening/stiffness (contractures).

Some people find yoga or Pilates helpful.

These exercise tips for people living with MS may also be useful:

<https://www.mstrust.org.uk/understanding-ms/lifestyle/exercises-people-ms>

Good posture whilst standing, sitting or lying down is also important. Physiotherapists can advise on posture. An occupational therapist can help you find adapted seating, aids to improve sleep positions and seating posture, and advise on safe use of wheelchairs.

Read more about posture here: <https://www.mstrust.org.uk/a-z/posture>

Managing spasticity in MS involves an ongoing assessment of its effects and any trigger factors that might be making it worse.

b) Manage trigger factors

Identify and manage trigger factors where possible. Consult your MS Nurse or GP immediately to treat any medical conditions that may be worsening your spasticity. Discuss the effect any medications (for MS or other conditions) may be having on your spasticity.

Trigger factors can worsen spasticity and spasms and include:

- Other MS symptoms - such as bowel or bladder problems or pain
- Other health conditions - like infections or even an ingrown toenail
- External triggers - such as tight fitting clothes or being too hot or cold
- Overexertion and fatigue
- Increased anxiety or stress

Managing the trigger factor, maintaining good posture and incorporating stretches into your daily routine can help reduce the effects of spasticity or spasm, without needing any medication. If you're taking medication, it won't be fully effective unless any trigger factors are also being addressed.

Read more about spasticity triggers here: <https://www.mstrust.org.uk/a-z/spasticity/spasticity-triggers>

This terrific resource has a self-assessment and a link to a muscle stiffness and spasm diary.

Consult an allied health professional

A physiotherapist or exercise physiologist can help with muscle relaxation and stretching techniques, and positioning. (Some positions and movement patterns can trigger spasticity while others may reduce it). Customised exercise programs improve your muscle strength, prevent muscle shortening and maintain or improve fitness. An occupational therapist can advise on posture, seating and ways to make daily tasks easier.

Medications/treatments

There are medications and other treatment options which can help manage spasticity in MS. Discuss these with your MS Nurse, GP, or (on your next visit) neurologist.

In some cases, spasticity can help other effects of MS. For example, someone with weak legs may find spasticity makes their legs rigid, helping them stand, move or walk. It can also increase muscle strength and can help support the body against gravity.

Daily stretching and other exercises are often effective in relieving spasticity. They aim to improve muscle extension (stretched to their normal resting length and beyond to a limited degree), reduce muscle stiffness and improve function.

Using drugs to treat spasticity and spasms effectively, is a balance between reducing stiffness and not reducing muscle strength. As mentioned above, if you remove all spasticity from a limb, the muscles may be too weak to work properly. For instance, if you have spasticity in your leg, the stiffness may help to keep it rigid enough to help you walk. If all stiffness is removed, the muscles may be too weak to hold you up.

You may need to try a range of options (or several at once) to find what works best for you.

Information and assistance:

General

There is support available to help you manage your MS:

- **Your MS Nurse or GP** should be the first contact for any new and/or persistent symptom concerns related to spasticity or spasms.
- **Your neurologist, MS Nurse or other healthcare provider** can help you to manage symptoms on an ongoing basis and discuss the best approach for your individual circumstances.
- **Contact your state MS organisations** (details below) to access services including peer support and other resources.
- For information about MS and MS treatments visit www.msaustralia.org.au
- **Contact details for your state/territory MS organisations:**

MS Connect (Victoria, NSW, ACT and Tasmania)	1800 042 138	msconnect@ms.org.au	www.ms.org.au
MSWA (Western Australia)	1800 287 367	enquiries@mswa.org.au	www.mswa.org.au
MS Assist (South Australia and NT)	1800 812 311	msassist@ms.asn.au	www.ms.asn.au
MS Queensland	1800 287 367	msociety@msqld.org.au	www.msqld.org.au

Other organisations

The following support services may be able to provide other advice:

- **Independent Living Centres 1300 885 886** www.ilcaustralia.org.au has an extensive range of products to assist with daily activities such as bathing, showering, dressing, tasks and body support, standing and walking aids.
- **Carers Australia 1800 242 636** www.carersaustralia.com.au provides information and advice to carers, their friends and families about carer support and services.

Other resources

- **MS UK Trust** has many excellent downloadable resources including this booklet on spasticity triggers: <https://support.mstrust.org.uk/file/spasticity-triggers.pdf>

Sources: This fact sheet comprises material from previously published Australian state/territory MS organisation leaflets plus Multiple Sclerosis (MS) UK Trust online resources (and associated references), and has been endorsed by a medical expert, an MS Nurse and a person living with MS.

Disclaimer: This information was prepared by MS Australia. It is intended to provide useful and accurate information of a general nature and is not a substitute for medical advice.