

ORGANIZATION NEWS

Information/Education Page

Spasticity and Traumatic Brain Injury



What is spasticity?

Spasticity is the uncontrolled tightening of muscles caused by disrupted signals from the brain. It is common in persons with severe brain injuries (traumatic brain injury [TBI]). People with spasticity may feel as if their muscles have contracted and will not relax or stretch. They may also feel muscle weakness, loss of fine motor control, and overactive reflexes.

What you need to know

- Many people with TBI do not have spasticity.
- Your brain injury may cause the muscles in your body to become stiff, overactive, and difficult to stretch.
- Spasticity does not always need treatment.
- Spasticity may come and go.
- Severe spasticity may cause almost continuous spasms.
- There are ways to treat spasticity or relax muscles.
- Treatment may include nerve blocks, injections, or surgery (described below).

Understanding your body: How muscles work

Your brain talks through your spinal cord and nerves to your muscles and causes them to contract and relax. After brain injury, the messages between brain and muscles may become disorganized, leading to unwanted muscle contractions.

What are the symptoms of spasticity?

Spasticity is different in each person and can include the following:

- Sudden, involuntary tightening or relaxing of a limb or jerking of muscles in the chest, back, and abdomen.
- Muscle spasms when the arm or leg is lightly touched.
- Difficulty relaxing, stretching, standing, or walking.
- Difficulty controlling movement during activity.

When am I most likely to experience symptoms?

Spasticity can occur at any time, but is most likely to occur when you

- Stretch or move an arm or a leg.
- Have a urinary tract infection or a full bladder.
- Have constipation or large hemorrhoids.
- Have an injury to the muscles, tendons, or bones (including bone fractures).

- Wear tight clothing or wraps.
- Feel emotional stress.
- Have any kind of skin irritation.

Does spasticity need to be treated?

Spasticity is not always harmful or bothersome and does not always need to be treated.

Problems caused by spasticity that may be bothersome or harmful include the following:

- Pain when muscles tighten.
- Limited motion, including walking or moving in and out of beds or chairs.
- Difficulty taking deep breaths.
- Falls.
- Poor positioning in a chair, wheelchair, or bed.
- Poor sleep and tiredness during the day.
- Skin pressure ulcers.
- Difficulty maintaining proper hygiene.
- Limits on activities such as feeding or grooming.
- Limited use of your hands.

What can I do to manage my muscle spasticity?

Keep skin clean, wear loose clothing, and change positions regularly. Take extra care when moving from a chair or bed. Eat a high-fiber diet and drink plenty of water. Daily stretching can help you maintain flexibility. Sometimes wearing splints can keep spasticity from becoming worse.

Coping with spasticity through physical treatments

The following treatments will help to maintain flexibility and reduce the risk for permanent joint contracture:

- Regular stretching exercises.
- Standing with support.

- Splints, braces, or progressive casting into the desired position.
- Careful use of cold packs or stretching and exercise in a pool.

It is important to get the advice of a physician or therapist on what physical treatments are correct and safe.

Oral medication

Medication may help control spasticity but may have side effects. It is useful when you have spasticity in several parts of your body. Common side effects such as sleepiness might be more intense. You should discuss the benefits and side effects of various medications with a physician. Appropriate medications may include the following:

- Baclofen (Lioresal)
- Dantrolene (Dantrium)
- Tizanidine (Zanaflex)
- Benzodiazepines such as diazepam (Valium) or clonazepam (Klonopin)

Focal interventions

Anesthetic medications, alcohol, phenol, or neurotoxins (eg, botulinum toxin, Botox, Dysport, Xeomin, and Myobloc) can be injected into the muscles and nerves to reduce unwanted increased muscle activity in local areas.

These injections

- Rarely cause widespread side effects.
- Do not affect the brain or spinal cord.
- Must be repeated several times a year.
- Require regular stretching.
- Can be used safely in combination with other spasticity management.

Intrathecal baclofen pump

Intrathecal baclofen pumps release tiny amounts of baclofen around the spinal column. The pumps can be especially helpful after a TBI. A surgery is performed to implant a small battery-powered computer and pump, often in the patient's abdomen. They can be used along with other spasticity treatments. This pump can reduce the frequency and intensity of spasms. It has fewer side effects than taking baclofen by mouth.

Although rare, there can be serious risks of using intrathecal baclofen pumps. It is important to discuss the risks with your doctor and, if you elect to have a pump implanted, make sure not to miss scheduled refills and pump appointments.

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Source

Our health information content is based on research evidence whenever available and represents the consensus of expert opinion of the Traumatic Brain Injury Model Systems.

Authorship

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Disclaimer

This information is not meant to replace the advice of a medical professional. You should consult your health care provider regarding specific medical concerns or treatment. The contents of this fact sheet were developed under a grant from the U.S. Department of Education, National Institute on Disability and Rehabilitation Research (grant no. H133A110004). However, those contents do not necessarily represent the policy of the Department of Education, and you should not assume endorsement by the federal government.

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