

# Spasticity following Spinal Cord Injury (SCI)

## What is spasticity?

Spasticity is a common side-effect following a spinal cord injury (SCI) due to increased reflex activity and can be defined as a velocity dependent increase in muscle tone or muscle stiffness.

Spasticity can occur in any part of the body that is affected by the SCI e.g. legs, trunk and/or arms. Spasticity can cause:

- involuntary muscle contractions or muscle spasms such as sudden jerky movements of your limbs
- stiff or tight muscles when trying to move the limbs
- clonus (repetitive up and down movement e.g. of the foot on the footplate)
- pain and weakness.

Spasticity presents in different ways and can range from mild to severe. Spasticity can begin to present any time after your injury - from a few hours, to weeks or even months after your initial injury.

## What is reflex?

A reflex is a movement or action that occurs without a command from the brain. For example, jerking away from a hot object is a reflex and it happens quickly and automatically.

## Why does spasticity occur?

Spasticity occurs after SCI because the reflexes cannot be controlled properly by the brain. The messages that the brain would normally send down the spinal cord to inhibit the reflexes cannot pass the area where the spinal cord has been injured. The reflexes then become uncoordinated and uncontrolled so the limb moves in a jerky, erratic way.

## What triggers the spasticity?

Touching or moving the limb, stretching or moving the muscles, pressure or pain may all be enough to start a spasm and it may then be difficult to stop.

## What if spasticity suddenly becomes worse?

**BE ALERT!** If spasticity or muscle spasms suddenly become worse than usual or the pattern of the spasticity changes, it may be a warning sign that there is something else going wrong in the body.

For example:

- Urinary tract infection
- Constipation
- Pressure injuries or fractures
- Any other illness that would normally cause pain or discomfort

**Always get a medical opinion if spasticity or muscle spasms are worse than usual and you cannot work out why.**

## Spasticity can be useful!

Spasticity and muscle spasms can be helpful to:

- Maintain muscle bulk
- Improve circulation
- Reduce swelling in the limb
- Perform particular movements with your limb
- Help with some regular daily activities

## What problems can spasticity cause?

When severe, spasticity and muscle spasm can cause problems such as:

- Difficulty with performing activities such as transfers
- Difficulty lying or sitting properly
- Skin breakdown due to friction
- Contractures (loss of range and flexibility) of joints
- Pain

## Management of Spasticity

Keeping good health is important to avoid the issues that may increase spasticity, for example prevention of urinary tract infections and skin breakdown.

### Physical treatment

Spasticity may be controlled or eased by:

- Keeping muscles and joints from becoming tight
- Active and passive limb movements
- Should be done at least 3 times per week
- Prone lying (lying on your stomach)
- For 20 minutes per day
- Using the splints that have been provided for you
- Standing (if you are able) using back slabs, callipers, standing frames or a tilt table

### Oral medications

Commonly prescribed medications for the management of spasticity are:

- Baclofen
  - Best effect if taken 3 – 4 times per day
  - May cause confusion, depression, especially in older people, nausea and tiredness
  - **Should not be stopped suddenly**
- Dantrolene Sodium
  - Tends to be less effective than Baclofen but may be useful for some people
  - Side effects may be a problem

**NO MEDICATION SHOULD BE COMMENCED WITHOUT CONSULTATION WITH A DOCTOR.**

### Nerve or muscle blocks

In some cases, medications e.g. Botulinum toxin can be injected directly into a muscle or the nerve supplying the muscle to help with reduction in spasticity.

Some important points to know about these blocks are:

- They work very well for some people but they are not suitable for everyone
- They are not permanent and may need to be repeated
- They sometimes cause loss of feeling or loss of movement in the skin and muscles that are supplied by the nerve
- They can sometimes be painful if you have any feeling

You should talk to your doctor or physiotherapist if you would like to know more about these treatments.

### Intrathecal Medications

Some individuals with very severe spasticity that cannot be controlled using other methods may be assessed for insertion of an intrathecal pump device. This device delivers medication, usually baclofen, directly into the fluid surrounding the spinal cord.

The system consists of:

- A reservoir, which is surgically implanted into the stomach wall
- A fine plastic tube which runs into the spinal fluid

It has the advantage that the dose of baclofen used is much less than with tablets and therefore there are fewer side effects, **BUT:**

- It involves a fairly major surgical procedure
- There are some risks involved
- The pump needs to be refilled once every 4 – 6 weeks

This treatment is not suitable for everyone and you would need to undergo a thorough assessment at the Spinal Injuries Unit to determine if you would be suitable or would benefit from the pump.

**For further information please contact:**

**The Spinal Injuries Unit**

**Princess Alexandra Hospital**

**Phone: (07) 3176 2641**