

Pain Spasm & Spasticity

Pain

Pain is a common complication after spinal cord injury (SCI), which can significantly impact upon a person's functional ability and independence, psychological well-being, ability to return to work and quality of life.

Most studies indicate that around two thirds of people with spinal cord injury suffer from chronic pain.

There are a number of different types of pain. However, there are two commonly seen following spinal cord injury –

- Musculoskeletal; and
- Neuropathic (Nerve)

Musculoskeletal Pain

Musculoskeletal pain results from damage to muscles, ligaments, joints or bones. This pain may result from either –

- Damage at the time of your spinal cord injury (if a traumatic SCI), or from
- Chronic overuse wear and tear, arthritic changes, muscle imbalance or postural changes.

It is usually felt in areas you have sensation and close to where the tissues or structures are damaged. It may be sharp or dull and aching.

Musculoskeletal pain is most often managed with:

Physical Treatments

- Massage, hot & cold packs, strengthening and stretching exercises, hydrotherapy, ultrasound or electrical stimulation.

Medication

- Simple analgesics (e.g. Paracetamol, Panadol-Osteo); or
- Stronger narcotic types (e.g. Panadeine forte, Endone or Morphine). These should be used in minimum amounts and for short lengths of time, as they can be addictive and can cause severe constipation.
- Sometimes, Non-Steroidal anti-inflammatories (NSAID) (e.g. Nurofen, Voltaren, Celebrex)

Neuropathic Pain

Neuropathic (nerve) pain results from damage to the spinal cord or spinal nerves. It is usually felt in areas at or below the level of spinal cord damage. This may be at or near where you have sensation, or may be interpreted as being below the level of injury where there is no sensation. It may be sharp, burning, electric, stinging or shooting in nature. It may also be felt as hypersensitivity in areas close to where you have sensation.

Neuropathic pain can be difficult to manage and is **not** usually well controlled with medication alone.

The most effective management involves a combination of techniques involving some trial and error to find the right management for you. These combinations include psychological as well as medication management.

Relaxation, Cognitive Behaviour Therapy (CBT) and acupuncture are some of the therapies that can be useful.

Neuropathic pain is **not** well controlled with simple analgesics (e.g. paracetamol); or with stronger narcotic types (e.g. Panadeine forte, Endone or Morphine). These should be minimised and used only as part of the treatment.

Medications generally more effective and more commonly used include:

- Anti-depressant drugs such as amitriptyline.
- Anti-epilepsy drugs such as Carbamazepine, Gabapentin and Pregabalin.

As with all medications, these have side effects and should be taken and/or ceased as directed by your Spinal injuries or Pain specialist.

Spasm and Spasticity

Spasm is sometimes defined the same as Spasticity.

Spasms are involuntary reflex movements that occur due to the interruption of the normal control of movement after spinal cord injury.

In an intact spinal cord, muscle-controlling nerve cells are controlled from the brain. Some signals tell the nerves to fire, which causes their associated muscles to contract. Other signals silence the motor neurons and cause muscle relaxation.

After an SCI, both kinds of signals are interrupted. These nerves are not under the brain's control anymore, but they continue to fire spontaneously, leading to spasms.

Spasm is usually noticeable when a muscle is stretched, or there is a painful stimulant below the level of injury. Because of the injury to the spinal cord, these sensations can trigger the reflex resulting in the muscle contracting or spasm.

Common triggers are -

- Stretching your muscles.
- Any irritation to the skin, such as rubbing, chafing, a rash, in-grown toenails, or anything that would normally be very hot or cold or cause pain.
- Pressure injuries (pressure sores).
- A urinary tract infection or full bladder.
- Constipation or large haemorrhoids.
- Fracture or other injury to the muscles, tendons or bone below the level of spinal cord injury.
- Tight clothing, wraps or binders.

This spontaneous nerve activity and spasms that follow are not necessarily harmful. For some people, these changes can actually help maintain muscle tone and support limited movements. This means that careful dosing and finding the right medication to control excessive spasm will be important.

Some of the main medications used are:

- Baclofen, Dantrolene (Dantrium), Diazepam (Valium)

Spasticity and Tone

Spasticity is sometimes defined the same as a spasm. After SCI the natural resting tension or tone in the muscles below the level of the injury is usually higher than before your injury. If this higher tone is allowed to continue, ongoing contraction of the stronger muscles can lead to an imbalance in opposing muscle groups (eg biceps and triceps in the arm).

What problems are caused by spasm and spasticity?

- Spasticity can be painful.
- Spasticity can result in loss of range of motion in your joints (contractures).
- Severe spasms can make it difficult for you to drive or transfer safely, or to stay properly seated in your wheelchair.
- Spasticity in your chest muscles may make it difficult to take a deep breath.
- Strong spasms in the trunk or legs can cause you to fall out of your wheelchair when you change position, transfer, or ride over uneven surfaces.
- Repeated muscle spasms at night can cause you to sleep poorly and be tired during the day.
- Spasms can cause rubbing that leads to skin breakdown.
- Spasticity can make movement harder to control, so that activities such as feeding yourself may be more difficult.

To prevent long term problems, you should manage spasm and spasticity with medication as negotiated with your Spinal Injuries Specialist or GP as well as maintaining regular stretches as advised by your Physio.

References and Further Resources

Pain management following Spinal Cord injury
Queensland Spinal Cord Injury Service (QSCIS)
www.health.qld.gov.au/qscis. March 2002

Managing Pain for Adults with Spinal Cord Injury
Rural Spinal Cord Injury Project A collaborative project between :
Prince Henry & Prince of Wales Hospital, Royal North Shore Hospital, Royal Rehabilitation Centre
Sydney, Australian Quadriplegic Association, Paraplegic & Quadriplegic Association of NSW. June
2002

Spasm & Pain
ParaQuad NSW
NSW Lifetime Care & Support

Spinal Cord Injury, Spasms, and Serotonin
http://www.ninds.nih.gov/news_and_events/news_articles/SCI_spasms_serotonin.htm

Spasticity Following a Spinal Cord Injury
<http://www.apparelyzed.com/spasticity.html>

Spasticity and Spinal Cord Injury Spinal Cord Injury Model Systems Consumer Information
http://sci.washington.edu/info/pamphlets/spasticity_msktc.pdf