

# Pain after Spinal Cord Injury



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## The problem of pain after SCI

Pain is a serious problem for many people with spinal cord injuries (SCI). Pain after SCI can occur in parts of the body where there is normal sensation (feeling) as well as areas that have little or no feeling. The pain is real and can have a negative effect on quality of life. A person in severe pain may have difficulty carrying out daily activities or participating in enjoyable pastimes.

The majority of people with SCI report that they have chronic pain. Chronic pain is pain that does not go away and lasts months to years. The cause of the pain may be unknown but is most often related to nerve damage from the SCI or musculoskeletal problems that arise in dealing with an SCI. The pain can come and go. Chronic pain is difficult to eliminate completely but often can be managed or reduced enough so that it doesn't overwhelm your life.

Chronic pain can cause or worsen psychological problems such as depression, anxiety and stress. This does not mean the pain is "all in your head," but rather that pain and distress can make each other worse.

Even though pain after SCI can be complicated and difficult to treat, there are many treatments available that can help. Understanding your pain, working with your doctor and being open to a variety of treatments will help you manage your pain and improve your quality of life. Many people with chronic pain problems after SCI have found relief using techniques described here.

## Types of pain

A person with SCI can have many different types of pain in different locations, including areas where there is not usually any feeling. Understanding what type of pain you have is key to choosing the right treatment. Therefore, your doctor will ask you to describe your pain in a variety of ways, including its locations, severity, how long you have had it, what makes it worse or better, and so on. Your doctor also may ask you to undergo tests such as an x-ray or magnetic resonance imaging (MRI).

## Neuropathic pain

Neuropathic or "neurogenic" pain is caused by abnormal communication between the nerves that are damaged in your spinal cord injury and the brain, where nerve signals that inform your brain how your body feels are interpreted. The brain "misunderstands" or amplifies the intensity of the signals from around the area of your injury. This can cause you to experience pain coming from areas of your body below your level of injury. This is why a person can feel neuropathic pain in an area that otherwise has no feeling.

People often use words such as burning, stabbing or tingling to describe neuropathic pain, but neuropathic pain varies from person to person. It is often difficult to treat, and frequently a combination of treatments are used.

- If pain starts years after injury, it may be due to a new medical problem, such as a syrinx, a fluid-filled cavity that forms in the spinal cord. It is rare but may require surgery. Therefore, it is important to contact a doctor if you notice any new loss of sensation, especially in areas around the level of your injury, and any muscle weakness that doesn't improve with rest.

### Musculoskeletal pain

Musculoskeletal pain is caused by problems in the muscles, joints, or bones. It is a common problem for everyone as they age, including those with SCI.

Musculoskeletal pain can be caused by injury, overuse or strain, arthritic changes, or wear and tear of the joints, often from wheelchair use including inadequate support for sitting and transfers. It usually gets worse with movement and better with rest.

- **Upper limb (shoulder, elbow and hand) pain** is often caused by overuse of the muscles transferring, and doing pressure relief maneuvers, and from pushing a wheelchair. It can occur months or years after injury. People with higher level injuries who use computers or joy-sticks for many activities (reading, communicating, environmental controls) may develop pain in the hand, arm, or shoulder from overuse. Upper limb pain can make it difficult to transfer safely and perform other activities of daily living.
- **Back and neck pain** are common problems. In people with paraplegia who have had surgery to fuse their spine, increased motion that occurs just above and just below the fusion can lead to back pain. People with tetraplegia (quadriplegia) may also have back pain, especially if they are able to walk but still have weakness. People who use chin- or mouth-operated joysticks may sometimes develop neck pain.
- **Muscle spasm** pain happens when muscles and joints are strained from spasticity.

### Visceral pain

Visceral pain is located in the abdomen (stomach and digestive area) and is often described as cramping and/or dull and aching. It can be caused by a medical problem such as constipation, a kidney stone, ulcer, gall stone, or appendicitis. Since a person with SCI may not have the usual symptoms associated with these conditions, it is important to see a doctor who has had experience caring for SCI patients.

Pain that comes from a visceral problem is sometimes felt in an area away from the source of the problem. This is called referred pain. One common example is shoulder pain that results from gallbladder disease.

### Managing pain after SCI

Since pain can have so many different causes, there is no single way to treat it. You and your doctor may need to try a combination of drugs, therapy, and other treatments, including behavioral psychological treatments, and this may take time to work out.

### Physical treatments and interventions

- Activity modification for musculoskeletal pain. Changes in your mobility equipment (wheelchair, sliding board), your wheelchair pushing and transfer techniques, and in the way you do pressure reliefs can significantly decrease muscles and joint pain. Exercises that strengthen and balance your joints can also help reduce musculoskeletal pain. For information, please see the supplement "**Activity Modification for Musculoskeletal Pain.**"
- Physical therapy is used to treat musculoskeletal pain. Stretching and range of motion exercises may help relieve pain associated with muscle tension. Exercises that strengthen weak muscles can restore balance in painful joints and reduce pain.
- Therapeutic massage may help relieve musculoskeletal pain due to muscle tightness and muscle imbalance.
- Acupuncture is used to treat musculoskeletal pain. Tiny needles are inserted into the skin at specific points on the body. Acupuncture is thought to work by stimulating the body's pain control system or by blocking the flow of pain.

- **Transcutaneous electrical nerve stimulation (TENS)** is sometimes used to treat musculoskeletal pain. Electrodes are placed on the surface of the skin and send low levels of electrical current into the body. The current blocks signals from the areas of nerve damage that are triggering a pain response.

## Behavioral psychological treatments for pain

We now know that people can learn to use psychological techniques to help them manage their pain better so it doesn't take over their lives. Psychologists trained in pain management can help with a variety of behavioral techniques proven to be effective in reducing the intensity and impact of pain.

- **Relaxation techniques and/or biofeedback** designed to teach you how to reduce muscle pain tension and "mental tension" associated with pain can be helpful in self-management.
- **Self-hypnosis training** has proven helpful for reducing chronic pain in some individuals.
- **Cognitive restructuring.** Learning how to think differently about your pain and its effects can lead to changes in brain activity and, in turn, the experience of pain.
- **Individual psychotherapy** designed to help identify desired goals and increase pleasure and meaning in daily life can help reduce pain. Therapy can also help if there is a significant amount of anxiety associated with pain.

## Medications

There are many medications to treat pain. All of the medications listed below have shown some success in reducing pain, but none do so completely in every instance. All have possible side effects, some of which can be serious. Discuss all side effects with your doctor. Sometimes combinations of drugs work better than a single drug.

- **Non-steroidal anti-inflammatory drugs** (also known as NSAIDs) such as aspirin, ibuprofen (Motrin, Advil) and naproxen are commonly used to treat musculoskeletal pain. Side effects may include stomach upset or bleeding.
- **Antiseizure medications** such as gabapentin (Neurontin) and Pregabalin (Lyrica) are used to treat neuropathic pain. Side effects include dizziness, sleepiness and swelling.

- **Antidepressants** are used to treat neuropathic pain and depression. These medications include selective serotonin norepinephrine reuptake inhibitors (SSNRIs), such as venlafaxine (Effexor), and tricyclics, such as amitriptyline (Elavil). Side effects include dry mouth, sleepiness, dizziness, and (with SSNRIs) nausea.
- **Narcotics (opiates)** such as morphine, codeine, hydrocodone and oxycodone are not recommended for treatment of chronic or long standing neuropathic or musculoskeletal pain. These drugs have many side effects, including constipation, depression of breathing, and slowed thinking. They are habit forming and use often leads to dependency. Withdrawal symptoms can occur when stopped suddenly.
- **Muscle relaxants and anti-spasticity** medications such as diazepam (Valium), baclofen (Lioresal) and tizanidine (Zanaflex) are used to treat spasm-related and musculoskeletal pain. These may be taken by mouth or delivered directly to the spinal cord through an implanted pump (see "Intrathecal pumps" below). These drugs can cause sleepiness, confusion and other side effects.
- **Topical local anesthetics** such as lidocaine (Lidoderm) are used to treat pain that occurs when skin is touched lightly (called allodynia).

## Surgical Treatments

- **Dorsal column stimulator** is used to treat neuropathic pain due to nerve root damage. A high frequency, low intensity nerve stimulator is surgically placed in the spinal canal next to the spinal cord or nerve roots.
- **Intrathecal pumps** are used to treat neuropathic pain (using morphine) or muscle spasm-related pain (using baclofen) A pump containing morphine or baclofen is surgically placed under the skin in the abdomen. It delivers the medication directly to the spinal cord and nerve roots.

## Prevention and self-care

- **Get treatment for medical problems.** Overall health can have a big effect on pain. Urinary tract infections, bowel problems, skin problems, sleep problems and spasticity can make pain worse or harder to treat. Keeping yourself as healthy as possible can help reduce pain.
- **Try to get as much exercise as possible.** Getting regular physical activity can reduce pain as well as improve mood and overall health. It can also be enjoyable and distract you from pain. Your health provider can help you choose physical activities that are safe and appropriate for you. Also see the supplement “**Activity Modification for Musculoskeletal Pain.**”
- **Get treatment for depression.** Depression can make pain worse. It is best treated through counseling and medication. Getting treatment for depression can help you cope with chronic pain and improve your quality of life.
- **Reduce stress** Stress can make pain worse or make the pain harder to manage. You can learn to manage stress through counseling and learning techniques to reduce stress and tension, such as relaxation training, biofeedback and hypnosis. Exercise helps reduce stress.
- **Distract yourself.** Distraction is one of the best methods for coping with chronic pain. Participating in enjoyable and meaningful activities can help reduce pain and help you feel more in control of your life, especially when pain is at its worst. When we are bored and inactive, we tend to focus more on pain, and this can make pain feel worse.
- **Keep a record.** Everyone’s pain is a little different. Keep a record of what makes you feel better and what makes pain worse. Understanding things that affect your pain will help you and your doctor find effective ways to reduce pain.
- **Get a wheelchair seating evaluation.** Poor posture and improper seating can cause serious pain problems. Get your seating evaluated by a physical therapist who specializes in wheelchair seating. If you use a manual wheelchair, try to get

a high-strength, fully customizable chair made of the lightest material possible (aluminum or titanium). Learn the proper wheelchair propulsion (pushing) technique from a physical therapist.

- **Don't drink to ease pain.** Using alcohol as a pain medication can lead to alcohol abuse and other serious problems. Some medications should not be mixed with alcohol. Ask your doctor about drinking alcohol, and always read the labels of your prescriptions.

## Finding help

It is important to get treatment for pain. The ideal source of help would be a physician and psychologist familiar with SCI and pain management, working together.

If you do not have access to such experts, the next best alternative is to seek help from a multidisciplinary pain clinic where physicians and psychologists are available. Work closely with a health care provider with whom you trust and who understands your condition.

Chronic pain is not hopeless. Try not to become discouraged if one treatment doesn’t work, and be open to trying different techniques. While complete relief from pain may not be possible, living better despite pain is a realistic goal.

## Resources

- Pain Connection, [www.painconnection.org](http://www.painconnection.org)
- American Pain Society, [www.amppainsoc.org](http://www.amppainsoc.org)
- American Pain Foundation, [www.painfoundation.org](http://www.painfoundation.org)
- CareCure Community Moderated Forums, including a pain forum. <http://sci.rutgers.edu/forum/>

## Source

Our health information content is based on research evidence and/or professional consensus and has been reviewed and approved by an editorial team of experts from the SCI Model Systems.

## Authorship

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