

# *Pain Management following Spinal Cord Injury*

## WHAT IS PAIN

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. In general, people can experience *acute* and *chronic* pain. Most people experience acute pain when they have a disease or injury to the body. It usually begins suddenly and acts as a danger signal telling you that something is wrong and that you need help. This acute pain can be severe or mild, but it usually goes away as the body heals. Chronic pain is like acute pain in that it can start suddenly. However, chronic pain differs because it can build up over time and continue long after the body heals.

## PAIN AFTER SPINAL CORD INJURY

Acute pain is common after a spinal cord injury (SCI). The pain may occur as a result of the damage to the spinal cord, or it may occur from damage to other areas of the body at the time of injury.

It is also common for many individuals with SCI to experience chronic pain. It can occur in areas where there is normal sensation, and it can occur in parts of the body where there is little or no feeling after injury. The pain is very real and may have a great impact on daily living. A person in pain has difficulty carrying out daily activities. If you have pain, you can take 3 steps to help improve your overall quality of life.

- 1** *Do not ignore the fact that you have pain!* There are options for you to help manage the pain. Plus, pain can be a sign that there is a serious problem.
- 2** *Talk to a doctor!* It is important to first find the cause of the pain and the type of pain. Once your pain has been diagnosed, you and your doctor can decide how to best manage your pain.
- 3** *Learn to manage your pain!* Your goal is to reduce your pain as much as possible. The more you know about how you can help yourself, the better your overall quality of life.

## RESEARCH ON PAIN

Research on pain following spinal cord injury is very complicated. Not only are there several types of pain, but people can also describe the same type of pain in different ways. Plus, individuals with SCI can feel pain in areas where there is no damage to the body. You may have severe pain at times and little or no pain at other times. It may change if the weather changes, if you smoke, if you are tired or emotionally upset, or if you have problems with your bowel, bladder or skin. These are only some of the factors that make it very difficult for doctors and researchers to diagnose, classify and treat pain.

Research has shown that your level of injury and how you were injured can have an impact on whether you have pain. Individuals with low levels of injury tend to have more pain than those with higher levels of injury. Individuals who are injured by gunshot have more pain than persons with SCI caused by other factors.

## GROUPS OF PAIN

Individuals with SCI can experience several types of pain. The most common can be classified into three groups.

### Neuropathic Pain

The types of pain found in this group are common for individuals with SCI. After all, neuropathic pain is caused by damage or dysfunction in the nervous system, which includes the spinal cord. It can generally be described as a sharp, shooting, or burning pain, but the pain is often described in other terms as well.

*Spinal cord injury (central)* pain is a type of pain that can begin within weeks or months after your injury. You feel this type of pain at or below your level of injury in areas where you have lost some or all of your sensation to touch. It is thought that the pain signals are

coming from somewhere other than where you feel the pain. However, central pain is not related to what you do or how you are positioned. Additional terms used to describe central pain include tingling, numbness or throbbing.

*Segmental pain* often occurs around the border where you have normal sensation and loss of feeling as a result of injury. It can be slightly above your level of injury or slightly below. It usually develops during the first few months after injury. Segmental pain is often associated with *allodynia* and *hyperalgesia* in the painful region. Allodynia is pain caused by something that does not normally cause pain. For example, something cold, warm or a very light touch to the skin can result in pain. Hyperalgesia means an extremely painful response to what is normally only mildly painful.

*Nerve root entrapment pain* often begins days to weeks after injury and may worsen over time. It occurs at or just below the level of injury and has a distinct pattern. You may feel brief waves of stabbing or sharp pain or a band of burning pain at the point where your normal feeling stops. You may find that light touch makes the pain worse. The pain stems from compression of a nerve root by a bone or disk. Pain from damage to the *cauda equina* (the lower part of the spinal column) is a type of nerve root pain that is described as a burning feeling in the legs, feet, pelvis, genitals, and rectum.

*Syringomyelia* is a hollow, fluid filled cavity (syrinx) in the spinal cord. It is not common, but sometimes develops months or years after injury. The cavity can slowly increase in size and extend up or down the spinal cord. As the syrinx expands, it can result in pain along with an increased loss of sensory and motor function.

## **Musculoskeletal**

This type of pain is also a concern for individuals with spinal cord injury. It occurs in parts of the body like the bones, joints, and muscles. Musculoskeletal pain is usually worsened by movement and eased with rest. It can generally be described as a dull or aching pain, but the pain can also be described in other terms.

*Secondary overuse (pressure syndromes)* is a very common cause of musculoskeletal pain. The pain can occur months or many years after injury. It is caused by the overuse of muscles in any part of the body. For

example, many people develop tendonitis of the rotator cuff (shoulder) as a result of pushing a manual wheelchair for a long period of time.

*Muscle spasm pain* is experienced by some individuals after SCI. The spasms are involuntary movements of the body in areas that have lost some or all motor function. The pain is caused when muscles and joints are strained.

*Mechanical instability of the spine* is caused by damaged ligaments or fracture of bones. It occurs most often shortly after injury, but it can also develop later. The pain is usually around the area of instability.

## **Visceral pain**

Visceral pain usually begins a short time following SCI. It occurs in the abdomen (stomach area) either above or below the level of injury. The pain is described as burning, cramping and constant.

## **PAIN MANAGEMENT**

---

Pain management usually includes treatment with medications, modified activities or a combination of both. It may not be possible to completely stop the pain, but an effective pain management program can lessen the intensity of the pain.

Pain management can be a very difficult process. Many times it is hard to know what is causing the pain in individuals with SCI. You should talk with a doctor who knows about pain after SCI before you try any medications or methods of managing pain. It can take time to work out how to best manage your pain. An effective pain management program depends on the type of pain you have.

*Spinal cord injury pain* is the most difficult to treat. Some neuropathic pain-relieving medications such as neurotin (gabapetin), nortriptyline, and amitriptyline may work in easing the pain. In other cases, a pump can be implanted under the skin to deliver opiates and clonidine to help relieve the pain.

*Segmental pain* may also be eased with neuropathic pain-relieving medications. Other treatments that may also be effective include spinal cord stimulation and epidural blocks along with surgical procedures such as dorsal root entry zone lesions and dorsal rhizotomy.

*Nerve root entrapment pain* stems from vertebral instability. It might be relieved by stabilization, by opiates or by neuropathic pain-relieving medications. If there is bone or disk material present, decompression surgery is usually done to relieve the pain. Treatment to the peripheral nerves is usually needed to relieve pain from damage to the cauda equina.

*Syringomyelia* is diagnosed by a MR scan and requires surgery to remove the syrinx.

*Secondary overuse* is often managed by modifying activities that use the joint or body part that is in pain. This may include limiting or stopping activities that make the pain worse. For example, it may help to limit pushing a wheelchair if you have shoulder pain. It may be necessary to switch from a manual to a power wheelchair.

### **Pacing of Activities**

- 1** List all activities that you frequently overdo that result in an increase in your pain or fatigue. For example, if typing on a computer tends to increase your pain, list "typing on a computer."
- 2** When doing each activity on your list, make a note of the time that it takes for you to experience an increase in pain or fatigue. For example, make a note if your pain or fatigue increases after 30 minutes of typing on the computer.
- 3** Set a time limit for doing the activity that is well below the point when you experience an increase in pain or fatigue. When you reach that time, *stop* and *rest*. For example, *stop* and *rest* after 15 minutes of typing on the computer.
- 4** Return to the activity after your rest period. The time that you spend resting will vary. You want to have enough rest time for you to continue the activity as outlined in numbers 2 and 3.
- 5** Do not get in a rush to complete any activity. You should *slowly* increase your endurance by increasing the amount of time that you spend doing the activity and *always* include adequate rest periods.

If you are unable to relieve your pain through activity modifications like pacing of activities, it may be necessary to use medication such as opiates or nonsteroidal anti-inflammatory drugs.

*Muscle spasm pain* is best relieved by treating the muscle spasms. The medications usually prescribed for treating muscle spasms include baclofen or valium.

*Mechanical instability of the spine* that results in pain can be eased by limiting or stopping activities that make the pain worse. Modifying or pacing of activities can help ease the pain, but opiates and nonsteroidal anti-inflammatory drugs may also be necessary. In some cases, surgery may be needed and is usually effective when other treatments fail.

*Visceral pain* is best treated by a doctor because it can be caused by a number of factors. The pain may stem from damage to nerves and relieved by opiates and/or by neuropathic pain-relieving medications. The pain can result from damage to organs like the bladder, liver, kidneys, and intestines. Treatment options might include modifying your bowel or bladder management program or through surgery.

### **KEYS TO SUCCESS IN MANAGING PAIN** ==

To successfully manage pain, you need to:

- Be flexible and cooperative;
- Work jointly with health care professionals to find solutions to managing your pain;
- Follow treatment instructions; and
- Take an active role in treatment by asking questions, such as
  - Are there alternate drugs that are cheaper/safer?
  - Is the prescribed drug or treatment FDA approved?
  - Are there side effects from the medications or treatments?
  - Are there articles about a procedure or medication that you can read more about it?
  - Are there others who have used a treatment you can talk with about their experiences?

### **PAIN AFFECTS YOU** =====

Pain not only affects the body, it also influences how you think and feel. It is hard to participate in activities if you are in pain. Pain to any part of your body is at best annoying. At its worst, it is so severe that the pain seems almost unbearable.

As an individual experiencing pain, you probably have a hard time thinking about anything but pain. After

all, it is hard to think about work, school, or other things when you are thinking about pain.

This negative thinking then affects your emotional responses. The fear that your pain might get worse if you do something may keep you from doing something enjoyable because you do not want more pain. If your pain is annoying, you may feel frustrated when you participate in activities. Pain can also lead to feelings of anger or depression.

### **What increases pain**

Your thoughts and emotions can magnify your pain. One example is when you push yourself until the pain becomes severe. This can lead to fatigue, increased tension, worry/anxiety, a decrease in the ability to do daily activities or avoiding daily activities to avoid pain. Another example of your thoughts and emotions influencing pain is when you experience stress or become depressed as a result of problems that you face while living with your injury. Depression can make pain worse and result in social isolation.

### **What reduces pain**

If you are living with pain, there are some *psychological approaches* that you can take to help reduce your pain. You can learn to better cope with stress and overcome depression through professional counseling, although severe depression may require medication. Some techniques that you might learn through counseling include relaxation training, biofeedback and hypnosis.

The *Distraction* technique may also help reduce chronic pain. When you have pain, it may increase when you are not active or you begin to relax such as before you go to sleep. This increase in pain occurs because you have time to focus on the pain. When you are participating in enjoyable and meaningful activities, your awareness of pain decreases. For example, when you are busy with work, school, or

recreational activities, you are not as likely to focus on your pain.

## **CONCLUSION**

Pain management can be very important in improving your overall quality of life. If you are in pain, talk with a doctor. Start first with the simple methods of reducing your pain. You may have to try several treatments before finding one, or a combination, that works for you. Do not treat yourself because you may have a serious health problem that may be causing the pain.

Ultimately, the solution may not be a cure. You may not be able to live completely pain free. You may only be able to reduce your pain. But easing the pain may be enough for you to live a productive, satisfying life.

## **REFERENCES & RESOURCES**

This InfoSheet is based in large part on *Pain Following Spinal Cord Injury: Clinical Features, Prevalence, and Taxonomy\** by Philip J. Siddall, Robert P. Yeziarski, and John D. Loeser and edited by Michael C. Rowbotham, MD and Annika Malmberg, PhD. It was published in the International Association for the Study of Pain (IASP) newsletter, Issue 3, 2000. [www.halcyon.com/iasp](http://www.halcyon.com/iasp)

### **The National Chronic Pain Outreach**

7979 Old Georgetown Road, Suite 100  
Bethesda, MD 20814  
301-652-4948

### **American Syringomyelia Alliance Project**

PO Box 1586  
Longview, TX 75606  
903-236-7079

**For additional updated resources on Pain** visit the Spinalcord Injury Information Network web site at [www.spinalcord.uab.edu/show.asp?durki=21605](http://www.spinalcord.uab.edu/show.asp?durki=21605)

\*This article introduces a classification system for SCI pain developed by the Task Force on Pain following SCI of the IASP.

### **Published by:**

Office of Research Service  
619 19th Street South - SRC 529  
Birmingham, AL 35249-7330  
(205) 934-3283 or (205) 934-4642 (TTD only)  
Please check out our website at [www.spinalcord.uab.edu](http://www.spinalcord.uab.edu)

### **Date:**

**Revised May, 2001**

### **Consultants:**

J. Scott Richards, PhD; John D. Putzke, PhD

### **Editors:**

Linda Lindsey, MEd; Phil Klebine, MA

© 2001 Board of Trustees of the University of Alabama

The University of Alabama at Birmingham provides equal opportunity in education and employment.

*This publication is supported by grant #H133B980016 from the National Institute of Disability and Rehabilitation Research, Office of Special Education and Rehabilitative Services, U.S. Department of Education, Washington, DC. Opinions expressed in this document are not necessarily those of the granting agency.*