



Pain Management

Pain after Injury

Many individuals feel some type of pain after a catastrophic injury. Severe pain is a problem for about one in three persons with major injuries. Pain can interfere with your ability to carry out your daily routines, social activities, and greatly affect your quality of life.

There are numerous causes of pain some examples are broken bones (either with or without surgery), injured joints and muscles or damaged nerves. Movement of muscles and joints after periods of non-use also can cause pain. In persons with spinal cord injury (SCI) or brain injury (BI), there may also be changes in the way the body feels pain because of changes in the nervous system. Some persons with SCI or BI feel pain in places where they have abnormal or even absent sensation or feeling.

Pain is not a diagnosis; rather it is a symptom. Being a symptom, it may be a sign that something is wrong, but other times it may be a normal response to changes in the body. Pain may be present from the onset of injury or may slowly develop over time. Your health care team can help you figure out what is causing your pain and, more importantly, what can be done to treat it.

Certain conditions may make your pain worse, including numerous medical issues such as infection, bladder, bowel, or skin problems, as well as other factors such as over-exertion, physical or emotional fatigue, frustration, changes in weather, or even smoking. You may not tell anyone about your pain or the things that make it worse, for fear others will think you are "crazy" or "weak". Discussing your pain with the team can help determine if it's a signal that something is wrong, or if it's a "normal" symptom. Communicating with your team is the first step in understanding the different causes of pain and the different treatment options.

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You Have a Right

As a patient at Craig Hospital, you can expect:

- Your treatment team will take your reports of pain seriously.
- Information about pain and ways to help with your pain will be provided.
- A concerned staff committed to pain prevention and management.
- Health care professionals who respond to reports of pain.

Your Responsibilities

As a patient in this hospital, we expect that you will:

- Ask your health care team what to expect about pain and pain management.
- Discuss pain relief options with your health care team.
- Work with your health care team to develop a pain management plan.
- Help your health care team assess your pain.
- Tell your health care team when the pain is not relieved.
- Always talk with your doctor, nurse or pharmacist about any worries you may have about taking pain medication.

Pain Relief is Important!

Pain can cause the following signs and symptoms:

- Tiredness
- Depression
- Anger
- Worry
- Loneliness
- Stress
- Poor Appetite
- Increased alcohol and/ or drug use

Pain can interfere with the following:

- Daily activities
- Interest in work and hobbies
- Sleeping
- Sexual activity
- Eating
- Spending time with friends and family
- Enjoying life
- Working on your rehab goals

Tell Your Team About:

- Where do you feel pain?
- What does it feel like (sharp, dull, burning, electrical)?
- How long have you had the pain?
- What do you do to make it better?
- What makes it worse?
- What medications or treatments are helpful? What medications or treatments have not been helpful?

Types of Pain

There are two types of pain - acute pain and chronic pain:

- **Acute Pain** - Acute pain typically begins suddenly. The cause of the pain is usually from physical damage to the body or from a disease process. Acute pain is a danger signal and you should discuss it with your team to be sure it is evaluated properly. Remember that your body's ability to report pain needs to be addressed. Acute pain usually gets better with or without intervention, but may take several months to completely be resolved.
- **Chronic Pain** - When pain does not go away, and lasts longer than several weeks to months, it is usually considered to be chronic. However, this does not mean that there is no hope for improvement. There can be many causes of chronic pain in SCI and BI, and there are many different treatment strategies that your team can offer. Chronic pain is difficult to completely eliminate, but often significant reduction in the pain is possible. While chronic pain is usually not dangerous, it is important that you notify your team if your chronic pain suddenly worsens.

Types of Pain after Injury

There are several types of pain commonly felt by individuals with SCI or BI. Some types of pain involve mechanisms that might cause any person to have pain. Other types of pain involve mechanisms that are typically only found in people who have had an injury to the brain, spinal cord or other parts of the nervous system. Your team can help you understand these different types of pain and what can be done about it.

Mechanical Pain

Mechanical pain usually involves areas of normal sensation but not necessarily areas of normal function. This type of pain can occur suddenly or have a delayed onset. Symptoms can vary and can range from dull to sharp or achy to throbbing. It usually involves some type of physical cause such as physical injury to the muscle, joint or bone. This type of pain can happen to anyone. However, spasticity, a condition where the muscles have a difficult time relaxing because of SCI or BI, is also a common cause of mechanical pain.

Referred Pain

Referred pain can occur in persons with or without nervous system injury and it can be a common source of pain especially in SCI. One example is when a person has a heart attack, they may have jaw numbness or pain in their left shoulder or arm. In SCI, referred pain may be a sign that an area below your level of normal sensation is having a problem. One common example in SCI includes shoulder pain as a result of gallbladder disease. Referred pain can also happen in BI but is less common.

Central Deafferent Pain

In persons with SCI, central deafferent pain can be quite perplexing. You feel pain where you have abnormal or even absent sensation. Common descriptions include a "pins and needles" feeling, electrical, burning, numbness, or shooting pain below your level of injury. The pain may not develop for weeks or months, if at all. It may also fluctuate or change. It may be constant and may or may not change with physical activity. At best, it is bothersome. At worst, it may limit your ability to fully function in life.

Doctors believe the cause of central deafferent pain may be changes in the functioning of spinal nerves following SCI and is not typically a sign that the injury is getting worse. People with a BI sometimes can experience a similar pain syndrome, though the cause is related to injuries of the brain instead of the spinal nerves. People with this type of pain may be very sensitive to light touch or other stimulation that might not be ordinarily considered painful.

Root Pain

Root pain (also known as junctional pain) relates to the distinct pattern of pain with SCI, where pain is felt at, or just below, the level of injury. It may begin days to weeks after injury and may feel like sharp or burning pain near the area where your normal feeling stops. This type of pain is similar to central deafferent pain in that physical activity may not affect it, and that the area(s) involved may be overly sensitive to touch, also known as hypersensitivity. It is believed that the damage to the nerve roots at the level of injury causes this type of pain. Again, this condition does not necessarily indicate that there is worsening of the injury.

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Cyst (Syrinx) Pain

When the spinal cord is injured, sometimes a fluid filled cavity can form within the spinal cord itself, and this is called a cyst or syrinx. The cyst can sometimes expand up or down the spinal cord and can cause several different symptoms including sensory loss, weakness, and/or pain. Symptoms may not occur for months or years and may also develop very slowly. While this condition is not common and only occurs in SCI it can be very serious and is another reason why it is important to discuss all pain issues with your team.

Measuring the Pain You Feel

Whether you have a brain injury or a spinal cord injury, we know that your pain is very real. Most people with spinal cord or brain injury are able to tell the doctors and nurses when they have pain and how bad it feels. Family and staff members need to be very observant of someone who is not able to communicate on their own and watch for signs that may indicate pain. Changes in vital signs, such as an increase in heart rate or blood pressure or the rate of breathing may indicate someone is in pain. Changes in behavior such as restlessness, moaning or grimacing as well as increased anxiety, irritability, or agitation may also be a response to increased pain.

A pain scale helps you rate pain intensity. At Craig Hospital, your nurses will be asking you to rate your pain based on a 0 to 10 scale. A rating of 0 means no pain, and 10 is the worst pain possible. Rate the pain every few hours. You may feel pain even with medications or treatments. Tell your doctor or nurse if the pain is not reduced. Be sure to mention if the pain suddenly increases or changes.

Treatment of Pain after Injury

Treatments vary, depending on the type of pain. While research continues in pain treatment, no significant data proves one method as the standard treatment for pain control in every individual or for every situation.

Acute Pain Treatment

Acute pain usually responds well to treatment involving a combination of strategies, including medications, physical treatments, as well as counseling. Mental focus involves resolution or elimination of pain and ways to prevent the pain from happening again. For this type of pain, treatment is usually "after-the-fact"; meaning that you first report the symptoms before something is done about it.

Chronic Pain Treatment

Chronic pain can be very difficult to treat, and the multidisciplinary team approach is very important. It is very rare that a single strategy can effectively treat chronic pain, regardless of the cause, and it is very important that you work with each member of your team. Unfortunately, when pain becomes chronic, realistic goals typically involve reduction of pain and adaptation to pain, as opposed to complete elimination of pain. Your team may recommend some unusual medications and/or techniques, and it is important that you keep an open mind about different treatment strategies.

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Methods of Treating Pain

Since pain can have so many different causes, there is no single way to treat it, whether it is acute or chronic. Because SCI and BI can also have specific types of pain syndromes not normally present in the general population, it is very important that your team works with you to provide information about your type(s) of pain. Medications are just part of the solution, and your doctor, pharmacist and nurse can help explain the pros and cons of each one. Your therapists will also have strategies that do not involve medications but may be just as (or more) effective than any medication. A psychologist or clergymen are also very important people in addressing your pain, especially when it is chronic in nature. Understanding your emotions and learning about different types of adaptation strategies are a critical part of your treatment. Your healthcare team can help you explore alternative options such as massage therapy and acupuncture if you are interested.

Medications

There are many different medications available to treat pain. Some are more familiar than others, and some may sound very unusual. All medications have potential side effects, some of which are more serious than others, and many medications may interact with each other. You need to tell your doctor as many specifics as possible so that he or she can choose the most appropriate medication(s) for you. All have shown some success in reducing pain, but again, none do so completely in every instance. Some of the side effects of these medications can be serious. Your doctor must closely watch your treatment.

Also it is important that you keep an open mind about medications, especially since many medications are used "off-label," meaning that information you read from a drug manual or the internet may not be the only use of that medication. Your doctor is just as concerned about side effects as you are and will try to avoid medications that have many side effects or interactions with other medications. It is very important that you take only what your doctor or nurse recommends, as additional medications, including herbal or over-the-counter (OTC), may have significant interactions with your prescription medications. You will want to discuss the use of herbal remedies with your doctor.

Non-Steroidal Anti-Inflammatory Drugs (also known as NSAIDS)

Aspirin, Ibuprofen (Motrin, Advil), Naproxen, Anaprox (Aleve), Ketorolac (Toradol), Indomethacin (Indocin), Celecoxib (Celebrex), Rofecoxib (Vioxx).

NSAIDs have been used for many years with great success in treating various types of pain. They come in many forms, for example, pills, liquids, suppositories, and injections. Some are over-the-counter (OTC), and others are prescription only. Common risks include stomach upset (including ulcers and bleeding), kidney problems, allergic skin and breathing reactions and bleeding problems. They all have slightly different properties and potential side effects, and you should discuss with your doctor if this type of medication is safe for you.

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Acetaminophen

Better known as Tylenol, acetaminophen (APAP) is also a very effective pain medication and typically has fewer side effects than most other medications. However, in very high doses (particularly over 4,000mg per day) it can cause liver damage and should never be mixed with alcohol.

It is commonly found in combination with other pain medications such as APAP/Oxycodone (Percocet) and APAP/Hydrocodone (Lortab).

Narcotics (including combination medications)

APAP/Codeine (Tylenol #3), APAP/hydrocodone (Lortab, Vicodin), APAP/oxycodone (Percocet), fentanyl (Duragesic), hydromorphone (Dilaudid), meperidine (Demerol), Methadone, Morphine, Oxycodone

This class of medications, also known as opioids, includes a large number of medications with varying degrees of pain relief, as well as variable side effects. They are commonly combined with acetaminophen (APAP) or NSAIDs.

Common side effects include confusion, fatigue, vomiting, itching, constipation, and bladder weakness (urinary retention). They can also cause lowered blood pressure and may diminish the body's ability to breathe.

This class of medications always requires a prescription and may become habit forming. After long periods of use, your body's response to narcotics may decrease; you may find that your pain continues to increase despite higher doses. However, your body is likely to have continued side effects that will worsen with increased dosages. You may also develop dependency on these medications, and abrupt discontinuation can cause withdrawal symptoms.

Narcotics are typically not effective for chronic pain but are usually very effective for acute pain. Dependency, or addiction, is very rare when narcotics are used properly. Your doctor can help you determine which, if any, of these medications might be helpful for you.

Muscle Relaxants / Anti-Spasticity Medications

Diazepam (Valium), baclofen (Lioresal), carisoprodol (Soma), cyclobenzapine (Flexeril), metaxalone (Skelaxin), methocarbamol (Robaxin), dantrolene (Dantrium), tizanidine (Zanaflex).

These medications fall into different categories but primarily work by causing muscle relaxation, either directly acting on the muscle or the nerve input to the muscle.

Common side effects include sedation, dry mouth, confusion, low blood pressure, decreased breathing rate, and weakness.

Other Medication, Including "Off-label" Use

An "Off-Label" use is when a medication is prescribed for purposes other than originally approved by the Federal Drug Administration (FDA). Nevertheless, these medications can be safely prescribed by your doctor and may be very effective for pain, both acute and chronic, and particularly for pain syndromes that may occur after SCI or BI (but rarely in the general population). You should always discuss potential benefits, risks and side effects of these medications with your doctor.

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These medications include:

- **Tramadol (Ultram)** does not fall into a specific category, and may be helpful in mild to moderate pain. Though it is not a narcotic, it carries a slight potential for dependency and should be used with caution if you are taking an anti-depressant.
- **Anti-depressants**, particularly tricyclic antidepressants such as amitriptyline (*Elavil*) or nortriptyline (*Pamelor*) and desipramine (*Norpramin*).
- **Anxiolytics** (also known as anti-anxiety medications), such as diazepam (*Valium*) and clonazepam (*Klonopin*) are very effective muscle relaxants which also help to reduce anxiety.
- **Anticonvulsants** (also known as anti-seizure medications) such as Neurontin are helpful for nerve pain associated with SCI. They are often used in combination with antidepressant.
- **Anti-Hypertensives** (blood pressure medications) such as clonidine (*Catapres*), which is closely related to the muscle relaxant tizanidine (*Zanaflex*).

Alcohol is not a medication. Alcohol is not recommended as a pain medication and can lead to alcohol abuse and other serious problems. Some medications should not be mixed with alcohol. Check with your doctor if you have questions about drinking alcohol and always read the labels of your medications.

Potential Concerns about Medications

I'm afraid of becoming addicted.

Narcotic addiction is defined as dependence on the regular use of narcotics to satisfy physical, emotional, and psychological needs rather than for medical reasons. Pain relief is a medical reason for taking narcotics. Therefore, if you take narcotics to relieve your pain, you are not an "addict," no matter how much or how often you take narcotic medications. If you and your doctor decide that narcotics are a proper choice for your pain relief, then use them as directed. Fear of addiction is very common for people who take narcotics for pain relief. Narcotic addiction is a very emotionally charged subject. You may hear people use the term "addiction" very loosely without understanding that it means the compulsive use of habit-forming drugs for their pleasurable effects.

I don't want to be a complainer.

You have the right to ask for pain relief. In fact, telling your doctor or nurse about pain is what all patients SHOULD do. The sooner they speak up, the better. It is easier to control pain in its early stages before it becomes severe.

I don't want to lose control.

Most people do not lose control when they take pain medications the right way. You may feel sleepy when you first take some pain medications, but this feeling often goes away in a few days. A few people get dizzy or feel confused when they take pain medications. Tell your doctor or nurse if this happens to you. Changing your dose or type of medication usually helps solve this problem.

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Other Pain Relief Options

Electrical Stimulation

Transcutaneous electrical nerve stimulation or "TENS" has provided relief from SCI pain in some individuals. This technique involves placing electrodes on the surface of your skin and sending low levels of electrical current into your body. Doctors and physical therapists often use TENS first when addressing pain because the risks are low.

Another type of electrical stimulation is the dorsal column stimulator or epidural stimulator. This is implanted under the skin and has proven helpful in some cases. It is a surgical procedure and is reversible.

Nerve Blocks and Surgery

Nerve blocks refer to a drug being injected directly into the skin or spine. This method has fewer side effects than narcotics and the pain relief lasts longer. Doctors often use these treatments before neurosurgery because the risks are lower.

Dorsal root entry zones (DREZ)

DREZ is a neurosurgical procedure for reducing pain in some individuals. The DREZ procedure involves thermally heating parts of the spinal cord or nerve roots thought to be the source of pain. There is a greater than 80% success rate for selected cases of paraplegia.

Stretching and Range of Motion Exercises

Stretching and range of motion exercises that help release muscle tension may also help relieve pain. Applying ice or heat to the affected area may help reduce swelling and pain.

Therapeutic Massage

Therapeutic Massage by a trained, certified massage therapist (CMT) may also help in relieving pain due to muscle tightness and muscle imbalance. Speak with your doctor if you are interested in massage therapy.

Acupuncture

Pain specialists in the treatment of chronic pain have used acupuncture treatments. Acupuncture treatment consists of the insertion of tiny needles into the skin at specific points. According to some experts, acupuncture works by stimulating the body's pain control system or by blocking the flow of pain.

Psychological Treatment for Pain

While medical and surgical procedures for managing chronic pain are important, psychological approaches to coping with pain are as important. With psychological approaches, you are an active participant and can actually affect your pain by becoming more involved in the management of pain through learning coping and adaptation strategies. Don't overlook or feel threatened by psychological support. Living with pain day after day will affect anyone's view of themselves and the world. Working with a psychologist can help you understand this.

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Other Pain Factors

There are other factors that can aggravate pain, such as depression and stress.

Depression

Depression can accompany pain or occur as a result of everyday living problems or coping with a spinal cord injury. Depression can magnify the pain experience and result in social isolation. Depression is best treated through counseling, either with professionals or peer counselors. Severe depression requires medication or other treatment. Successful treatment of depression can improve your ability to cope with chronic pain.

Stress

Stress is another factor that can magnify pain. You can learn to manage stress more effectively through counseling, either individually or with a group. Psychologists can teach you techniques to help you reduce stress and tension, such as relaxation training, biofeedback, and hypnosis.

Distraction is one of the best methods for coping with chronic pain. Keeping busy in enjoyable and meaningful activities, whether recreation, work or volunteer activities, is most important. Inactivity and boredom allow you to focus more on your pain.

How you think about your pain may affect how you cope and deal with it. If you believe it is a sign that something is terribly wrong with your body, you may avoid certain activities or rely on medications. This can change your entire lifestyle.

You want to decrease your pain so you can safely participate in as many activities as possible. If you limit your activities, it may only make things worse. Consult with your doctor to find out the type and cause of your pain. Ask what you can and what you can not do.

Pain is an invisible disability and family members may not understand your pain. Because of their concern, they may be overprotective or resent your use of medications or other treatments. Family education and counseling can be helpful.

Conclusion

Pain and its treatment can be a complicated problem. Do not try to diagnose your own pain. You may need to try several treatments before finding one, or a combination, which works for you. Start with the safest option. Often, combining several methods may work.

Ultimately, the solution may not be a cure. It may be learning new or improved skills to make the pain more tolerable and reduce the impact of pain on your quality of life.

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Guidelines for Pain Relief

- Prevent the pain before it starts or gets worse by doing some pain-relief methods on a regular schedule. If pain begins, don't wait for it to get worse before doing something about it.
- Learn which methods of pain relief work best for you. Vary and combine pain-relief methods. For instance, you might use a relaxation method at the same time you take medication for pain.
- Know yourself and what you can do. Often when people are rested and alert, they can use a method that demands attention and energy. When tired, they may need to use a method that requires less effort. For example, try distraction when you are rested and alert, use hot or cold packs when you are tired.
- Be open-minded and keep trying. Be willing to try different methods. Keep a record of what makes you feel better and what doesn't help.
- Try each method more than once. If it doesn't work the first time try it a few more times before you give up. Keep in mind what doesn't work one day may work the next. Also, you might need help in figuring out the best way to use a certain technique. Don't get discouraged if a certain method does not work for you. People are different, and not all methods will work for everyone.
- Most important, always ask yourself: "Is the cure worse than the disease? Does pain relief allow me to do what is important to me and those I care about?"