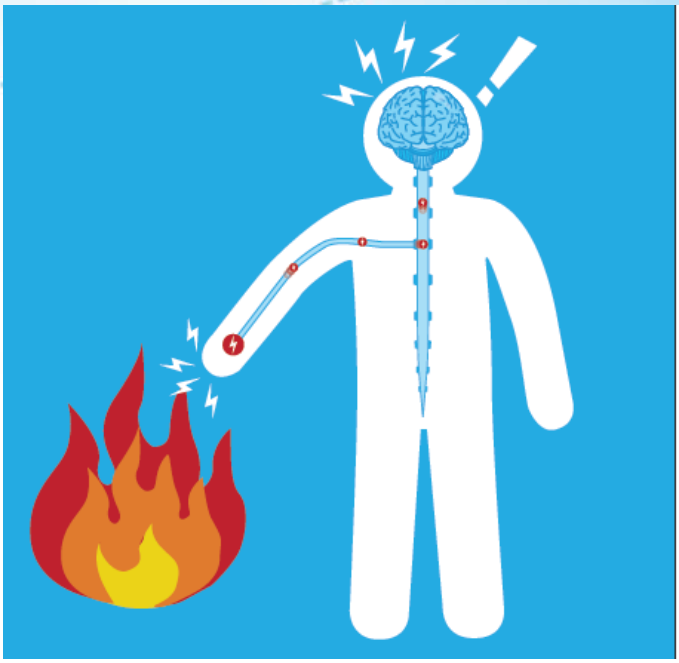
Pain Management Network

UNDERSTANDING PAIN AFTER SPINAL CORD INJURY

How does pain work?

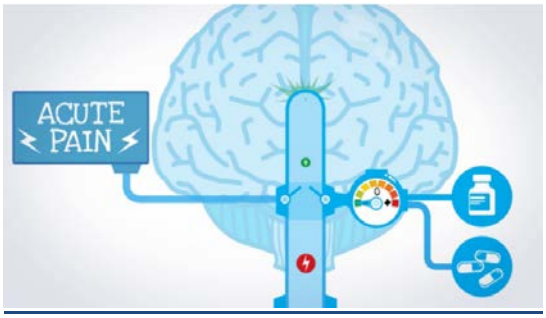
To learn how to best manage pain, it is important to understand how pain works. Our body is constantly receiving information from the outside world. Special nerves called **receptors** are sensitive to certain types of sensory input. Receptors respond to stimulation from things like chemicals, temperature changes or movement. When the signal is strong enough, we feel the sensation as painful.



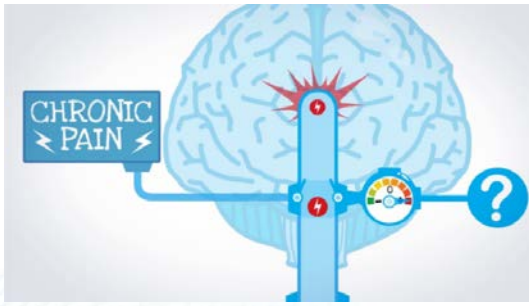
The stimulus triggers a response in receptors and messages, known as **nerve impulses,** travel along the nerve pathways towards the **spinal cord**. When the nerve impulses reach the spinal cord – the messages are then passed on to other nerves – like passing the baton in a relay race! The nerve impulses then travel in specialised tracks in the spinal cord up towards the **brain**. When the messages reach the brain they get passed on or *relayed* to many different parts of the brain, and this is the point when you experience pain and also where you plan what you are going to do about it!

Different kinds of pain

There are different kinds of pain. Pain that comes directly from an injury or trauma or straight after surgery is called **acute pain.** Acute pain can be very severe, but usually gets better within about 3 months after an injury. Acute pain is important for our survival and helps to protect us from danger. Acute pain grabs your attention so it can be attended to straight away. If required, acute pain responds well to strong medications in the short term.



But, sometimes pain persists, and when pain lasts for longer than 6 months it is called **chronic pain.** Chronic pain can be present even after the injured tissues have healed. This is because chronic pain is different. Persistent pain sets in motion a whole range of processes in the body - the nervous system can actually adapt and change to become better at transmitting the pain message over time.



Chronic pain messages are very different from acute pain messages – and this means that chronic pain will respond very differently to treatments compared with acute pain. In fact, treating chronic pain the same way that you treat acute pain just won't work. This is important to remember when setting up your pain management program with your healthcare professional.

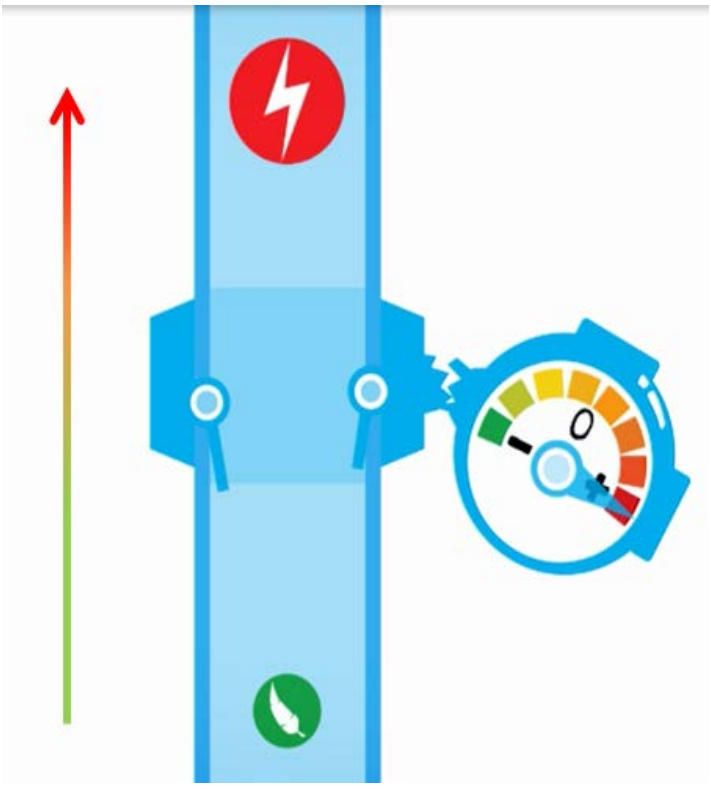
IMPORTANT!
Chronic pain is different!

THE PAIN GATES & VOLUME CONTROL

In our spinal cord - where messages are getting passed from one nerve cell to another - there is another interesting thing that happens during pain transmission. At many levels of the spinal cord – and also in the brain – there is a natural **gate** that allows information going to and from brain to be *filtered.* This is so that we are only aware of sensations when they reach a certain critical level or **threshold**. These gates are important – without them, we would be *bombarded* with so many messages that we couldn't process all the information! These small "gates" are made up of s**mall inhibitory nerve cells**, and when they are closed, they work to turn down the volume of information going up to the brain.

What happens after SCI?

After a spinal cord injury these small inhibitory neurons may be damaged and the gate may become harder to close. This means that there are more messages that are able to travel up the spinal cord and the spinal cord also becomes sensitised to information.



Nerve impulses fire off spontaneously near the site of injury and this is often felt as pain and stimulation of nerves below the level of injury can mean messages that are non-painful stimulus are actually felt as pain. *For example even light touch may be experienced as electric shock or burning pain!*

This open gateway in the spinal cord effectively

TURNS UP THE VOLUME OF THE PAIN

and this is one of the key reasons many people experience neuropathic pain after spinal cord injury.

But there is good news!!!

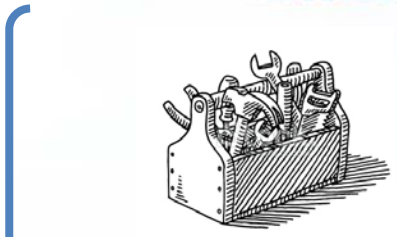
The good news about this **GATE** in your nervous system is that inhibitory gates are not only in the spinal cord…..**there are also inhibitory gates in the BRAIN!**

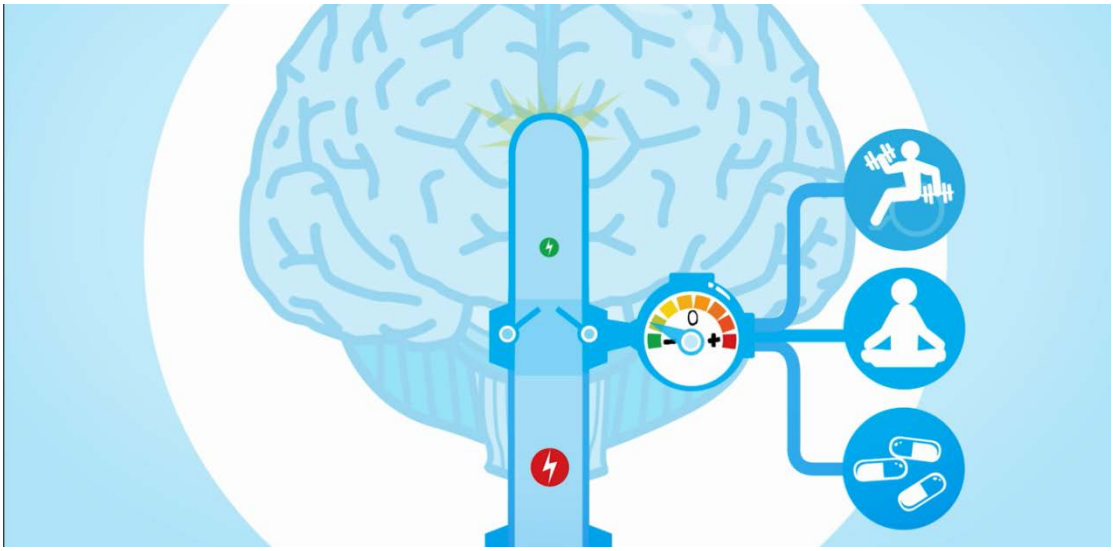
You can **RETRAIN THE BRAIN TO REDUCE YOUR PAIN!!**

Read on further and visit http://www.aci.health.nsw.gov.au/chronic-pain/spinal-cord-injury-pain/understanding-pain-after-spinal-cord-injury to find out how!

THE SCI PAIN TOOLBOX

It can be helpful to think of a Toolbox against the Pain! First think about doing odd jobs about the house. You won't be able to use just one tool. Chances are you are going to need many different tools to get the job done properly! The same goes for pain management. There are a range of skills and strategies that we call **tools** that can be helpful. But these tools and skills all work in slightly different ways and different tools suit different people. So just trying one tool isn't going to work. Each of these skills and tools has a different target. To get the greatest benefit, it is important to try out different tools and then work out which ones suit you best and use them in combination.





Things that you could have in your toolbox for helping with chronic pain are:

- **Medications** to reduce messages from inflammation or damaged nerves.
- **Exercise and stretching** to reduce muscle stiffness, increase the range of movement, and to release endorphins - our natural morphine.
- Techniques to help **re-train the brain** such as meditation, relaxation and thought management to help close the gates and reduce the volume of pain messages.
- **Goal setting** to plan your approach and focus your energy.
- Practical tools such as an **activity pacing plan,** a **flare up plan** and an **activity upgrade plan** can be helpful to work towards your goals.

"The most important thing to me is to live my life and get out and experience the things I have always enjoyed in life...and not be inhibited by a serious pain condition, and not let that control my life."