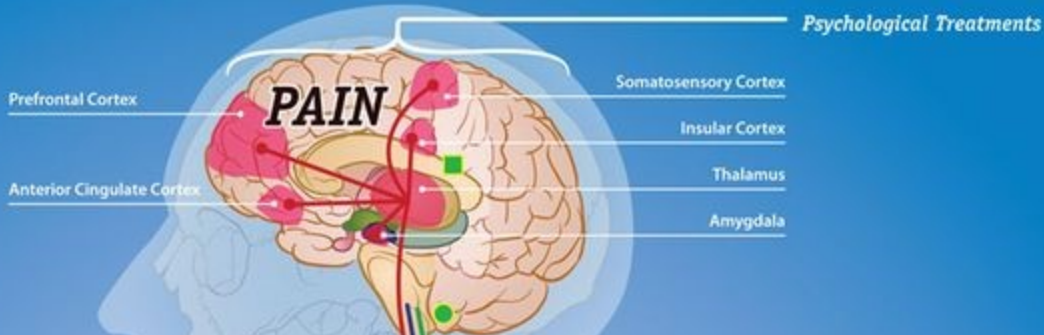


# pain explained

## Pain Pathways and Medications

3

Thoughts, feelings and beliefs change the pain signals into the individual's experience of "PAIN".



1

Painful Stimuli or tissue damage activate specialized nerve cells (nociceptors), which in turn send pain signals to the spinal cord.



4

Certain parts of the brain generate signals that travel back down the spinal cord to reduce or increase pain signals at the interneuron.



2

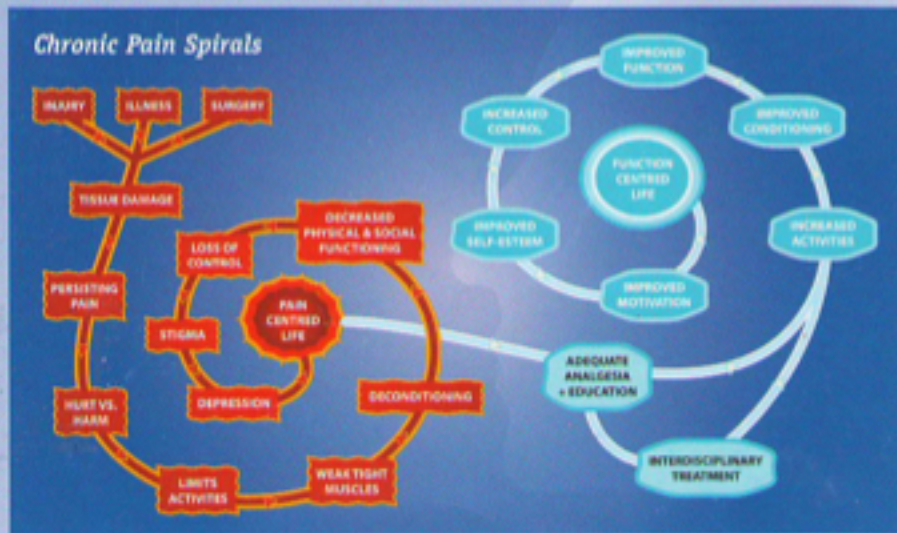
Pain signals enter the dorsal horn of the spinal cord, where some are increased or decreased by the interneuron before continuing up to the brain.

Sites of Action	Medications
▲ Peripherally (at the nociceptor)	Cannabinoids, NSAIDs, Opioids, Tramadol, Vanilloid receptor antagonists (i.e., capsaicin)
◆ Peripherally (along the nociceptive nerve)	Local anaesthetics, Anticonvulsants (except the gabapentinoids)
■ Centrally (various parts of the brain)	Acetaminophen, Anticonvulsants (except the gabapentinoids), Cannabinoids, Opioids, Tramadol
● Descending inhibitory pathway in the spinal cord	Cannabinoids, Opioids, Tramadol, Tricyclic antidepressants, SNRIs
● Dorsal horn of the spinal cord	Anticonvulsants, Cannabinoids, Gabapentinoids, NMDA receptor antagonists, Opioids, Tramadol, Tricyclic antidepressants, SNRIs

# painexplained

## Pain Pathways and Medications

This [painexplained.ca](http://painexplained.ca) poster describes the basic pathways that pain signals usually follow during an acute pain episode (recent onset, transient, lasting from several minutes to less than 30 days).



### Transition to Chronic Pain

Untreated or undertreated “acute” pain may transition to “chronic” pain. The accepted definition for “chronic pain” is:

**Pain that persists beyond the usual course of an acute illness or healing time of an injury (usually beyond three to six months), associated with a pattern of recurrence over months or years or associated with a chronic pathological process. It is often accompanied by emotional (depressive) symptoms but objective physiological signs are sometimes absent.**

### Medications and Sites of Action

Certain medications have been purposely developed to reduce various types of pain. These medications are called **analgesics**. Some other medications that were developed to treat other conditions have been discovered to also have pain-relieving properties. These are called **co-analgesics** or **adjuvants**.

Pain medications can act at different parts of the pain pathway. The health care professional will try to select the medication(s) that he/she feels is best suited to relieve your specific pain. The following table lists some of the more commonly prescribed classes of drugs used for pain relief. Refer to the illustration to see their sites of action within the pathway.

Sites of Action *	Medications
▲ Peripherally (at the nociceptor)	Cannabinoids, NSAIDs, Opioids, Tramadol, Vanilloid receptor antagonists (i.e., capsaicin)
◆ Peripherally (along the nociceptive nerve)	Local anaesthetics, Anticonvulsants (except the gabapentinoids)
■ Centrally (various parts of the brain)	Acetaminophen, Anticonvulsants (except the gabapentinoids), Cannabinoids, Opioids, Tramadol
● Descending inhibitory pathway in the spinal cord	Cannabinoids, Opioids, Tramadol, Tricyclic antidepressants, SNRIs
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\* Refer to illustration on opposite side for the location of these sites.

### Prescription Guidance

- Determining the type of pain helps to determine which medication(s) may be the best initial choice for treating the pain.
- The pain may involve one or more parts of the pain pathway. Different types of medications acting at different sites along the pathway, may be required in order to optimize pain control.
- A therapeutic trial of medication may be needed to determine whether or not that medication will be effective for a particular pain in a particular patient. It may take weeks or months to complete such a trial, since the dose may have to be “titrated to effect” to fully assess its benefits and side effects.
- If the initial medication does not work or has too many side effects, then another medication that works at a different site within the pain pathway may be tried. If the initial medication only provides partial relief of the pain, then another medication may be added in order to improve pain relief.

The [painexplained.ca](http://painexplained.ca) initiative seeks to promote awareness of the issue of under treated pain in Canada through a long-term, coordinated public awareness campaign with the goal of addressing the vital need to achieve better understanding, prevention and management of all types of pain in Canada.

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