

PAIN

TREATMENT OPTIONS TO HELP RELIEVE PAIN AND INFLAMMATION



holding your hand through health

What is pain?

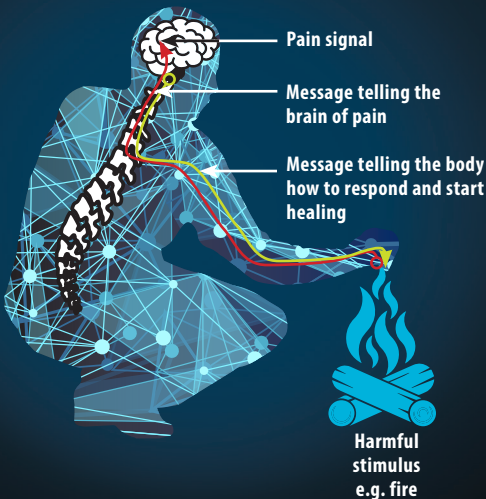
Pain is an unpleasant feeling that can take many forms.¹ Whether it is a throbbing headache, the daily pain of arthritis or the pain of getting burnt,¹ it is safe to say that most of us prefer to avoid pain.² Pain occurs commonly and can interfere with daily activities, drain your energy and make you feel less healthy overall.¹

However, pain is also one of the body's most important communication tools,² alerting you to danger. Pain is the message telling your body that something is wrong and needs attention to protect you from further harm.^{1,2} For example, if you step on a thorn, pain is the message telling your body that you need to lift your foot and remove the thorn.²

How does pain work?



Special nerve endings called nociceptors are present in the skin, bones, joints, muscles, connective tissues and the protective membranes around the internal organs.¹ When tissue damage occurs, these nociceptors will relay pain messages in the form of electrical impulses via nerves, to the spinal cord.¹



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In the spinal cord, the messages are prioritised and relayed to the brain at different speeds and strengths. Severe pain from a burn will instantly be sent to the brain as an urgent message to trigger the process of pulling the hand away from the source of the heat, whilst the pain message following the bumping of an elbow will be relayed more slowly and with less strength, therefore prioritising more urgent messages.¹

Pain messages from the spinal cord are sent to the brain where they are processed to initiate return messages to start the healing process.¹ This may include signalling the:¹

- release of pain-suppressing chemicals
- nervous system to increase blood flow and deliver extra white blood cells and platelets to help repair tissue at the site of the injury

Although inflammation is part of the healing process, it can also result in pain, redness, swelling, immobility and heat at the site.³

Pain types and classification

Pain can be classified in many different ways such as describing the **part of the body** that is involved, whether it is **acute** or **chronic**, or the type of **tissue damage** that causes pain.²

- **Acute pain** is a severe or sudden pain that resolves within a certain period of time,¹ usually once healing has occurred and the cause of the injury has disappeared.⁴ With acute pain you typically know exactly where and why it hurts, for example, following an injury, surgery or with illness.¹ Acute pain is frequently caused by damage to tissues such as bones, muscles or organs.²



- **Chronic pain** is persistent and lasts for months or even longer.¹ Chronic pain is usually associated with a long term illness such as osteoarthritis.² With chronic pain, you might not know the reason for the pain, for instance pain that persists after an injury has healed.¹ Chronic pain can also occur without any indication of injury or illness.¹ Chronic pain can be the result of damaged tissue, but very often is caused by nerve damage.²



Part of body affected

Pain can also be classified based on the part of the body that is involved and can be referred to as muscular pain, joint pain, chest pain, back pain, etc.²

Tissue damage

Pain can also be classified based on the kind of damage that causes the pain.² Pain can occur as a result of physical injury causing tissue damage to:

- bone such as fractures or joints e.g. arthritis²
- soft tissue e.g. sport injuries, sprained ankles²
- organs e.g. pain experienced with indigestion or constipation^{2,5}

Nerve damage

Pain can also occur due to nerve damage and is called neuropathic pain.²

Pain due to nerve damage is often described as stabbing, burning, freezing, prickling, numbing, electrical shock or pins and needles.^{1,2}

Some of the conditions that can cause neuropathic pain include:

- damage to nerves in the hands, arms, feet and legs due to diabetes²
- nerve damage following shingles²
- nerve damage due to a stroke, multiple sclerosis or HIV infection²
- inflammation of the facial nerve called trigeminal neuralgia²
- physical damage to nerves due to physical injury²

Pain can be classified as acute back pain due to tissue damage following an injury or as chronic foot and leg pain due to nerve damage, as a result of diabetes.²

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Your experiences affect how you perceive pain

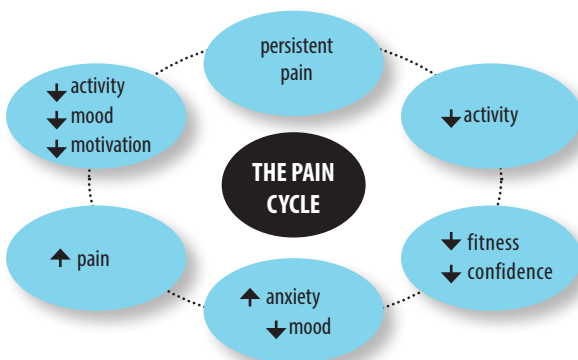
Pain is both physical and emotional and how you feel and react to pain also depends on many personal factors such as:¹

- **Gender** – women tend to report pain more frequently, and at a higher intensity than men¹
- **Genetic factors** – determine how sensitive you are to pain and also how you respond to pain medicine¹
- **Long term health problems** – chronic diseases such as migraine headache, fibromyalgia and irritable bowel syndrome are associated with pain¹
- **Psychological factors** – patients suffering from depression, anxiety and low self-esteem report a higher prevalence of pain¹
- **Social factors** – a higher prevalence of pain is associated with stress, social isolation, unemployment and lower education levels¹
- **Past experiences with pain** – a previous bad experience with a dentist may result in a stronger pain response at the next visit, even after a minor pain stimulus¹
- **Other factors** – such as your upbringing, coping strategies and general attitude also affect how you experience and tolerate pain¹



The pain cycle

Chronic pain can have a large impact on day-to-day life, including general health, daily activities, sleep, relationships and employment. In addition to pain, these changes cause emotional stress. A vicious cycle develops, which makes it harder to deal with pain.⁶



Adapted from Craig D, Gordon K, 2015⁶

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Pain medications

Choosing the most effective medicine to treat pain, largely depends on:

- type of pain
- intensity and duration of pain
- source of pain

A healthcare professional is the most qualified person to help choose the best treatment option.⁸

Paracetamol

For treatment of mild to moderate pain, paracetamol can be used to relieve pain and reduce fever.⁹ Paracetamol works on the parts of the brain that receive “pain messages”⁹ but it does not reduce inflammation.^{3,9} Paracetamol is often found in analgesic combinations with other ingredients such as opioids.^{10,11,12}

Non-steroidal anti-inflammatory drugs (NSAIDs)

These can be used to alleviate pain associated with inflammation.³ They work by reducing enzymes [cyclooxygenases (COX)] in the body, that are responsible for inflammation.¹³

NSAIDs are effective in treating acute and chronic pain due to inflammation such as:¹²

- **rheumatoid arthritis • osteoarthritis • ankylosing spondylitis**
- **gout • pain after surgery • painful menstrual periods**
- **short-term relief of acute pain**

It can be difficult to know which NSAID is best for a given individual.¹³ You may find that one NSAID works better for your condition than another, while some NSAIDs may have fewer side-effects than others.¹³ These effects differ from one person to the next and it may be necessary to try one NSAID for a few weeks and, if it does not work well, to try a different one to find the optimal NSAID.¹³ It is important never to take two different NSAIDs at the same time.¹³

There are two main types of COX enzymes called COX-1 and COX-2. NSAIDs are classified as **non-selective** or **selective**, based on the type of COX enzyme they inhibit.¹³

Non-selective NSAIDs

Non-selective NSAIDs reduce inflammation by inhibiting both COX-1 and COX-2 enzymes.¹³ Some of the non-selective NSAIDs available in South Africa include:¹²

- **aspirin • ibuprofen • naproxen • indomethacin**
- **diclofenac • mefenamic acid**

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Selective NSAIDs

Selective NSAIDs inhibit COX-2 enzymes to a greater extent than COX-1 enzymes. They are as effective in relieving pain and inflammation as non-selective NSAIDs. Selective NSAIDs are sometimes preferred as they have less potential to cause gastrointestinal bleeding or ulcers.¹³

The selective NSAIDs are only available on prescription from a doctor. In South Africa they include:^{11,12}

- ✓ celecoxib
- ✓ etoricoxib
- ✓ parecoxib

Some common side-effects of NSAIDs

Some of the side-effects of NSAIDs are mild and may go away on their own after reducing the dose or as treatment continues, while others are more serious and may need medical attention.¹⁴

COMMON SIDE-EFFECTS¹⁴

- Stomach pain and heartburn
- Stomach ulcers
- A tendency to bleed more, especially when taking aspirin
- Headache and dizziness
- Ringing in the ears
- Allergic reactions such as rash, wheezing and throat swelling
- Kidney problems
- Increase in blood pressure
- Leg swelling

The risk of side-effects can be reduced by:

- using the lowest effective dose for the shortest period possible
- taking NSAIDs with food can reduce the risk of gastrointestinal tract side-effects.¹⁴
- using an acid blocker with NSAIDs may reduce the risk of stomach ulcers and bleeding.¹⁴

Who should not take NSAIDs

People who have a history of, or are at risk of, the following conditions should speak to a healthcare professional before using NSAIDs.

Those with:¹⁵

- heart disease • high blood pressure • liver cirrhosis • kidney disease
- stomach problems i.e. heartburn, ulcers, bleeding • asthma
- taking diuretics

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Additional ways to ease pain

Further treatment options to help relieve pain may include^{7,8}

- application of a heat or cold pack to the painful area
- staying active with exercise such as swimming, walking or cycling can help ease muscle and joint pain
- relaxation and breathing exercises
- massage therapy
- chiropractic therapy
- acupuncture
- psychological counselling and support

Always consult with your healthcare professional to help find the right mix of treatments for you and if you are prescribed pain medication, discuss any concerns you may have related to side-effects, safety or interactions, before starting treatment.

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