



Information about Chronic Pain

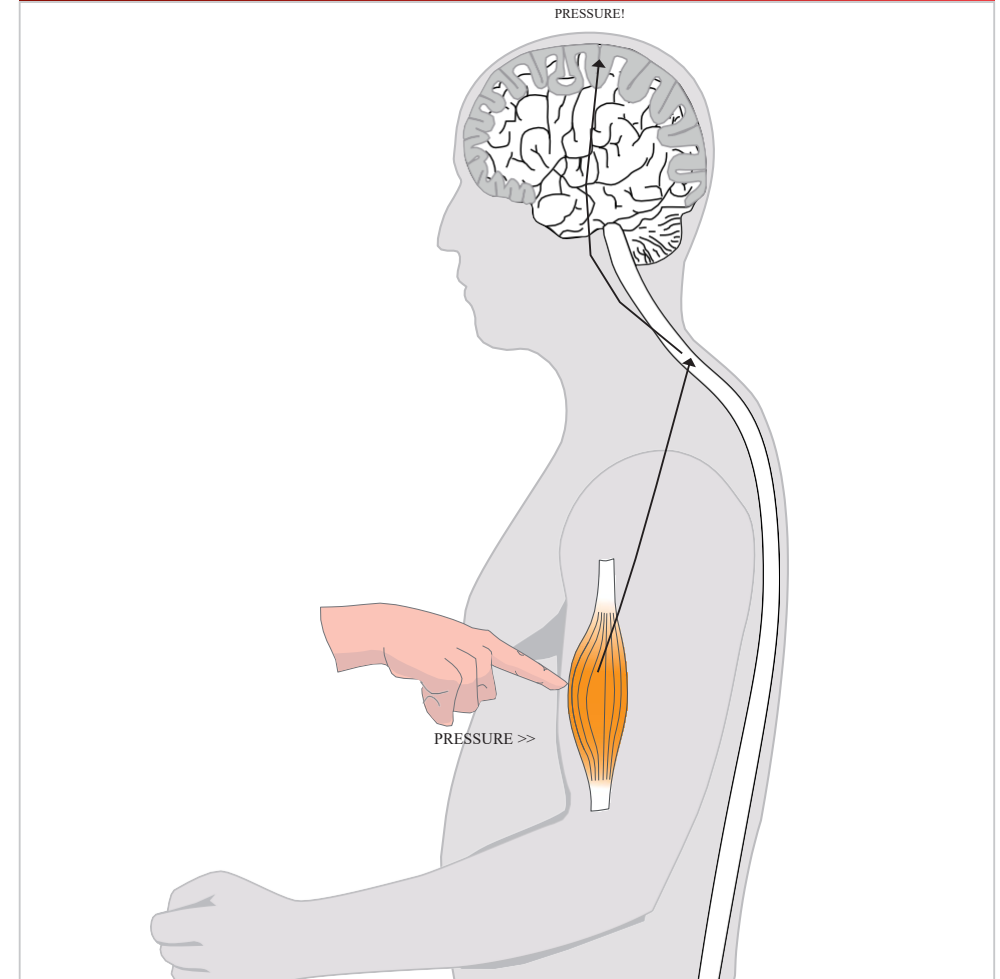
Explanatory model for chronic pain

Chronic and previously hard-to-understand pain can today be explained with the support of modern pain research.

Changes may occur in the central regulation of pain that involve disruptions to the pain signals in the spinal cord and brain.

The images that follow explain the mechanisms behind chronic pain.

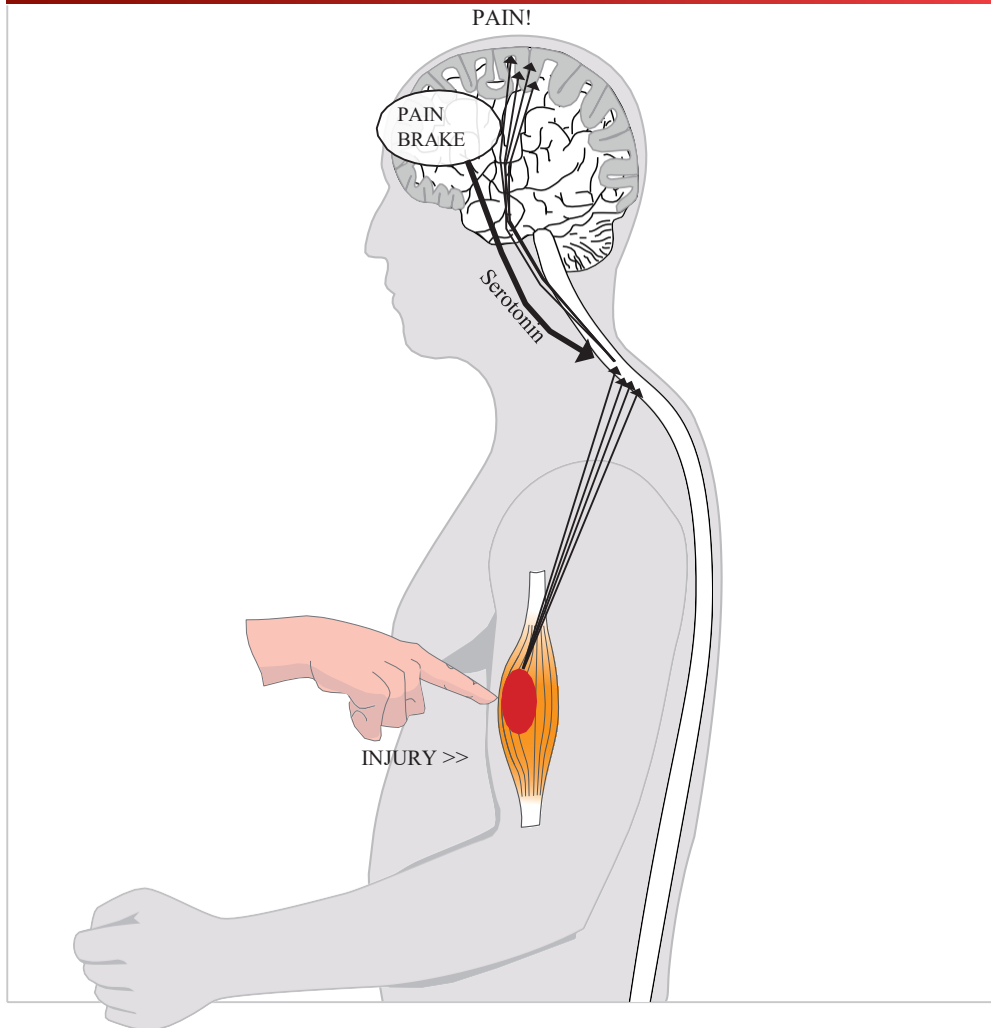
Normal perception of touch and pressure



Touch or slight pressure against the body generates signals that are transmitted via nerves into the nerve cells of the spinal cord.

The signals are transmitted through the nerve-paths of the spinal cord up to the brain. The touch or pressure is perceived as painless.

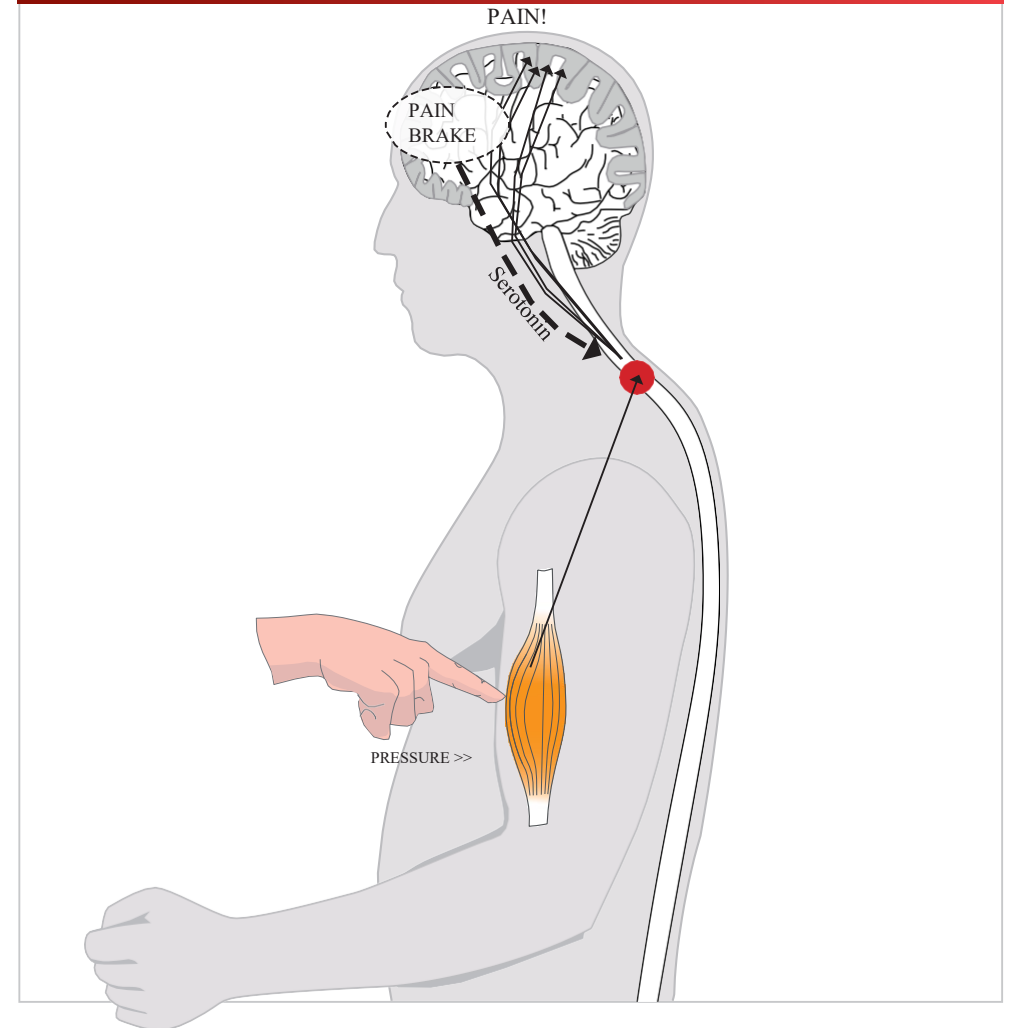
Normal perception of injury



An injury to some tissue in the body (a muscle, for example) causes an amplification of the signals transmitted via the nerve-paths of the spinal cord to the brain. Only then is the injury perceived as pain. The brain then sends pain-relieving signals to the nerve cells in the spinal cord ("pain brake"). The pain-relieving descending signals are transmitted by the neurotransmitter serotonin.

Serotonin makes the nerve cells in the spinal cord less sensitive to the incoming signals from the injury and the pain is relieved. The pain-relieving ascending signals are transmitted by noradrenaline.

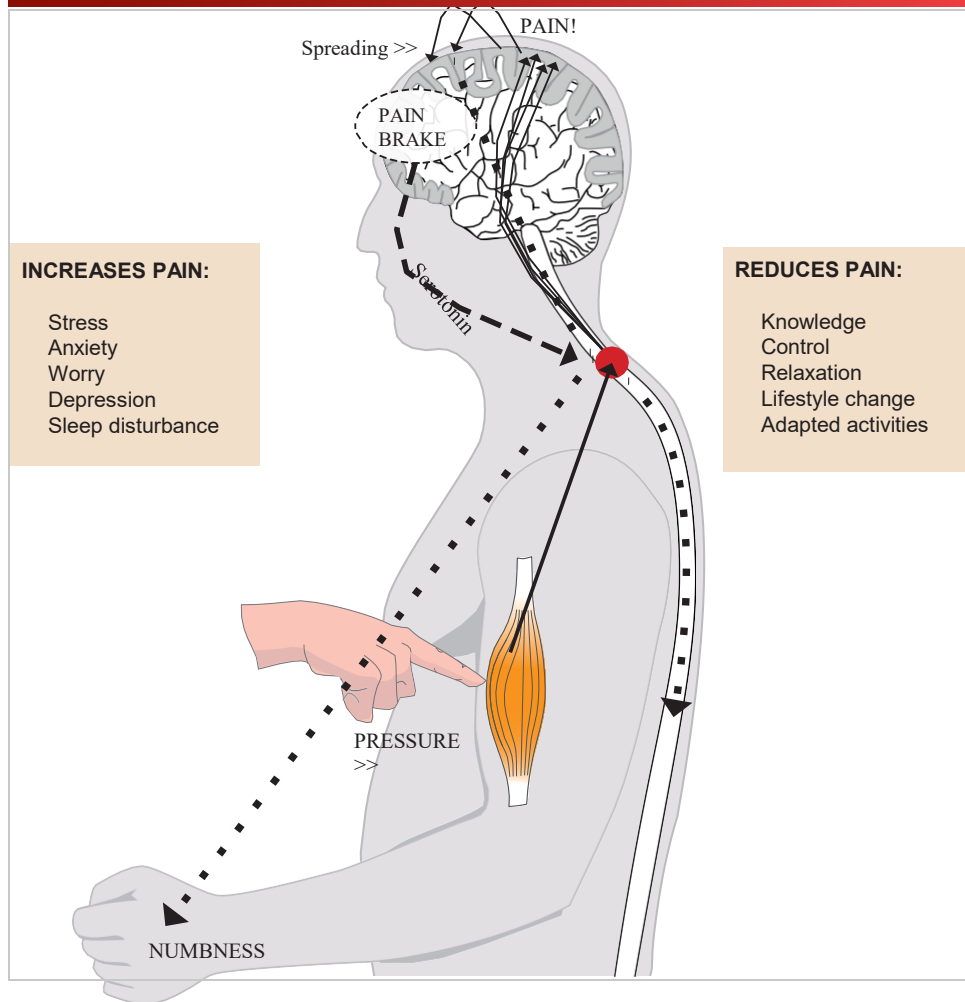
Central hyperreactivity (central sensitisation)



The incoming pain signals can cause the nerve cells of the spinal cord to become overloaded and sensitive (sensitised). Even after the tissue damage has healed, the nerve cells continue to be hypersensitive. Touch and slight pressure against the body or muscular action can cause the hypersensitive nerve cells to improperly amplify the signals up to the brain.

This means that even though the injury has healed, touch, slight pressure or muscular action is perceived as painful. If in addition the "pain brake" does not work due to a lack of noradrenaline, there is no effective mechanism that can reduce the sensitivity of the nerve cells in the spinal cord. The pain signals transmitted up to the brain are no longer slowed down.

Spreading of pain and pain relief

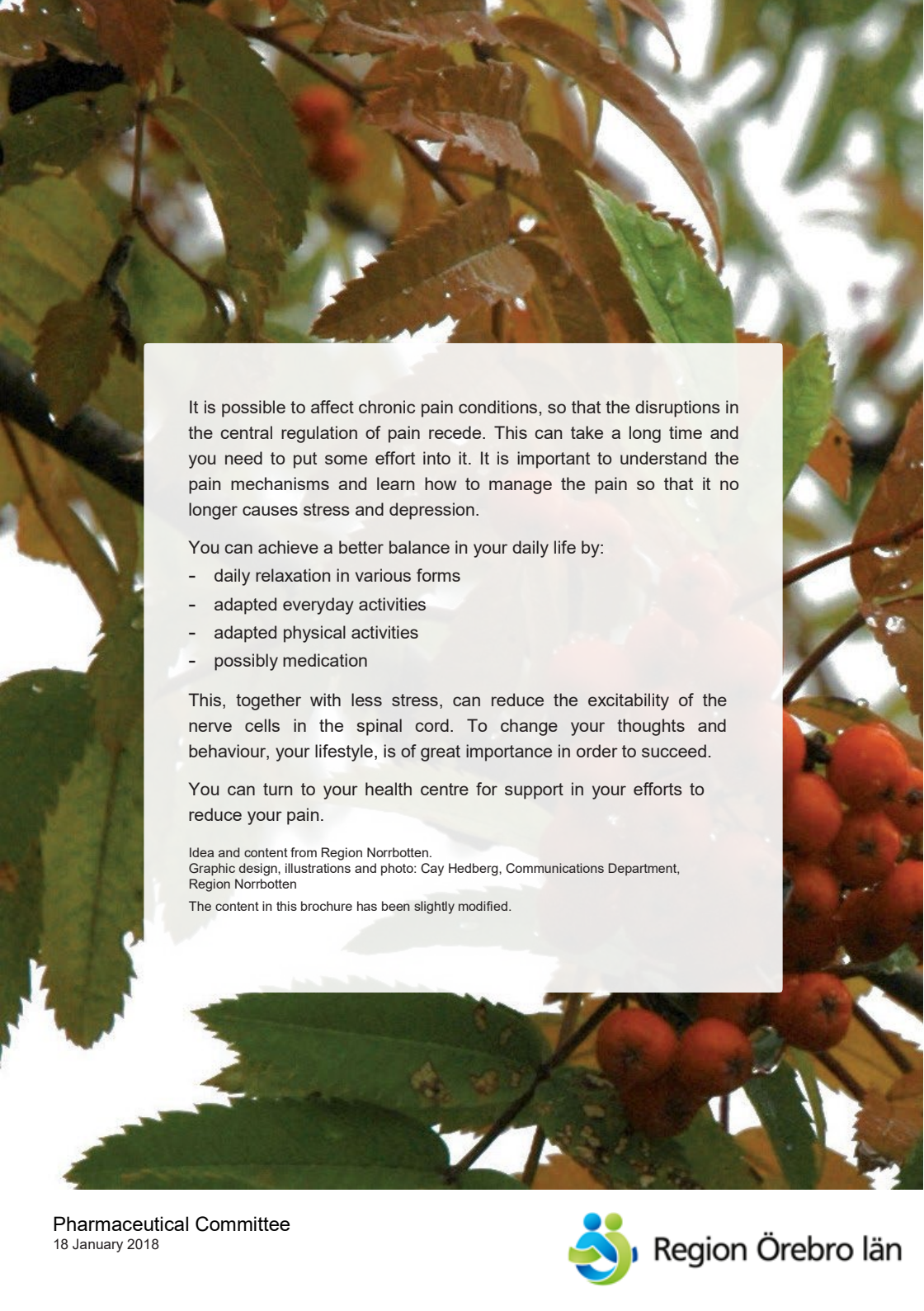


The non-functioning central regulation of pain, in the form of hypersensitive nerve cells in the spinal cord, can result in signals spreading to other parts of the spinal cord and brain. This can cause the pain to spread (pain that spreads over a larger area, pain that “moves around” to other parts of the body, radiating pain), as well as numbness and feelings of weakness. Stress, anxiety, worry, depression and disturbed sleep have a negative impact on the “pain brake”.

Inactivity and feelings of having increasingly less control over your life also maintain the pain. Knowledge about the pain condition, reducing stress in the life situation, relaxation, changing your lifestyle and adapted activities have proven to be effective in reducing pain.



Changes to the central regulation of pain have been demonstrated in fibromyalgia, work-related neck and shoulder pain, whiplash-related pain and other benign pain conditions. It usually takes several years to develop these disorders. Of course, some irritation and muscle tension in the original injured area may remain, which may further irritate the hypersensitivity of the nerve cells of the spinal cord. But the main explanation for chronic pain is no longer found in the original injured area but instead in the central nervous system (spinal cord and brain).



It is possible to affect chronic pain conditions, so that the disruptions in the central regulation of pain recede. This can take a long time and you need to put some effort into it. It is important to understand the pain mechanisms and learn how to manage the pain so that it no longer causes stress and depression.

You can achieve a better balance in your daily life by:

- daily relaxation in various forms
- adapted everyday activities
- adapted physical activities
- possibly medication

This, together with less stress, can reduce the excitability of the nerve cells in the spinal cord. To change your thoughts and behaviour, your lifestyle, is of great importance in order to succeed.

You can turn to your health centre for support in your efforts to reduce your pain.

Idea and content from Region Norrbotten.
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Region Norrbotten

The content in this brochure has been slightly modified.