OUCH! The Mechanisms of Pain and The Spinal Blocking of Pain Signals.

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One of most important purposes of a human body is to give the sensation of pain which involves the central nervous system and the nociceptors that transmit signals to the brain from noxious receptors (Woolf et al., 1998). The mechanism for neuropathic pain is distinct as it is caused by injury to the nervous system itself and can occur without the presence of noxious stimuli. The paper will focus on the role of spinal cord in mechanism of pain.

According to the research, it is reported that the initial relay site through which the nociceptor information is transmitted, from part of the body to the brain, is the spinal cord (D’Mello & Dickenson, 2008). From the periphery, primary afferent fibers deliver sensory signals to the spinal cord's dorsal horns. Later, these fibers synapse with inherent dorsal horn neurons. The information is then transmitted to the higher centers in the brain by Spinal projection neurons. The brain then perceives the noxious and the non-noxious signals. The throughput of the spinal cord depends on different spinal frameworks throughout nociceptive transmission. This, in turn, enhances or reduces the activity of dorsal horn neurons. These frameworks involve localized excitatory and inhibitory interneurons, stimulation of N-methyl-d-aspartate receptors and declining brainstem effects, both of which are considered inhibitory and exciting in nature. Within a week of nerve injury and otherwise inflammatory diseases, transitions can arise in such exciting and inhibitory frameworks that alters spinal excitability, sometimes leading to increased dorsal neuron response to inbound afferent signals and higher brain output, a concept known as central sensitization.

Several processes may occur when a pain message arrives at the site of brain. Some segments of the brain stem may suppress received pain signals via producing endorphins, that are naturally occurring morphine-like compounds in the body. Some of the stimuli that can induce the release of endorphins are pressure, anticipation and strenuous exercise. An influence of endorphins is the reason why athletes may not feel the discomfort of a relatively serious wound after the "big" game is finished. That is why standard, low-impact aerobic exercise, for instance riding a stationary bike, can become a great way to help regulate chronic pain.

**References**

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