

# The Power of Endorphins and Opioids



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## **Intrinsic and Extrinsic Pain Control Mechanisms**

In the late 1970s researchers learned that there are specific areas in the nervous system that act internally to control pain. It was then that researchers were able to identify the two naturally occurring pain killers, endorphins and enkephalins. Today, the word "endorphin" is used generically to describe both groups of intrinsic opioids.

Endorphin receptors are located in the periphery on nerve endings, in skin, joints, viscera, lungs and throughout the spinal cord and brain. Aside from modulation of pain, endorphin activation uplifts mood and reduces the stress response.

Endorphins are thought to inhibit pain transmission at the brain stem, where it modulates both ascending and descending transmissions. When pain impulses travel up the spinal cord to the brain, the brain releases endorphins and enkephalins. Enkephalins descend down pain pathways to block pain signals in the spinal cord.

The activation of endorphin and encephalin synapses on interneurons in the spinal cord suppresses the release of the neurotransmitter substance P, an excitatory neurotransmitter which speeds the message of pain to the brain.

The endorphins are morphine-like substances whose molecular structure is similar to those of extrinsic (external) opium-based drugs. Morphine and other opioids attach themselves to the same CNS synapses as the endorphins. Opioids work effectively and efficiently to control all types of pain because they are so similar to the substances that are naturally produced in our own body.

