

Chronic Pain and CranioSacral Therapy

By Tad Wanveer, LMT, CST-D; guest author for John Upledger, DO, OMM

CranioSacral Therapy has proven to be a powerful complement to massage therapy in addressing chronic pain. While massage can effectively address abnormal somatic patterns through the musculoskeletal system, CST approaches somatic disturbances through the craniosacral, fascial and central nervous systems.

Chronic pain can range from mild tissue irritation to intense suffering and disability affecting an individual's entire body, psyche and life. What's more, the perception of pain often persists long after the injured tissue has healed. This can cause compensatory patterns that continue to maintain the sensation of pain, eventually leading to abnormal somatic and visceral changes that frequently mask the primary cause of the chronic pain. "Nineteen percent of American adults, almost one in five, suffer from chronic pain."¹

CranioSacral Therapy can be used to identify and help the body change core patterns contributing to chronic pain. It also effectively addresses its associated symptoms, such as musculoskeletal imbalance, trigger points, myofascial dysfunction, chronic fatigue, immune system dysfunction, autonomic nervous system dysfunction, elevated heart rate, high blood pressure, endocrine system dysfunction, stress, anxiety, hypothalamic dysfunction and sleep difficulties.



Figure 1: (left) Irritation and abnormal activity of pain-processing elements and circuits throughout the body and nervous system contribute to chronic pain. Chronic pain has a multitude of causes, including congenital disorders, spinal disorders, musculoskeletal imbalance, compensatory patterns, surgery, scar tissue, disease processes, trauma, infection, overuse, disuse and misuse. "The common denominator of conditions that cause chronic pain is irritation of the nociceptive (pain cell) endings, axons, or processing circuits causing abnormal activity that is interpreted as pain."²

Recent research points to central nervous system adaptation as a common contributor to chronic pain. "Many chronic musculoskeletal pain syndromes – including regional myofascial pain syndromes, whiplash pain syndromes, refractory work-related neck/shoulder pain, certain types of chronic low back pain, fibromyalgia and others – essentially might be explained by abnormalities in central pain modulation."³

Body tissue often responds to pain through habitual muscle tension, postural distortion, diminished tissue mobility, thickening and congestion of the fascia, decreased blood flow to painful areas, a build-up of metabolic waste products, adverse strain on the peripheral, central and autonomic nervous system tissues, and an overall sense of fatigue.

Persistent peripheral nerve strain due to muscular imbalance, tension, injury or infection might lead to a flood of chronic activity and excessive sensitivity of local nociceptors. This can cause a continual bombardment of signals into the central nervous system. It's as though there is a constant roar of pain information focused on the brain and spinal cord.

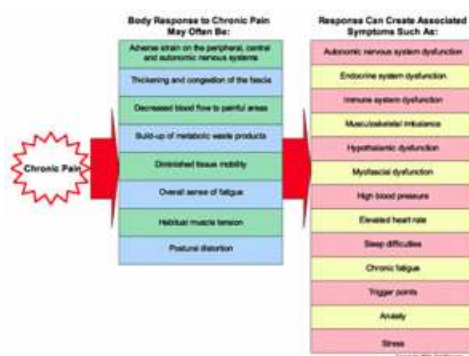


Figure 2: Body Response to Chronic Pain.

The central nervous system tissue might respond by undergoing any number of adaptive changes. Thickening and inflammation of the membrane layers surrounding the spinal cord and brain might occur, leading to irritation and lack of normal motion of central nervous system tissue, imbalance and restricted mobility of the spinal column, or adverse strain on the peripheral nervous system.

Spinal cord neurons receiving chronic pain signals from the periphery also can undergo long-term change due to the activation of microglial cells (central nervous system immune cells), because abnormally increased sensitivity (sensitization) of the nerve cells might occur. This can maintain a state of overwhelming activity of the pain pathways, thus causing constant pain sensation.

Normally, there is a balance of inhibitory and excitatory stimulation where the pain cell synapses (communicates) with the spinal cord neuron. However, decrease of inhibition at the synapse might occur. When this takes place, the neuron will tend to stay in a state of stimulation. This is another cause of

excessive sensitivity and activity of pain pathway and chronic pain sensation.⁴

The spinal cord neurons and glial cells normally produce neurotrophic (vitalizing) elements that are transported to the innervated tissue. A distortion in this supply might occur, leading to tissue devitalization and irritation.⁵ This can lead to a further decrease of normal tissue mobility, which can increase irritation and chronic-pain signals. The nociceptor cells also produce elements secreted by the nerve cell endings (terminal ends) when they're stimulated. These elements create inflammation and heightened sensation of the endings which, in turn, cause the terminal ends to overreact to stimulus and increase the area they receive stimulus from.

This might further create abnormal activity of the pain pathway, which can cause a loop of pain signal dysfunction from the periphery throughout the spinal cord, the autonomic nervous system and the brain. "A very small stimulus which might otherwise be censored out may cause an inappropriately large and indiscriminately wide-ranged neuronal response."⁶

Can you recall a time you experienced a paper cut or were pricked by a thorn? Remember how sensitive your finger was to touch or perhaps to the slightest movement? The pain receptors in the area became easily stimulated, even with slight pressure. Yet, in a few days, the sensitivity decreased.

With chronic pain, the sensitivity does not decrease. Entire areas of the body might stay in a state of overwhelming sensitivity and pain. Nervous system tissue reacting in this way is referred to as being "facilitated," which means the pain cells and pain pathways are overly reactive. Excessively reactive pain cells will tend to lose their ability to modulate input. It's as though a magnifying glass is amplifying a vast and abnormal amount of sensory information into the area. This can then cause abnormal changes in the structure and function of the tissue innervated by the area of the affected spinal cord neurons, thus maintaining the sensation of chronic pain.

The facilitated sensory input might even cascade into other regions of the spinal cord and brain. The overflow of signals can irritate brain regions, leading to the ongoing perception of pain and the symptoms that often accompany chronic pain. Disturbance of the sympathetic division of the autonomic nervous system (sympathetics) often will lead to widespread bodily dysfunction. The sympathetic turmoil also contributes to chronic pain. "The sympathetics control the caliber of most of the vessels of the body. When the sympathetics are hyperirritable in a given area, in a given segment or in a peripheral distribution, there is a tendency for either exaggerated vasoconstriction or vasodilation. This contributes to chaos and the perpetuation of pathology. When you control the blood supply to a given area, you control its life; you control its capacity for recovery, its capacity to survive and maintain its integrity as a tissue."