

## **The Scientific Basis for Maintenance Care in Chiropractic**

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The well-debated topic of maintenance or preventative care in chiropractic is generally understood to be the chiropractic management of a patient who presents without a chief complaint for the purpose of optimizing the function of the body through the adjustment of vertebral subluxations. Understanding the rationale for maintenance care mandates an understanding of two major well-documented concepts: 1) immobilization degeneration (ID); and 2) the neurology of pain processing.

If we can agree that a primary component of the chiropractic vertebral subluxation is hypomobility in a spinal joint complex, there is an immense body of research to support the ensuing degenerative process and the logical conclusion of restoring movement. Immobilization degeneration is supported by over 40 years of research. The literature notes a joint that has lost a degree of its normal movement will begin degenerating at a rate measurable within one week of onset. Notable is that this degenerative process is histologically distinct from osteoarthritis and will continue, often painlessly, until significant degeneration has occurred or sudden a significant biomechanical stress creates an acute injury.

ID alone is substantial enough to argue for the chiropractic care of a patient without back pain, but it is also important to understand why a vertebral subluxation may be present and the patient may remain asymptomatic. Nociceptors are peripheral receptors that depolarize with noxious stimuli. The impulse is carried into the spinal cord and ascends through the lateral spinothalamic tract to the thalamus. Once the signal reaches the thalamus the impulse is sent to three major cortical areas involved in the perception of pain: the postcentral gyrus, the anterior cingulate, and the insula. It is well understood that pain is perceived in the cortex. Three factors influence the perception of pain: 1) the intensity of the stimulus; 2) the duration of the stimulus; and 3) descending inhibition. It is also understood that most nociception never reaches the cortex allowing tissue damage to occur without symptoms.

The spinothalamic tract sends impulses into the hypothalamus and reticular formation (spinoreticular tract) in the brain stem which accounts for more systemic autonomic changes secondary to nociceptor activity which, again, may occur without the perception of pain. This is the same neural mechanism that allows serious disease processes to progress subclinically. Additionally, nociceptors synapse on excitatory interneurons in the dorsal horn, which fire directly into the intermediolateral cell column resulting in increased firing in postganglionic sympathetic efferents. This is the connection between the musculoskeletal and non-musculoskeletal systems.

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