

Too Many Nerve Impulses: Nerve Irritation Revisited

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Chiropractors have used the terms "nerve irritation" and "too many nerve impulses" to describe the neural effects of the subluxation complex for many years. These terms serve a useful purpose in educating the patient but tend to fall short when used to communicate the effects of the subluxation complex to fellow health care professionals. The following is a framework for communicating the effects of the subluxation complex to other health care providers that we have used in Texas during our interactions with orthopedists and neurosurgeons at the Texas Medical Center.

Most chiropractic physicians will agree that nerve irritation leads to "too many nerve impulses" yet few agree on the site of impulse production. Through palpatory analysis of the patient we find the objective evidence of this phenomenon in the form of muscle spasms and pain over fixated joints. Other areas of the spine may be tender but demonstrate hypermobility. Both hypomobile joints and hypermobile joints can produce the end result of "nerve irritation."

Our spinal analysis begins with a palpatory search for hypomobile and hypermobile motion units through motion palpation. These biomechanical aberrations of motion are the result of muscle spasm in response to pain. Hypomobility leads to pathological changes within the facet joint and to periarticular structures. Immobilization impairs joint and tissue nutrition.

The chondrocyte is responsible for maintaining the health of articular cartilage, and it receives its nutrition through diffusion of nutrients from synovial fluid and via convection, sponge-like absorption secondary to joint loading and unloading.¹ Immobilization through fixation impairs the joint's nutritional mechanism and can produce ulceration of the articular cartilage at the point at which the two immobilized joint surfaces come in contact. Furthermore, fibrofatty connective tissue tends to proliferate in immobilized joints leading to the formation of intra-articular adhesions which add to the difficulty of conservative management.²

The articular cartilage breakdown, secondary to immobilization and impairment of the joint's nutritional support system, leads into the biochemical component of the subluxation complex. As the articular cartilage breaks down due to immobilization, inflammatory mediators are released within the facet joint which initiate depolarization of the joint's pain fibers. These pain impulses enter the spinal cord and, according to Wyke, traverse through interneurons from the dorsal horn to the ventral horn to cause depolarization of the alpha motor neurons in lamina IX which innervate skeletal muscles over the joint and result in subsequent muscle spasms over the involved joint.³ This pain-spasm-pain cycle will repeat until the segmental joint dysfunction is attenuated through chiropractic care.

Thus, "nerve irritation," or "too many nerve impulses" can be produced through immobilization of the posterior joints and the subsequent degenerative and inflammatory responses which follow initial immobilization. In subsequent columns we will take an in-depth look at each component of

the subluxation complex and correlate it with neurological examination findings.

References

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