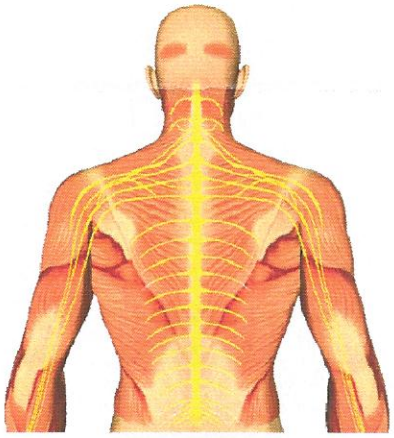
Injury Briefing

A review of the latest studies from Dr. Michael D. Berry.

Chronic Pain After Whiplash: Objective Documentation of Injury



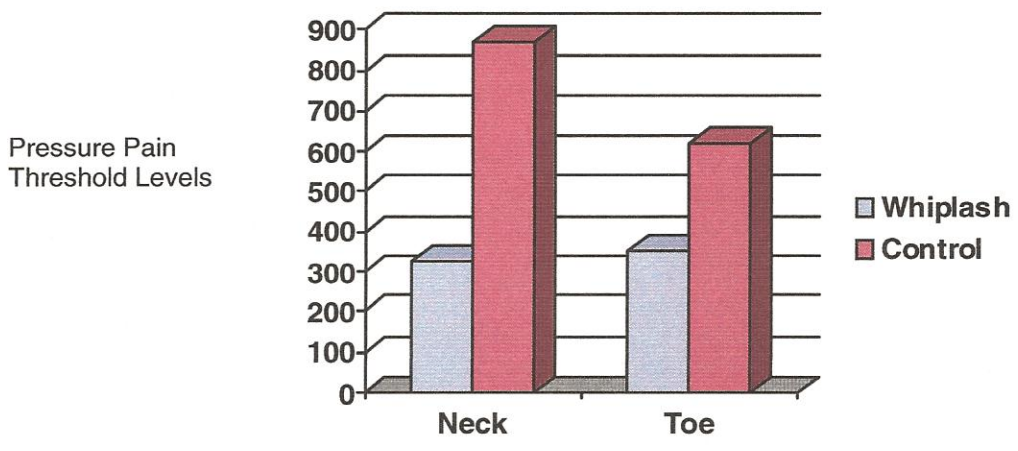
In the last few years, great strides have been made in understanding why some patients suffer from chronic pain after whiplash injuries. A promising line of research has been examining the role of the central nervous system in how chronic pain develops from an auto collision.

This concept of "central sensitization" is that a painful stimulus – such as neck injury after a car crash – creates a hypersensitive state in the spinal cord and the brainstem, leading to lowered pain thresholds and widespread pain in the patient. This may be why some patients develop painful conditions such as fibromyalgia after a neck injury.

In this current study, leading European researchers further examined the role of central sensitization. The authors examined fifteen patients with chronic whiplash pain and compared them to fifteen control subjects. Pressure pain thresholds (PPTs) were measured for all the test subjects in the neck and in the toe. Then, the whiplash patients were injected with anesthesia in tender points in the neck. The goal was to see if changing the painful areas in the neck would alter the widespread pain measured by the pressure pain threshold tests.

The authors found a number of interesting findings.

First, the whiplash patients had a significantly reduced pain threshold tolerance in both the neck and the toe, when compared to the control subjects. The following graph illustrates this:



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La Costa Chiropractic
6986 El Camino Rd Ste F
Carlsbad, CA 92009

Dr. Michael D. Berry, D.C.
La Costa Chiropractic

To contact Dr. Berry,
call (760) 438-9548.

Dr. Michael D Berry
La Costa Chiropractic
6986 El Camino Rd Ste F
Carlsbad, CA 92009

For more information about our practice,
visit our website at
www.lacostachiropractic.com

This is a significant finding, since it demonstrates an objective measure of documenting central sensitization of the nervous system in whiplash patients. Pressure pain threshold testing is a simple and inexpensive way of documenting these types of injuries.

Second, the authors found that the pain scores and pressure pain thresholds changed after injection of the anesthesia, but only in the neck. The toe PPTs did not decrease.

The authors conclude with three points that have implications in daily practice:

1. Hyperalgesia around the source of the injury is different than hyperalgesia in the rest of the body. This demonstrates that the two reactions have different neurological causes.
2. The different responses between local and remote hyperalgesia refutes the idea that chronic whiplash pain is psychological. If chronic pain was a "hysterical" reaction, the reduction in pain thresholds should be consistent throughout the body, not just in the immediate area of the injury.
3. This study seems to indicate that a reduction in pain in the injured tissues may reduce chronic pain in the rest of the body. This is important, as it provides hope for the patient:

"Although this study cannot provide evidence for resolution of peripheral injury, it suggests that a decrease in nociceptive input, for example, after spontaneous healing or successful treatment, may produce an attenuation of central hypersensitivity."

This is a critical finding, as it suggests that if we can effectively treat the tissues that were injured during the auto collision, the widespread pain reaction should also improve. This study illustrates the importance of a proper diagnosis in whiplash patients, and the need for direct treatment of the injured area – namely, the cervical spinal ligaments.

Herren-Gerber R, Weiss S, Arendt-Nielsen L, et al. Modulation of central hypersensitivity by nociceptive input in chronic pain after whiplash injury. Pain Medicine 2004;5(4):366-376.