

# OPTIMAL HEALTH UNIVERSITY™

Presented by Dr. Joseph Baker

## Chiropractic Adjustments Relax Tense Muscles

*Most of us know the discomfort of tense, “knotted” muscles. But you may not know that you don’t have to live with this pain. Dr. Baker wants you to know how chiropractic can help.*

### What Are Muscular Knots?

Muscular tension, spasms or “knots” occur when muscles contract involuntarily for a sustained period of time. Technically, localized areas of muscle tension are known as myofascial pain syndrome or trigger points.

Bundles of muscular tension have altered circulation and nervous system activity. Traditionally, scientists believed that these areas endured excessive nerve impulses, causing the overstimulated muscle to remain contracted. However, new research suggests that the opposite may hold true. Muscular knots may actually suffer from impaired nerve flow or under-stimulation.

### What Causes Muscle Tension?

Tight muscles come about by a variety of avenues. While acute cases of muscle soreness may result from a recent injury, long-term (chronic) trigger points evolve from inadequate healing



of a past injury, repetitive activities, desk or computer work, sports, emotional stress, lack of sleep and dehydration.

Muscle tension is also nearly always tied with poor posture and a misaligned spine. Specifically, myofascial pain is associated with a common condition called **vertebral subluxation**, which occurs when spinal bones (vertebrae) are restricted or move slightly out of place.

### How Do Chiropractic Adjustments Reduce Muscular Tension?

Chiropractic adjustments are gentle and safe maneuvers Dr. Baker uses to correct vertebral subluxations in patients’ spines. Researchers explain that chiropractic adjustments quell muscle tension by two primary pathways: (1) by restoring the spine to proper alignment and (2) by instigating nerve impulses that prompt muscles to relax.

Muscles fasten to bones via tendons. When spinal bones are out of alignment, they pull connecting muscles out of their proper position, causing imbalance and muscle tension. Dr. Baker restores the spine to optimal alignment with chiropractic adjustments.

In addition, spinal bones (vertebrae) stack one on top of another to form the spinal column. Inside this column is a hollow canal through which the spinal cord flows. The spinal cord — along with the brain to which it attaches — makes up the central nervous system.



Nerves enter and exit the spinal column through openings between vertebrae and travel to structures throughout the body.

Dysfunction in the spine may interfere with impulses transmitted by these nerves. Because muscles readily produce pain, we feel the results of altered nerve flow to muscles. What’s frightening to imagine is how dysfunctional nerve impulses may be affecting other structures to which they connect — such as organs — that do not readily produce pain.

### Don’t Take Our Word for It

Still skeptical that chiropractic adjustments alleviate muscle tension? Don’t take our word for it. Dr. Baker requests that you review the following scientific research and arrive at your own conclusion.

### Chiropractic Adjustments Alter Nerve Flow to Muscles

A new experiment in cats demonstrates that chiropractic adjustments do indeed alter nerve impulses to muscles.

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While the cats were under anesthesia, researchers attached special instruments to a nerve root at a spinal segment in the lower spine. This allowed scientists to monitor the activity of the nerves, which send information to the muscles on either side of the spine (paraspinal muscles).

The researchers then applied pressure to the spinal segments. When the pressure reached a point where it mimicked chiropractic adjustments, the investigators noticed “abrupt changes in neural discharge.”

“These changes could comprise part of the mechanism contributing to this intervention’s physiologic effects,” comment the study’s authors (*Spine* 2005;30:115-22).

Another study of 10 anesthetized adult cats found that chiropractic adjustments change electrical signals in the muscles via nervous system activity.

Simulating the force of human chiropractic adjustments on the cats’ spines, scientists used an electronic feedback-control system to monitor changes in the felines’ muscles. The scientists concluded that chiropractic adjustments altered muscle activity, thereby reducing the likelihood of spasm (*J Manipulative Physiol Ther* 2001;24:2-11).

### **New Study Shows That Adjustments Relax Trigger Points**

In one hot-off-the-presses experiment involving 16 people, researchers placed electrodes over knots in muscles on the sides of the spine (paraspinal muscles). The participants then received chiropractic adjustments (*J Manipulative Physiol Ther* 2005;28:465-71).

The electrodes measured muscular tension before and after the adjustments using technology called electromyography (EMG).

Findings showed that “electromyographic activity decreased

by at least 25 percent after treatment in 24 of the 31 sites that were monitored.”

The study’s authors write: “The results of this study indicate that [chiropractic adjustment] induces a virtually immediate change ... in resting EMG levels in at least some patients with low back pain and tight paraspinal muscle bundles.” (*J Manipulative Physiol Ther* 2005;28:465-71.)

Another EMG study of 20 people concludes “that altered muscle function may be a potential short-term therapeutic effect” of chiropractic adjustments (*J Manipulative Physiol Ther* 2000;23:585-95).

### **Not Just the Back**

Chiropractic adjustments to the spine may help relieve muscle tension in the limbs as well, according to one analysis of 28 people.

The study participants suffered from a type of knee pain that is caused by inhibited thigh muscles. Researchers randomly assigned the patients to either a chiropractic care or control group. The chiropractic group received adjustments to the sacral bone at the base of the spine, as well as to the hip bones on either side of the sacrum.

Researchers noted a 7.5 percent drop in knee muscular inhibition in the chiropractic cohort, but not in the control group (*J Manipulative Physiol Ther* 2000;23:76-80).

A similar study conducted at the University of Calgary in Alberta, Canada looked at 18 patients with knee pain associated with inhibition of the quadriceps muscles in the front of the thigh. After receiving chiropractic adjustments to the hip area, the patients underwent a variety of tests that indicated a significant drop in muscular inhibition in the painful leg (*J Manipulative Physiol Ther* 1999;22:149-53).

### **Beyond Pain**

Chiropractic is a unique approach to healing because doctors of chiropractic know that the body functions as a whole, rather than as a set of isolated parts. When caring for patients with muscle pain, doctors of chiropractic don’t just focus on the site of pain. Rather, chiropractors search for the underlying cause of discomfort. In the case of muscle pain, that cause often resides in the spine in the form of vertebral subluxations.

However, correcting vertebral subluxations may do far more than merely drive away pain. Because these dysfunctional spinal segments may interfere with nerve flow to organs as well, chiropractic addresses the obvious — and the hidden — manifestations of spinal misalignment.

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