

Chiropractic Adjustment Risks and Benefits:

Benefits:

The sensory and motor effects of a chiropractic manipulation include:

- Increased joint range of motion in all 3 planes and reduction of pain^{21, 22}
- Increased skin pain tolerance level²³
- Increased paraspinal muscle pressure pain tolerance²⁴
- Reduced muscle electrical activity and tension²⁵

Sympathetic nervous system effects of a chiropractic manipulation include:

- Increased blood flow and distal skin temperature (fingertips)²⁶
- Blood pressure reduction^{27, 28}
- Differences in distal skin temperature in the fingertips. Blood flow in the fingertips may rise or fall with specific chiropractic adjustments to the spine.

Blood chemistry changes after a chiropractic manipulation include:

- Increased secretion of melatonin. Secreted by the pineal gland in the brain, melatonin helps regulate other hormones and maintain circadian rhythm (the 24-hour cycle that determines when people fall asleep and wake up).³⁰
- Increased plasma beta endorphin levels. Endorphins are the body's natural pain killers; when increased, they help humans manage pain.³¹
- Elevation of Substance P and enhanced neutrophil respiratory burst. Referring to the rapid release of oxygen species, respiratory burst is an important reaction in the degradation of internalized cells and bacteria.³²
- Pupillary diameter changes. Changes in diameter of the pupil (which range from 2-8mm) are often associated with different levels of fatigue and mental workload.³³

• **Complete References for Chiropractic Manipulation**

- 19. The American Chiropractic Association: Facts & Statistics about Chiropractic. http://www.acatoday.org/level2_css.cfm?T1ID=21&T2ID=95 (July 2009).
- 20. Unsworth A, Dowson D, Wright V. Cracking joints: a bioengineering study of cavitation in the metacarpophalangeal joint. *Ann Rheum Dis* 1971; 30:348-58.
- 21. Cassidy JD, Quon JA, et al. The immediate effect of manipulation on pain and range of motion in the cervical spine: A pilot study. *J Manip Physiol Ther* 1992; 15:495-500.
- 22. Cassidy JD, Lopes AA, et al. The immediate effect of manipulation versus mobilization on pain and range of motion in the cervical spine: A randomized controlled trial. *J Manip Physiol Ther* 1992; 15:570-575.
- 23. Terrett ACJ, Vernon H. Manipulation and pain tolerance. *Am J Phys Med* 1984; 63:217-225.
- 24. Vernon H, Aker P, et al. Pressure pain threshold evaluation of the effect of spinal manipulation in the treatment of chronic neck pain: A pilot study. *J Manip Physiol Ther* 1990; 13:13-16.
- 25. Shambaugh P. Changes in electrical activity in muscles resulting from chiropractic adjustment: A pilot study. *J Manip Physiol Ther* 1987; 10:300-304.
- 26. Harris W, Wagnon RJ. The effects of chiropractic adjustments on distal skin temperature. *J Manip Physiol Ther* 1987; 10:57-60.
- 27. and 28. Tran TA, Kirby JD. The effectiveness of upper cervical adjustment upon the normal physiology of the heart. *ACA J Chiro* 1977; XI S 58-62.

- 29. Yates RG, Lamping DL, et al. Effects of chiropractic treatment on blood pressure and anxiety: A randomized, controlled trial. J Manip Physiol Ther 1988; 11:484-488.
- 30. Dhama MSI, Coyle BA, et al. Evidence for sympathetic neuron stimulation by cervicospinal manipulation, in Proceedings of the first annual conference on research and education of Pacific Consortium for Chiropractic Research, California Chiropractic Association, Sacramento, CA:A5 1-5.
- 31. Vernon HT, Dhama MSI, et al. Spinal manipulation and Beta-endorphin: A controlled study of the effect of a spinal manipulation on plasma beta-endorphin levels in normal males. J Manip Physiol Ther 1986; 9:115-123.
- 32. Brennan PC, Triano JJ, et al. Enhanced neutrophil respiratory burst as a biological marker for manipulation forces: Duration of the effect and association with Substance P and tumor necrosis factor. J Manip Physiol Ther 1992; 15:83-89.
- 33. Briggs L, Boone WR. Effects of a chiropractic adjustment on changes in pupillary diameter: A model for evaluating somatovisceral response. J Manip Physiol Ther 1988; 11:181-189.

Dr. Scott Haldeman et al. wrote a follow-up article to the Canadian Stroke Consortium piece cited above. **They reviewed 10 years worth of malpractice claims files in Canada for its 4500 chiropractors. They found that: “The likelihood that a chiropractor will be made aware of an arterial dissection following cervical manipulation is approximately 1:8.06 million office visits, 1:5.85 million cervical manipulations, 1:1430 chiropractic practice years and 1:48 chiropractic practice careers. This is significantly less than the estimates of 1:500,000–1 million cervical manipulations calculated from surveys of neurologists”**

[Sudden Neck Movement and Cervical Artery Dissection:
The Chiropractic Experience](#)

CMAJ 2001; 165 (7): 905–906

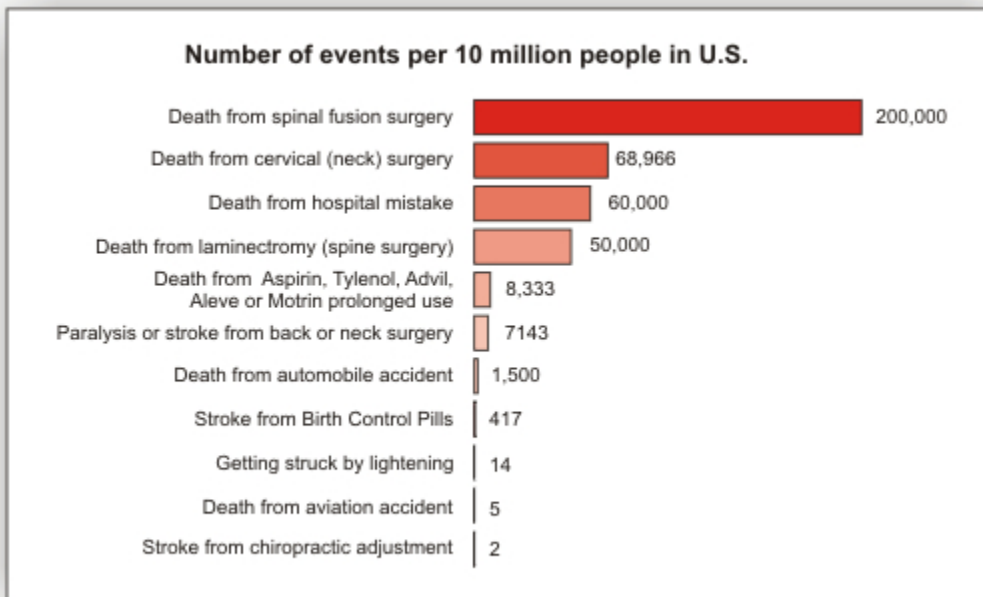
The most recent in-depth review, published in the [Feb 15, 2008 Spine Journal \[9\]](#) was completed by members of the Spine Decade Task Force. It reviewed 10 years worth of hospital records, involving 100 million person-years. Those records revealed no increase in vertebral artery dissection risk with chiropractic, compared with medical management, and further stated that **“increased risks of VBA stroke associated with chiropractic and PCP visits is likely due to patients with headache and neck pain from VBA dissection seeking care before their stroke.”**

A recent study showed that the force used during a chiropractic adjustment was less than one-ninth that required to actually do damage to a normal vertebral artery. The supposedly safe conventional medicine that is used to treat a first-time muscular-skeletal pain or injury usually consists of NSAIDS, better know as anti-inflammatories. Ironically however, these drugs pose a significantly higher risk than does any chiropractor adjustment. The chance of bleeding to death from the gastro-intestinal tract due to these potent pain killers is roughly 400 in 1,000,000. Now compare that with the risk of death from a major complication as a result of chiropractic adjustment which is one in 4,000,000.

The odds of having a complication from a chiropractor adjustment are about one in 1 million. This is roughly the same as dying in a commercial flight crash. Even the most basic pain medication prescribed for neck and back pain taken as recommended by their physician carries a much higher risk of injury.

<http://www.chiropractors.org/resources/chiropractic-care/chiropractor-adjustment.htm>

In 2005, NCMIC Insurance which provides malpractice insurance for over half of U.S. chiropractors publish a statement titled, "Current Concepts: Spinal Manipulation and Cervical Arterial Incidents 2005." It concludes in it's Executive Summary: "Unfortunately, opinion rather than fact has tended to dominate discussions regarding CVAs (cerebrovascular accidents) and chiropractic, even though there has been **no definitive evidence that chiropractic adjustments actually cause strokes**. The good news is that this monograph notes that **a causative relationship between chiropractic manipulation and stroke is unlikely**. There is an associative relationship between the two because people may go to chiropractors for relief of stroke-related symptoms."



<http://www.thegreenwoodcenter.com/chirosafe.php>

No one pays closer attention to injury statistics than **Malpractice Insurance carriers**. Scott Haldeman, MD, DC reviewed malpractice claims records for a 10-year period between 1988 and 1997. In reviewing the outcomes following the application of 134.5 million cervical manipulations (commonly referred to as the chiropractic adjustment), the records indicated that there were 23 reported cases of stroke or vertebral artery dissection (VAD). [10] Of this group, 10 of the patients had the complicating factors of high blood pressure, use of oral contraceptives, or a history of smoking, all of which are associated with vascular disease. The actual incidence of stroke or VAD following cervical manipulation was found to be one per 5.85 million cervical adjustments. That means that **the average chiropractor would work for 1430 years (or practice 48 full chiropractic careers!) before they would see a single case of this type of incident.**

The chart below shows the comparative risk of a number of common procedures and events to that of a chiropractic adjustment. Even the risk for stroke of something as common as birth control pills is over 200 times greater than a stroke from a chiropractic adjustment.

Compared to chiropractic, the risk of...	is greater by...
Death from spinal fusion surgery	100,000
Death from cervical (neck) surgery	34,483
Death from hospital mistake	30,000
Death from laminectomy (spinal surgery)	25,000
Death from prolonged Aspirin, Tylenol, Advil, Motrin, Aleve use.	4,166
Paralysis or stroke from back or neck surgery	3,571
Death from automobile accident	750
Stroke from Birth Control Pills	235
Get struck by lightning	7
Death from aviation accident	2 1/2

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Every published study which has estimated the incidence of stroke (CVA) from cervical manipulation has agreed that the risk is 1 to 3 incidents per million treatments. Dvorak, (1) in a survey of 203 practitioners of manual medicine in Switzerland, found a rate of one serious complication per 400,000 cervical manipulations, without any reported deaths, among an estimated 1.5 million cervical manipulations. Jaskoviak (2) reported approximately 5 million cervical manipulations from 1965 to 1980 at The National College of Chiropractic Clinic in Chicago, without a single case of vertebral artery stroke or serious injury.

If these NCMIC chiropractors are similar to the national average, they see approximately 120 patient visits per week (10). Curtis and Bove (11) report that rotary adjustments of the cervical spine comprise about 30% of the visits made to chiropractors. Therefore, chiropractors insured by NCMIC each performed some 1800 cervical manipulations in each of those three years. Considering these numbers, we calculate that NCMICs 24,000 DCs perform some 43,000,000 cervical manipulations per year. If this leads to 20 strokes, that's a rate of less than one stroke per 2 million cervical manipulations.

For proper perspective, the risks of chiropractic neck treatment should be compared to the risks of other treatments for similar conditions. For example, even the most conservative "conventional" treatment for neck and back pain, prescription of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), may carry a significantly greater risk than manipulation. One study (16) found a 4/10,000 annual mortality rate for NSAID induced ulcers among patients treated for non-rheumatic conditions such as musculoskeletal pain and osteoarthritis; that extrapolates to 3,200 deaths in the US annually.

Less conservative treatments such as neck surgery are also commonly used for conditions very similar to the conditions chiropractors treat using spinal manipulation. There is a 3-4% rate of complication for cervical spine surgery, and 4,000-10,000 deaths per million neck surgeries