



Chiropractic Cervical Adjustment

Cervical adjustment (also known as neck manipulation) is a precise procedure, generally applied by hand, to the joints of the neck and is beneficial for the treatment of headache and neck pain. Cervical adjustment works to improve joint mobility in the neck restoring range of motion, and reducing muscle hypertonicity thereby relieving pressure and tension.¹ Patients typically notice a reduction of pain, soreness, stiffness and improved mobility.

All health care interventions carry risks of varying significance and incidence. Cervical adjustment, particularly of the C1 and C2 vertebrae, has on rare occasions been associated with stroke and stroke-like symptoms. Two primary types of research have been conducted into this association: retrospective and progressive case series studies; and biomechanical research into the kinetics of cervical adjustment.

Recent Findings

The findings in the existing, published literature indicate that serious adverse events associated with cervical adjustment are very rare. While estimates vary, a range of one to two events per million cervical adjustments is generally considered to be a conservative risk ratio by the research community. This association is typically characterized by dissection of the vertebral artery extracranially on the side of the neck which was adjusted, accompanied by the onset of acute neck pain and neurological symptoms immediately or within hours.

An extensive commentary on chiropractic care, published in the February 2002 issue of the *Annals of Internal Medicine* reviewed more than 160 reports and studies on chiropractic. It states the following with regard to the safety of cervical adjustment: “*The apparent rarity of these accidental events has made it difficult to assess the magnitude of the complication risk. No serious complication has been noted in more than 73 controlled clinical trials or in any prospectively evaluated case series to date.*”²

Similarly, a Canadian study, published in 2001 in *Stroke*, also concluded that stroke associated with cervical adjustment is so rare that it is difficult to calculate an accurate risk ratio.³ The study authors have stated: “*The evidence to date indicates that the risk associated with chiropractic manipulation of the neck is both small and inaccurately estimated. The estimated level of risk is smaller than that associated with many commonly used diagnostic tests or prescription drugs.*”

¹See Appendix of Research References

²Meeker WC, Haldeman S. Chiropractic: A profession at the crossroads of mainstream and alternative medicine. *Annals of Internal Medicine* February 5, 2002, Vol. 136, No. 3.

³Rothwell DM, Bondy SJ, Williams JI. Chiropractic manipulation and stroke: A population-based, case-controlled study. *Stroke* May 2001.

The most recent research into the association between cervical adjustment and stroke involves biomechanical studies to assess what strain, if any, cervical adjustment may place on the vertebral arteries. The preliminary findings of this ongoing work indicate that cervical adjustment is done well within the normal range of motion and that cervical adjustment is “*very unlikely to mechanically disrupt the VA [vertebral artery].*”⁴

Informed Consent

Like all health professionals, chiropractors are required by law to obtain informed consent to treatment from their patients. The chiropractic profession takes this responsibility very seriously and has been a leader in obtaining informed consent to in-office treatment, examination and treatment procedures.

Ongoing Research

Chiropractic researchers are actively involved in studying the benefits and risks of manipulation in the treatment of neck and back pain through clinical trials and literature reviews, and by publishing the results. For example, the World Health Organization *Task Force on Neck Pain and its Associated Disorders* is an international, multi-disciplinary, multi-centre study in which the Canadian chiropractic profession is a partner. This is one example of the ongoing research that will ensure that care is provided as effectively and safely as possible.

For further information, please direct enquiries to:

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Appendix of Research References

Hurwitz EL, Aker PD, Adams AH, Meeker WC, Shekelle PG. The appropriateness of manipulation and mobilization of the cervical spine: A systematic review of the literature. *Spine* 1996; 21(15): 1746-1760.

Dabbs V, Lauretti WJ. A risk assessment of cervical manipulation v. NSAIDs for the treatment of neck pain. *Journal of Manipulative and Physiological Therapeutics* 1995; 18:530-6.

Spitzer WO, Skovron ML et al. Scientific monograph of the Quebec Task Force on Whiplash-associated Disorder: Redefining whiplash and its management. *Spine* 1995; 20:8S.

Coulter ID, Hurwitz EL et al. The appropriateness of manipulation and mobilization of the cervical spine. Santa Monica, California: RAND. Document No. MR-781-CR.

Hurwitz EL, Aker PD et al. Manipulation and mobilization of the cervical spine: a systematic review of the literature. *Spine* 1996; 21:1746-60.

Aker PD, Gross AR et al. Conservative management of mechanical neck pain: Systematic overview and meta-analysis. *Br Med J* 1996; 313:1291-6.

Whittingham W, Nilsson N. Active range of motion in the cervical spine increases after spinal manipulation. *J Manipulative Physiol Ther* 2001; 24(9):552-5.

Bronfort G, Evans R et al. A randomized clinical trial of exercise and spinal manipulation for patients with chronic neck pain. *Spine* 2001; 26(7):788-800.

⁴Herzog W, Symons BP, Leonard T. Internal forces sustained by the vertebral artery during spinal manipulative therapy. *Journal of Manipulative Physiologics and Therapeutics* October 25, 2002 (8): 504-10.

- Hoving JL, Koes BW et al. Manual therapy, physical therapy, or continued care by a general practitioner for patients with neck pain. *Annals Int Med* 2002;136:713-22.
- Evans R, Bronfort G, Nelson B, Goldsmith CH. Two-year follow-up of a randomized clinical trial of spinal manipulation and two types of exercise for patients with chronic neck pain. *Spine* 2002; 27(21):2383-9.
- Hurwitz EL, Morgenstern H, Harber P, Kominski GF et al. A randomized trial of chiropractic manipulation and mobilization for patients with neck pain: clinical outcomes from the UCLA neck-pain study. *Am J Public Health* 2002; 92(10):1634-41.
- Giles LG, Muller R. Chronic spinal pain syndromes: a clinical pilot trial comparing acupuncture, a nonsteroidal anti-inflammatory drug, and spinal manipulation. *J Manipulative Physiol Ther* 1999; 22(6):376-81.
- Jordan A, Bendix T, Nielsen H, Hansen FR. et al. Intensive training, physiotherapy, or manipulation for patients with chronic neck pain. A prospective, single-blinded, randomized clinical trial. *Spine* 1998; 23(3):311-8.
- Vernon H, McDermaid C, Hagino C. Systematic review of complementary/alternative therapies for tension-type and cervicogenic headaches. *Comp Therap Med* 1999.
- Nelson CF, Bronfort G, Evans R et al. The efficacy of spinal manipulation, amitriptyline and the combination of both therapies for the prophylaxis of migraine headache. *J Manipulative Physiol Ther* 1998; 21(8):511-9.
- Tuchin PJ, Pollard H, Bonello R. A randomized controlled trial of chiropractic spinal manipulative therapy for migraine. *J Manipulative Physiol Ther* 2000; 23(2):91-95.
- McCrary DC, Penzien DB et al. Evidence report: behavioural and physical treatments for tension-type and cervicogenic headache. Des Moines, Iowa. Foundation for Chiropractic Education and Research Product No. 2085, 2001.
- Bronfort G, Assendelft WJ, Evans R et al. Efficacy of spinal manipulation for chronic headache: a systematic review. *J Manipulative Physiol Ther* 2001; 24(7):457-66.
- Jull G, Trott P, Potter H et al. A randomized controlled trial of exercise and manipulative therapy for cervicogenic headache. *Spine* 2002; 27(17):1835-1843.

February 2004