[J Can Chiropr Assoc.](https://www.ncbi.nlm.nih.gov/pubmed/?term=A+single+cohort+prospective+trial+of+the+immediate+effects+of+spinal+manipulation+on+visual+acuity" \o "The Journal of the Canadian Chiropractic Association.) 2016 Mar;60(1):88-92.

**A single cohort prospective trial of the immediate effects of spinal manipulation on visual acuity.**

[Athaide M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Athaide%20M%5BAuthor%5D&cauthor=true&cauthor_uid=27069271)1, [Rego C](https://www.ncbi.nlm.nih.gov/pubmed/?term=Rego%20C%5BAuthor%5D&cauthor=true&cauthor_uid=27069271)1, [Budgell B](https://www.ncbi.nlm.nih.gov/pubmed/?term=Budgell%20B%5BAuthor%5D&cauthor=true&cauthor_uid=27069271)2.

[**Author information**](https://www.ncbi.nlm.nih.gov/pubmed/?term=A+single+cohort+prospective+trial+of+the+immediate+effects+of+spinal+manipulation+on+visual+acuity)

**Abstract**

in [**English**](https://www.ncbi.nlm.nih.gov/pubmed/?term=A+single+cohort+prospective+trial+of+the+immediate+effects+of+spinal+manipulation+on+visual+acuity), [French](https://www.ncbi.nlm.nih.gov/pubmed/?term=A+single+cohort+prospective+trial+of+the+immediate+effects+of+spinal+manipulation+on+visual+acuity)

**INTRODUCTION:**

There is no high quality evidence on which to judge the generalizability of isolated reports of improvement in vision following manipulation. The current paucity of research results also precludes the thoughtful design of a controlled, prospective clinical study. Hence, the purpose of the current study was to test the feasibility of conducting a clinical trial of the acute effects of spinal manipulation on visual acuity.

**METHODS:**

New adult patients presenting to a community based chiropractic clinic were recruited into a single cohort prospective trial to determine the immediate effects of cervical spinal manipulation on visual acuity.

**RESULTS:**

The experimental protocol was well accepted by patients and caused minimal or no disruption of the clinic routine. By some measures, chiropractic treatment was accompanied by statistically significant improvements in visual acuity.

**DISCUSSION:**

The results of this study indicate that it is quite feasible to conduct a prospective, community based clinical study of the acute effects of spinal manipulation on visual acuity.

**KEYWORDS:**

chiropractic; feasibility; pilot study; spinal manipulation; visual acuity

PMID: 27069271

PMCID: [PMC4807672](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4807672/)

[J Manipulative Physiol Ther.](https://www.ncbi.nlm.nih.gov/pubmed/?term=The+Types+and+Frequencies+of+Improved+Nonmuskuloskeletal+Symptoms+Reported+After+Chiropractic+Spinal+Manipulative+Therapy) 1999 Nov-Dec;22(9):559-64.

**The types and frequencies of improved nonmusculoskeletal symptoms reported afterchiropractic spinal manipulative therapy.**

[Leboeuf-Yde C](https://www.ncbi.nlm.nih.gov/pubmed/?term=Leboeuf-Yde%20C%5BAuthor%5D&cauthor=true&cauthor_uid=10626697)1, [Axén I](https://www.ncbi.nlm.nih.gov/pubmed/?term=Ax%C3%A9n%20I%5BAuthor%5D&cauthor=true&cauthor_uid=10626697), [Ahlefeldt G](https://www.ncbi.nlm.nih.gov/pubmed/?term=Ahlefeldt%20G%5BAuthor%5D&cauthor=true&cauthor_uid=10626697), [Lidefelt P](https://www.ncbi.nlm.nih.gov/pubmed/?term=Lidefelt%20P%5BAuthor%5D&cauthor=true&cauthor_uid=10626697), [Rosenbaum A](https://www.ncbi.nlm.nih.gov/pubmed/?term=Rosenbaum%20A%5BAuthor%5D&cauthor=true&cauthor_uid=10626697), [Thurnherr T](https://www.ncbi.nlm.nih.gov/pubmed/?term=Thurnherr%20T%5BAuthor%5D&cauthor=true&cauthor_uid=10626697).

[**Author information**](https://www.ncbi.nlm.nih.gov/pubmed/?term=The+Types+and+Frequencies+of+Improved+Nonmuskuloskeletal+Symptoms+Reported+After+Chiropractic+Spinal+Manipulative+Therapy)

**Abstract**

**OBJECTIVE:**

To investigate the frequency and types of improved nonmusculoskeletal symptoms reported after chiropractic spinalmanipulative therapy.

**DESIGN:**

Retrospective information obtained by chiropractors through standardized interview of patients on return visit within 2 weeks of previous treatment.

**SETTING:**

The private practice of 87 Swedish chiropractors (response rate 81%).

**SUBJECTS:**

Twenty consecutive (presumably naive) patients per chiropractor (1504 valid questionnaires returned, 86% of optimal number of replies).

**INTERVENTION:**

Spinal manipulation with or without additional therapy provided by chiropractors.

**MAIN OUTCOME MEASURES:**

Self-reported improved nonmusculoskeletal symptoms (reactions).

**RESULTS:**

At least I reaction was reported after the previous treatment in 21% to 25% of cases. Of these responses, 26% were related to the airway passages (usually reported as "easier to breathe"), 25% were related to the digestive system (mostly reported as "improved function"), 14% were classified under eyes/vision (usually reported as "improved vision"), and 14% under heart/ circulation (about half of these reportedas "improved circulation"). The number of spinal areas treated was positively associated with the number of reactions.

**CONCLUSION:**

A minority of chiropractic patients report having positive nonmusculoskeletal reactions after spinal manipulative therapy but such reports cluster predominantly around specific symptoms. It would be interesting to find out if these can be verified objectively and, if so, to investigate if they are caused by the treatment or if they are signs of natural variations in human physiology.

PMID:

10626697

[Indexed for MEDLINE]

## [**International Journal of Osteopathic Medicine**](https://www.sciencedirect.com/science/journal/17460689)

[Volume 8, Issue 3](https://www.sciencedirect.com/science/journal/17460689/8/3), September 2005, Pages 81-86

# The short term effect of atlanto-axial high velocity low amplitude manipulation with cavitation on Edge Light Pupil Cycle Time[☆](https://www.sciencedirect.com/science/article/pii/S1746068905000519%22%20%5Cl%20%22aep-article-footnote-id3)

Author links open overlay panel[Cameron McR.Gosling](https://www.sciencedirect.com/science/article/pii/S1746068905000519%22%20%5Cl%20%22%21)[a](https://www.sciencedirect.com/science/article/pii/S1746068905000519%22%20%5Cl%20%22%21)[TimothyKinross](https://www.sciencedirect.com/science/article/pii/S1746068905000519%22%20%5Cl%20%22%21)[b](https://www.sciencedirect.com/science/article/pii/S1746068905000519%22%20%5Cl%20%22%21)[PeterGibbons](https://www.sciencedirect.com/science/article/pii/S1746068905000519%22%20%5Cl%20%22%21)[c](https://www.sciencedirect.com/science/article/pii/S1746068905000519%22%20%5Cl%20%22%21)[MathewHolmes](https://www.sciencedirect.com/science/article/pii/S1746068905000519%22%20%5Cl%20%22%21)[d](https://www.sciencedirect.com/science/article/pii/S1746068905000519%22%20%5Cl%20%22%21)

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## **Abstract**

### Background

Edge Light Pupil Cycle Time (ELPCT) is a measure of the [pupillary light reflex](https://www.sciencedirect.com/topics/medicine-and-dentistry/pupillary-light-reflex)mediated via the [autonomic nervous system](https://www.sciencedirect.com/topics/medicine-and-dentistry/autonomic-nervous-system) (ANS). ELPCT is a measurable constant, unaffected by eye measured (i.e. left versus right eye), gender, visual acuity, [refractive error](https://www.sciencedirect.com/topics/medicine-and-dentistry/refractive-error), eye colour and pupil size. Previous research suggests that [spinal manipulation](https://www.sciencedirect.com/topics/medicine-and-dentistry/spinal-manipulation) techniques can produce distant effects mediated in part by the ANS.

### Objective

To investigate the immediate effects of atlanto-axial high velocity low amplitude manipulation on ELPCT.

### Design

A three group randomised controlled study.

### Methods

Thirty participants (mean age = 23.8) without eye, central or autonomic nervous system pathology had their ELPCT measured in both eyes pre- and post-manipulation. The manipulation technique used was a high velocity low amplitude (HVLA) rotatory thrust, with the applicator localised to the atlanto-axial joint on the left (n = 10) or right (n = 10) determined randomly. All HVLA manipulations were associated with audible [cavitation](https://www.sciencedirect.com/topics/medicine-and-dentistry/cavitation-bone). The control group (n = 10) underwent the same protocol, including pre-positioning for the manipulation, but without the thrust.

### Results

ELPCT measures demonstrated a significant decrease between groups (P = 0.004) and between groups according to eye measured (P = 0.022). Significant decreases between pre- and post-manipulation measures of ELPCT indicated an association between side manipulated and eyes, with right-sided manipulation producing a decrease in ELPCT in the right eye (P = 0.001) and a left-sided manipulation producing a decrease in the left eye (P = 0.013). No other significant changes were observed.

### Conclusion

ELPCT, mediated via the ANS, is directly influenced by HVLA manipulation with cavitation to the atlanto-axial joint. The ANS changes observed in this study demonstrated a unilateral response to HVLA manipulation.

[**Send to**](https://www.ncbi.nlm.nih.gov/pubmed/1037710)

[J Am Osteopath Assoc.](https://www.ncbi.nlm.nih.gov/pubmed/1037710) 1975 Jan;74(5):433-7.

**Preliminary study: an evaluation of the effects of osteopathic manipulative therapy on intraocular pressure.**

[Cipolla VT](https://www.ncbi.nlm.nih.gov/pubmed/?term=Cipolla%20VT%5BAuthor%5D&cauthor=true&cauthor_uid=1037710), [Dubrow CM](https://www.ncbi.nlm.nih.gov/pubmed/?term=Dubrow%20CM%5BAuthor%5D&cauthor=true&cauthor_uid=1037710), [Schuller EA Jr](https://www.ncbi.nlm.nih.gov/pubmed/?term=Schuller%20EA%20Jr%5BAuthor%5D&cauthor=true&cauthor_uid=1037710).

PMID: 1037710

[J Am Osteopath Assoc.](https://www.ncbi.nlm.nih.gov/pubmed/?term=Effect+of+Osteopathy+in+the+Cranial+Field+on+Visual+Function%E2%80%94A+Pilot+Study) 2010 Apr;110(4):239-43.

**Effect of osteopathy in the cranial field on visual function--a pilot study.**

[Sandhouse ME](https://www.ncbi.nlm.nih.gov/pubmed/?term=Sandhouse%20ME%5BAuthor%5D&cauthor=true&cauthor_uid=20430912)1, [Shechtman D](https://www.ncbi.nlm.nih.gov/pubmed/?term=Shechtman%20D%5BAuthor%5D&cauthor=true&cauthor_uid=20430912), [Sorkin R](https://www.ncbi.nlm.nih.gov/pubmed/?term=Sorkin%20R%5BAuthor%5D&cauthor=true&cauthor_uid=20430912), [Drowos JL](https://www.ncbi.nlm.nih.gov/pubmed/?term=Drowos%20JL%5BAuthor%5D&cauthor=true&cauthor_uid=20430912), [Caban-Martinez AJ 3rd](https://www.ncbi.nlm.nih.gov/pubmed/?term=Caban-Martinez%20AJ%203rd%5BAuthor%5D&cauthor=true&cauthor_uid=20430912), [Patterson MM](https://www.ncbi.nlm.nih.gov/pubmed/?term=Patterson%20MM%5BAuthor%5D&cauthor=true&cauthor_uid=20430912), [Shallo-Hoffmann J](https://www.ncbi.nlm.nih.gov/pubmed/?term=Shallo-Hoffmann%20J%5BAuthor%5D&cauthor=true&cauthor_uid=20430912), [Hardigan P](https://www.ncbi.nlm.nih.gov/pubmed/?term=Hardigan%20P%5BAuthor%5D&cauthor=true&cauthor_uid=20430912), [Snyder A](https://www.ncbi.nlm.nih.gov/pubmed/?term=Snyder%20A%5BAuthor%5D&cauthor=true&cauthor_uid=20430912).

[**Author information**](https://www.ncbi.nlm.nih.gov/pubmed/?term=Effect+of+Osteopathy+in+the+Cranial+Field+on+Visual+Function%E2%80%94A+Pilot+Study)

**Abstract**

**CONTEXT:**

The effects of osteopathy in the cranial field on visual function-particularly on changes in the visual field and on the binocular alignment of the eyes-have been poorly characterized in the literature. The authors examined whether osteopathy in the cranial field resulted in an immediate, measurable change in visual function among a sample of adults with cranial asymmetry.

**STUDY DESIGN:**

Randomized controlled double-blinded pilot clinical trial.

**SUBJECTS:**

Adult volunteers between ages 18 and 35 years who were free of strabismus or active ocular or systemic disease were recruited. Inclusion criteria were refractive error ranging between six diopters of myopia and five diopters of hyperopia, regular astigmatism of any amount, and cranial somatic dysfunction.

**INTERVENTION:**

All subjects were randomly assigned to the treatment or control group. The treatment group received a single intervention of osteopathy in the cranial field to correct cranial dysfunction. The control group received light pressure of a few ounces of force applied to the cranium without osteopathic manipulative treatment.

**MEASUREMENTS:**

Preintervention and postintervention optometric examinations consisted of distant visual acuity testing, Donder push-up (ie, accommodative system) testing, local stereoacuity testing, pupillary size measurements, and vergence system (ie, cover test with prism neutralization, near point of convergence) testing. Global stereoacuity testing and retinoscopy were performed only in preintervention to determine whether subjects met inclusion criteria. Analysis of variance (ANOVA) was performed for all ocular measures.

**RESULTS:**

Twenty-nine subjects completed the trial-15 in the treatment group and 14 in the control group. A hierarchical ANOVA revealed statistically significant effects within the treatment group and within the control group (P <.05) in distance visual acuity of the right eye (OD) and left eye (OS), local stereoacuity, pupillary size measured under dim illumination OD and OS, and near point of convergence break and recovery. For the treatment group vs the control group, a statistically significant effect was observed in pupillary size measured under bright illumination OS (P <.05).

**CONCLUSIONS:**

The present study suggests that osteopathy in the cranial field may result in beneficial effects on visual function in adults with cranial asymmetry. However, this finding requires additional investigation with a larger sample size and longer intervention and follow-up periods. (ClinicalTrials.gov number [NCT00510562](http://clinicaltrials.gov/show/NCT00510562)).

[J Manipulative Physiol Ther.](https://www.ncbi.nlm.nih.gov/pubmed/8864973) 1996 Jul-Aug;19(6):415-8.

**Does 'normal' vision improve with spinal manipulation?**

[Stephens D](https://www.ncbi.nlm.nih.gov/pubmed/?term=Stephens%20D%5BAuthor%5D&cauthor=true&cauthor_uid=8864973), [Gorman RF](https://www.ncbi.nlm.nih.gov/pubmed/?term=Gorman%20RF%5BAuthor%5D&cauthor=true&cauthor_uid=8864973).

**Abstract**

**OBJECTIVE:**

To discuss a patient whose spinal abnormalities may have caused subliminal visual field loss.

**CLINICAL FEATURES:**

A 22-yr-old man suffered from a painful neck. His vision was in the normal range, as measured by computerized static perimetry.

**INTERVENTION AND OUTCOME:**

To define a guideline for a proposed investigation into visual field changes with spinal adjustment, his visual fields were tested before and after a normal office spinal manipulation. After this procedure, there was a measurable rise in the visual sensitivity of both eyes.

**CONCLUSION:**

The use of computerized static perimetry changes to measure the cerebral effects of spinal manipulation is recommended for future chiropractic research.

PMID: 8864973

[J Manipulative Physiol Ther.](https://www.ncbi.nlm.nih.gov/pubmed/9200051) 1997 Jun;20(5):343-50.

**The association between visual incompetence and spinal derangement: an instructive case history.**

[Stephens D](https://www.ncbi.nlm.nih.gov/pubmed/?term=Stephens%20D%5BAuthor%5D&cauthor=true&cauthor_uid=9200051), [Gorman F](https://www.ncbi.nlm.nih.gov/pubmed/?term=Gorman%20F%5BAuthor%5D&cauthor=true&cauthor_uid=9200051).

**Abstract**

**OBJECTIVE:**

To discuss the difficulties encountered in the diagnosis of concentric narrowing of the visual fields.

**CLINICAL FEATURES:**

A 13-yr-old child was referred to a chiropractic clinic after an ocular examination concerning a 6-month period of minor headaches, which culminated in a more severe attack, during which she had to lie down. Her examination was essentially normal, with the exception of the presence of constricted visual fields when measured to a small stimulus.

**INTERVENTION AND OUTCOME:**

Standard outpatient spinal adjustments were followed by recovery of vision.

**DISCUSSION:**

The recovery of constricted fields of vision with spinal manipulation has now been discussed with greater frequency in the chiropractic literature. The diagnosis of constriction of the visual fields is often the factor that may decide the further management of the patient. In this instance, constriction of the visual fields could easily have been missed, even though clinical examination of the visual fields had been done.

**CONCLUSION:**

Elements in the history and physical examination will suggest when a sensitive assessment of the visual fields may be of benefit to the patient.

### Comment in

[The association between visual incompetence and spinal derangement: an instructive case history.](https://www.ncbi.nlm.nih.gov/pubmed/9436151) [J Manipulative Physiol Ther. 1997]

PMID:9200051

[J Manipulative Physiol Ther.](https://www.ncbi.nlm.nih.gov/pubmed/9436149) 1997 Nov-Dec;20(9):628-33.

**The step phenomenon in the recovery of vision with spinal manipulation: a report on two 13-yr-olds treated together.**

[Stephens D](https://www.ncbi.nlm.nih.gov/pubmed/?term=Stephens%20D%5BAuthor%5D&cauthor=true&cauthor_uid=9436149), [Gorman F](https://www.ncbi.nlm.nih.gov/pubmed/?term=Gorman%20F%5BAuthor%5D&cauthor=true&cauthor_uid=9436149), [Bilton D](https://www.ncbi.nlm.nih.gov/pubmed/?term=Bilton%20D%5BAuthor%5D&cauthor=true&cauthor_uid=9436149).

**Abstract**

**OBJECTIVE:**

To discuss the immediate increment of improvement in vision that occurs when the spine is manipulated.

**CLINICAL FEATURES:**

Two juvenile patients (13-yr-old female cousins) were found to have constricted visual fields and diminished visual acuities.

**INTERVENTION AND OUTCOME:**

Spinal manipulation was associated with recovery of normal vision over seven treatment sessions. It was noted that significant improvement in vision occurred immediately after the spinal manipulation treatments. Full recovery of vision was attained by series of these steps. In addition, both patients reported significant constitutional benefits after the treatment in addition to the improved vision.

**CONCLUSION:**

The change in visual function immediately related to spinal manipulation has been described as the "step phenomenon." The step phenomenon raises questions about the nature of the condition that may be treated by spinal manipulation and the method of action of the treatment. A vascular hypothesis is mentioned that could explain these events. The consistent occurrence of the step phenomenonindicates that spinal manipulation may have an effect on brain function.

PMID:

9436149

Treatment of visual field loss by spinal manipulation: A report on 17 patients

**Article** *in* [JNMS - Journal of the Neuromusculoskeletal System](https://www.researchgate.net/journal/1067-8239_JNMS-Journal_of_the_Neuromusculoskeletal_System) 6(2):53-66 · June 1998

THE PURPOSE OF THIS ARTICLE is to report on the recovery of visual field loss that is associated with spinal manipulation therapy. Seventeen consecutive patients with concentric narrowing of the visual fields, as measured by kinetic and static perimetry, were treated by outpatient spinal manipulation. Outpatient spinal adjustments were the sole method of treatment in all cases, unassisted by any other modalities of physical medicine. Complete recovery of the visual fields occurred in 10 patients; three were lost to follow-up after having made significant improvement, and two did not regain full visual fields despite a number of sessions of treatment, although they were significantly improved. In one patient, the visual field loss was noted to have recurred on review some months later. Another patient discontinued treatment for an overseas trip, during which time he was well. On his return to Australia, he developed constitutional symptoms again and presented for more spinal manipulation treatment, at which time his visual fields were again noted to be constricted. The recovery of constricted fields of vision with spinal manipulation has been recorded. These recoveries question the understanding of this condition, which interprets the visual disability as a form of hysteria. The query is raised whether this form of visual loss may be a manifestation of cerebral vascular hypoperfusion. More research is required to elucidate the nature and extent of the effect of spinal manipulation on vision.

[J Manipulative Physiol Ther.](https://www.ncbi.nlm.nih.gov/pubmed/?term=Wall+perimetry+in+chiropractic) 1998 Jan;21(1):32-6.

# Wall perimetry in chiropractic.

[Stephens D](https://www.ncbi.nlm.nih.gov/pubmed/?term=Stephens%20D%5BAuthor%5D&cauthor=true&cauthor_uid=9467099)1, [Bilton D](https://www.ncbi.nlm.nih.gov/pubmed/?term=Bilton%20D%5BAuthor%5D&cauthor=true&cauthor_uid=9467099), [Pollard H](https://www.ncbi.nlm.nih.gov/pubmed/?term=Pollard%20H%5BAuthor%5D&cauthor=true&cauthor_uid=9467099), [Gorman F](https://www.ncbi.nlm.nih.gov/pubmed/?term=Gorman%20F%5BAuthor%5D&cauthor=true&cauthor_uid=9467099).

### [Author information](https://www.ncbi.nlm.nih.gov/pubmed/?term=Wall+perimetry+in+chiropractic)

### Abstract

#### BACKGROUND:

Wall perimetry is a method of examination that led to the initial appreciation of the "tunnel vision information." The visualfield loss that wall perimetry indicates generally defines the overall characteristics of the dysfunction associated with 'tunnel vision.' Wallperimetry is an inexpensive, yet sensitive, preliminary screening test for perception abnormality in the outermost periphery of vision.

#### OBJECTIVE:

To describe wall perimetry. The term "wall perimetry" denotes a simple preliminary method of examining the visual fields of chiropractic patients.

#### DISCUSSION:

The test is described with reference to photographs. The patient stands 1 m from the corner of a room and is instructed to look directly at the junction of the walls, with the head remaining still and gaze fixed. Standing behind the patient, the examiner projects a target of light onto the wall and moves it until it is seen by the subject.

#### CONCLUSION:

Chiropractors are encouraged to test appropriate patients by wall perimetry before spinal manipulation therapy. On the basis of existing experience, detection of patients with visual field loss is to be expected. From that point, formal examination of the visual fields using kinetic or static perimetry apparatus is recommended to further verify the "tunnel vision" discovery.

PMID: 9467099

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| **ID** | 5701 |
| **Title** | Cerebral dysfunction: A theory to explain some of the effects of chiropractic manipulation |
| **URL** |  |
| **Journal** | [Chiropr Tech.](https://www.chiroindex.org/journals?search_page=journals&action=view&journalId=1032) 1993 Nov;5(4):168-173 |
| **Author(s)** | * [Terrett AG](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Terrett%20AG%22&type1=author#results)
 |
| **Subject(s)** | * [Brain / physiopathology](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Brain%20/%20physiopathology%22&type1=subject#results)
* [Brain Ischemia / complications](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Brain%20Ischemia%20/%20complications%22&type1=subject#results)
* [Manipulation, Spinal](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Manipulation,%20Spinal%22&type1=subject#results)
* [Subluxation / complications](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Subluxation%20/%20complications%22&type1=subject#results)
 |
| **Peer Review** | Yes |
| **Publication Type** | Article |
| **Abstract/Notes** | This paper presents a theory, not previously reported or commented upon by chiropractors, to explain a possible mode of action of spinal manipulation in some patients with complaints that are extremely difficult to quantify, such as visual disorders, dizziness, depression, anxiety, memory problems, attention span problems, difficulty with concentration, irritability, tiredness, and clumsiness. This theory is put forward with the aim of generating comments from the chiropractic profession, and to develop a study to test the theory. |

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| --- | --- |
| **ID** | 4279 |
| **Title** | THE EYE, THE CERVICAL SPINE, AND SPINAL MANIPULATIVE THERAPY: A REVIEW OF THE LITERATURE |
| **URL** |  |
| **Journal** | [Chiropr Tech.](https://www.chiroindex.org/journals?search_page=journals&action=view&journalId=1032) 1995 May;7(2):43-54 |
| **Author(s)** | * [Gorman RF](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Gorman%20RF%22&type1=author#results)
* [Terrett AG](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Terrett%20AG%22&type1=author#results)
 |
| **Subject(s)** | * [Manipulation, Spinal](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Manipulation,%20Spinal%22&type1=subject#results)
* [Vision Disorders / therapy](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Vision%20Disorders%20/%20therapy%22&type1=subject#results)
* [Visual Acuity](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Visual%20Acuity%22&type1=subject#results)
* [Wounds and Injuries / complications](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Wounds%20and%20Injuries%20/%20complications%22&type1=subject#results)
 |
| **Peer Review** | YesPractitioners of spinal manipulative therapy (SMT) note that after patients occasionally state that their vision has improved. Visual improvement is mentioned by patients more commonly than the appearance of reports in the literature would suggest. Various ocular effects of spinal manipulative therapy have appeared in the literature. These have included changes in visual acuity, oculomotor function, intraocular pressure, and pupillary size. This paper reviews the literature regarding connections between the eye, the cervical spine, and spinal manipulative therapy (SMT) with a view to future research in this area. Various theories that have been proposed are briefly reviewed.  |

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| --- | --- |
| **ID** | 5701 |
| **Title** | Cerebral dysfunction: A theory to explain some of the effects of chiropractic manipulation |
| **URL** |  |
| **Journal** | [Chiropr Tech.](https://www.chiroindex.org/journals?search_page=journals&action=view&journalId=1032) 1993 Nov;5(4):168-173 |
| **Author(s)** | * [Terrett AG](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Terrett%20AG%22&type1=author#results)
 |
| **Subject(s)** | * [Brain / physiopathology](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Brain%20/%20physiopathology%22&type1=subject#results)
* [Brain Ischemia / complications](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Brain%20Ischemia%20/%20complications%22&type1=subject#results)
* [Manipulation, Spinal](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Manipulation,%20Spinal%22&type1=subject#results)
* [Subluxation / complications](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Subluxation%20/%20complications%22&type1=subject#results)
 |
| **Peer Review** | Yes |
| **Publication Type** | Article |
| **Abstract/Notes** | This paper presents a theory, not previously reported or commented upon by chiropractors, to explain a possible mode of action of spinal manipulation in some patients with complaints that are extremely difficult to quantify, such as visual disorders, dizziness, depression, anxiety, memory problems, attention span problems, difficulty with concentration, irritability, tiredness, and clumsiness. This theory is put forward with the aim of generating comments from the chiropractic profession, and to develop a study to test the theory. |

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| **ID** | 20041 |
| **Title** | Changes in visual acuity in patients receiving upper cervical specific chiropractic care |
| **URL** | [http://www.vertebralsubluxationresearch.com](http://www.vertebralsubluxationresearch.com/) |
| **Journal** | [J Vert Sublux Res.](https://www.chiroindex.org/journals?search_page=journals&action=view&journalId=1050) 1998 ;2(1):p. 1-7 |
| **Author(s)** | * [Kessinger R](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Kessinger%20R%22&type1=author#results)
* [Boneva D](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Boneva%20D%22&type1=author#results)
 |
| **Subject(s)** | * [Vertebral Subluxation Complex](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Vertebral%20Subluxation%20Complex%22&type1=subject#results)
* [Visual Acuity](https://www.chiroindex.org/?search_page=search&action=doSearch&search1=%22Visual%20Acuity%22&type1=subject#results)
 |
| **Peer Review** | Yes |
| **Publication Type** | Article |
| **Abstract/Notes** | The present study was conducted to investigate the relationship between Upper Cervical Specific chiropractic care and changes in visual acuity. The population under study represented sixty seven subjects who had not previously experienced chiropractic care. They ranged in age from 9 to 79 years, averaging 46.4 ± 17.0.The subject group consisted of 37 females (48.7 ± 18.9 years) and 30 males (43.5 ±15.7 years). They were evaluated for each eye, before and six weeks after receiving chiropractic care, relative to their ability to accurately identify letters in a standard Snellen Chart. The chart contained 11 rows in which a different number of letters of varying sizes were displayed. Scores, for the population as a whole, were reported as the mean and standard deviation of the absolute number missed in each row before and after care, and further expressed as a percent increase or decrease, pre/post chiropractic care, for each row as "percent change in distance visual acuity," (%DVA). Findings from this initial study suggest that observed changes were not a function of gender. Thus, the population as a whole demonstrated statistically significant improvement in the right eye (paired two-tailed t-test, p < 0.05) in distance visual acuity (%DVA) at distances associated with less than "typical" normal vision (20/50, 20/40, 20/25),"typical" normal vision (20/20), and better than "typical" normal vision (20/16). Significant improvements were also shown for the left eye at the same distance acuity levels, as well as at the levels of 20/125, 20/80, and 20/60. Regression analysis (p < 0.05) of scores before chiropractic care revealed a positive correlation between increasing age and number of letters incorrectly identified at the levels of 20/20 and 20/16 for both the right and left eyes. Regression analysis performed on scores after chiropractic care revealed the same relationship for the left eye as before care. However, after care, this relationship was only apparent at the 20/16 level in the right eye. Thus, evaluation of these data show improvements in % DVA following Upper Cervical Specific chiropractic care, at distances "typically" associated with less than normal, normal, and better than normal vision, with no correlation between upper cervical vertebral "listing." Improvement in the left eye was evident at greater extremes of low vision than in the right eye. However, age related differences in the number of incorrectly identified letters, associated "typically" with normal and better than normal vision, showed apparent improvement in normal vision in the right eye following care. Possible implications and explanations for these findings are discussed. |

[J Manipulative Physiol Ther.](https://www.ncbi.nlm.nih.gov/pubmed?term=(Changes%20in%20brain%20function%20after%20manipulation%20of%20the%20cervical%20spine)%20AND%20Carrick) 1997 Oct;20(8):529-45.

**Changes in brain function after manipulation of the cervical spine.**

[Carrick FR](https://www.ncbi.nlm.nih.gov/pubmed/?term=Carrick%20FR%5BAuthor%5D&cauthor=true&cauthor_uid=9345682)1.

[**Author information**](https://www.ncbi.nlm.nih.gov/pubmed?term=(Changes%20in%20brain%20function%20after%20manipulation%20of%20the%20cervical%20spine)%20AND%20Carrick)

**Erratum in**

* J Manipulative Physiol Ther 1998 May;21(4):304.

**Abstract**

**OBJECTIVE:**

To ascertain whether manipulation of the cervical spine is associated with changes in brain function.

**DESIGN:**

Physiological cortical maps were used as an integer of brain activity before and after manipulation of the cervical spine in a large (500 subjects), double-blind controlled study.

**SETTING:**

Institutional clinic Participants: Adult volunteers.

**INTERVENTION:**

Five hundred subjects were divided into six comparative groups and underwent specific manipulation of the second cervicalmotion segment. Blinded examiners obtained reproducible pre- and postmanipulative cortical maps, which were subjected to statistical analysis.

**MAIN OUTCOME MEASURES:**

Brain activity was demonstrated by reproducible circumferential measurements of cortical hemispheric blind-spot maps before and after manipulation of the second cervical motion segment. Twelve null hypotheses were developed. The critical alpha level was adjusted in accordance with Bonferroni's theorem to .004 (.05 divided by 12) to reduce the likelihood of wrongly rejecting the null hypothesis (i.e., committing a Type I error).

**RESULTS:**

Manipulation of the cervical spine on the side of an enlarged cortical map is associated with increased contralateral cortical activity with strong statistical significance (p < .001). Manipulation of the cervical spine on the side opposite an enlarged cortical map is associated with decreased cortical activity with strong statistical significance (p < .001). Manipulation of the cervical spine was specific for changes in only one cortical hemisphere with strong statistical significance (p < .001).

**CONCLUSIONS:**

Accurate reproducible maps of cortical responses can be used to measure the neurological consequences of spinal joint manipulation. Cervical manipulation activates specific neurological pathways. Manipulation of the cervical spine may be associated with an increase or a decrease in brain function depending upon the side of the manipulation and the cortical hemisphericity of a patient.

**Comment in**

* [Changes in brain function after manipulation of the cervical spine.](https://www.ncbi.nlm.nih.gov/pubmed/9608385) [J Manipulative Physiol Ther. 1998]

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