Chiropractic in North America: a descriptive analysis.

Ian D. Coulter, PhD; Paul G. Shekelle, MD, PhD

Objective: This paper provides descriptive data on chiropractors, their practices, and their patients in North America in the past decade.

Method: Five sites in the United States and one in Canada were chosen, and a random sample of chiropractors was interviewed. In each practice, 10 patients were systematically selected on a single day. A total of 131 chiropractors and 1,275 patients were interviewed.

Summary: The results suggest that doctors of chiropractic have firmly established themselves within the health care system in the United States and Canada, and are able to attract patients who come to them directly for treatment, for largely back-related conditions, and who are willing to pay for their care.

The Nordic back pain subpopulation program: a one-year prospective multicenter study of outcomes of persistent low-back pain in chiropractic patients.

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Objectives: The aims of the study are to describe the low-back pain and disability status at baseline, the fourth visit, and at 3 and 12 months in Norwegian patients treated by chiropractors for persistent low back pain (LBP) and to describe movements between various subgroups over time.

Design: Prospective uncontrolled multicenter study.

Methods: Self-reported pain was measured with a 0-10 box scale and disability with the revised Oswestry LBP questionnaire. The main outcome measures were mean pain or disability values and numbers of LBP-free patients. LBP status was assessed through patient questionnaires at baseline, the fourth visit, and after 3 and 12 months.
Study Subjects and Setting: Of 205 invited chiropractors, 115 Norwegian chiropractors were each willing to recruit 10 consecutive patients who had LBP for at least 2 weeks at the time of consultation and a minimum of 30 days altogether within the preceding year. The numbers of participants were 875 (baseline), 799 (fourth visit), 598 (3 months), and 512 (12 months).

Results: Considerable improvement was noted between baseline and the fourth visit, both for mean values and in numbers of LBP-free patients. There was virtually no further mean improvement up to the third month, whereas the number of LBP-free individuals doubled. At 12 months, no additional improvement was noted, and 80% reported that they had experienced recurrent problems. Less than 1% reported considerable worsening. Severity of symptoms at baseline determined the subsequent outcome, with mild symptoms tending to worsen, and severe symptoms tending to improve.

Conclusion: The outcome pattern is similar to that found in other clinical studies. Treatment outcome should be measured early with follow-up at 3 rather than at 12 months, because patients will improve or recover quickly but may experience recurring problems. Numbers "cured" appears to be a feasible outcome variable in this type of study population.

Recruiting seniors with chronic low back pain for a randomized controlled trial of a self-management program.

Elyse Groupp, PhD; Mitchell Haas, DC; Alisa Fairweather, MPH; Bonnie Ganger; Michael Attwood

Objective: To identify recruitment challenges and elucidate specific strategies that enabled recruitment of seniors for a randomized trial on low back pain comparing the Chronic Disease Self-management Program of the Stanford University to a 6-month wait-list control group.

Design: Recruitment for a randomized controlled trial.

Setting: Community-based program offered at 12 locations.

Participants: Community-dwelling seniors 60 years and older with chronic low back pain of mechanical origin.

Methods: Passive recruitment strategies included advertisement in local and senior newspapers, in senior e-mail newsletters and listservs, and in local community centers and businesses. Active strategies included
meeting seniors at health fairs, lectures to the public and organizational meetings, and the help of trusted professionals in the community.

**Results:** A total of 100 white and 20 African American seniors were recruited. The program seemed to have the most appeal to white, middle-class older adults, educated through high-school level. Advertisement failed to attract any participants to the program. Successful strategies included interaction with seniors at health fairs and lectures on health care, especially when the program was endorsed by a trusted community professional.

**Conclusion:** Generating interest in the self-management program required keen communication skills because the idea of "self-management" was met with a myriad of responses, ranging from disinterest to disbelief. Generating interest also required active participation within the communities. Initial contacts had to be established with trusted professionals, whose endorsement enabled the project managers to present the concept of self-management to the seniors. More complex recruitment strategies were required for this study involving the self-management approach to back pain than for studies involving treatment.

**Changes in cerebellar blood flow after manipulation of the cervical spine using technetium 99m-ethyl cysteinate dimer.**

*Barbara Cagne*, **PT**; *Filip Jacobs, MSc, PhD*; *Erik Barbaix, MD*; *Elke Vinck, PT*; *Rudi Dierckx, MD, PhD*; *Dirk Cambier, PT, PhD*

**Background:** Cervical spine manipulation is one of the many interventions practiced by health professionals to treat musculoskeletal disorders of the cervical spine. Although serious consequences of manipulation have been documented, the incidence is thought to be rare. More frequently, there may be minor transient side-effects after manipulation of the cervical spine, such as headache, dizziness, and nausea. One of the hypotheses is that these side-effects are caused by ischemia in the areas perfused by the vertebral arteries.

**Objective:** The purpose of this study was to investigate whether manipulation of the cervical spine can influence blood flow in the brain.

**Methods:** Single photon emission computed tomography was used to examine changes in regional cerebral blood flow caused by cervical spine manipulation (CSM) performed by a physiotherapist to 15 volunteers, using a 1-day split-dose Technetium 99m-ethyl cysteinate dimer single photon emission computed
tomography activation paradigm.

**Results:** One brain region was identified showing a decreased regional cerebral blood flow after manipulation. This region was situated in the anterior lobe of the left cerebellum (42, 48, 24).

**Conclusions:** These findings suggest that cerebellar hypoperfusion may occur after CSM. This could explain why certain people experience headache, dizziness, or nausea after CSM. Further investigation into patient symptoms in the presence of cerebellar hypoperfusion and the possible link of these findings with other adverse reactions is warranted.

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**Variance in manual treatment of nonspecific low back pain between orthomanual physicians, manual therapists, and chiropractors.**

*Elise A. van de Veen, MSc; Henrica C.W. de Vet, PhD; Jan J.M. Pool; Wouter Schuller, MD; Annemarie de Zoete, DC; Lex M. Bouter, PhD*

**Objective:** The aim of the study was to identify differences in the diagnosis and treatment of nonspecific low back pain among 3 professional groups in The Netherlands: orthomanual physicians, manual therapists, and chiropractors.

**Methods:** Information was obtained from training materials from professional groups, literature searches, and observation of selected practitioners at work.

**Results:** In The Netherlands, there are differences in education between the 3 professional groups. The focus of orthomanual medicine is on abnormal positions of components of the skeleton and symmetry in the spine. Manual therapy focuses on functional disorders of the musculoskeletal system. Chiropractic focuses on the musculoskeletal and nervous systems in relation to patients’ health in general. Orthomanual medicine considers inspection and palpation the most important diagnostic tools. Manual therapists and chiropractors additionally perform tests to determine functional disorders, and manual therapists evaluate psychosocial influences. Chiropractors take radiographs if necessary. Orthomanual physicians apply mobilization techniques using fixed protocols. Manual therapists and chiropractors use various manipulation and mobilization techniques, and their manipulation techniques differ in amplitude and velocity.

**Conclusions:** Diagnostic techniques and treatment methods of the 3 professional groups differ considerably. For more accurate reporting of the efficacy of manipulative and mobilizing therapies, the characteristics of
Influence of axial rotation on chiropractic pelvic radiographic analysis.

Daniel J. Weinert, DC

Objective: The aim of the study is to explore associations between axial (y-axis) rotation of the pelvis and pelvic radiographic measurements.

Study Design: Descriptive film statistics of an incrementally rotated pelvis and linear regression analysis were performed.

Methods: A phantom pelvic model was incrementally imaged (1° increments) at 40-in source-to-image distance through 10° of axial rotation. Chiropractic line drawing analysis was performed. The chiropractic examiner was blinded to the degree of rotation during the film analysis. Regression analysis was performed between axial rotation and pubic symphysis deviation, sacral width, and innominate and femur head heights. Each measurement corresponds to a chiropractic listing within the Gonstead system.

Results: Regression analysis revealed a strong association between the degree of axial rotation and each response variable: pubic symphysis deviation, sacral width, innominate height, and femur head height. The strongest relationship existed between y-axis rotation and pubic symphysis deviation.

Conclusions: Chiropractic pelvic listings are strongly influenced by positioning of the subject. A few degrees of axial rotation may create apparent misalignments of several millimeters.

Reliability of McKenzie classification of patients with cervical or lumbar pain.

Helen A. Clare, PT, MappSc; Roger Adams, PhD; Christopher G. Maher, PT, PhD

Background: In the McKenzie system, patients are classified first into syndromes, then into subsyndromes. At present, the reliability of classification with this system is unclear. No study has included patients with cervical pain, and the studies to date have reported conflicting results.

Objective: The aim of the study is to investigate the interexaminer reliability of the McKenzie classification system for patients with cervical or lumbar pain.
Subjects: Fifty patients with spinal pain (25 with lumbar pain and 25 with cervical pain) were included in the study.

Method: The patients were assessed simultaneously by 2 physical therapists (14 in total) trained in the McKenzie method. Agreement was expressed using the multirater _ coefficient and percent agreement for classification into (i) syndromes and (ii) subsyndromes.

Results: The reliability for syndrome classification was _ = 0.84 with 96% agreement for the total patient pool, _ = 1.0 with 100% agreement for lumbar patients, and _ = 0.63 with 92% agreement for cervical patients. The reliability for subsyndrome classification was _ = 0.87 with 90% agreement for the total patient pool, _ = 0.89 with 92% agreement for lumbar patients, and _ = 0.84 with 88% agreement for the cervical patients.

Conclusion: The McKenzie assessment performed by persons trained in the McKenzie method may allow for reliable classification of patients with lumbar and cervical pain.

Back belt use for prevention of occupational low back pain: a systematic review.

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Background: Back pain continues to be the leading overall cause of morbidity and lost productivity in the workplace. Recently, there has been a renewed interest in the use of back belts by industry to reduce occupational low back pain (LBP).

Objectives: To examine the literature and evaluate the effectiveness of back belt use for the primary prevention of occupational LBP.

Methods: MEDLINE, CINAHL, EMBASE, and HEALTHSTAR were searched for relevant articles published up to July 2003. Studies were included if participants were material handlers, and outcomes included the incidence and/or duration of lost time of reported LBP among workers who wore back belts compared with those who did not. The quality of the evidence was scored independently by 2 reviewers using a double rating method, first according to research design, followed by an internal validity rating. Final synthesis of the evidence was performed, in which the evidence was classified as good, fair, conflicting, or insufficient.
Results: Ten epidemiologic studies meeting inclusion criteria were identified. Of 5 randomized controlled trials, 3 showed no positive results with back belt use; 2 cohort studies had conflicting results, and 2 nonrandomized controlled studies and 1 survey showed positive results.

Conclusions: Currently, because of conflicting evidence and the absence of high-quality trials, there is no conclusive evidence to support back belt use to prevent or reduce lost time from occupational LBP.

Chiropractic maintenance care and quality of life of a patient presenting with chronic low back pain.

Adrian B. Wenban, BApp Sc, Mmed Sc; Michelle K. Nielsen, DC

Objective: To report on a 26-year-old female patient presenting with uncomplicated chronic low back pain who received chiropractic maintenance care using 2 quality-of-life outcome assessment instruments.

Outcome Measures: Short-form (SF-36) subscales, Quality of Well-Being Scale, Visual Analog Scale, and number of tender vertebral spinous processes.

Results: After 9 months of care, the SF-36 subscale scores showed improvement. The SF-36, although low before care, approached normal on 3 subscales and exceeded normal population values on 5 subscales after 9 months. The SF-36 physical and mental composite scores improved from mean baseline scores of 23.4 and 25.3 to 43.7 and 62.8, respectively, after 9 months of care. The Quality of Well-Being Scale scores improved from a mean pre-intervention score of 1.1 to a post-intervention score of 8.2. The Visual Analog Scale scores improved from a mean pre-intervention score of 8 to a post-intervention score of 1.5. The mean number of chiropractic vertebral subluxations, detected via palpation of spinous process tenderness, went from a pre-care mean of 6.5 to a post-care mean of 4.

Conclusion: The patient appeared to experience improvement in quality of life while showing signs suggestive of improved spinal function. The relationship between indicators of vertebral subluxation and quality of life deserves further investigation using a research design that allows for exploration of possible causal relationships.

Chiropractic treatment of lumbar spine synovial cysts: a report of two cases.

James M. Cox, DC; James M. Cox II, DC,
Objective: To present the treatment of low back and radicular pain due to synovial cysts of the lumbar spine, including chiropractic distraction manipulation and physiological therapeutic care.

Clinical Features: Two patients (71-year-old man and 59-year-old woman) with magnetic resonance imaging (MRI)-diagnosed large synovial cysts at the L3 through L4 and L4 through L5 vertebral levels, respectively, had lower extremity pain, numbness, and tingling of the respective L4 and L5 dermatomes.

Intervention and Outcome: Chiropractic distraction manipulation was performed at the level of the synovial cyst. The manipulation was performed daily until 50% pain relief was attained, followed by diminished frequency of care. Physiotherapy included positive galvanism, iontophoresis, tetanizing electrical stimulation, stabilization exercises, and home cryotherapy. The male patient’s pain was reduced by 50% in 14 days and by 100% at 60 days. Range of motion of the thoracolumbar spine increased, walking distance increased from 1 to 2 blocks to 1 mile without pain, and repeat MRI showed reduced size of the cyst. The female patient, under the same treatment regimen, was pain free in 6 weeks.

Conclusion: Chiropractic distraction manipulation and physiological therapeutic care relieved 2 patients with low back and radicular pain attributed to MRI-confirmed synovial cysts of the lumbar spine. This treatment may be an initial conservative treatment option for synovial cysts, with careful patient monitoring for progressive neurologic deficit, which would necessitate surgery. Distraction manipulation may be a safe and effective conservative treatment of synovial cyst causing radicular pain; further data collection of clinical outcomes is warranted.

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