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ABSTRACTS FOR JUNE 2000

Editorial Staff

Chiropractic Management of Mechanical Neck and Low Back Pain: a retrospective, outcome-based analysis

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**Background:** There is evidence to suggest that spinal manipulation is an effective treatment for mechanical neck and low back pain. Treatment efficacy is important to establish for these complaints, as combined they account for a considerable amount of disability with substantial associated direct and indirect costs to society.

**Objective:** The purpose of this study was to study the outcome of patients undergoing chiropractic treatment for mechanical neck or low back pain.

**Design and setting:** A retrospective, outcome-based analysis was done for patients presenting to a private chiropractic practice over a one-year period of time. A total of 512 files were reviewed, of which 119 patients were selected for inclusion. Patients were included if their chief complaint was uncomplicated mechanical neck or low back pain (LBP). Diagnoses included sprain/strain (ICD-9 code: 847.1, 847.3, 846.1) as well as discogenic LBP (ICD-9: 722.1) and headaches (ICD-9: 784.0), since a large number of the patients with neck pain presented with concomitant headaches. Pre- and post-treatment disability and pain were measured using the modified Oswestry scale (for the LBP patients), Neck Disability Index and an 11-box visual analog pain scale. Treatment consisted of spinal manipulation, various soft tissue techniques, home care instructions, ergonomic advice and return-to-activity advice, including rehabilitative exercises. Patients received an average of 12 treatments over a 4-week period of time.

**Statistical analysis** was performed on pre-treatment and post-treatment values for both disability and pain. Stratification was also done based on duration (acute/subacute, chronic, acute exacerbation of a chronic condition) and degree (mild, moderate or severe) of complaint.

**Results:** Statistically significant reductions in disability and pain scores were achieved in all groups. An average of 52.5% and 52.9% reduction in pain and disability respectively was achieved in the low back group. The chronic LBP group realized markedly less reduction of pain and disability and pain (19.7% and 19.8% respectively) than the acute/subacute (66.8% and 62.5%) or the chronic/recurrent group (56.5% and 63.4%). The differences were notable. Patients suffering from neck pain had a reduction in their pain and disability an average of 53.8% and 48.4% respectively. Patients suffering from concomitant neck pain and headaches had significantly higher pre- treatment and post-treatment disability and pain scores than those with only neck pain. There was no variation in outcomes between groups stratified according to pain intensity.

**Conclusions:** Patients attending a private chiropractic clinic for treatment of mechanical neck or low back pain had statistically significant reductions in their pain-related disability following

treatment. These results would indicate that chiropractic manipulation is beneficial for the treatment of mechanical neck and low back pain. Care must be taken, however, when drawing conclusions from these outcomes, as the study design does not account for the natural history of low back or neck related pain and disability, and therefore does not allow for claims of treatment efficacy. Also, it has been suggested that patients presenting to medical doctors with these complaints have significant overlying co-morbidity when compared to those presenting to a chiropractor.

Key Indexing Terms: Chiropractic; Low Back Pain; Neck Pain; Intervertebral Disc

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Behavioral graded activity compared to usual care after first-time disc surgery. Considerations of the design of a randomized clinical trial

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Objective: To present the design of a trial on the effectiveness of a behavioral graded activity model.

Design: Randomized clinical trial

Patients: First-time lumbar disc surgery patients who still have low back pain at the 6-week neurosurgical consultation.

Interventions: A patient-tailored behavioral graded activity program which is based upon operant therapy as described by Fordyce. Key elements are: baseline measurements, goal-setting and time-contingent. This is compared to usual care in physiotherapy which is pain-contingent.

Outcome measures: Primary measures are the patient's global impression of the effect and the functional status. Secondary measures are: kinesiophobia, catastrophizing, pain, main complaint, range of motion and relapses. Also the direct and indirect costs will be assessed. The effect measures are rated before randomization and 3, 6 and 12 months later.

Discussion: Several trials on the effectiveness on behavioral treatments have been conducted. Subjects were always chronic low back pain patients. In this trial we apply such a treatment in first-time disc surgery patients in a primary care setting.

Key Indexing Terms: Behavioral Treatment; Intervertebral Disc; Lumbar Vertebrae; Surgery; Physiotherapy; Randomized Clinical Trials.

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## Abstract

Objective: To examine the use of a new silver needle therapy for treating tender points involved in intractable low back pain after removal of nucleus pulposus.

Subject: The study involved 24 patients (17 men and 7 women) aged 26-67 yrs with a mean age of  $54.5 \pm 5$  yrs.

Setting: (1) Department of Orthopedics, Faculty of Traditional Chinese Medicine, at the First Military Medical University, (2) Department of Rehabilitation Medicine, General Hospital of PLA, Beijing; and (3) Department of Acupuncture, the First People's Hospital, Kunming City, People's Republic of China.

Method: The patients were treated with traditional silver needle therapy at tender points in the low back and buttock. Pain at each of the tender points was measured in pre-treatment and post-treatment, and the scores were compared by t-test.

Results: The therapeutic results suggested that the total scores for each of tender points after treatment were significantly lower than those in pre-treatment. ( $p < 0.001$ ).

Conclusion: Silver needle therapy shows promise for treating low pain following surgery for disk herniation. Clinical trials are needed.

Key Indexing Terms: Low Back Pain; Intervertebral Disc Herniation; Acupuncture.

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## Abstract

A clinical trial investigating the possible effect of the supine cervical rotatory manipulation and the supine lateral break manipulation in the treatment of mechanical neck pain - a pilot study

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Purpose: To evaluate the possible effect of the supine cervical rotary manipulation and the supine lateral break manipulation, according to subjective and objective clinical findings, in the treatment of mechanical neck pain.

Background: Delivering a supine lateral break manipulation to the ipsilateral side of an inflamed facet joint(s), which exhibits a lateral flexion fixation, may result in pain and/or discomfort to the patient. Thus, the proposed alternative would be a supine cervical rotary manipulation delivered on the ipsilateral side or a supine lateral break manipulation delivered on the contralateral side of the relevant joint(s).

Design: Randomized, comparative clinical trial.

Subjects: Two groups of 15 subjects diagnosed with mechanical neck pain.

Intervention: The diagnosis of mechanical neck pain and the identification of lateral flexion fixations in the cervical spine was made using conventional clinical evaluation, including motion palpation. Group A received a cervical rotary manipulation(s) on the ipsilateral side of the lateral flexion fixation(s), while Group B received a supine lateral break manipulation(s) on the contralateral side of the lateral flexion fixation(s). Subjects received a maximum of 10 treatments over a 4-week treatment period.

Outcome Measures: Both treatment groups were assessed using subjective (Numerical Pain Rating Scale 101, McGill Short-Form Pain Questionnaire and the CMCC Neck Disability Index) and objective (CROM Goniometer and Algometer) measurement parameters at the initial consultation

(before any treatment), the final consultation and at a 1-month follow-up consultation. Statistical analysis was conducted at a 95% confidence level ( $\alpha = 0.05$ ) using the non-parametric two-tailed Wilcoxon Signed-Ranks Test, the Mann Whitney U-Test and descriptive statistics. Two-tailed power analysis was conducted post-hoc where a confidence level of 80% ( $\beta=0.20$ ) was considered satisfactory.

Results: Intra-group analysis indicated that there was a significant difference between the initial consultation data and the that data for the subjective data, indicating an effect. Analysis of the objective data did not reveal any significant difference. Inter-group analysis did not reveal any meaningful variation between the two groups when comparing the data of the initial consultation and the final consultation, indicating that both treatments had a similar/equal effect. Power analysis was not satisfactory for the vast majority of the data indicating the possibility of a high number of Type II errors.

Conclusion and Recommendations: Statistically, the results suggested that both treatments had an effect, but that neither group showed any benefit over the other. However, due to the unsatisfactory power of the study, conclusions are to be drawn with caution. Clinical significance supported the statistical outcomes where it was suggested that both treatments had an effect and that neither had a greater effect. A larger sample size, and the inclusion of a placebo group is recommended to reveal true treatment outcomes/trends.

Key Indexing Terms: Neck Pain; Chiropractic Manipulation; Clinical Trials.

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## Abstract

Objective: To establish the short-term effects of lumbar posteroanterior mobilization in subjects with low back pain, compared with a control intervention.

Design: Self-controlled crossover design.

Main Outcome Measures: The force-displacement characteristics of the spine in response to the application of a posteroanterior force (PA response), lumbar flexion and extension range of movement; pain during flexion, extension, and on worst movement, pain on posteroanterior loading, and overall pain relief.

Subjects: Twenty-six subjects with non-specific low back pain who experienced pain on flexion and/or extension and whose pain settled quickly after provocation, from a physiotherapy clinic and university campus.

Methods: Subjects received posteroanterior mobilization and a control intervention in an order that was randomly allocated. The magnitude of force in treatment dose was selected by the treating physiotherapist. An observer who was blind to the order of interventions performed all measurements. Outcome measures were recorded before and after each intervention and change scores were calculated to quantify the effect of the intervention.

Results: No significant differences were found between the mobilization and control interventions in relation to posteroanterior response or range of movement. The score for pain on worst movement showed significantly greater improvement for the mobilization than for the control procedure.

Conclusions: Lumbar posteroanterior mobilization was not observed to produce any objectively

measurable change in the mechanical behavior of the lumbar spine of subjects with low back pain. Improvement in some pain variables was observed in comparison with a control procedure, but this may be due to a placebo effect.

Key Indexing Terms: Lumbar Spine; Low Back Pain; Physical Therapy

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## Abstract

**Background:** The role of lifestyle factors is an important issue in the prevention and treatment of disease. Although certain lifestyle factors have evoked much interest in relation to low back pain, there has not been much concern about alcohol consumption. An appraisal of the epidemiologic literature seems warranted.

**Objectives:** To establish if there is evidence in the literature for a causal link between alcohol consumption and low back pain.

**Data Sources:** Nine original research reports published between 1987 and 1995 were obtained through a Medline-search for the years 1992-1998, using various combinations of the terms alcohol, substance abuse, life-style, risk factor, epidemiology and low back pain. An additional hand search was made of relevant bibliographies without limitation for year of publication.

**Data Synthesis:** A systematic review was made of the epidemiologic literature to uncover any evidence for a causal relationship between alcohol consumption and low back pain.

**Results:** None of the studies reported a positive link between alcohol consumption and low back pain, and no positive gradient was found in those studies that included an analysis of the dose-response. None of the studies was prospective in design.

**Conclusions:** Alcohol consumption does not seem to be associated with low back pain, but well-designed specific alcohol/low back pain-centered studies are lacking.

Key Indexing Terms: Alcohol Consumption; Substance Abuse; Low Back Pain; Risk Indicators; Risk Factors; Causality; Review; Epidemiology.

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## Abstract

**Objective:** To discuss the case of a patient suffering osteochondritis dissecans (OCD) involving the medial femoral condyle, which is a common disorder that primarily affects children and adolescent patients, and to examine its radiological appearance.

**Clinical Features:** A 25-yr-old male with knee pain sought treatment at a chiropractic clinic. The patient complained of a 2-yr history of left knee pain, which was exacerbated by activity and relieved with rest. Plain film radiography of the knee revealed findings consistent with osteochondritis dissecans (OCD).

**Intervention and Outcome:** The patient was promptly referred for a concurrent orthopedic consultation and subsequent management. A trial basis of conservative care was initiated with the possibility of future surgical intervention if necessary.

Conclusions: Osteochondritis dissecans is a common disorder of unknown and perhaps controversial etiology. The disease is characterized by a fragment of articular cartilage and subchondral bone (osteochondral fragment) which becomes separated from the underlying bone. Treatment is aimed primarily at the preservation of articular surface congruity.

Key Indexing Terms: Knee Pain; Radiology; Osteochondritis Dissecans; Osteonecrosis; Trauma; MRI

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## Abstract

Objective: To document clinical changes [following a course of chiropractic care] in a geriatric patient suffering from vertigo, tinnitus, and hearing loss.

Clinical Features: A 75-year-old female presented with a longstanding history of vertigo, tinnitus, and hearing loss with an intensified progression of these symptoms five weeks prior to admittance for chiropractic care. X-ray examination revealed a C3 retrolisthesis with moderate degenerative changes C4-7. Significant decreases in audiological function were evident and the Rand 36 Health Survey revealed subjective distress.

Intervention and Outcome: The patient received upper cervical specific chiropractic care. Paraspinal bilateral skin temperature differential analysis was employed to determine when an upper cervical adjustment was to be administered and x-ray analysis was utilized to determine the specific characteristics of the misalignment in the upper cervical spine. Through the course of care, the patient's symptoms were alleviated, structural and functional improvements were evident through x-ray examination and audiological function improved.

Conclusion: The clinical progress documented in this report suggests that upper cervical manipulation may be of benefit in patients who have suffered tinnitus and hearing loss.

Key Indexing Terms: Vertigo; Tinnitus; Vestibular System; Cervical Spine; Chiropractic.

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