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Editorial Staff

Effect of chiropractic intervention on small scoliotic curves in younger subjects: A time-series cohort design.

Charles Lantz,DC,PhD, and Jasper Chen,DC

Background: Chiropractors have long claimed to affect scoliotic curves, and case studies abound reporting on successful outcomes. No clinical trials exist, however, that evaluate chiropractic's effectiveness in the management of scoliotic curves.

Objective: To assess the effectiveness of chiropractic intervention in the management of adolescent idiopathic scoliosis in curves less than 20 degrees.

Design: Cohort time-series trial with all subjects electing chiropractic care. Entry-level Cobb angle was compared to post-management curve.

Methods: Forty-two subjects completed the program of chiropractic intervention. Age range at entry was 6-12 years and patients were included if their entry-level x-rays revealed curves of 6-20 degrees. Participants were adjusted for one year prior to follow-up. Full-spine osseous adjustments were the central and major form of intervention, but heel-lifts and postural/lifestyle counseling were also employed.

Results: There was no discernable effect on the severity of the curves as a function of age, curve severity, frequency of care or attending physician.

Conclusion: Full-spine chiropractic adjustments with heel-lifts and postural/lifestyle counseling are not effective in reducing the severity of scoliotic curves.

Key indexing terms: scoliosis; chiropractic manipulation; Cobb angle.

Reducing the personal risk of perceived disease: The chiropractic patients' self-care endeavor.
Jennifer Jamison,MB,BCh,PhD,EdD

Objective: It has been suggested that clinicians should be looking at new ways to enhance their patients' self-care. Patient education is one strategy, which primary providers may use. This study investigates the behavior of chiropractic patients to identify whether they are using widely published community health information messages to reduce their personally perceived risk of various diseases.

Methods: An exploratory study of chiropractic patients was undertaken to investigate patients' health-relevant behaviors. Purposive sampling of nine Australian chiropractic clinics was

undertaken. Convenience sampling of patients attending these clinics resulted in 102 patients participating. Participants completed a questionnaire. Data were collected and collated into a series of case studies describing some behaviors of participants that may influence their risk of acquiring disease. The study was limited to diseases from which participants believe they are at risk.

Results: A substantial number of participants had undergone some screening procedure as recommended by health authorities. The 67 participants who believed they were at risk of one or more of the conditions listed were more likely to have complied. All participants furthermore made certain healthy lifestyle choices. Implementation of those lifestyle choices which would reduce the personal risk of perceived diseases was however patchy.

Conclusion: The behavior of participants in this study suggests that many chiropractic patients would benefit from additional personalized health information messages. The use of information brochures in chiropractic clinics may not alone achieve lifestyle change.

Key indexing terms: chiropractic; health information; patient behavior.

Chronic pediatric asthma and chiropractic spinal manipulation. A prospective clinical series and randomized clinical pilot study.

Gert Bronfort,DC,PhD, Roni Evans,DC, Paul Kubic,MD,PhD, and Patty Filkins,RN

Objectives: The first objective was to determine whether chiropractic spinal manipulative therapy (SMT), in addition to optimal medical management, resulted in clinically important changes in asthma-related outcomes in children. The second objective was to assess the feasibility of conducting a full-scale randomized clinical trial (RCT) in terms of recruitment, evaluation, treatment and ability to deliver a sham SMT procedure.

Study design: Prospective clinical case series in combination with an observer-blinded, pilot RCT with a one-year follow-up.

Setting: Primary contact, college outpatient clinic and a pediatric hospital.

Patients: In total, 36 patients aged 6-17 with mild and moderate persistent asthma were admitted to the study.

Outcome measures: Pulmonary function tests; patient and parent/guardian-rated, asthma-specific quality of life, asthma severity, and improvement; AM and PM peak expiratory flow rates, and diary-based day and night-time symptoms.

Interventions: Twenty chiropractic treatment sessions were scheduled during the three-month intervention phase. Patients were randomized to receive either active SMT or sham SMT, in addition to their ongoing standardized medical management.

Results: It is possible to blind the participants to the nature of the SMT intervention, and a full-scale trial with the described design is feasible to conduct. At the end of the 12-week intervention phase, objective lung function tests and patient-rated day and night-time symptoms based on diary recordings showed little or no change. Of the patient-rated measures, a reduction of approximately 20 percent in beta-2 bronchodilator use was seen ($p=0.10$). The quality-of-life scores improved by 10-28 degrees ($p<0.01$), with the activity scale showing the most change. Asthma severity ratings showed a reduction of 39 degrees ($p<0.001$), and there was an overall improvement rating

corresponding to 50-75 degrees. The pulmonologist-rated improvement was small and not statistically significant. Similarly, the improvements in parent/guardian-rated outcomes were mostly small and not statistically significant. The changes in patient-rated severity and the improvement rating remained unchanged at 12-month post-treatment follow-up as assessed by a brief postal questionnaire.

Conclusion: After three months of combining chiropractic SMT with optimal medical management for pediatric asthma, the children rated their quality of life substantially higher and their asthma severity substantially lower. These improvements were maintained at the one-year follow-up. There were no important changes in lung function or hyper-responsiveness at any time. The observed improvements are unlikely due to the specific effects of chiropractic SMT alone, but rather other aspects of the clinical encounter that should not be readily dismissed. Further research is needed to assess which components of the chiropractic encounter are responsible for important improvements in patient-oriented outcomes so that they may be incorporated into the care of all asthmatic patients.

Key indexing terms: asthma; pilot project; feasibility studies; chiropractic manipulation; pediatric; placebo.

The effects of a mechanical pain stimulus on erector spinae activity before and after a spinal manipulation in patients exhibiting back pain: A preliminary investigation.

Gregory Lehmana, Howard Vernon,DC, and Stuart McGill,PhD

Background: Several recent studies employing animal models of spinal pain have demonstrated changes in sensory processing and in reflex muscular responses. Herzog, et al., have reported consistent EMG responses in paraspinal muscles of normal males following spinal manipulation. They have speculated that such responses may underlie some of the observed clinical effects of spinal manipulation; namely, reduction in pain and muscular hypertonicity.

Objectives: To determine whether a painful mechanical stimulus applied above a spinous process influences paraspinal EMG amplitude, and whether this response is modulated by a spinal manipulation.

Study design: Analytic cohort with a convenience sample in a research clinic.

Methods: Seventeen subjects with back pain (9M, 8F) were recruited. EMG signals were recorded from paraspinal musculature during the following procedures pre-and post-manipulation: quiet stance and prone lying during the application of a mechanical pain stimulus. A two-way repeated measures ANOVA was used to compare the effect of the force application on EMG amplitude. A second two-way repeated measures ANOVA investigated whether the muscular response to a painful stimulus at either segment was influenced by the manipulative procedure.

Results: A statistically significant increase in bilateral EMG activity was found at the painful motion segment; however, no such statistical increase occurred at the nonpainful segment. It appears that manipulation results in a decrease in bilateral local EMG activity at the painful motion segment during the application of the mechanical stimulus; however, a statistically significant decrease was not found at the control segment. It was also found that during quiet standing, the left erector spinae at a painful segment was the only muscle group to show significant differences pre- and postmanipulation.

Conclusion: This work suggests that motion segments identified as problematic in chronic low back pain subjects have an exaggerated local muscular response to a painful stimulus compared to that observed at non-problematic segments. Further, spinal manipulation appears to attenuate the EMG response to a painful stimulus.

Key indexing terms: low back pain, chiropractic manipulation, EMG.

Chiropractic technique procedures for specific low back conditions: characterizing the literature. Robert Cooperstein,DC; Stephen Perle,DC; Meridel Gatterman,DC; Charles Lantz,DC,PhD; and Michael Schneider,DC

Background: Many original clinical trials and several review papers have come to the conclusion that manipulation is safe and effective for the treatment of low back pain. However, it is necessary to determine which specific types of manipulation, and nonmanipulative types of chiropractic adjustive care, are most effective for particular types of low back pain, across both tissue-specific and functional classifications.

Objective: To characterize the quantity and quality of literature gathered for an expert panel that was convened to rate various specific chiropractic adjustive procedures for the treatment of common types of low back pain, drawing on their clinical expertise and the relevant literature.

Study design: Systematic review of treatment-specific, condition-specific trials, studies, and case reports of chiropractic care for low back pain.

Methods: Both computerized and hand searching were used to identify references in the medical and chiropractic literature pertaining to the chiropractic treatment of low back pain, in which both the condition and specific treatment procedures were adequately described. This literature was then categorized according to a variety of characteristics, and used by a panel to evaluate the specific procedures.

Results: The three most studied adjustive procedures are side posture high-velocity, low amplitude (HVLA), distraction (mostly flexion distraction, as described by Cox), and mobilization, in that order. The clinical condition most commonly addressed by the included studies is low back pain. The procedure with the widest base of evidence support is side posture manipulation for low back pain.

Key indexing terms: chiropractic manipulation; low back pain; practice guidelines; reviews of the literature.

Chiropractic management of a professional hockey player with recurrent shoulder instability. Chad Moreau,DC, and Susan Moreau,DC

Objective: To describe the clinical management, using chiropractic management and rehabilitation exercises, of recurrent shoulder instability in a professional hockey player.

Clinical features: A 23-year-old professional hockey player suffered from recurrent left shoulder pain and instability. He had two previous shoulder operations to correct the instability, which were apparently unsuccessful. He reported that the shoulder "slips out" in positions of abduction and external rotation, or when the left arm was moved suddenly above shoulder height. The patient was

still playing hockey at the time of the initial visit and did not want to have to take time off for another surgery, and so chose to attempt a conservative approach for the time being.

Intervention and outcome: The patient had undergone strength training for rehabilitation after each of the previous two shoulder operations and had very strong rotator cuff and scapular musculature. Proprioceptive testing revealed a poor response in the left shoulder compared to the right. Two subjective outcome measures were utilized to measure the response to the treatment protocol at reducing the symptoms of recurrent shoulder instability. Much of the treatment focused on proprioceptive training, soft-tissue mobilization and improving joint function.

Conclusion: This case demonstrates the potential benefit of chiropractic management and proprioceptive exercises to decrease the symptoms of recurrent shoulder instability.

Key indexing terms: shoulder instability; hockey; sports injuries; chiropractic; proprioception; training.

The effectiveness of spinal manipulative therapy in the treatment of mechanical thoracic spine pain: A pilot randomized clinical trial.

Linda Schiller, MtechChiro, CCSP

Background: There have been no substantiated studies performed to date to investigate the efficacy of SMT on thoracic spinal syndromes.

Objective: To investigate the effectiveness of spinal manipulative therapy (SMT) in the treatment of mechanical thoracic spine pain.

Study design: A single-blind, randomized, comparative, controlled pilot study.

Setting: Technikon Natal Chiropractic Clinic in South Africa.

Participants: Thirty subjects selected from the general population (between the ages of 16-60) were randomly divided into two different treatment groups of 15 each.

Methods: The objective measurements collected were the thoracic spine ranges of motion with the BROM II goniometer and pain threshold with an algometer. The subjective information required completion of the Oswestry back pain disability index, short-form McGill pain questionnaire and numerical pain rating scale-101 questionnaire by the patient. These three forms and objective measurements were collected before the first and final treatment and again at the one-month follow-up consultation. The data gathered was then statistically analyzed, using a 95-percent confidence level. The nonparametric Mann-Whitney U-Test and the Wilcoxon's Signed Rank Test were used for comparing inter-group and intra-group data respectively. This was conducted at ($=0.05$ level of confidence. Further assessment of the data was conducted using power analysis.

Interventions: The treatment group received thoracic spine manipulation. The placebo group received non-functional ultrasound application only. The research project was carried out where both groups received six treatments over a period of 2-3 weeks. A one-month follow-up appointment was scheduled after the final treatment to assess the relative long-term benefits of the two different treatments.

Results: Statistically significant results ($p=0.025$) were noted for the percentage pain experienced (Numerical Pain Rating Scale), as well as on right and left lateral flexion on intergroup comparison

at the final treatment. The final treatment results were maintained at the one-month follow-up, however, there were no further statistically significant results. It was noted that the power was weak; so the probability of committing Type II errors for the other measurements was high (falsely accepting the null hypothesis).

The intragroup analysis showed statistically significant improvements in the SMT group in both subjective and objective measurements between the first to final treatment and the first treatment to the one-month follow-up. The placebo group analysis showed a statistically significant improvement in sensory pain only (subjective measurement) between the first and final treatment. This study suggests that SMT may be more effective than placebo therapy in the management of mechanical thoracic spine pain.

Conclusions: This pilot study suggests that SMT has greater benefits than placebo treatment. Due to the small sample size, the findings of this trial study should not be considered conclusive, but rather used as a foundation to plan future studies. In further studies, a larger sample size is necessary to identify subtle changes in measurement parameters and to add to the validity of the results.

Key indexing terms: chiropractic; thoracic spine; pain.

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