



CHIROPRACTIC (GENERAL)

Chiropractic Research in Review

The following abstracts come from two sources: the *Journal of Manipulative and Physiological Therapeutics* (published nine times annually) and the *Journal of Chiropractic Medicine* (published quarterly). Abstracts are reprinted with permission. The National University of Health Sciences, owner of the journals, upholds their compliance with the highest publication standards, which expressly support editorial freedom and best publication practices. Access complete abstracts from each issue of *JMPT* and *JCM* online. For background information on National's three peer-reviewed journals (*Journal of Chiropractic Humanities* is the third), read "The Importance of Our Chiropractic Journals" in the [Aug. 26, 2012](#) issue of *DC*.

HVLA Manipulation Effective for Chronic Disc Herniation

Objective: The purposes of this study were to evaluate patients with low back pain (LBP) and leg pain due to magnetic resonance imaging-confirmed disc herniation who are treated with high-velocity, low-amplitude spinal manipulation in terms of their short-, medium- and long-term outcomes of self-reported global impression of change and pain levels at various time points up to one year; and to determine if outcomes differ between acute and chronic patients using a prospective, cohort design.

Methods: This prospective cohort outcomes study includes 148 patients (between the ages of 18 and 65 years) with LBP, leg pain and physical examination abnormalities with concordant lumbar disc herniations. Baseline numerical rating scale (NRS) data for LBP, leg pain, and the Oswestry questionnaire were obtained. The specific lumbar spinal manipulation was dependent upon whether the disc herniation was intraforaminal or paramedian, as seen on the magnetic resonance images, and was performed by a doctor of chiropractic.

Outcomes included the patient's global impression of change scale for overall improvement, the NRS for LBP, leg pain, and the Oswestry questionnaire at two weeks, one, three and six months, and one year after the first treatment. The proportion of patients reporting "improvement" on the patient's global impression of change scale was calculated for all patients and acute vs. chronic patients.

Pretreatment and posttreatment NRS scores were compared using the paired *t* test. Baseline and follow-up Oswestry scores were compared using [the Wilcoxon test](#). Numerical rating scale and Oswestry scores for acute vs. chronic patients were compared using the unpaired *t* test for NRS scores and the Mann-Whitney U test for Oswestry scores. Logistic regression analysis compared baseline variables with "improvement."

Results: Significant improvement for all outcomes at all time points was reported ($P < .0001$). At three months, 90.5% of patients were "improved," with 88.0% "improved" at one year. Although acute patients improved faster by three months, 81.8% of chronic patients reported "improvement" with 89.2% "improved" at one year. There were no adverse events reported.

Conclusions: A large percentage of acute and importantly chronic lumbar disc herniation patients treated with chiropractic spinal manipulation reported clinically relevant improvement.

Source: Leemann S, et al. Outcomes of acute and chronic patients with magnetic resonance imaging-confirmed symptomatic lumbar disc herniations receiving high-velocity, low-amplitude spinal manipulative therapy: a prospective observational cohort study with one-year follow-up. *JMPT*, Mar2014;37(3):145-163.

Tension-Type Headache: Treatment With Manual and Manipulative Therapy

Objective: The purpose of this study was to evaluate the efficacy of manipulative and manual therapy treatments with regard to pain perception and neck mobility in patients with tension-type headache.



Methods: A randomized clinical trial was conducted on 84 adults diagnosed with [tension-type headache](#). Eighty-four subjects were enrolled in this study: 68 women and 16 men. Mean age was 39.76 years, ranging from 18 to 65 years. A total of 57.1% were diagnosed with chronic tension-

type headache and 42.9% with tension-type headache.

Participants were divided into three treatment groups (manual therapy, manipulative therapy and a combination of manual and manipulative therapy) and a control group. Four treatment sessions were administered during four weeks, with posttreatment assessment and follow-up at one month. Cervical ranges of motion pain perception, and frequency and intensity of headaches were assessed.

Results: All three treatment groups showed significant improvements in the different dimensions of pain perception. Manual therapy and manipulative treatment improved some cervical ranges of motion. Headache frequency was reduced with manipulative treatment ($P < .008$). Combined treatment reported improvement after the treatment ($P < .000$) and at follow-up ($P < .002$). Pain intensity improved after the treatment and at follow-up with manipulative therapy ($P < .01$) and combined treatment ($P < .01$).

Conclusions: Both treatments, administered both separately and combined, showed efficacy for patients with tension-type headache with regard to pain perception. As for cervical ranges of motion, treatments produced greater effect when separately administered.

Source: Espi-López GV, et al. Efficacy of manual and manipulative therapy in the perception of pain and cervical motion in patients with tension-type headache: a randomized, controlled clinical trial. *JCM*, Mar 2014;13(1):4-13.

Chiropractic Benefits Older Medicare Beneficiaries

Objectives: The comparative effect of chiropractic vs. medical care on health, as used in everyday practice settings by older adults, is not well understood. The purpose of this study is to examine how chiropractic compares to medical treatment in episodes of care for uncomplicated back conditions. Episodes of care patterns between treatment groups are described, and effects on health outcomes among an older group of Medicare beneficiaries over a two-year period are estimated.

Methods: Survey data from the nationally representative Survey on Assets and Health Dynamics among the Oldest Old were linked to participants' Medicare Part B claims under a restricted Data Use Agreement with the Centers for Medicare and Medicaid Services. Logistic regression was used to model the effect of chiropractic use in an episode of care relative to medical treatment on declines in function and well-being among a clinically homogeneous older adult population. Two analytic approaches were used, the first assumed no selection bias and the second using propensity score analyses to adjust for selection effects in the outcome models.

Results: Episodes of care between treatment groups varied in duration and provider visit pattern. Among the unadjusted models, there was no significant difference between chiropractic and medical episodes of care. The propensity score results indicate a significant protective effect of chiropractic against declines in activities of daily living (ADLs), instrumental ADLs, and self-rated health (adjusted odds ratio [AOR], 0.49; AOR, 0.62; and AOR, 0.59, respectively). There was no difference between treatment types on declines in lower body function or depressive symptoms.

Conclusion: The findings from this study suggest that chiropractic use in episodes of care for uncomplicated back conditions has protective effects against declines in ADLs, instrumental ADLs, and self-rated health for older Medicare beneficiaries over a two-year period.

Source: Weigel PA, et al. The comparative effect of episodes of chiropractic and medical treatment

Co-Managing TMJ Dysfunction: Chiropractic and Dentistry

Objectives: The purpose of this case report is to describe the chiropractic and dental **co-management** of a patient with temporomandibular dysfunction, headaches and myalgia.

Clinical Features: A 38-year-old black female patient presented for chiropractic care with a chief concern of jaw pain, tinnitus, headaches, and neck and shoulder soreness of eight months' duration. The patient rated the pain a 6/10. The patient had a maximum mouth opening of 42 mm, graphed evidence of disk displacement, loss of translation on opening of the right temporomandibular joint viewed on the lateral radiograph, and numerous areas of point tenderness on the Kinnie-Funt Chief Complaint Visual Index. She had decreased lateral cervical flexion.

Intervention and Outcome: Dental treatment consisted of an anterior repositioning splint. Chiropractic care consisted of Activator treatment to the pelvis and the thoracic and cervical spine. Manual manipulation of the temporomandibular joint was performed along with a soft tissue technique intraorally on the lateral pterygoid. Postisometric relaxation in the head and neck region was also done.

The patient was treated six times over three weeks. At the end of treatment, the patient had a pain rating of 0/10, maximum mouth opening of 49 mm, no tender points on the follow-up Kinnie-Funt, and increased cervical range of motion.

Conclusion: The patient demonstrated increased mouth opening, decreased pain rating, improved Kinnie-Funt visual index, and an increased cervical lateral flexion range of motion after three weeks of a combination of chiropractic and dental care.

Source: Rubis LM, et al. A collaborative approach between chiropractic and dentistry to address temporomandibular dysfunction: a case report. *JCM*, Mar 2014;13(1):55-61.

The Shoulder Medial Rotation Test: Not Reliable?

Objective: The purpose of this study was to examine intertester and intratester reliability of the shoulder medial rotation test (MRT) and reliability differences depending on examiner expertise.

Methods: Seventeen athletes with chronic shoulder pain participated in the study. Four independent observers with different experience levels simultaneously rated MRT performance as "correct" or "incorrect," after a standardized assessment protocol, the same day (for intertester reliability) and in a seven-day interval (for intratester reliability).

Results: The intratester reliability was admissible for two experts and one novice, with k values ranging between 0.32 to 0.76 and poor for one novice ($k < 0$). Interrater agreement for all four assessors demonstrated slight agreement ($k = 0.06$; 95% confidence interval: 0.06-0.47), increasing to fair agreement ($k = 0.33$; 95% confidence interval: 0.21-0.69) when comparing the MRT findings between the 2 experienced assessors. Practice with the MRT in novices only marginally improved their level of agreement.

Conclusions: Reliability of the MRT for detecting movement control of the shoulder girdle was fair at best for experienced examiners and poor overall. Dexterity and repetitive performance of the test is necessary for correct interpretation of the MRT.

Source: Lluch E, et al. The shoulder medial rotation test: an intertester and intratester reliability study in overhead athletes with chronic shoulder pain. *JMPT*, Mar 2014;37(3):198-205.

Bone Cyst or Bone Fracture?

Objective: The purpose of this report is to describe a case of an [aneurysmal bone cyst](#) presenting as a pathologic fracture in a young athlete.

Case report: A 12-year-old patient presented to a chiropractic teaching clinic with a one-week history of posterior neck pain and stiffness following a helmet-to-helmet collision in football practice. Cervical spine radiographs were taken. Lateral view radiograph demonstrated a pathologic fracture through a lytic, expansive lesion in the posterior arch of C7 with mild subluxation of the C7/T1 apophyseal joints and angulation of the C7/T1 disk space.

Based upon these findings, additional diagnostic imaging was ordered. Findings on advanced imaging studies included the following: On computed tomography, the C7 lesion showed medullary destruction, cortical thinning and expansion, and a horizontally oriented fracture through the spinous and lamina. Magnetic resonance imaging studies for sagittal T2 and contrast-enhanced T1-weighted magnetic resonance images revealed fluid/fluid levels in the C7 spinous and peripheral enhancement with contrast.

Outcome: The patient was referred to a local hospital for treatment. The lesion was treated with resection of the posterior arch, and an aneurysmal bone cyst was confirmed histologically. The patient developed a kyphotic deformity at the site of resection and cervical instability. A subsequent fusion was performed.

Conclusion: Aneurysmal bone cysts are rare lesions. In this case, the initial traumatic history masked the underlying pathology. Although rare, pathologic fracture should be considered in cases of vertebral fracture in young patients.

Source: Welk AB, et al. Aneurysmal bone cyst presenting as a pathologic fracture in a 12-year-old football player. *JCM*, Mar 2014;13(1):62-66.

JUNE 2014