Dynamic Chiropractic

BACK PAIN

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Editorial Staff

Barriers to expanding primary care roles for chiropractors. The role of chiropractic as primary care gatekeeper.
*Gary Gaumer,PhD, Annette Koren,PhD, Eric Gemmen,MA*

Objective: To examine the feasibility of broader and more frequent primary care roles for chiropractors.

Data Collection: Literature review and analysis of existing databases. Six types of barriers were examined: legal; financial; professional; accessibility or geographic location; consumer preference; and self-imposed.

Results: While research into the barriers of an expanded primary care role for chiropractors is inconclusive, several inferences can be drawn from this analysis. First, prevailing state practice acts preclude only a limited number of activities that are necessary for chiropractors to serve in a primary care capacity. The self-perception by a portion of the chiropractic profession is that as neuromusculoskeletal system (NMS) specialists, they are either uninterested or ill prepared for providing primary care services as a second barrier. Third, payment provisions that do not permit chiropractors to be reimbursed for primary care services significantly limit their ability to expand primary care capacity. Fourth, consumer perceptions of chiropractors as NMS specialists are a persistent barrier to expanding status. Fifth, given the current importance of managed care, the most crucial barrier for chiropractic may be the lack of interest of managed care organizations in having chiropractors in primary care roles.

Conclusion: Research on the barriers to a more expanded primary care role for chiropractors is incomplete. The available research helps little in ruling out plausible barriers that might make it possible to narrow the scope of subsequent research.

Key Indexing Terms: chiropractors; primary care; managed care; barriers; alternative providers; rural health; underserved areas.

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Can patient reactions to the first chiropractic treatment predict early favorable treatment outcome in persistent low back pain?
*Iben Axén,DC; Annika Rosenbaum,BAppSc (chiro); Robert Röbech,MHSc (Clin.Biomech.); Thomas Wren,DC; Charlotte Leboeuf-Yde,DC,MPH,PhD*

Objective: To investigate whether three distinct patterns of reactions to chiropractic care are predictive of early favorable treatment outcome in patients with persistent low back pain.

Design: Multi-center, clinic-based prospective outcome study using standardized interview

questionnaires.

Setting: Private chiropractic practices in Sweden.

Study Subjects: Previously compliant chiropractors were invited to participate in the study with a maximum of 20 patients each. These included consecutive patients seeking chiropractic care for low back pain with or without sciatica with a duration of more than two weeks at the time of consultation, and a minimum of 30 days total over the past year.

Participation Rate: Sixty of 72 invited chiropractors agreed to participate in the study (83 percent), and 53 of these returned their questionnaires (88 percent). Information was provided on 708 patients, of which 615 questionnaires were valid.

Intervention: Chiropractic management as decided by the treating chiropractor.

Outcome Variable: Improvement was defined at the fourth visit as self-reported "definitely improved" (the best out of five choices).

Predictor Variables: 1) Hypothesized best prognostic group: a) immediate improvement reported on the first visit, b) reduced pain intensity reported on the second visit, c) reduced disability reported on the second visit; and d) a common reaction or no reaction reported on the second visit; 2) Hypothesized least favorable prognostic group: a) no immediate improvement on the first visit, b) no reduction of pain intensity on the second visit, c) no reduced disability on the second visit, and d) no reaction or an uncommon reaction reported on the second visit; 3) Hypothesized intermediate prognostic group; and all cases not fitting into any of the two extreme groups.

Covariates: Age; sex; pain intensity during past 24 hours; description of disability; duration and pattern of pain during present attack; duration and pattern of pain during past 12 months.

Analysis of Data: The three predictor-groups were cross-tabulated against the outcome variable and the other covariates.

Results: Of the 115 patients in the best prognostic group, 84 percent (95-percent confidence interval: 77-91) reported to be "definitely improved" by the fourth visit, vs. 63 percent (59-67) of the 384 patients in the intermediate prognostic group, and 30 percent (22-38) of the 116 patients in the least favorable prognostic group. No major interactions from the covariates could explain these results.

Conclusion: Among chiropractic patients with persistent low back pain, it is possible, already by the second visit, to predict which patients will report definite improvement early in the course of treatment.

Key Indexing Terms: low back pain; chiropractic; prognosis; outcome; positive predictive value.

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The effect of Trager therapy on the level of evoked stretch responses in Parkinson's disease patients with rigidity.

*Christian Duval,PhD; Denis Lafontaine,PhD; Jacques Hébert,PhD; Alain Leroux,PhD; Michel Panisset,PhD; Jean Boucher,PhD*

Objective: Quantify changes of evoked stretch responses (ESR) in the most rigid arm of Parkinson's disease (PD) patients following Trager therapy.

Methods: Gentle rocking motion associated with this type of manual therapy was imparted to the upper limbs and body of 30 patients for 20 minutes. A pre-test and two post tests (one and 11 minutes after the treatment, respectively) were performed, consisting of electromyographic (EMG) recordings of the *flexor carpi radialis* and *extensor digitorum communis* while the patient's wrist was passively flexed and extended with an amplitude of 60Å and a frequency of 1Hz. Patients received the treatment on the most rigid side of their bodies or on the contralateral side. Half of the patients in each group received the treatment laying supine on a massage table or sitting in a chair.

Results: In general, the level of ESR was reduced by 36 percent immediately following treatment and remained 32 percent lower than pre-test values 11 minutes after treatment ($F = 41.45$, $P < 0.05$). Patients who received the treatment lying supine benefited from a 42-percent reduction of ESR ($F = 4.07$, $P < 0.05$). The side on which the treatment was performed did not significantly influence the outcome of the treatment ($F = 0.50$, $P > 0.05$). However, posthoc analysis of the triple interaction (test "side" position) indicated that the sitting position was much less efficient for sustained contralateral effect ($P > 0.05$).

Conclusions: Results from the present study strongly suggest that it is possible to modify the level of ESR using Trager therapy. This stretch reflex inhibition might induce a reduction of the muscle rigidity seen in these patients. The present results may eventually lead to the development of a specific complementary therapy for PD patients with rigidity.

Key Indexing Terms: massage; neurodegenerative disease; vibration.

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The immediate changes in the *quadriceps femoris* angle after insertion of an orthotic device.
*D. Robert Kuhn,DC; Terry Yochum,DC,DACBR; Anton Cherry; Sean Rodgers*

Objective: To measure changes in the q*uadriceps femoris* angle (Q-angle) after the insertion of full-length flexible orthotics.

Setting: Outpatient health center of Logan College of Chiropractic.

Subjects: 40 male subjects were included in the study population. The selected population all demonstrated bilateral *pes planus* or hyperpronation syndrome.

Design: Before-after trial.

Method: A cohort demonstrating bilateral hyperpronation was recruited. The subjects were cast according to standard protocols provided by the manufacturer. Subject right and left Q-angles were measured with and without the orthotics in place. The landmarks utilized were marked with a permanent marker, and great care was taken to accurately assess the angles formed. The evaluator was not told if the measure was pre or postorthotic insertion. A modified goniometer was used.

Data Analysis: The data set was collected and assessed using the T-test program with Microsoft Excel.

Results: Thirty-nine of 40 test subjects demonstrated reduced Q-angle, which is in the direction of correction. A two-tailed matched sample demonstrated statistically significant mean reduction in Q-angle measures. There is a minority of patients who demonstrated asymmetrical Q-angle measures. Within this group there was greater symmetry of Q-angle measures after placement of the orthotic.

Conclusion: Insertion of full-length, flexible orthotic devices significantly improves the Q-angle in hyperpronating male subjects. If the literature accurately links an increase in the Q-angle with a predisposition for knee injury, the possibility of long-term benefits following the use of the flexible orthotics exists. More research is required to determine whether these biomechanical changes are maintained following the use of these orthotics.

Key Indexing Terms: Q-angle; orthotic devices; *pes planus*.

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Uneventful upper cervical manipulation in the presence of a damaged vertebral artery.
*Thomas Michaud,DC*

Objective: A case is presented in which a patient with a previously injured vertebral artery was manipulated in the upper cervical spine without altering her symptom pattern. The literature concerning the relative safety of specific upper cervical manipulative techniques is reviewed.

Clinical Features: A 42-year-old female presented with a three-week history of unilateral suboccipital pain that she related to a sudden twisting of her head and neck that occurred while she was putting sheets of drywall on top of her car. Subsequent examination by a neurologist two weeks later was unremarkable, and the patient was diagnosed with a tension-type headache. Approximately 10 days later (three weeks postinjury), a single high-velocity upper cervical manipulation (incorporating slight rotation and full lateral flexion) was performed with no change in her symptom pattern. Two weeks after that, the patient developed a lateral medullary (Wallenberg) syndrome after she briefly extended and rotated her upper cervical spine while painting a ceiling.

Intervention and Outcome: The patient was treated with anticoagulant therapy, and the lateral medullary infarct healed without incident. The spinocerebellar and subtle motor symptoms also resolved, but the ipsilateral suboccipital headache and the loss of temperature sensation associated with the spinothalamic tract lesion were still present nine months later.

Conclusion: This case report demonstrates that vigorous manipulation of the upper cervical spine is possible without injuring an already damaged vertebral artery. It is suggested that the line of drive used during the single manipulation, almost pure lateral flexion with slight rotation, was responsible for the apparent innocuous response. Guidelines for the evaluation and management of vertebral artery dissection are reviewed. Because it is currently impossible to identify patients at risk of developing a dissected vertebral artery using standard in-office examination procedures, rotational manipulation of the upper cervical spine should be abandoned by all practitioners, and schools should remove such techniques from their curriculums.

Key Indexing Terms: chiropractic manipulation; stroke; vertebral artery dissection; lateral medullary syndrome.

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The kinematics of motion palpation and its effect on the reliability for cervical spine rotation.
*Justin Marcotte,DC, Martin Normand,DC,PhD, Pierre Black*

Background: The reliability of a test depends on its standardization. Instrumental measurement of the reproducibility of the test is an effective way to evaluate the level of standardization obtained. Improved standardization is believed to yield greater reliability.

Objective: To measure the technical ability of an examiner to reproduce the kinematics of motion palpation for cervical spine rotation, and to evaluate the effect of standardization on the reliability of the test.

Design: A study of reproducibility of the kinematics of the test for cervical spine rotation was conducted by means of a computerized system of analysis of movement. The reliability when reproducibility was achieved was compared with reliability when it failed.

Results: The data collected enables us to establish a standardized protocol for the execution of the test. The standardized palpation is executed within 6Å of inclination from the pure plane of rotation. The successful reproduction of the kinematics of the test raises its reliability to detect the presence of fixations (*kappa* raising from 0.337 and 0.352 to 0.682).

Conclusions: A greater reliability, arising from a high level of reproducibility, enables us to document the advantages of the standardization of motion palpation in chiropractic.

Key Indexing Terms: reliability; reproducibility; cervical spine; kinematics.

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