Dynamic Chiropractic

BACK PAIN

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Editorial Staff

A study of referral patterns among Queensland general medical practitioners to chiropractors, osteopaths, physiotherapists and others.
J Keith Simpson, DC.

Background: In Queensland Australia, patients with work related injuries must receive a referral from a general medical practitioner in order to receive treatment from "nontraditional" practitioners such as physiotherapists, chiropractors or osteopaths even though these nontraditional practitioners are primary care providers outside of the workers' compensation system. The Chiropractors' Association of Australia, (Queensland Branch) (CAAQ) held the position that injured workers wishing to receive chiropractic care stood little chance of obtaining a medical referral. On the other hand, the General Manger of the Workers' Compensation Board of Queensland maintained that injured workers would have little difficulty obtaining such a referral for chiropractic care.

Objective: To canvass general medical practitioner attitudes and referral patterns to chiropractors, osteopaths, physiotherapists and other non-traditional practitioners (naturopaths).

Design: A descriptive study in which 1509 general medical practitioners in private practice in Queensland were invited to respond to a mailed questionnaire. The sample represented 50% of all such practitioners in Queensland.

Results: A 52 percent response rate was obtained with 784 (638 male, 142 female) questionnaires returned. Respondents' ages ranged from 27 to 79 years. Years of practice of respondents ranged from one to 55 years. The survey showed that attitudes and referral patterns were distinctly different depending on the nontraditional practitioner group in question.

Conclusion: The survey results confirm that general medical practitioners are highly unlikely to have professional dealings with chiropractors and osteopaths, including referral of patients to said providers, even if the patient requests such a referral and that general medical practitioners are much more likely to have professional dealings with physiotherapists than any of the other nontraditional groups considered.

Key Indexing Terms: general practitioners; osteopathic medicine; physiotherapy; referral consultation; interprofessional relations.

Evaluation of orthopedic testing of the low back for nonspecific low back pain.
Maxwell J Walsh, BAppSc(Chiro), GradDipMuscMgt, DipEd.

Objective: To assess the value of some commonly used orthopedic tests used in evaluating

nonspecific low back pain where there are no demonstrable pathologist or neurological deficits.

Design: Retrospective analysis of patient files.

Setting: Teaching chiropractic clinic, RMIT

Subjects: 564 files of patients presenting to the above clinic with nonspecific low back pain were analyzed.

Data Analysis: The data was entered into a spreadsheet (Excel 5), contingency tables created and data analyzed using Chi Square tests. Statistical significance was set at $p < 0.05$.

Results: Kemp's and Yeoman's tests were most commonly positive, while Bonnet's supported Adams and axial compression tests showed relatively low positive results. The factors studied which affected the rate of positive responses were age, gender, pain site, duration and cause. The number of previous episodes of LBP had no affect on the positive test rates.

Conclusion: For cases of nonspecific mechanical low back pain, orthopedic testing has limited clinical value once nerve root problems and pathologies have been ruled out. Kemp's and Yeoman's tests were the most frequently positive, and would appear to the most useful in the diagnosing of nonspecific low back pain. The selection of the most appropriate tests to use needs to take into account the patient profile and history.

Key Indexing Terms: orthopedic tests; low back pain; chiropractic.

Neck support pillows: a comparative study.
Liselott Persson and Ulrich Moritz, MD, PhD.

Background: Special neck support pillows are advertised to improve rest and reduce neck pain.

Objective: The aim was to test if neck pillows had any positive effect on neck pain and quality of sleep compared to usual pillow and to find an optimum characteristics.

Methods: 37 hospital employers and 18 neck patients were asked to test six pillows randomly with different shapes and consistency during three weeks and to grade them according comfort and describe the characteristics of such an ideal pillow.

Results: 36/55 persons found a positive effect on sleep, 27/42 on neck pain. The ideal pillow should be soft, not too high, provide neck support and be allergy-tested and washable. The pillow that rated best enclosed two firmer supporting cores for the neck lordosis.

Conclusion: A neck pillow with good shape and consistency, with firm support for the cervical lordosis, can be recommended as a part of treatment for neck pain.

Key Indexing Terms: neck pain; treatment.

A cervical manikin procedure for chiropractic skills development.
Timothy JB, Young, Ray Hayek, Scott Philipson, GradDip(Chiro).

Objective: To determine whether chiropractic students can effectively acquire adjustive skills for

the cervical spine by utilizing a thrust in motion cervical manikin (TMC) and to evaluate its value as a teaching aid. A pilot study was formulated and incorporated into the skills tutorial program at Macquarie University, Centre for Chiropractic.

Design and Setting: A prospective study was performed on chiropractic students with no prior experience in performing spinal adjustments.

Subjects: Twenty subjects were selected randomly from a population of seventy five students about to commence their 4th year Masters of Chiropractic program.

Intervention: Students who formed the experimental group (N=6) did not perform any thrusting maneuvers on human subjects, whilst practicing diversified chiropractic cervical spinal techniques. They were restricted to practice the adjustive thrust only on the Thrust in Motion Cervical manikin (TMC). The control group learnt in the established "hands on" approach performing thrusting on fellow student subjects. Both groups were supervised, taught and examined in an otherwise identical fashion.

Results: The data indicates there is no significant difference between the examination marks of the student group who practiced on the TMC manikin (Av. 2.17) points as compared to the controls (2.13 points), with a confidence interval at p=0.985, assuming that 0.5 marks is clinically important in these examination results. Interexaminer reliability was found to be acceptable (Pearson's r=.73) for both experimental and control examination performances.

Conclusion: The null hpothesis is accepted, and no significant difference in student examination performance was found between those who learnt thrusting on the manikin alone and those who learnt on fellow students. Further, for the first time a manikin has been shown to be effective in the teaching of chiropractic skills. The implications of the TMC procedure is to revolutionize the acquisition of motor learning skills that are essential for chiropractic skills training.

Key Indexing Terms: cervical spine; chiropractic; medical education; teaching aids.

Exposure margin in skeletal radiography and its effect on tube tilt compensation.
Kurt Anderson, DC, and H. Michael Carstensen, DC.

Objective: To examine the rationale and necessity of adjusting the film-focal distance when x-ray angulation is employed during a radiographic study. Secondarily, to determine the sensitivity of human interpreters to overall differences in film density and the correlation, if any, with digital analysis of radiographic films.

Design and Setting: The study was performed in the radiology department at Logan College of Chiropractic in St. Louis, Missouri. A standard x-ray phantom of the hand and wrist and several aluminum step wedges were exposed from 10-250 percent of a baseline exposure intensity using equipment that could be commonly found in a field doctor's practice.

Evaluation: The films were independently rated for overall image quality on a visual analog scale by five board-certified chiropractic radiologists. The films were also digitized and selected regions analyzed on a computer.

Results: The panel of radiologists was able to consistently grade exposure intensity differences of approximately 10 percent relative change between films. The perceived density was directly proportional to the logarithm of the exposure intensity as would be predicted from theoretical film

response characteristics. The range of "acceptable" image quality was determined to lie between -40% and +60% of the baseline technique.

Conclusions: The empirically derived tube tilt correction factor of one inch vertical adjustment per 5^2 of tube angulation for tube tilts greater than or equal to 20^2 was validated by this study. Interpretation of radiographs is more impaired by underexposure than by over-exposure. Experienced human observers are able to reliably discriminate exposure differences on the order of 10 percent relative change when presented with complex grey-scale images such as plain film radiographs.

Key Indexing Terms: technology, radiologic/methods; radiography; health physics.

Reliability of spinal displacement analysis on plane x-rays: a review of commonly accepted facts and fallacies with implications for chiropractic education and technique.
Deed Harrison, DC, Donald Harrison, DC, and Stephan Troyanovich, DC.

Background: Current medical, biomechanical, and chiropractic literature indicates that x-ray line drawing analysis for spinal displacement is reliable, with high interclass coefficients found in most studies and normal sagittal spinal curvatures are being accepted as important clinical outcomes of care; however, just the opposite is taught in many chiropractic college radiology courses.

Objective: To review the current literature on x-ray line drawing reliability and abnormal static lateral positions Data Sources: Searches were performed on MED-LINE, CHIROLARS, MANTIS, and CINAHL on x-ray reliability, normal spinal position, and sagittal spinal curvatures as clinical outcomes.

Results: X-ray line drawing analysis for spinal displacement was found to have high reliability with a majority of Interclass Coefficients in the 0.8 to 0.9 range. The reliability for determining x-ray pathology was found to be only fair to good by both medical doctors and chiropractors and by both chiropractic and medical radiologists, with a majority of ICCs in the range 0.40 to 0.75. Muscle spasms, facet hyperplasia, short pedicles, and patient positioning errors have not been shown to alter sagittal plane alignment. The sagittal spinal curves are desirable clinical outcomes of care in surgery, physical therapy, rehabilitation, and chiropractic. These results contradict common claims found in the indexed literature.

Conclusion: X-ray line drawing is reliable. Normal values for the sagittal spinal curvatures exist in the literature. The normal sagittal spinal curvatures are important clinical outcomes of care. Patient positioning and postural radiographs are highly reproducible. When these standardized procedures are utilized, the pre to post alignment changes are a result of treatment procedures applied. Chiropractic radiology education and publications should reflect the recent literature, provide more support for x-ray line drawing analyses, and applications of line drawing analyses for measuring spinal displacement on plain radiographs.

Key Indexing Terms: reliability; posture; spine; x-ray; clinical outcomes.

Posterior Limbus Fractures: Five case reports and a review of selected published cases.
Eve Bonic, DC, John Taylor, DC, and J. Todd Knudsen, DC.

Objective: To discuss the clinical presentation of posterior limbus fractures and present a review of

the literature on this topic.

Clinical Features: Patients suffered from a combination of low back pain, muscle spasm, diminished reflex responses, restricted motion and foot drop. In some cases, onset followed trauma; in others, it did not

Intervention and Outcome: Some cases required surgical correction, while others underwent chiropractic manipulation and other conservative interventions.

Conclusion: Posterior limbus formation represents an avulsion of the ring apophysis from the vertebral body. Appropriate diagnostic work-up can help to determine the presence of this condition. Management consideration are discussed.

Key Indexing Terms: vertebral fractures; diagnostic imaging; intervertebral disc herniation.

Manipulative therapy in low back pain with leg pain and neurological deficit.
Thomas Bergmann, DC, Brian Jongeward, DC.

Objective: To discuss a case of sciatica associated with low back of discal origin. Discussion of the use of manipulative therapy as a conservative approach is provided with comparisons to other conservative methods and to surgery.

Clinical Features: The patient suffered from low back and left leg pain that had increased in severity over a six day period. There was decreased sensation in the dorsum of the left foot and toes. CT demonstrated the presence of a small contained disc herniation.

Intervention and Outcome: The patient was initially treated with ice followed by flexion distraction therapy. This was used over the course of her first three visits. Once she was in less pain, side posture manipulation was added to her care. Nine treatments were required in total before she was released from care.

Conclusion: There is the need for a nonsurgical, conservative approach to treatment of low back pain with sciatica before considering the more aggressive and potentially hazardous approach of surgery. There is some support for the idea that the presence of lumbar disc herniation with neurological deficit and radicular pain does not contraindicate the judicious use of manipulation. While significant questions remain in the evaluation and treatment of lumbar radiculopathy (sciatica) with disc herniations, there is ample evidence to suggest that a course of conservative care including spinal manipulation, be completed before surgical consult is considered.

Key Indexing Terms: lumbar spine; disc herniation; low back pain; sciatica; chiropractic manipulation.

Dysafferentation, a novel term to describe the neuropathophysiological effects of joint complex dysfunction: A look at likely mechanisms of symptom generation.
David Seaman, DC, James Winterstein, DC.

Background and Objectives: Since the founding of the chiropractic profession, very few efforts have been made to thoroughly explain the mechanism(s) by which joint complex dysfunction generates symptoms. Save for a few papers, only vague and physiologically inconsistent

descriptions have been offered. The purpose of this paper is to propose a precise and physiologically sound mechanism by which symptoms may be generated by joint complex dysfunction.

Data Sources: The data was accumulated over a period of years by reviewing contemporary articles and books, and subsequently retrieving relevant papers. Articles were also selected from Volumes 1-4 of the Chiropractic Research Archives Collection. The Nexus, published by the David D. Palmer Health Sciences Library, and In Touch, published by Logan College of Chiropractic Library, were reviewed and relevant articles were retrieved. MEDLINE searches were found to be ineffective because appropriate key indexing terms were difficult to identify.

Data Synthesis: The symptoms generated by joint complex dysfunction, such as pain, nausea and vertigo, are most likely due to increased nociceptive input and/or reduced mechanoreceptive input.

Conclusions: Joint complex dysfunction should be included in the differential diagnosis of pain and visceral symptoms because joint complex dysfunction can often generate symptoms which are similar to those produced by true visceral disease.

Key Indexing Terms: dysafferentation; joint complex dysfunction; nociception; mechanoreception; allodynia; nociceptor sensitization; central sensitization.

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