

Poster Presentations

Objective Chiropractic Documentation for Medicare

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Background: According to the department of Health and Human Services, chiropractic documentation is often lacking in its completeness.

Purpose: This paper classifies and organizes the most commonly performed examination and daily visit procedures used in chiropractic into the various aspects of Medicare's PARTS (pain, asymmetry, range of motion, tissue tone, special tests) documentation requirements to serve as a resource for helping doctors of chiropractic to better describe their procedures and aids in improving their documentation.

Methods: Commonly used chiropractic, physical examination and orthopedic textbooks were searched to compile a list of the most commonly used examination procedures in chiropractic.

Results: A table was constructed to classify each procedure found as one of the five aspects of the Medicare PARTS documentation requirement.

Discussion and Conclusion: The table is simple and separates each common procedure into the various PARTS requirements, enabling doctors to better understand how to document their patient visits to improve Medicare documentation and gain a better understanding of the best way to utilize the information gained from the procedures they are already performing in the course of patient care as it relates directly to the Medicare documentation standards. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

The Chiropractic Care of Pregnant Patients: A Practice-Based Observational Study

Joel Alcantara, International Chiropractic Pediatric Association, **Linda Mullin**, Life University, **Jeanne Ohm**, International Chiropractic Pediatric Association, **Derek Kunz**, International Chiropractic Pediatric Association

Introduction: The Council on Chiropractic Guidelines and Practice Parameters recently highlighted the limited amount of evidence to support spinal manipulation/mobilization for the chiropractic care of pregnant women. To address this deficit and further contribute to evidence-based practice, we are conducting this observational study.

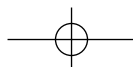
Materials and Method: This study was approved by the IRB of Life University. Doctors of Chiropractic (DC) participated in a practice-based research network to study the chiropractic care of pregnant women and recruit participants from their patient base for similar survey. Data include sociodemographic data of both chiropractor and patient responders and treatment-associated variables such as technique and outcomes of care.

Results: A total of 86 chiropractors are participating in this study with an average age of 34.35 years, in practice an average of 7.63 years. Some 20% have a minimum of 120 hours of post-graduate training on the care of the pregnant patient. The preliminary data thus far reports on 70 patients. They average in age at 31.53 years with over 90% having college-level education or higher. Their chiropractic care was for pain complaints in the lumbopelvis. Care approaches include the Webster technique in addition to those techniques commonly used in practice. Seventy-five percent indicate success with their care with one describing a minor adverse event described as "soreness".

Discussion: This survey demonstrated that more female chiropractors attend to the care of pregnant women with

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a majority trained in the Webster Technique. This study provides a starting basis for describing the safety and effectiveness of the chiropractic care of pregnant women in addition to other variables.

Conclusion: This observational study provides data on the issue surrounding the chiropractic care of pregnant women.

We advocate for continued research in this field. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Treatment of Anxiety with Non-needle Electro-Acupuncture

David Beavers, Kristan Giggey, Rodger Tepe, Logan University, College of Chiropractic

Purpose: Doctors of chiropractic encounter anxiety, often as a comorbidity with spinal pain or apprehension to treatment. The prevalence of chronic spinal pain concurrent with a mental disorder is approximately 30%, which is nearly twice as high as persons without a mental disorder. Also, patients with anxiety have decreased functional status, increased disability days, and increased physician visits compared to those without anxiety; however, over 40% of patients with anxiety are not receiving treatment. The purpose of this study is to determine if non-needle acupuncture decreases anxiety.

Methods: Participants were recruited from a college student population, after approval from the Institutional Review Board. Fifty-four participants were qualified and all were assigned to the experimental group for intervention. Informed consent was obtained from all participants. Participants were included if they were determined to have mild to moderate anxiety as measured with the Spielberger State-Trait Anxiety

Inventory. Persons with severe anxiety, depression, pregnancy, taking prescription medication, or any previous experience with non-needle electro-acupuncture were excluded. Pre and post intervention measures of state and trait anxiety were obtained. Participants received three 20-minute non-needle electro-acupuncture treatments within a 10 day period.

Results: Repeated measures ANOVA showed a statically significant decrease of both state and trait anxiety scores. State anxiety scores decreased by 14.9 %, $f(1, 52) = 19.45$; $p = 0.000$. Trait scores decreased by 6.9%, $f(1, 52) = 6.60$; $p = 0.013$.

Conclusion: The current study showed that non-needle electro-acupuncture can reduce both state and trait anxiety levels. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

TMD - Chiropractic and Dentistry: Two Case Reports

Charles Blum, Sacro Occipital Technique Organization - USA, Alireza Panahpour

Introduction: Symptoms of temporomandibular/craniomandibular disorders (TMD/CMDs) vary but often involve severe pain in the jaw musculature, severe pain or difficulty when opening the mouth and chewing, headaches, and ear pain. In conditions where a chiropractor or dentist has reached a therapeutic impasse with a patient's TMD/CMD, cotreatment may be indicated. This article presents two case reports demonstrating how cotreatment may proceed initiated by a dental and/or a chiropractic referral.

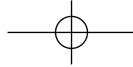
Intervention: The treatment involved SOT management of the patient's presentation, while relating to TMJ dysfunction, was focused on whole body dynamics and function. The treatment with these two patients had similar aspects in that they both presented with sacroiliac joint hypermobility syndrome (category two), cervical intersegmental restricted motion, and needed craniomandibular balancing therapeutic interventions.

Results: The essential findings in both cases showed reduced pain in TMJ function and/or symmetrical joint translation without crepitus. General relaxation in cervicocranial and craniomandibular musculature was noted by the patient,

chiropractor and dentist. The focus was having the patient gain independence from chiropractic/dental care with reduced discomfort and increased function.

Discussion: With a subset of patients body distortions ascend from the feet, pelvis, spine, and neck to affect TMJ dynamics affecting dental occlusion, condylar position, and airway space. With another subset of patients patterns of body distortions descend from TMJ dynamics affecting dental occlusion, condylar position, and airway space. A main obstacle for chiropractic/dental cotreatment is the lack of awareness and knowledge of each other's professional treatment and diagnostic focus as well terminology. Research studies have noted a relationship between ascending and descending relationships associated with CMD/TMD and postural dysfunctions.

Conclusion: While these two cases illustrate how the chiropractic and dental fields can work together for successful treatment outcomes, there is a need to determine what subsets of patients may fit this model. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)



Modified Ottawa Ankle Rules as a Decision Aid for Upper Extremity Injury: Report of Two Cases

Ron Boesch, James Owens, Dennis Malik, Christopher Olsheski, Palmer College of Chiropractic

Background: The published guidelines for when a person should be x-rayed for lower extremity injuries are known as the Ottawa rules. These rules were established to decrease the amount of unnecessary radiographs initially published in 1994. False negatives for the Ottawa rules are low and have reduced the number of unnecessary x-rays. In clinical settings the rules or algorithms are important as an aid for determining course of care.

Objective: To document 2 cases where a modification of the Ottawa rules for ankle injuries were utilized to demonstrate need for the upper extremity. Subsequently radiographs revealed the presence of a fracture in each case.

Clinical Features: The first case was an 8-year-old girl who was struck on the arm while playing. She experienced pain but refused to let anyone examine her arm. The second case

was a 24-year-old male who fell 5 days earlier and landed on his right hand. The result of applying the modification demonstrated potential for a fracture and was confirmed by radiographs. This prompted appropriate referral and care for both of these injuries

Conclusion: These cases demonstrate the importance of guidelines for upper extremity x-rays after injury. The Ottawa rules can be modified or adapted to fit upper extremity complaints, as these 2 cases show. Modification of the Ottawa rules needs further study to demonstrate its reliability and validity for everyday clinical use. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Chiropractic Care in the Treatment of Diabetic Neuropathies: A Systematic Review

Daniel Bronstein, Jake Simmons, Shari Wynd, Southern California University of Health Sciences

Background and Objectives: The World Health Organization estimates that there are currently 180 million people world wide that suffer from diabetes, and of these they estimate that about 50% suffer from neuropathic complications resulting in painful peripheral sensitization. Currently many treatment options are available to these patients, although they differ greatly in their reported effectiveness and cost. Since chiropractic manipulative therapy has been shown to be an effective treatment modality for managing ankle sprains, it may also help ease pain associated with diabetic neuropathies and restore function to the lower extremity joints. Therefore the purpose of this systematic review was to determine the reported effectiveness of CMT on lower extremity joints for the treatment of peripheral diabetic polyneuropathies and suggest future research approaches by evaluating current academic literature.

Methods: PubMed, Ebscohost and CINAHL databases were searched using the following keywords: diabetes, diabetic polyneuropathy, diabetic neuropathy, diabetic ischemia, chiropractic, manipulation, adjusting and adjustment, conservative care and therapy, lower extremity, foot and ankle.

Articles were included in the systematic review if they were the following study design: randomized controlled trials, case studies or case reports. Critical appraisal of the retrieved articles was performed using an appropriate standardized critical appraisal tool specific to the study design.

Results: Only one article of the sixteen primary sources uncovered using the indexing terms listed discusses CMT as a possible treatment modality for peripheral diabetic neuropathies.⁹ Although this article met the critical appraisal criteria for a strong case report, the nature of the study makes it relatively weak in supplying compelling evidence for the use of CMT as a viable treatment protocol.

Conclusion: Clearly, there is significant room for further investigation, although the Murphy study provides a strong foundation upon which future randomized trials may be designed. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

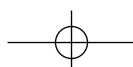
Scaphoid Fracture with Dorsal Intercalated Segmental Instability: A Case Study

Marni Capes, R. Bruce Fox, Life University

Objective: To discuss the case of a chiropractic intern with scaphoid fracture and dorsal intercalated segmental (DISI) instability of the right wrist.

Clinical features: A 25-year-old male chiropractic intern presented with right wrist pain, swelling and dysfunction which developed subsequent to falling on an outstretched

hand (FOOSH) injury. The standard orthopedic stability test, scaphoid shift test (Watson's Test) was not performed due to the amount of pain the patient experienced. The initial plain film radiographs revealed significant scaphoid fracture with a radiolucent line measuring several millimeters proximal to distal running transversely across the waist of the scaphoid with possible scapholunate dissociation.



Intervention and outcome: Physical exam findings and radiographs led to a referral for co-management with an orthopedic surgeon who ordered additional radiographs and CT of the right wrist.

Conclusions: This case study describes the physical, radiographic and CT findings for a chiropractic intern with scaphoid fracture and dorsal intercalated segmental instability of the right wrist. Chiropractic interns learn manipulative procedures that require high-velocity thrusts with the wrist in either flexion/extension or ulnar/radial deviation. These

positions have been linked to the development of musculoskeletal disorders of the wrist. In the United States, approximately 30% of student aged adults have no health insurance. When chiropractic interns are injured and uninsured, disastrous outcomes may occur. The life long dream of becoming a chiropractor is then shattered, due to the physical disabilities that can result. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Awareness and Use of Chiropractic Treatment Amongst People with Multiple Sclerosis in the UK

Elizabeth Carson, Gabrielle Swait, Ian Johnson, Christina Cunliffe, McTimoney College of Chiropractic

Background and Objectives: Many of the musculoskeletal symptoms associated with multiple sclerosis (MS) can be managed with physical therapy. Chiropractors are well placed to deliver this, but the extent of their involvement in the team management of multiple sclerosis in the UK is unknown. The present study investigates the level of awareness and use of chiropractic by people with MS in the UK.

Methods: A retrospective cross sectional postal survey design, utilizing a structured, self-administered questionnaire and convenience sampling of individuals aged over 18 years with a definitive diagnosis of MS who were members of a UK MS therapy centers.

Results: Ninety one percent of respondents had used complementary therapy modalities of some kind, with physiotherapy being the most popular (52%), followed by massage (44%), then chiropractic (42%). Of those that had used

chiropractic, 68% used it to manage their MS symptoms and most would recommend it to others with MS. Just under half had consulted their General Practitioner for approval prior to receiving the treatment, with 79% obtaining support. Of those who did not use chiropractic, 78% cited lack of knowledge about chiropractic as the main reason. All of the MS therapy centers contacted during this study offered physiotherapy and massage, but none offered chiropractic.

Conclusion: There is moderate uptake of chiropractic and a willingness to recommend it for people with MS in the UK. Further integration of chiropractic into the team management of MS may be due to lack of awareness of its potential benefits. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Fatigability of Lumbopelvic Extensor Muscles in Healthy Elderly Subjects during a Modified Sorensen Test

Annick Champagne, Martin Descarreaux, Danik Lafond, Université du Québec à Trois-Rivières

Introduction: Age-related changes in neuromuscular system are well established and lead to differences in EMG fatigue indices during assessment of fatigue between young and elderly subjects. This study was aimed to investigate the age effect on lumbopelvic extensors muscle fatigue during a modified Sorensen test.

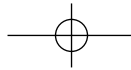
Methods: Ten young adults and eight community-dwelling elderly males participated in this study. Subjects performed two blocks of four maximum voluntary isometric lift tests in a semicrouched position, separated by a modified Sorensen test (on a 45° roman chair). Surface EMG activity of paraspinal muscles (T10 and L5 levels), gluteus maximus and biceps femoris was recorded and muscular fatigue was assessed through power spectral analysis of the EMG data by calculating the rate of median power frequency change.

Results: Elderly subjects showed lower maximal isometric lifting strength values and a tendency to lower holding time compared to young subjects, although they had lower rate of

muscle fatigue at L5 level and no difference at T10, GM and BF.

Discussion: The lower static lift muscle strength observed in elderly subjects may be not sufficient to induce a significant difference of relative load sustained during the modified Sorensen test between the two age groups. It appears that hip extensor muscles contribution to load-sharing of the upper body mass during the modified Sorensen test may vary with aging, explaining the lower rate of muscle fatigue at L5 level with elderly subjects.

Conclusion: Our study is the first that have compared lumbopelvic extensor muscle fatigue between young and elderly subjects. We demonstrated that elderly subjects are less sensitive to paraspinal muscle fatigue at L5 level than young subjects. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)



Duration Variations in Applied Kinesiology Manual Muscle Testing

Katharine Conable, Logan College of Chiropractic

Objective: To investigate the difference in results (strong/facilitated vs. weak/functionally inhibited) between short (1 sec.) and long (3 sec.) manual muscle tests on the same subject. To pilot the use of thin film force transducers for characterizing the parameters of manual muscle testing and for measuring maximum voluntary contraction.

Method: Forty-four healthy chiropractic students were tested. A thin-film force transducer recorded force over time during maximum voluntary isometric contraction (MVIC) of the middle deltoid and one- and 3- second manual muscle tests. Manual tests were graded as facilitated (able to resist the testing pressure) or inhibited (unable to resist testing pressure, breaking away).

Results: 42 short tests were facilitated and 2 were inhibited. 39 long tests were facilitated and 5 were inhibited. Kappa

(.54) showed fair agreement for results between short and long tests. Peak force in both short and long inhibited tests was significantly higher than in facilitated tests when expressed as a proportion of maximum contraction. All manual tests used far less force than MVICs.

Conclusions: Longer test durations demonstrate some muscle weaknesses which are not evident on one-second manual muscle tests. Duration of manual muscle testing should be controlled for and specified in future research. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Conservative Management of Pregnancy-Related Carpal Tunnel Syndrome: A Case Report

James George, Clayton Skaggs, Logan College of Chiropractic

Objective: To discuss the conservative management of a case of pregnancy-related carpal tunnel syndrome.

Clinical Features: A 37-year old pediatric physician presented with numbness and tingling in the median nerve distribution of the right hand of approximately three weeks duration. She was 28 weeks pregnant with her first child and denied any similar symptoms prior to the pregnancy. The patient had tried ice, heat, stretching and self massage of the hand without significant relief. The patient's initial exam revealed an abducted right scapula with internal rotation of the right arm. There was early scapular abduction and shoulder hiking with active right arm abduction. Supine breathing revealed a costo-clavicular breathing pattern. Phalen's test was positive on the right. There was moderate palpable tension and pain with palpation of the right scalenes, right levator scapulae and right cervical splenius muscles. There was mild tension and pain with palpation of the rhomboids bilaterally, right pronator teres and right wrist flexors. Joint restriction was noted at the cervical-thoracic junction.

Intervention and Outcome: The patient was seen once a week for four weeks. Myofascial release was used for areas of muscle tension and a long axis manipulation was applied to the cervical-thoracic junction. The patient was instructed on corrective breathing techniques as well as median nerve mobilization maneuvers. Patient education on pain behaviors such as self massage was reinforced during the treatment visits. The patient's symptoms were minimal following the fourth visit and she had no symptoms six months following delivery.

Conclusion: Pregnancy-related CTS is a common problem during pregnancy. A conservative management approach combining manual therapy, exercise and patient education may help reduce the symptoms both during pregnancy and the post-partum period; especially in unilateral presentations without signs of edema. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

A Split Anterior Scalene Muscle: A Case Report

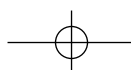
Emile Goubran, Jonathan Carlos, Samir Ayad, Southern California University of Health Sciences

Introduction: Anomalies of the structures related to the scalene triangle has been reported in the literature as a cause of either vascular or neurogenic thoracic outlet syndrome.

Case report: This is a case report about a right side anterior scalene muscle found in one male cadaver that splits into two bellies, an anterior and posterior, enclosing the right

subclavian artery. The trunks of the brachial plexus run in the space between the posterior belly of the anterior scalene and the middle scalene muscles.

Discussion: The earliest report about this anomaly that could be retrieved from the literature was recorded in 18754. The clinical implication of this anomaly involves the possible risk



of developing vascular or neurogenic TOS with compression of the subclavian artery between the two bellies of the anterior scalene and/or compression of the trunks of the brachial plexus between the posterior belly of anterior

scalene and middle scalene muscles. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Muscle Strength and its Relationship to the Chiropractic Subluxation Complex: A Case Report

Stephen Grand, Kenice Morehouse, Palmer College of Chiropractic

Objective: The objective of this article is to present a case in which manual muscle testing was performed both prior to and subsequent to chiropractic adjustments and to observe the results of those adjustments on those muscle test outcomes.

Methods: This patient was a new patient to the clinic and a thorough history and an examination were completed in the usual manner for this clinic. Manual muscle testing was performed by the examining doctor as a part of the entry examination for the patient. Then, a set of treating doctors, utilizing the protocol of their chiropractic technique of choice, treated the patient in a series of chiropractic adjustments. After each adjustment was completed, the examining doctor retested the same muscles tested prior to treatment, noting the strength both before and after treatment.

Results: The patient exhibited a pattern of muscle weakness prior to each treatment, although not a consistent pattern.

Subsequent to each treatment, at least some of the muscles previously deemed weak appeared to strengthen. The patient also reported subjective improvement in symptoms as documented on a QVAS form.

Conclusions: Four distinctly different chiropractic techniques were utilized by four different treating doctors. In each case, the patient demonstrated and reported improvements both objectively and subjectively subsequent to the adjustments. It would appear that there is a direct relationship between the status of the entity called the chiropractic vertebral subluxation complex and the strength of muscles innervated by related dermatomal segments of the spine. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Correlation of Outcomes with Chiropractor and Medical Doctor Ratios (per Population) in the United States: 1999–2003

John Hart, Sherman College of Straight Chiropractic

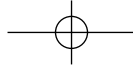
Introduction: The present study correlates various outcomes in the U.S. for the years 1999–2003 with doctor (chiropractor and medical doctor) ratios (number of chiropractors and medical doctors per population unit). A previous study used the same outcome data but the year for the doctor number in each state did not coincide with the years for the outcomes; the present study uses years that coincide.

Methods: Ten outcomes (i.e., cancer and heart deaths, motor vehicle deaths, etc) were obtained from the United Health Foundation. Chiropractor data were obtained from FCLB publications, while medical doctor data were obtained from AMA publications. The total number of doctors for each of the 50 states was divided by the population of the respective state in the year 2000 to arrive at a standardized doctor ratio (number of doctors per population). The doctor ratios for each state were correlated with the outcomes using the Spearman and partial correlation tests.

Results: Compared to medical doctor ratios, chiropractor ratios showed stronger correlations with improved outcomes in 17 out of 21 Spearman tests and 16 of the 17 partial correlation tests.

Discussion: The finding that chiropractor ratios showed stronger correlations with improved outcomes compared to medical doctor ratios is supported by the partial correlation test. Future study should include assessment of other determinants that might influence the correlations.

Conclusion: Compared to medical doctor ratios, chiropractor ratios were more strongly correlated with improved outcomes. Further research, with other determinants included, and for other years, is warranted to verify this finding. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)



Chiropractic Treatment in a 10-Year-Old Developmentally Delayed Child

Laura Hanson, Clint Eliason, Life University

Introduction: This case report suggests a relationship between gestational stress and the potential epigenetic change in the developing fetus.

Case Report: This case involves a 10-year-old male exposed to chemical and emotional stressors during gestation. The mother had a significant health history prior to and during the pregnancy. The neonate was delivered vaginally with meconium present in the amniotic fluid. The neonate had a significant health history. The toddler demonstrated developmental delay, which is a multifactorial impairment, and may be related to, or dependent on, the underlying altered physiological function. The child participated in a neurological developmental assessment, evaluating adaptive behaviors and movements in order to unmask the possible retention of primitive reflexes and premature postural reflexes. The neurological profile included gross muscle coordination and balance tests. The child received chiropractic and cranial adjustments, vestibular facilitation, and primitive inhibition and facilitation exercises.

Results: Following ten months of treatments, the child has resolved several withdrawal and primitive reflexes while activating the normal maturation process of the postural

reflexes. In addition the child has improved socially and has resolved “backward writing”.

Discussion: There are many causes of developmental delay in children and one may be the stressors of the gestational periods. Stress hormones are produced directly by the mother, which are able to cross the placenta, thus igniting release of stress hormones by the developing fetus. The developing fetus is contained within the environment of its biological mother, suggesting a causal relationship between prenatal stress and developmental outcomes. Prenatal programming is the process where external stimuli or adverse insult during critical periods of development pose a long-term effect on human functional genesis.

Conclusion: An increased number of children with developmental delay are seeking chiropractic care. Delay represents disintegration between sensory and motor function. In this case, chiropractic care and sensory-motor integrative therapies were successfully utilized. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

“Anatomy on the Move”: Current Trends in Teaching Anatomy

Xiaohua He, Sadie McConner, James La Rose, Palmer College of Chiropractic Florida

Introduction: To review the current trends in teaching anatomy during last 10 years in different medical schools. Anatomy has been taught in similar ways in both classroom lectures and laboratory cadaver dissections since the earliest time. However, such teaching methods have been changed dramatically during last 10 years for both practical and philosophical reasons. These changes also influence the anatomy teaching in chiropractic schools.

Methods: The updated information regarding current anatomy teaching presented in 25th Annual Meeting of American Association of Clinical Anatomist 2008 was retrieved; the anatomy website of some leading medical schools were compared; and the current articles regarding these changes were also studied.

Results: After reviewing all sources of information, the current trends of anatomy teaching could be summarized for their focus on clinical relevance; the usage of cutting-edge

technology; integration of radiological anatomy into gross anatomy; and the change of the way of laboratory anatomy teaching.

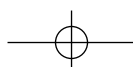
Discussion: The goal of students in studying anatomy is to gain an understanding of the body structures in respective to clinic medicine. The goal of educators in teaching anatomy is to attempt to ensure that all students have access to the best resources that form the foundation of their learning experiences in learning anatomy. The changes in teaching anatomy are intended to meet the needs for both instructors in teaching anatomy more efficiently and students in learning anatomy effectively. However, the outcome measurements for these changes are imperative. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Chiropractic Intervention For Pruritis: A Case Report

Jerry Hochman, Life University

Background: Little research exists regarding the primary complaint of itching and its alleviation with chiropractic

care. Patients seeking chiropractic care seldom present with itching as their primary motivation for seeking help.



Objective: To discuss the case of a patient with 2 years of daily itching whose symptoms were relieved with spinal adjustments.

Clinical Features: A 34 year old female patient presented with chronic itching of unknown etiology in the upper and lower extremities, worse at night. No visible skin lesions were apparent, and this case was never determined to be eczema. All orthopedic and neurological signs were negative on examination.

Intervention and Outcome: Standard diversified adjustments were administered to the mid dorsal region. Manual pressure was also applied to specific reflex areas associated

with possible visceral dysfunction related to the spinal levels treated. The symptom resolved within 4 visits.

Conclusion: Chiropractic intervention seems to have been responsible for the elimination of itching in this case. Other case studies may reveal further evidence that chiropractic care is a feasible approach in cases of itching. This case illustrates that chiropractic care may help other patients with non-musculoskeletal complaints. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Diffuse Idiopathic Skeletal Hyperostosis Following Chronic Use of Isotretinoin For Recalcitrant Nodular Cystic Acne: A Case Report

Laura Huber, R. Bruce Fox, Life University

Introduction: Isotretinoin is a synthetic retinoid for the treatment of cystic acne. The purpose of this paper is to discuss the correlation of usage and the development of skeletal hyperostosis.

Clinical History: A 47 year old female presented with neck, left shoulder and upper back pain that began November 2007. Past medical examination revealed no evidence of diabetes. In 1982 and again in 1993, she was prescribed a 4 month dosage of 160 mgs/day of Accutane for the condition of her cystic acne. In May through November 2007, she was prescribed a dosage of 80 mgs/day. In January of 2008, she began a prophylactic dosage of 80 mgs weekly. A review of the cervical and thoracic x-rays on the subsequent visit revealed significant skeletal hyperostosis. The diagnosis of diffuse idiopathic skeletal hyperostosis (DISH) was radiologist confirmed.

Discussion: Radiographic findings of DISH have been well documented. Diagnosis is established using strict radiographic criteria. The thoracic spine is generally the most commonly involved spinal area; however, the cervical spine

may dominate with retinoids use. The hyperostotic bone develops along the anterior and anterolateral vertebral bodies, producing complete or incomplete bridging across the intervertebral disc space. Accutane (synthetic retinoid isotretinoin) has been prescribed for cystic acne since 1982. Since 1983, studies have shown hyperostotic bone growth following its use for dermatological conditions. The etiology of DISH and the physiological mechanism of synthetic retinoids is poorly understood. It is due to these unknowns and variables that the risk verses benefits must be individually assessed.

Conclusion: Although a definitive correlation between isotretinoin and skeletal hyperostosis cannot be drawn, it is important to consider this as a potential etiological factor in known DISH patients. This is imperative for chiropractors since the paradigm shift towards limited x-ray exposure must be reconsidered if past history reveals prior use of retinoids. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Cyclic Vomiting in a Seven Year Old Girl

Todd Hubbard, Casey Crisp, Aaron Bannister, Palmer College of Chiropractic

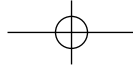
Objective: To describe the diagnosis and management of a child with cyclic vomiting syndrome treated with spinal manipulation.

Clinical Features: A 7-yr-old girl had a history of cyclic vomiting episodes for the past 3 1/2 years. She also complained of a 2-month history of constant headaches and stomach ache.

Intervention and Outcome: The patient received low-force chiropractic spinal manipulation to her upper cervical spine. There was immediate improvement in her symptoms after

the chiropractic manipulation. Her symptoms only returned after direct trauma to her neck. The recurring symptoms went away again immediately after treatment.

Conclusion: This case study suggests a role for the use of chiropractic spinal manipulative therapy for treating cyclic vomiting syndrome. Controlled studies are necessary to aid our understanding of this finding. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)



Implementation of a Faculty Mentorship Program at a Chiropractic College: A Preliminary Report

Kimberly Keene, John Lockenour, Palmer College of Chiropractic Florida

Introduction: At a newer chiropractic college, the Faculty Senate (FS) is in the process of developing various programs to assist the faculty in their professional development. Faculty feedback indicated a desire for more initial guidance regarding procedures including teaching, assessment, research and promotion. The primary complaint of new faculty (NF) is that they just get “thrown to the wolves”. The goal of the Senate was to provide mentorship to new faculty by senior faculty, and to fill in the gaps of the more formal orientation program provided by the department heads. The objective of this report is to describe the development and implementation of a Faculty Mentorship Program (FMP) at a chiropractic college.

Methods: A mission statement was written, and out of that a checklist was created to assist the mentors in reviewing important topics with mentees. The mentors are asked to return the checklist to the committee upon its completion.

After one year, mentors and mentees are asked to write a summary of their experience, and offer suggestions to the committee on ways to improve this program.

Results and Discussion: This is a new program and the first year has not yet been completed. However, informal responses from both mentors and mentees indicate that this is a successful program, and facilitates the transition of the new faculty into the college.

Conclusion: It is suggested that new faculty who participate in the mentorship program will perform their jobs better, will feel more loyalty to the college, and will therefore be more of an asset to the college. Upon the completion of the first year reports, the effectiveness of the program will be evaluated. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Chiropractic and Conversation: Developing a Wellness Coaching Program in a Chiropractic College Clinic

Cynthia Lund, Life University

Introduction: This emerging profession has been described as new, exciting, innovative, and promising as an effective approach to personal development. The importance of personal connection to the healing process is among several reasons coaching programs may be particularly relevant for a chiropractic office.

Methods: This University reviewed definitions, purposes, and potential outcomes and decided to develop and implement a Wellness Coaching program in its outpatient clinic. Staff were selected, allowed to attend University classes during their work week (subjects related to coaching and psychology) and trained to become expert in clinic processes for new patients. During this year, program forms and processes were developed, and also reviewed by clinic administration and the University legal counsel. The program was launched along with the campus Wellness Challenge, and is in its fourth month of existence.

Results: Statistics show growth of the program, and the coaches report success with client achievement and personal feelings of accomplishment.

Discussion: Future plans for the program will include discussions of student intern involvement, professional certification, salary adjustments for increased responsibility, adding coaches, and the possibility of pricing the services and charging clients.

Conclusion: The clinic system is satisfied with the implementation and growth of the Wellness Coaching program, and looks forward to expansion and continued significance and relevance for chiropractic patients. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

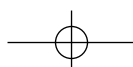
High Intensity Pulsed Cold Laser in the Treatment of Temporomandibular Disorders

Nelson Marquina, USA Laser Biotech Inc, John Zhang, Logan University

Introduction: Aim of the pilot study was to measure the effectiveness of using a high intensity pulsed diode cold laser in the treatment of myogenic pain due temporo-mandibular disorders.

Methods: The Lumix HFPL cold laser was used (wavelength 910 nm, pulse width 200 ns, peak power 50 W, maximum

adjustable average power 250 mW, fiberoptic delivery, maximum adjustable repetition rate 50 KHz, aperture diameter 8 mm, power density 0.5 W/cm²) in a case series clinical study of 12 subjects to measure the change in (1) pain level in the temporo-mandibular joint (TMJ) and (2) the maximum jaw-opening. Laser treatment was using TMJ laser treatment protocol with treatment location and time labeled in the chart.



Maximal laser treatment per point was under 15 Joules. All subjects signed university IRB approved informed consent form before participation of the study.

Results: The statistical analysis of the self-paired design resulted in statistical significance ($p < 0.01$) in favor of the alternative hypothesis that the cold laser significantly reduced the pain at the affected TMJ and increased the maximum jaw-opening after one treatment.

Conclusion: The clinical study demonstrated that the Lumix High Frequency Pulsed Laser (HFPL) produced statistically significant decrease in pain at the affected temporomandibular joint and a statistically significant increase in the maximum jaw-opening for the sample of 12 subjects. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Manual Therapy and Ear Pain: A Report of Four Cases

Donald Murphy, Alpert Medical School of Brown University & New York Chiropractic College, Charles Gay

Purpose: To report and discuss four cases of ear pain which were treated successfully with manual therapy.

Methods: Small cases series.

Results: Four patients with ear pain were referred for chiropractic consult. They were all treated with a combination of manual therapy and exercise with resolution of their ear symptoms.

Conclusions: The mechanism of idiopathic ear pain that may be amenable to manual therapy is not fully known. Further

research is needed to investigate the etiology of this disorder and to determine whether manual therapy and exercise are viable options in some patients with idiopathic ear pain. In the meantime, it may be advantageous for otolaryngologists to seek input from physicians skilled in assessment and treatment of the musculoskeletal system in these cases. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Coccygodynia: A Cross Sectional Survey of Incidence and Treatment Outcomes in the Chiropractic Clinic

Jill Muirhead, Christina Cunliffe, Ian Johnson, McTimoney College of Chiropractic

Background and objectives: Coccygodynia (CGD) is a painful and sometimes debilitating condition of the coccyx. Treatment options are varied and there is little evidence for the effectiveness of conservative treatments. This pilot study sought chiropractors' views on the extent to which they encounter patients with CGD, and whether they considered the treatment they gave to such patients was effective.

Methods: A structured questionnaire was distributed to 100 chiropractors selected randomly from a national chiropractic association database and analyzed.

Results: 52 questionnaires were returned. 72% of practitioners were female and 28% were male. 82% were familiar with the term coccygodynia and 98% indicated they had performed a coccyx adjustment. 77% of practitioners had

performed coccyx adjustments externally, while 21% (all female) had performed both external and internal coccyx adjustments. 73% had seen patients presenting CGD as a primary complaint and 44% as a secondary complaint. 85% of chiropractors said improvement was found after 2 to 4 coccyx adjustments.

Conclusion: The results from this survey indicate that there is a significant incidence of CGD and that chiropractic treatment was an effective treatment option. In order to gain further acknowledgement of this, and to facilitate communication to the wider medical fraternity, a formal clinical study should be carried out. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Effect of Chiropractic Care During Pregnancy on the Necessity for Obstetric Intervention at Delivery

Joanna Nicholson, Gay Swait, Ian Johnson, Christina Cunliffe, McTimoney College of Chiropractic

Background and Objectives: Claims about the benefits of chiropractic during pregnancy range from pain relief without pharmaceuticals to easier births, decreased labor times and turning of the baby (eg, if breech). Most of these claims are based on case reports, however, and there appear to be

no cohort studies to support them. This study investigated whether chiropractic treatment during pregnancy in addition to standard prenatal care was associated with changes in the necessity for obstetric (ie, forceps, ventouse/ vacuum suction or caesarean) intervention at delivery.

Methods: 110 self-completed questionnaires were distributed via 10 chiropractic clinics to eligible patients who attended the college's student and pediatric clinic and to new mothers at various mother and baby groups and activities. New mothers who had given birth up to one year previously were included in the study. The test group (n = 48) had received at least 5 chiropractic treatments during their pregnancy. The age-matched control group (n = 48) had received no chiropractic care.

Results: Significantly fewer mothers (17%) in the test group reported obstetric intervention compared with 54% in the

control group ($p < 0.0001$, chi squared). Pregnant women seeking chiropractic were generally older (48% aged 36–40) and often on their second pregnancy (56%). They sought care most commonly for general maintenance and pain relief, but many other reasons and combinations of these were also given.

Conclusion: Chiropractic care during pregnancy was found to be associated with a significant decrease in use of obstetric intervention at delivery. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

A Possible Relationship Between Reliability of Thoracic Outlet Syndrome Diagnostic Testing and the Position of the Axillary Artery. Part I: The Frequency of the Arterial Anomaly

Anthony Olinger, Western States Chiropractic College

Introduction: Thoracic outlet syndrome refers to a neurological or vascular compromise of the brachial plexus of nerves and associated vasculature as they travel from the cervical region along the superior thoracic wall into the axilla. Manual provocative diagnostic tests for thoracic outlet syndrome have been shown to be unreliable, citing a high number of false-positive responses in health subjects. The purpose of part one of this study is to quantify the frequency of anomalous positioning of the axillary artery with respect to the brachial plexus as they travel through the coracopectoral tunnel.

Methods: A total of 160 bilateral, male and female preserved cadaveric axillae were dissected to examine the axillary artery and the brachial plexus as they traverse the coracopectoral tunnel. Data were collected regarding the position of the axillary artery with respect to the brachial plexus at the level of the cords and terminal branches.

Results: In addition to the classical relationship between the axillary artery and the brachial plexus, the axillary artery

was also observed both unilaterally and bilaterally entirely anterior to both the lateral and medial cords, as well as the medial and lateral roots of the median nerve. This unique relationship results in an anterior freedom that differs from the classic surrounding of the vessel by these related neural elements.

Discussion: The findings of this study suggest that a population of individuals possess a neurovascular anomaly where the axillary artery is positioned entirely anterior to the brachial plexus, as well as the medial and lateral roots of the median nerve.

Conclusions: Variations exist in the distribution and course of the subclavian and axillary arteries with respect to the brachial plexus of nerves, and these variations may affect the compression of that vessel in the coracopectoral tunnel when performing provocative diagnostic tests for thoracic outlet syndrome. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Unique Course of the Infrequent Extensor Carpi Radialis Accessorius Muscle Observed Bilaterally

Anthony Olinger, Western States Chiropractic College, Brian Benninger, Oregon Health Sciences University

Introduction: Numerous variations of the radial wrist extensors exist. One such variation is the rare extensor carpi radialis accessorius. The most common origin for the extensor carpi radialis accessorius is to have the muscle exist as slips of muscle splitting from the extensor carpi radialis longus and brevis. The most common insertion is on the base of the first metacarpal. The objective of this study is to report a unique version of a bilateral extensor carpi radialis accessorius muscle observed during a routine gross lab dissection.

Methods: During a routine dissection of the extensor compartment of both forearms of a 90 year old male preserved cadaver an additional muscle was identified. Both the proximal and distal attachments were further dissected to delineate the exact origin and insertion of the muscle.

Results: Bilaterally the muscle originates from the lateral humeral epicondyle from a prominent bony tubercle. Bilaterally the muscle coursed distally between the other radial carpal extensors and at mid forearm turned toward the flexor compartment of the forearm traveling with the outcropping muscles of the forearm. On the left side the tendon split to insert on the abductor pollicis brevis muscle and the base of the first metacarpal. On the right side the muscle inserts onto the base of the first metacarpal as a single tendon.

Discussion: The origin, course and insertion (specifically on the left side) make this form of the extensor carpi radialis accessorius a unique and novel form of this already rare muscle.

Conclusions: Anatomists and clinicians should be aware of this potential variation of the extensor carpi radialis

accessorius muscle on the occasion that they encounter it during a laboratory dissection, a surgical procedure or a manual therapy of the forearm, wrist or hand. (This is

an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Elective Course Offerings in North American Chiropractic Programs: An Opportunity for Growth

Paul Osterbauer, Michael Wiles, Northwestern Health Sciences University

Objective: Electives are commonly offered as a means to enrich medical instruction but little is reported on the prevalence of elective offerings within chiropractic education. This study reviews the availability of electives among the North American chiropractic schools and compares it with medical schools.

Methods: A convenience sample of the chiropractic curricula were sought via online descriptions for 18 of the North American chiropractic colleges, available from February to August, 2008. A description is offered of the number, type and placement of electives in the curricula. These data are compared to the medical curriculum of several medical schools.

Results: Of 18 schools, 13 offered at least one elective. The number of electives offered at each school ranged from 42 to none. The average and median number of electives was 10 electives. One third (6/18) of the programs neither offered

nor required electives. Most of the electives were comprised of chiropractic technique courses. The range of offerings also included terminology, physical therapy modalities; physical, gynecologic and proctologic diagnosis; acupuncture, orthopedic diagnosis, rehabilitation, homeopathy, first aid/CPR, anatomy/ physiology and massage. In most cases, elective offerings were placed in the last 3 semesters of the program. By contrast, virtually the entire 4th year of medical schools is composed of electives.

Discussion: Based on this informal sample, the elective experience appears play a significant role in medical training and is a relatively undefined part of chiropractic education. The results of this study can be used for reforming chiropractic education to meet the ever changing needs of society. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Evaluation of Alterations in Balance and Cognition in Response to Chiropractic Adjustments and Therapeutic Exercise in a Patient with Secondary Progressive Multiple Sclerosis

Kelley Parker, Life West Chiropractic College

Objectives: To report changes in balance and cognition after neurologic specific chiropractic adjustments and vestibular exercises in a patient with multiple sclerosis.

Methods: Chiropractic adjustments were made one time per week for eight weeks. Objective measures for balance and cognition were performed before and after chiropractic treatments.

Results: A consistent increase in stability with eyes open was seen over the study period with a variable increase in stability with eyes closed. Physiological blind spots progressively became smaller and more symmetrical. Cognitive testing showed a rapid increase in function followed by a plateau and slight decline in cognitive scores over the eight week period.

The subject's perceived imbalance and disability evaluated using the Dizziness Handicap Inventory (DHI) improved in functional and emotional domains.

Conclusions: Neurologic specific chiropractic adjustments and vestibular exercises for a patient with secondary progressive multiple sclerosis can improve balance function. Cognitive changes were inconclusive in this study although physiological blind spots consistently improved. The clinical significance of these findings suggest that chiropractic treatment has the potential to improve balance, reduce fall related risk and improve quality of life among patients with multiple sclerosis. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

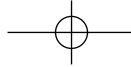
An Audit of Health Products and Services Marketed on Chiropractic Websites in Canada and Consideration of these Practices in the Context of Chiropractic Codes of Conduct and Ethics

Stacey Page, University of Calgary, **Jaroslav Grod**, Canadian Memorial Chiropractic College

Background: Chiropractic's success as a health care profession is evidenced in part by the rising number of practitioners. Paradoxically, this success may start to cost the profession, as the number of consumers may not be increasing proportionally. Fewer patients mean less income for practitioners. Some

chiropractors are responding to these pressures by selling health products, and services.

Objectives: To describe the extent to which chiropractors with websites, practising in Canada, sold health products. To



consider this practices in the context of chiropractic codes of conduct and ethics.

Methods: Chiropractic websites in Canada were identified using the online Canada 411 business directory. The websites were searched and an inventory of the health products for sale was recorded.

Results: 291 websites were identified and reviewed. Just over half of the chiropractic websites surveyed contained information on health products for sale (n = 158; 54%). Orthotics were sold most often (N = 136 practices; 47%), followed by vitamins/nutritional supplements (N = 54; 19%)

pillows and supports (N = 40; 14%), and exercise/rehabilitation products (N = 20; 7%)

Conclusions: This website audit suggests that marketing of health care products and services by chiropractors in Canada is common. Such practices raise ethical considerations for the profession. Provincial codes of ethics vary on the acceptability of these practices. Consumer and practitioner perspectives and practices regarding retailing need to be further examined. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Poor Availability of Bacillus Calmette- Guérin Vaccine against Tuberculosis for Children Travelling Abroad from the United States

Dewan Raja, Palmer College of Chiropractic Florida

Introduction: Bacillus Calmette- Guérin (BCG) is a vaccine that is used worldwide to prevent tuberculosis. Some developed countries, such as the United States, do not routinely administer this vaccine.

Case Report: Here, the case report of a child who was inadequately vaccinated with BCG in the months before a planned trip to a country in which tuberculosis is prevalent is presented.

Conclusion: The necessity of BCG vaccination and the need for its increased availability in the United States, particularly for children, is discussed. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Three Cases of Wrist Pain and Ulnar Hypoplasia

Robert Rectenwald, Life University

Introduction: The goal of this report is to provide evidence of the importance of radiological information in cases of wrist pain in the presence of bone malformation.

Case Presentations: This report provides a description of three patients who presented to one chiropractic facility with a chief complaint of wrist pain. The similarity of presentation was that each complaint was initiated by exertion with the wrist, without history of trauma. No observable deformity of the wrist or other findings from the physical examinations provided conclusive evidence for the diagnosis. Radiographic examination and radiometric analysis on the antero-posterior and lateral determined the axial relationships of the wrist joints as compared to normal values. The radiological impression in each case was suspected congenital foreshortening of the ulna (CFU) with resultant decreased wrist angles.

Discussion: Cases of ulnar ray deficiency are categorized with regard to clinical manifestation with a sub classification into four types. Type I is hypoplasia or defect of the ulna. Three cases of CFU presenting to one facility within a one year period suggests the possibility of a high incidence of CFU in patients with wrist complaints. The pre-disposition to injury and degenerative changes may have significant, negative socio-economic consequences on those persons with CFU. This would be more likely for those in occupations involving repetitive wrist motion and high forces to the wrists.

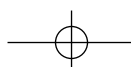
Conclusion: Radiological impression of congenital foreshortening of the ulna with decreased wrist angles was suspected to be a contributing factor to the cause of wrist pain in these three cases. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

A Comparative Analysis between Neuromuscular Spindle Cell Manipulation and Meridian Sedation Points Used in Autogenic Inhibition

Thomas Redenbaugh, Robert Wilborn, Charlotte Watts, Gary Daniel, Parker College of Chiropractic

Introduction: Applied Kinesiology is primarily a diagnostic technique using manual muscle testing (MMT) to determine

areas of dysfunction¹. A good indicator muscle will weaken one time with autogenic inhibition. Autogenic inhibition is



normally performed by muscle spindle cell manipulation. This study is designed to see if therapy localization (TL) could also be used.

Method: The study included 72 participants. Each performed an MMT of the rectus femoris muscle² and recorded their results. Each manipulated the muscle spindle cells of the rectus femoris and recorded their results. In Part 2 the participants TL'd the sedation point for the Spleen Meridian and recorded their results.

Results: All participants found that the rectus femoris muscle tested weak upon muscle spindle cell manipulation. Part 2 the participants found the rectus femoris tested weak upon TL of the sedation point. All but two reported that there was a more palpable change with the TL than the with the muscle spindle cell manipulation.

Discussion: Both muscle spindle cell manipulation and TL of the sedation point were effective in producing a weak muscle. Muscle spindle cell manipulation may be uncomfortable for the patient. Participants reported they were better able to feel the change in muscle strength during TL.

Conclusion: TL of the sedation point appears to be equal to or better than muscle spindle cell manipulation. By using the sedation point rather than the muscle spindle cell manipulation, potentially negative consequences that heavy digital pressure may cause the patient may be avoided. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

The Effectiveness of the Activator Adjusting Instrument on In-Utero Constraint

Drew Rubin, Life University

Objective: The percent of pregnancies that end up in cesarean sections in the US is a staggering 30%, which means that 1 out of every 3 babies born today are delivered surgically. External Cephalic Version (ECV) is a medical technique with an average success rate of 71%, used as an allopathic attempt to turn a breech baby. Chiropractic has its own technique since 1978, called the Webster's In-Utero Constraint technique. For years, this technique involved using a specific sacral adjustment (generally side posture) and round ligament release to help bring about the release of constraint. This study was done to determine whether the Activator Adjusting Instrument (AAI) used on the sacral misalignment is also effective in bringing on the resolution of In-Utero Constraint in pregnant women. A positive result in this case would be the turning of a baby from a breech position to a head down position without medical intervention, prior to the onset of labor.

Methods: Three women who presented to the author's office specifically for reduction of In Utero Constraint were observed. Appropriate HPPA and IRB forms were obtained.

Results: All 3 babies successfully turned within 4 visits. Of the three, 2 had normal vaginal deliveries and one developed complications during delivery and required an emergency C-section.

Conclusion: The Activator Adjusting Instrument can be successfully used to reduce In-Utero Constraint in the adjustment of the posterior sacrum. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

The Implementation of Virtual Instruction in Relation to X-Ray Positioning and Imaging in Chiropractic Education: A Descriptive Paper

Perry Rush, William Boone, Sherman College of Straight Chiropractic

Objective: This article provides information regarding the introduction of virtual education into classroom instruction.

Methods: A method of classroom instruction was developed with the use of a computer, digital camera, and power point software.

Results: The implementation of virtual classroom instruction simplified testing procedures, thus reducing institutional costs substantially by easing the demand for manpower, ie, faculty involvement in clinic entrance and exit exam reviews, and improving average grade performance. Organized files with hundreds of digital pictures have created a range of instructor resources as well. Much of the new course materials were organized onto compact disks (CDs) to complement course notes.

Conclusions: Customizing presentations with digital technology holds potential benefits for students, instructors and the institution. The process is less costly than prior approaches. The use of a digital camera permits flexibility relative to capturing images for instruction. High quality images are attainable, allowing for presentations that provide visual scenarios beyond the scope of textbooks. The changes described eliminate the constant need for one or more assistants. This allows for the development of more creative ways to invest limited funding for the educational process. Plans are currently being developed to regularly assess the outcome of this innovative approach relative to student comprehension of material and successful completion of examinations that test their level of understanding. Methods, to be reported in the near future, are currently being developed to investigate

these parameters. (This is an abstract from a conference presentation only and does not represent a full work

that has been peer-reviewed and accepted for publication.)

The Relationship Between Upper Extremity Musculoskeletal Disorders and Ergonomic Stressors in a Knowledge Worker Population Under Chiropractic Care

Charles Sherrod, Dale Johnson, Robert Dubro, Kim Khauv, Life Chiropractic College West

Introduction: There was an escalation in the prevalence rates of upper extremity musculoskeletal disorders (UEMD's) in the United States from 1982 to 1994. The interventions from government agencies, safety and health service providers, resulted in a 37% compression in morbidity in all industries from 1995 through 2000. UEMD related injuries for knowledge (ie, "office") workers plateaued during the same period, accounting for nearly 80% of the UEMD related injuries of all workers in the U.S.

Purpose: This feasibility study was undertaken to assess and characterize the prevalence of UEMD's in Knowledge workers and to correlate their complaints with a specific condition of their work environments. This aim of this study was to set the stage for a pilot study to determine the effectiveness of ergonomic intervention as an adjunct to chiropractic care for the knowledge worker.

Materials and Methods: Specialized assessment instruments were developed to characterize the ergonomic environments and present complaints of a representative population of knowledge workers (n = 20) at Life Chiropractic College

West. Statistical correlations between the human factors, risk exposures variables and the volunteers' self-reported complaints have been examined.

Results: Of the 20 subjects, 19 had forward head posture and one was filtered out due to the fact that there was not forward head posture exhibited. Of the aforementioned 19 subjects, one had missing data. Thus, of this baseline group of 18 subjects, there was 13 (72.2%) reporting neck pain, 11 (64.7%) reported upper back pain, 7 (42.1%) reported right shoulder pain, 8(44.4%) with right wrist pain and 8 (44.4%) with right hand pain, with a significant p-value of 0.044 and a correlation coefficient of 1.44.

Discussion: There is strong evidence that a causal relationship exists between subjects with forward head posture and UEMDs. A controlled study is necessary to determine the effectiveness of ergonomics as an adjunctive protocol in the chiropractic care of knowledge workers. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Statin Myopathy: A Case Report

John Stites, Palmer College of Chiropractic

Objective: The objective of this case report is to review and discuss a complication of statin therapy for hyperlipidemia that is likely to present to a chiropractor's office. Muscle pain is a common complaint and chiropractors should have an awareness of the potential association with one class of cholesterol lowering medications.

Methods: The evaluation of a patient with neck and shoulder pain is reviewed. At the conclusion of the examination the likelihood of her medication contributing to her symptoms is considered. In consultation with her medical physician, her medication was discontinued and within days her symptoms subsided. A review of the literature showed statin related myopathy to be well documented but with no substantive discussion of in the chiropractic literature.

Results: Over 100 million prescriptions are written each year for statin drugs for hyperlipidemia. The likelihood is that use

of statins will increase because of their demonstrated benefit in reducing the risks of vascular death, myocardial infarction and stroke. A major adverse effect of statin medication is its potential effect on muscles. Myopathy, including myalgia, myositis and rhabdomyolysis, is a well documented complication of this medication. Since approximately 83% chiropractic patients present with musculoskeletal complaints, statin myopathy should be a regularly considered differential.

Conclusions: Myopathy is a well documented complication of statin therapy. Since musculoskeletal pain is the primary reason chiropractors are consulted and the use of statin therapy is expanding, practitioners must be cognizant of this association and the clinical implications. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Chiropractic Influence on Protein Conformation by Means of Neuronal Electromagnetic fields: A Theoretical Model

Stephanie Sullivan, Life University

Introduction: Luigi Galvani developed the concept of "animal electricity". His concept was later shown to exist

as the propagation of an action potential by a nerve that creates an electric current, and through many twists and turns

Galvani's initial foray into bioelectricity has come to play a role in understanding the health benefits of chiropractic. Action potential propagation in a neuron produces an electromagnetic field (EMF). This EMF has the potential to interact with proteins of the body. The purpose of this paper is to present a theoretical model which relates the subluxation and its associated neurological compromise to alterations in the conformational shape of proteins via altered neuronal electromagnetic fields.

Methods: A literature search was conducted using GALILEO, Index to Chiropractic Literature, DC Consult, and Scopus that elucidated four key links between the subluxation, neuronal EMF, and protein conformation.

Results: The first link illustrated that altered biomechanics of the spine or other body articulations could result in neurological compression. The second link showed that nerve root compression leads to alteration of nerve conduction velocity. A formula to relate altered nerve conduction velocity to

altered neuronal EMF was determined for the third link, and finally theoretical models and scientific studies were found that illustrated the impact altered neuronal electromagnetic fields have on protein conformation.

Conclusion: We experience electromagnetic fields on a day-to-day basis. Therapeutic uses of electromagnetic therapies in health care are becoming more acceptable, and some of the conditions managed medically through EMF therapy are similar to conditions managed by chiropractors. This model of the subluxation altering neuronal electromagnetic fields, which ultimately impacts whole body health through protein conformation changes, is proposed as a complement to existing models. In order to provide the best care possible to our patients, it's necessary to understand the intrinsic processes behind the results. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Development of Students' Scholarship Skills

Gene Tobias, Anupama KizhakkeVeetil, David Sikorski, Southern California University of Health Sciences

Introduction: An analysis of the utilization of scholarship of teaching was undertaken to assess the Culture of Inquiry goal within our institution's Strategic Plan. Three levels of scholarly skill development were assessed: 1. Literature search; 2. Critical analysis; and 3. Application to clinical practice.

Methods: Faculty modeling scholarship in their courses and their use of course assignments that require student scholarship were evaluated. First-, second- and third-year students were surveyed regarding their scholarly skill development. The student survey was anonymous and was approved by the Institutional Review Board.

Results: Nearly all of the faculty reported using current research literature in their courses, and most gave student assignments associated with current literature that were presented by students in class. Fewer student activities and lower-level activities occur in the first year of the DC program, and more activities and higher-level activities occur

in the second and third years. Less than half of the students surveyed said that they had scholarship abilities prior to coming to the institution. The majority of the students said that their scholarship skills had improved after two and three years.

Discussion: One strategic plan goal of our institution is to foster scholarship in our faculties and students. Review of our DC curriculum indicates that faculty and courses are providing scholarship of teaching, and student opinion survey results are generally congruent with this curriculum design.

Conclusions: Scholarship of teaching is occurring in courses currently in the DC degree program, and, as a result, students learn scholarly skills. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

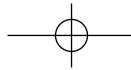
Normal 1st Thoracic Variant in a Pediatric Patient: A Case report

Michael Tomasello, Joseph Guagliardo, Life University

Purpose: To present a case of a pediatric patient with a presentation of a unique first thoracic normal variant.

Clinical Findings: A 6-year-old male presented asymptotically to the clinic with a past history of two separate traumas. Historical and exam findings led to ordering cervical spinal films. The films revealed a unique bilateral normal variant of the first thoracic vertebrae.

Discussion: As a Chiropractor it is important to be able to recognize that when a child has spinal pain it can be related to a more sinister condition, but in some cases spinal variants need to be considered. One must be able to identify when a spinal variant is present, be able to specifically identify such entity and modify your adjusting techniques in accordance. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)



Decision Making Within an Integrative Care Team: An Experimental Model

Kristine Westrom, Michele Maiers, Roni Evans, Gert Bronfort, Northwestern Health Sciences University

Introduction: Several models of integrative care have been described with varying levels of collaboration between providers. It has been proposed that an optimal integrative care approach should involve a collaborative, interdisciplinary, non-hierarchical team effort. Such a team of complementary and alternative (CAM) and conventional allopathic clinicians has been assembled as part of a chronic low back pain clinical trial.

Objectives: This presentation describes the process by which a diverse group of clinicians reach consensus when recommending low back pain treatment options for subjects enrolled in a randomized clinical trial.

Methods: Prior to recruitment of subjects, the team underwent training in each healthcare discipline and traditions, how to apply evidence-based practices, and how to achieve consensus. At weekly meetings conducted by a non-clinician leader, each member recommends a care plan consisting of one or more modalities. Guiding principles for treatment include minimizing fear and catastrophizing, decreasing

dependency, consideration of patient preferences, cost-effectiveness, and avoiding arbitrary limits to care. Group consensus is required for the care plan to be included for the subject's choice.

Results: As of August 2008, the care team has been working together for one year, with over half the subjects recruited. The team functions at the norming/performing stage; members appear comfortable suggesting each other's modalities. The integrative care team most often recommends three care plan options, consisting of two to three modalities.

Discussion: The integrative care team has been successful in applying a best-practices approach to non-hierarchical decision making. Issues of time requirements, motivation to reach consensus, and acceptance of other healthcare disciplines may be different outside of this research setting. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Chiropractic Care and the Situs Inversus Patient: Modifying Technique to Match Anatomy

Jason Zabloutney, Charles Blum, Sacro Occipital Technique Organization - USA

Introduction: In situs inversus totalis the heart chambers, lung lobes, abdominal organs and colon are all found in a mirror image arrangement of normal. The purpose of this paper is to present a novel case report of a patient treated with situs inversus treated by chiropractic care involving chiropractic manipulative reflex (visceral) techniques (CMRT) modified to the patient's condition.

Case report: The Assessment: This patient was a 60 year old mother of 4 who has been a chiropractic patient for over 20 years receiving spine-only chiropractic care. The patient began care in this office in and was seen for 16 office visits utilizing Blair Upper Cervical (BUC) x-ray spinography protocols, Sacro Occipital Technique (SOT) categorization, and CMRT procedures. Treatment/Intervention: Her response to Blair and SOT protocols was good and as expected however CMRT protocols needed to be modified in novel ways to compensate for her situs inversus presentation. Occipital fiber analysis found an active visceral reflex on 13 out of her 16 visits. On visits that necessitated treatment to the ileocecal or pancreas reflex arc the reflex patterns were opposite to normal.

Results: The outcome to treatment involved reduction in pain and increased function in various areas of the spine, pelvis, and right shoulder as well as reduction of prior sleep disturbances and constipation.

Discussion: While the response to BUC and SOT Category Two protocols were as anticipated, the CMRT evaluation and treatment was unusual based on the patient's situs inversus presentation. The patient's immediate response to treatment suggests that further investigations may be indicated.

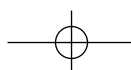
Conclusion: Future studies could compare a blinded evaluation of patients with situs inversus and normal organ anatomy to determine if side of CMRT reflex and referred pain patterns is consistent. Greater research is needed to investigate what subset of patients may respond to viscerosomatic/somatovisceral chiropractic reflex treatment. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)

Laser and Electrical Stimulation of Acupuncture Points on Low Back Pain, A Pilot Study

John Zhang, Eric Malisali, Logan University

Introduction: The purpose of this study was to examine the use of laser and electrical stimulation therapy on chronic

low back pain. The null hypothesis was that the laser and electrical stimulation had no effects on low back pain.



Methods: The first experimental group was given Hans electrical stimulation on acupuncture points. The second experimental group received an active high intensity laser therapy on the same acupuncture points. The study was approved by an university IRB. VAS scale, Roland Morris Disability questionnaire, the EuroQoL instrument for utility-weighted health status, and the Proposed Core Outcome Measures instrument with six questions were used to determine pain and function impairment due to low back pain.

Results: Thirty-two subjects (12 female) were recruited and completed the study. Sixteen subjects were randomized into the laser therapy group and 16 subjects were in the Hans electrical stimulation treatment group. Two subjects dropped out of the study.

After four weeks of laser treatment, the VAS decreased significantly from $4.43\bar{i}, \pm 1.8$ to $2.1\bar{i}, \pm 1.0$ ($p < 0.05$)

(Figure 1) and the Hans electrical acupuncture stimulation resulted in a significant reduction of VAS from $5.15\bar{i}, \pm 1.5$ to $2.43\bar{i}, \pm 1.3$ ($p < 0.05$). The Proposed Core Outcome Measures for LBP showed improvement on Questions 1–4 in both the laser and Hans electrical acupoints therapy groups but none of the changes reached statistical significant level. Question 5 and 6 showed little changes. Roland Morris Disability questionnaire showed improvement but none were statistically significant.

Conclusion: Laser and electrical stimulation on acupuncture points seemed to be effective and safe for treatment of low back pain. (This is an abstract from a conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)