ABSTRACTS OF ACC CONFERENCE PROCEEDINGS

Poster Presentations

Forces applied to patients with low back pain during flexion distraction treatment: a clinical case series

William Alexander, Robert Vining, Ram Gudavalli

Objective: Low back pain (LBP) is the most prevalent musculoskeletal condition and leading cause of disability globally. Flexion distraction (F&D) is a nonthrust spinal manipulative treatment for LBP. This study measured traction forces applied manually by a doctor of chiropractic (DC) while performing F&D in participants with LBP. **Methods:** Community dwelling participants aged 18 to 65 with current LBP were recruited. Enrolled subjects received treatment over a 2-week period from a licensed doctor of chiropractic with the number of visits determined by the DC. Traction forces were collected during each treatment session by force transducers instrumented into a treatment table. **Results:** Twelve participants (7 male, 5 female) with a median age of 42 years were enrolled. A total of 73 visits were completed, generating 576 force sets for analysis. Mean forces were greatest when using the flexion motion (preload, 55.9 N; peak load, 73.6 N). The highest peak forces were measured when flexion was applied in combination with axial traction (136.0 N). **Conclusion:** Force magnitudes and time profiles were unique to the specific motion employed (e.g., flexion, lateral flexion, and circumduction). The unique force attributes of each treatment motion need further investigation into possible clinical effects. (This is a conference presentation abstract and not a full work that has been published.)

A journey into the spinal cord: a regenerative stem cell therapy for ALS

Nora Bakaa, Mark Erwin, Muhammad Zia Karim, Katie Grundy

Introduction: Spinal cord pathologies, due to disease (e.g., amyotrophic lateral sclerosis [ALS]) or injury (e.g., motor vehicle accident), are a significant health care issue that affects millions of individuals with no conceivable cure. Regenerating damaged neural tissue with stem cells is a promising therapy that could be used as a potential treatment for spinal cord pathologies. **Objective:** We characterized the destination phenotype of –reen fluorescent protein (GFP)-expressing bone marrow and nucleus pulposus stem cells that previously were neuronally differentiated and transplanted into the murine spinal cord using magnetic resonance imaging (MRI) guided focused ultrasound (MRIgfUS) technology. **Methods:** Previously transplanted spinal cord tissues were immunostained for neuronal markers MAP 2, BIII Tubulin, and NF200, and the motor neuron markers Islet 1/2, as well as choline acetyltransferase. We also probed for the expression of the synaptic vesicle protein synaptophysin. **Results:** The transplanted GFP-expressing cells showed colocalization with the neuronal markers, indicating that they had successfully integrated into the spinal cord. **Conclusion:** MRIgFUS is an effective, noninvasive, transplantation technique that allows the transplantation of cells into specific regions of the spinal cord. (This is a conference presentation abstract and not a full work that has been published.)

Barriers to full-text publication of abstracts presented at the 2006 to 2008 Association of Chiropractic Colleges/Research Agenda Conference meetings

Barclay Bakkum, Cynthia Chapman

Objective: A previous study revealed that 35% (124/356) of abstracts presented at the 2006 to 2008 Association of Chiropractic Colleges/Research Agenda Conference (ACC/RAC) meetings were published in peer-reviewed journals within 4 years of the 2008 meeting. The purpose of this follow-up study is to investigate the self-reported barriers to publication for authors of abstracts who did not publish their findings in a journal by 2012. **Methods:** An Institutional Review Board–approved 4-question electronic survey based on a previous study survey was produced. A link to the electronic survey was emailed to 111 potential participants. **Results:** Of 111 participants, 67 completed a survey for a return rate of 60%. Over 80% (55/67) of the respondents were chiropractors who were faculty members at educational institutions. A total of 30% (20/67) of subjects indicated that the meeting abstract had either been published after 2012 or still was in the publishing process. For those who had not submitted a manuscript for publication, the most frequent barriers to publishing cited were pursuit of publishing as a low priority followed by lack of time to prepare a manuscript. **Conclusion:** The main barriers to publishing in this population appear to be time management issues. (This is a conference presentation abstract and not a full work that has been published.)

Improvement in functional constipation while under chiropractic care in a pediatric patient with primary vesicoureteral reflux

Virginia Barber, Thomas Wicks, Joseph Carfora

Background: Primary vesicoureteral reflux (VUR) is the most common pediatric urologic abnormality. Severity is graded I (mildest) to V (most severe). Increasing severity, bilaterality, and presence of dysfunctional elimination syndrome, particularly constipation, decrease the likelihood of spontaneous resolution. **Objective:** We describe the clinical presentation, treatment, and response of a 31-month-old female patient, diagnosed previously with grade I right-sided and grade IV left-sided VUR and chronic constipation, to application of chiropractic manipulative therapy (CMT), abdominal massage, and probiotic supplementation. **Clinical Features:** The patient was diagnosed originally at 7 months with bilateral grade V VUR after hospitalization for Escherichia coli septicemia. She presented to a chiropractic clinic 4 days after her most recent visit to a pediatric urologist, who reiterated that her chronic constipation was the most negative prognostic factor for future nonsurgical improvement in her grade IV left VUR. **Intervention and outcome:** This patient was treated via instrument adjusting and manual CMT, abdominal massage, and probiotic supplementation over 10 visits. During care, the child's frequency of evacuation increased, her pain and fear of evacuation decreased, and stool consistency normalized. (This is a conference presentation abstract and not a full work that has been published.)

Use of chiropractic services, reasons for seeking care, patient profiles, and treatment provided: a scoping review

Peter Beliveau, Jessica Wong, Nir Simon, Andre Bussieres, Silvano Mior, Simon French

Background: Little is known about the use of chiropractic services, patient profiles, and treatments provided. The research question for this scoping review was: What is known about the use of chiropractic services, reasons for seeking care, patient profiles, and treatment provided? **Methods:** Searches were conducted in MEDLINE, CINAHL, and the Index of Chiropractic Literature using a combination of keywords and MeSH terms from database inception to August 2015. Two review authors independently screened retrieved citations, reached a consensus, and charted relevant data of included studies. **Results:** The literature search retrieved 5208 articles; 47 studies were included. Use of chiropractic services was between 6% and 13%. Reasons for attending chiropractic care were due to low back (32%–90%), extremity (4%–62%), neck (9%–51%), wellness/maintenance care (2%–32%), and headache (1%–29%). Patients were 46% to 67% female with a mean age between 40 and 55 years. Chiropractors provided spinal manipulation (56%–95%), exercise instruction (8%–92%), nutritional supplements (2%–84%), ice (9%–78%), soft-tissue therapy (13%–77%), electrical-stimulation (19%–71%), ultrasound (2%–67%), heat (12%–66%), manual traction (9%–58%), and mobilization (2%–12%). **Conclusions:** Reported use, reasons for attending care, patient profiles, and treatment provided by chiropractors vary, yet these results provide valuable insight into this diverse profession. (This is a conference presentation abstract and not a full work that has been published.)

Student perceptions of a life science review class after taking National Board of Chiropractic Examiners (NBCE) Part I

Judy Bhatti, Elissa Twist

Background: Many students with test anxiety (TA) experience emotional distress with thoughts of impending failure before and during high stakes tests. High TA and academic stressors in students can have detrimental effects on physical and emotional wellbeing. Educational intervention programs can help foster success in such students. **Objective:** Information gained from assessing students could identify the proportion of beginning students with TA and identify students who could benefit from an anxiety reduction intervention. **Methods:** A valid assessment instrument was administered to first term students to assess TA. Scores of 25 to 50 on this instrument indicate moderate-to-extremely high TA. **Results:** The survey found 33% of the first term students have moderate-to-extremely high TA. **Discussion:** With 33% of the entering students evincing moderate-to-extremely high TA there is a demonstrated need for evidence-based educational intervention for these students. **Conclusion:** An assessment instrument was administered to determine levels of TA among first-term students in a chiropractic program. The results showed that 33% of the students have moderately-to-extremely high levels of TA. Given the detrimental effects of TA on a student's academic performance, there is a demonstrated need for evidence-based educational intervention to increase academic performance and wellbeing. (This is a conference presentation abstract and not a full work that has been published.)

Chiropractic as part of an interdisciplinary team for the care of a patient with diplopia: a case report

Thomas Bloink, Charles Blum

Introduction: A 59-year-old man began to experience intermittent diplopia 50% of the time, which after 3 days became constant. He consulted with an ophthalmologist and was diagnosed with a fourth-cranial nerve palsy, given prism glasses to correct the displacement, and presented to this clinic on February 17, 2015. **Methods:** Patient was treated using sacrooccipital technique (SOT) protocols to investigate cranial bone, and temporomandibular joint (TMJ) imbalance. Examination noted TMJ anterior displacement with reduction of right TMJ disc, decreased joint translation, and other findings indicating the need for dental modification of the dental occlusal splint he was using. The patient was treated for a total of six visits between February 17 and April 23, 2015. **Results:** By the third-chiropractic office visit the patient noted reduced neck pain, antalgia, significantly improved cervical ranges of motion, and a 70% reduction in diplopia, so was referred to have the splint dentally equilibrated. By the third dental visit on April 2, 2015, he stopped needing prism glasses. Follow-up ophthalmology exam in May 2015 found no evidence of diplopia. **Conclusion:** It is difficult to generalize from case reports; however, the ongoing nature of the patient's condition and the temporal relationship between the care received and his response warrants further study. (This is a conference presentation abstract and not a full work that has been published.)

Occult breast cancer metastasis masked by musculoskeletal pain in the hip: a case report

James Boysen

Objective: We describe the evolving clinical presentation of a woman with musculoskeletal complaints that masked the development of an underlying breast cancer metastasis. **Clinical Features:** A 44-year-old female with history of breast cancer (3 years remission) sought care initially for low back pain and later for low back and right hip pain over a 16-month period. **Intervention and Outcome:** She initially responded to conservative care for low back pain. Later, lifting injuries exacerbated her low back pain and produced radiating pain in the right hip. Approximately one month later, she had the same presentation of low back pain with radiation to the right lateral hip, but also involving right anterior hip pain after sitting on the floor at work. Conservative care was partially effective for the low back pain and relieving the right anterior hip pain. This success combined with normal radiographic findings masked breast cancer metastasis to the right acetabulum. MRI performed after incomplete symptom resolution revealed the pathology. **Conclusion:** While conservative care may provide relief to patients in remission of breast cancer, vigilance for metastasis as a differential diagnosis is advised for those patients who fail to completely resolve their musculoskeletal complaints. (This is a conference presentation abstract and not a full work that has been published.)

The reduction of asthma symptoms and medication after chiropractic care

Thomas Brozovich

Objective: We discuss the chiropractic management of a patient with asthma who was treated using chiropractic care. **Clinical features:** A 5-year-old boy with a history of asthma for 3-1/2 years sought chiropractic care for his asthma symptoms, which included tightness of the chest, shortness of breath, nasal congestion, nonproductive cough, that were not responding to allopathic treatment. **Intervention and Outcome:** He was adjusted based on location of his subluxations (intersegmental joint dysfunction). He had 5 treatments over 3 days. Treatment consisted of chiropractic manipulation to the cervical and thoracic region. We observed a quick and drastic reduction in the patient's symptoms, and he has been able to reduce all of his medication over the next few months with the exception of a rescue inhaler of albuterol, which he needs only infrequently. **Conclusion:** The patient responded favorably to chiropractic care, which resulted in almost complete reduction of his asthma symptoms. (This is a conference presentation abstract and not a full work that has been published.)

Implementation of patient reported outcomes research within chiropractic academic health centers and private chiropractic offices: lessons learned

Jeanmarie Burke

Objective: We describe the many barriers being encountered to implement patient-centered outcomes research (PCOR) on ConnecTX Therapy within academic health centers at a chiropractic college and among private practice chiropractors trained in ConnecTX Therapy. **Clinical Features:** The inclusion criteria are patients who are aged 20 to 70 years regardless of gender and ethnicity with a diagnosis of musculoskeletal disorder of the spine and their treatment plan includes ConnecTX Therapy. **Intervention and Outcome:** Patients are receiving a pragmatic chiropractic intervention that includes spinal manipulation and ConnecTX Therapy. The clinical outcomes are in the pain domain or physical function domain using PROMIS instruments. **Conclusion:** Many barriers were encountered to implement PCOR on ConnecTX Therapy using a practice-based research approach. With the implementation of centralized training and liaisons, we hope to facilitate practice-based research to conduct PCOR on ConnecTX Therapy. Improving the information technology framework that integrates clinical research tasks with patient care processes is also necessary. However, the electronic documentation of intervention protocols and harms and the demonstrated use of PROMIS instruments for clinical and research outcomes in chiropractic patients are promising towards developing data driven ConnecTX Therapy protocols using regression models. (This is a conference presentation abstract and not a full work that has been published.)

Recruitment methods for a randomized controlled trial on shoe orthotics for chronic low back pain

Jerrilyn Cambron, Jennifer Dexheimer, Lynn Zoufal

Objective: Media presence has changed during the past decade; therefore, recruitment methods for clinical trials also has changed. The objective of this manuscript is to describe the recruitment methods for a recent clinical trial on chronic low back pain. **Methods:** Subjects were recruited from the general public through print advertisements (newspaper/magazine), digital newspapers, radio/streaming radio, and free advertisements. Recruitment method was tracked for initial calls and randomizations, as well as costs of each. **Results:** We received 680 calls at $86 per call and randomized 225 subjects at $259 per randomization. The majority of randomizations were from print ads (47%) and free sources (29%). Over $58,000 was spent on recruitment, with the majority spent on print ads and streaming radio ads. Many new online recruitment sources were attempted. **Conclusion:** During this clinical trial, new methods of

recruitment were instituted to boost the number of randomizations. These new recruitment methods were more expensive and led to a higher number of randomizations, but were more costly than traditional radio and print ads per randomization. (This is a conference presentation abstract and not a full work that has been published.)

The effect of spinal manipulative therapy (SMT) on the production of interleukin-6 (IL-6) in patients with low back pain

Adrian Chow, Julita Teodorczyk-Injeyan, Stephen Injeyan

Objective: We determine whether the levels of interleukin-6 (IL-6) and its soluble receptor (sIL-6R) synthesis are altered in patients with acute and chronic low back pain (LBP), and assess the effect of spinal manipulative therapy (SMT) on the production of these mediators. **Methods:** Totals of 19 acute and 21 chronic LBP patients, and 20 asymptomatic controls participated in the study. Patients provided blood samples before and after 6 (within 2 weeks) spinal manipulations. Levels of IL-6 and sIL-6R were determined in supernatants from LPS-stimulated whole blood cultures and in parallel plasma samples by specific immunoassays. **Results:** Compared to asymptomatic subjects, the in vitro production of IL-6 was significantly elevated in acute ($P = 0.01$) and chronic ($P = 0.005$) LBP patients. Following spinal manipulations, only the chronic LBP group showed a significant decline ($P = 0.01$) in IL-6 levels. The baseline levels of IL-6 and sIL-6R were comparable in all study groups and not changed following SMT. **Conclusions:** SMT reduces the in vitro production and possibly attenuates biological activity of proinflammatory cytokine IL-6 in patients with chronic LBP. The lack of an SMT-effect in acute LBP patients may suggest differences in the inflammatory profiles between acute and chronic LBP patients. (This is a conference presentation abstract and not a full work that has been published.)

Pubic symphysis pain during pregnancy: a case report

Katherine Clark, Troy Stark

Objective: Discuss management of a patient who had pubic symphysis pain while pregnant.
Clinical Features: A 31-year-old woman sought care for pregnancy-related pubic symphysis pain. Onset was sudden during the 25th week of pregnancy, caused by a weighted lunge. Immediate pain rating was 4/10. The patient reported her worst pain was during a jog (7 weeks postpartum), which she rated an 8/10. **Intervention/Outcome:** A gentle pubic symphysis distraction technique, which is a nontraditional HVLA adjustment, was provided during a single visit. The patient experienced full resolution of pain immediately following the adjustment. Additionally, this has been maintained for greater than 9 months. **Conclusion:** Pubic symphysis dysfunction can be painful for a patient and in this case was likely related to pregnancy. The patient was treated using chiropractic manipulative therapy in the form of a distraction. The pain did not return and the patient reported no recurrence of pain after its resolution. (This is a conference presentation abstract and not a full work that has been published.)

The impact of the Affordable Care Act on chiropractic public health prevention literature: a review

Michael Clay, Florence Rothenberg, Anna Schenck

Purpose: We examine chiropractic contributions to public health prevention literature in response to the passage of the Patient Protection and Affordable Care Act (ACA). **Method:** A systematic review of PubMed and Ovid searches was performed on the key words; chiropractic, public health, and prevention in the U.S. Works were captured 5 years before and 5 years after the passage of the ACA using set inclusion criteria. **Results:** We reviewed 100 abstracts and 24 full-length articles. The rate of publications meeting selection criteria ranged from 0.22 articles per preceding passage of the ACA to 0.17 articles per following passage. Despite chiropractic's historical foundation in treating the spine, this review did not capture a concentration of articles exploring low back pain prevention at a community level. **Conclusion:** Chiropractic contributions to prevention literature do not appear to have been influenced by the ACA. Based upon the expected course of public health toward prevention, it appears that there is a role for leaders in public health and chiropractic to facilitate contributions to public health prevention literature. A specific focus on the prevention of low back pain that reduces activity may complement the goals set by Healthy People 2020. (This is a conference presentation abstract and not a full work that has been published.)

Sacro occipital technique and autism spectrum disorders: a case series

Susan Colby-Allen, Charles Blum

Introduction: The efficacy of chiropractic care (sacrooccipital technique [SOT]) to treat autism spectrum disorders (ASD) is discussed and procedures outlined. This is a case series of five-ASD patients who had been diagnosed before beginning chiropractic care. **Methods:** The methods used include cranial adjustments, chiropractic manipulative reflex technique (CMRT), spinal adjusting in a particular sequence. Also used were allergy elimination, emotional clearing, and transcranial ultrasound. **Results:** In general, every patient in this case series demonstrated improvements in gastrointestinal health, decreased self-injurious behaviors, as well as an overall calming effect, improved verbal communication, cognition, and eye contact, decreased rigidity around routines, and increased quality of life for the entire family. Family members, caregivers, and school instructors noted these improvements and, along with improved Autism Treatment Evaluation Checklist (ATEC) scores, suggested that the care received was efficacious. **Conclusion:** It is hypothesized that improving spinal cranial balance as well as aiding organ function may improve gut and brain function, which could be associated with the observed improved changes in this study's ASD patients. Further research is needed to determine if there is a specific subset of ASD patients that may be responsive to the protocols used in this study. (This is a conference presentation abstract and not a full work that has been published.)

Chiropractic care in a case of cauda equina syndrome: a case study

Stephan Cooper, Mark Pfefer, Edward Smith, William Augello

Objective: We describe a patient with chronic cauda equine syndrome (CES) presenting for care in a multidisciplinary free clinic with a long waiting list for surgical consultation.
Clinical Features: An adult presented to a community free health clinic with complaints of severe low back pain, weakness in the right leg, numbness in the buttocks, and bowel/bladder disturbance. **Intervention:** The patient received a closely monitored course of chiropractic care. **Outcome:** The patient was significantly improved at 1 and 3 months. **Conclusion:** It is not our contention that chiropractors should routinely treat patients presenting with symptoms associated with CES; however, it is clear that future research is needed in understanding when and if conservative management options for patients with chronic type CES should be considered. We described the positive response of a single patient presenting with chronic type CES who, because of unique circumstances, was not able to obtain surgical consult quickly and consented to a trial of chiropractic treatment in a highly monitored multidisciplinary setting. Ideally future research exploring the effects of chiropractic care among patients with chronic CES should be performed in hospital-based settings with comanagement available from appropriate medical specialists. (This is a conference presentation abstract and not a full work that has been published.)

Systematic review and meta-analysis of the difference between Tuffier's Line and the palpatory iliac crest

Robert Cooperstein, Michael Haneline, Kelley Holt

Objective: The primary goals of this study were to do a systematic review of the literature and perform meta-analyses on patient subgroups on the location of the iliac crest in imaging (Tuffier's Line) versus palpation studies; and to rate the quality of the included literature. **Methods:** Relevant citations were retrieving by searching biomedical databases, and rated for quality using the QUADAS instrument for palpation studies, and the Arrivé instrument for the imaging studies. Meta-analyses were performed on the full datasets as well as for subsets based on various patient demographics. **Results:** This analysis confirmed the imaged iliac crests lie closest to the L4-5 interspace in females, and the L4 spinous process in males; whereas the spinal level corresponding to the palpated iliac crest is on average

the L3-4 interspace for males and females. **Conclusion:** Assuming the crest to lie at L4 or L4-5 clinically results in a one-level error in numeration and/or site of spinal care. These results bear on the ability of anesthesiologists to avoid puncturing the conus medullaris while achieving satisfactory analgesia; and of manual therapists to be accurate in spinal palpation. (This is a conference presentation abstract and not a full work that has been published.)

Outcomes of chiropractic distraction spinal manipulation on postsurgical continued low back and radicular pain patients: a retrospective case series study

James Cox, Maruti Ram Gudavalli, George Joachim, Kurt Olding

Objective: To determine the frequency and clinical benefit of postsurgical continued pain patients (PSCP) seeking chiropractic care. Clinical features: PCSP patients sought chiropractic care. **Interventions and Outcome:** A total of 15 chiropractors treated 69 PSCP patients from February through July 2012. Specific flexion distraction and decompression spinal manipulation was delivered. A VAS 0-100 mm pain scale reported pain improvement following 3 and 24 months of care. The number of treatments and days of care were recorded. Additional care received during the 24 month postactive care period also was documented. Of reporting patients, 54 (81%) received greater than 50% pain relief and 13 (19%) less than 50% pain relief at the end of active care (mean active care 49 days, average 11 treatments). At 24 months following active treatment, 56 patients returned the survey with 46 (82%) reporting pain relief greater than 50%, and 10 (18%) patients reporting 50% or less relief. **Conclusion:** Chiropractic spinal manipulation as described in this study showed positive outcomes of pain relief in PSCP patients. Further systematic and randomized clinical studies are required to document the benefits of spinal manipulation for PCSP patients. (This is a conference presentation abstract and not a full work that has been published.)

A potential clinical prediction rule for 52 patients with headache and cranial dysfunctions: a retrospective case-series report

Scott Cuthbert, Charles Blum

Introduction: We propose a potential diagnostic and prognostic clinical prediction rule (CPR) related to the nonpharmaceutical management of adults with headache and cervicocranial dysfunctions using the assessment and treatment methodology of two chiropractic techniques, Applied Kinesiology and the Sacrooccipital Technique. **Methods:** We retrospectively examined 52 sequential patient files with headache (HA; 48 females, and 4 males). **Results:** Muscle dysfunctions (inhibition) were associated with HA in these patients as follows: sternocleidomastoid in 42 patients, deep neck flexors in 33, anterior scalenes in 24, and upper trapezius in 24, and 3 patients with HA had no muscle inhibition. Cranial and upper cervical dysfunctions were found in 49 and 52 patients, respectively. Following a series of chiropractic treatments the initial Visual Analog Scale of Neck and Associated Pain scale changed from an average of 6.75 to an average of 0.49. **Conclusion:** This pilot study suggests that muscle dysfunctions arising from, or part of the etiology of cranial dysfunctions, could be used as a CPR to isolate subsets of HA patients that may respond to chiropractic care. The manual muscle test may be able to function as part of an assessment and treatment CPR for patients with HA. (This is a conference presentation abstract and not a full work that has been published.)

Electrodiagnostics training in the curriculum of chiropractic colleges in North America: an initial qualitative analysis

J Donald Dishman, Luis Vera

Objective: Chiropractic Physicians (DC) manage disorders of the neuromusculoskeletal system frequently. Electrodiagnostic (Edx) testing, which consists of nerve conduction studies (NCS), needle electromyography (nEMG), and evoked potentials (EP), is the most commonly performed physiological functional diagnostic modality in the management of these types of patients. Ironically, although DCs frequently encounter these same conditions, the use of Edx is extremely low compared to other medical practitioners. The objective of this research was to evaluate the level of training in Edx in chiropractic colleges in North America. **Methods:** A qualitative evaluation of core curriculum hours in the areas of Edx training was performed of each chiropractic college accredited by the Council on Chiropractic Education.
Results: The analysis of core curricula in the specific area of Edx revealed that there was not one course devoted specifically to Edx in any accredited chiropractic program in North America. **Conclusion:** The core curriculum in North America chiropractic colleges reveals a virtual absence of devoted courses to the field of Edx testing. It appears that other medical disciplines use Edx at a higher rate in similar patients. Possible rectification of this area of chiropractic educational omission is discussed. (This is a conference presentation abstract and not a full work that has been published.)

Functional neurological rehabilitation of mild traumatic brain injury due to multiple concussions

Susan Esposito, Natalie Horine

Objective: The purpose of this study is to illustrate the effectiveness of chiropractic functional neurological assessments and treatment for the resolution of dizziness after multiple mild traumatic brain injuries (mTBI). **Clinical features:** A 48-year-old woman presented to a chiropractic functional neurology clinic subsequent to 4 different episodes of concussions with intermittent hospitalizations and surgeries. She complained of dizziness, neurological imbalance, and chronic severe low back and leg pain, which led to an overall decrease in functionality. **Intervention and Outcomes:** The patient was given a series of specific functional neurological stimulations that activated targeted regions selected as a result of comprehensive neurological exam findings. These specific stimulations included the use and activation of the vestibular system. This rehabilitation was comprised of five consecutive days of treatment. The patient reported a complete resolution of her dizziness and leg pain. She also reported an increase in overall mental and physical function and an overall increased quality of life. **Conclusion:** The use of chiropractic functional neurological assessment and intervention as an avenue for rehabilitating the nervous system may be a favorable choice in treating the associated symptoms of mTBIs. (This is a conference presentation abstract and not a full work that has been published.)

Treatment of symptoms from a middle cerebral artery post ischemic stroke using a chiropractic functional neurology approach

Susan Esposito, Meera Chauhan

Objective: The purpose of this study is to illustrate an outcome of the application of chiropractic functional neurology treatment to a patient with post-stroke acquired brain injury. **Clinical Features:** A female patient in her mid-60s presented to a university functional neurology clinic with symptoms of brain injury subsequent to a stroke. The clinical impression was left middle cerebral artery distribution after ischemic stroke. **Intervention and Outcome:** Interventions included gaze stabilization exercises, breathing exercises, mirror therapy, hypoglossal and trigeminal nerve stimulation with somatosensory evoked potential (SEP), complex movements and chiropractic adjustments. After 5 days the patient improved significantly in gait, breathing, gaze stabilization, balance, sensation, and motor coordination. She also was able to get in and out of her car, zip her purse, and had no further problems with swallowing, headaches, and dizziness. **Conclusion:** This case proposes that chiropractic functional neurology can be an applicable and successful treatment for patients with a acquired brain injury from the consequences of a stroke. (This is a conference presentation abstract and not a full work that has been published.)

Adults age 55 and older who use chiropractic care

Kimary Farrar, John Ward, Raquel Lopez, Kelsey Word

Objective: We develop a profile of attributes that affect older chiropractic patients. **Methods:** Researchers developed an 18-question survey based primarily on existing survey questions. A total of 80 chiropractic doctors across the United States were recruited to distribute five anonymous surveys, each with stamped self-addressed envelopes, to their patients over 55 years of age. **Results:** Of 400 surveys distributed, 53 were returned completed, yielding a response rate of 13.3%. The majority of respondents were 55 to 64 years of age (49.1%), female (65.4%), white (75.0%), living with others (81.1%), taking 1 to 3 medications (47.2%), referred by a friend or family

member (48.1%), able to walk unimpaired (61.5%), able to care for themselves without assistance (98.1%), in moderate pain (84.6%), not anxious (73.1%), able to drive themselves to doctor appointments (92.3%), having back pain (78.9%), receiving spinal/joint manipulation from their doctor (96.2%), and reported several nonmusculoskeletal health conditions, with cardiovascular disease being most common (45.3%). **Conclusion:** Greater than 75% of older chiropractic patients responded that they were white, living with others, reported no problems with self-care, had moderate pain, drove themselves to doctor appointments, reported back pain, and received spinal manipulation. (This is a conference presentation abstract and not a full work that has been published.)

The effects of chiropractic intervention on the range of motion of the jaw in symptomatic patients with temporomandibular dysfunction: a pilot study

Andrew Gillespie, Adrian Hunnisett, Christina Cunliffe

Introduction: The purpose of this study was to investigate the effects of chiropractic intervention using the McTimoney approach on the range of motion of the jaw in symptomatic patients. **Method:** Following ethical approval, 15 patients with temporomandibular dysfunction were recruited. The effects of chiropractic intervention were seen over a course of four treatments. Measurements of jaw range of motion were taken before and after each treatment using fine instrumentation calipers as an occlusal measuring tool. Results were recorded into a spreadsheet and analyzed using IBM SPSS software. **Results:** All participants ($n = 15$) demonstrated an increased range of motion in the jaw following chiropractic intervention. Mean measurements of range of motion increased by 11.67 mm after 4 chiropractic treatments, compared to the initial pretreatment readings ($P < 0.001$; Wilcoxon signed rank test). In addition it was shown that 100% of the results gathered in the test were that of a positive increase in the range of motion of the temporomandibular joint. **Conclusion:** This study shows that jaw range of motion increases in symptomatic patients treated with chiropractic, offering a potential alternative to dental interventions. All 15 participants experienced a positive increase in jaw range of motion after four treatments. (This is a conference presentation abstract and not a full work that has been published.)

Management of a concussed female athlete using an off-vertical axis rotational device and chiropractic care: a case study

Michael Hall, Michael Longyear, Jonathan Vestal

Objective: The purpose of this study was to demonstrate the efficacy of OVARD with chiropractic care for the treatment of concussion and concussive symptoms. **Clinical Features:** A 20-year-old woman presented to the clinic with greater than 1 month of persistent symptoms following a concussive injury. The initial clinical impression was of postconcussive syndrome presenting as a frontal headache concomitant with nausea, photophobia, and phonophobia and an associated exercise intolerance. **Intervention and Outcomes:** Interventions used included chiropractic adjustments with off-vertical axis rotation of the whole body. The patient improved significantly in her ability to tolerate exercise without return of symptoms. She also demonstrated improvements on metrics, such as Headache Disability Index score, Post-Concussion Symptom Scale, and her Depression Anxiety and Stress Scale, as well as the C3 Logix concussion evaluation. **Conclusion:** This case suggests that chiropractic functional neurology and OVARD can be an effective conservative treatment strategy in the management of mild traumatic brain injury. (This is a conference presentation abstract and not a full work that has been published.)

A descriptive analysis of the Journal of Chiropractic Pediatrics, 2008-2014

Julie Hartman, Janice Hubbard, Christine Goertz, Dana Lawrence, Katherine Pohlman

Objective: The *Journal of Clinical Chiropractic Pediatrics* (JCCP) is the official journal of the International Chiropractic Association's Council on Chiropractic Pediatrics. The purpose of this study was to evaluate the JCCP from 2008 to 2014 and compare changes that occurred from a previous analysis (1996–2007). **Methods:** The 12 issues of the JCCP from 2008 to 2014 were analyzed and categorized. Publication guideline checklists were applied to articles. Evaluations were performed by two individuals and were discussed until consensus was reached. Operational definitions and rating scales for checklists were determined a priori. Author information was tabulated using information provided at publication. Credentials, like Doctor of Chiropractic or PhD, chiropractic diplomate certifications, and number of authors per article, were recorded. **Results:** The total papers published between 2008 and 2014 was 102, 40% of which were case reports. Private practice describes approximately 50% of the authors' affiliations compared to 75% previously. Affiliation with a college or university also increased from 9% to 43%. The papers with multiple authors increased from 17% to 45%. **Conclusion:** The JCCP experienced changes since 2007. As interdisciplinary patient care expands collaboration between authors can be expected. With the development of reporting guidelines like CARE article quality continues to improve. (This is a conference presentation abstract and not a full work that has been published.)

Resolution of low back pain and gastroesophageal reflux disease in a 29-year-old male patient following upper cervical chiropractic care: a case report

Charmaine Herman

Objective: We describe case management on a 29-year-old male patient with low back pain (LBP) and gastroesophageal reflux disease (GERD) using a specific upper cervical chiropractic technique. **Clinical Features:** This is a retrospective case report. The patient received 6-months of care for LBP and GERD with cough and chest pain. **Intervention:** The patient received 6-months of care for LBP and GERD with cough and chest pain using a specific upper cervical technique protocol to correct an upper cervical vertebral subluxation. **Outcome:** The patient reported reduction of LBP from 5/10 to 0/10 on a verbal pain scale and he no longer experienced GERD symptoms including chronic cough. Thermography scans revealed reduction of static pattern and dynamic thermal asymmetry. Deerfield and Modified Prill leg length checks improved from ½ inch short left leg to balanced leg lengths. **Conclusions:** The patient experienced significant improvement, which demonstrated the need for further investigation for the use of a specific method of correcting the upper cervical subluxations in similar cases. (This is a conference presentation abstract and not a full work that has been published.)

A practice-based pilot study of patient's attitudes about long-term care and longevity

Ronald Hosek, Edward Owens, Eric Plasker, Stephanie Sullivan

Objective: We perform an exploratory analysis of possible relationships between certain wellness measures, longevity, and chiropractic care. **Methods:** In this Institutional Review Board (IRB)–approved pilot study, a 100-item survey was administered to consenting patients who were under the care of consenting chiropractors across 11 participating clinics affiliated with a collaborating practice management group. Participation was voluntary; the survey, which could be taken either on paper or online, sampled six major areas: demography, experience with chiropractic (e.g., years under care), quality of life (PROMIS), flourishing, longevity correlates, and reaction to the survey overall. **Results:** A total of 97 surveys had complete data, which revealed: age range <18 to >80, median 45; 53% female patients, >80% white, 64% employed, 14% retired, 52% had incomes greater than $70,000; time under care, 47% 3 years of less, 53% >3 to 20+years. On the average, the population exceeded the norm on physical and mental health and on flourishing (70%). Wellness appeared to exhibit an increase in value with initial care for up to 3 years and then appeared to level off. **Conclusion:** Results suggest a much larger cross-sectional study may provide valuable insights into the effects of long term care on health and longevity. (This is a conference presentation abstract and not a full work that has been published.)

Survey of upper cervical chiropractors' level of interest in participating in practice-based research networks

Janice Hubbard, Dana Lawrence, Cyndy Long, Cheryl Hawk

Background: Practice-based research networks (PBRN's) gather data to better integrate research into clinical practice. What are the

incentives to participate or barriers preventing chiropractors from participating? There is little information regarding chiropractor perspectives on participating in a network. **Objective:** The purpose is to determine the level of interest to participate in practice-based research as reported by upper cervical chiropractors. **Methods:** A survey was presented to a convenience sample of chiropractors at the Upper Cervical Experience conference in New Orleans, Louisiana in February 2015. **Results:** Of the 52 surveys returned, the majority (82.7%) of the chiropractors expressed they would be very interested or somewhat interested in participating in a PBRN. Interesting research topics and the ability to incorporate research activities into day-to-day practice easily were described as the most common incentives to participate. Not having enough time in their schedule was the most often cited reason that would deter participation. **Discussion:** Our results regarding the motivating factors and barriers to participation were very similar to previous studies. **Conclusion:** This survey indicates an interest in participating in chiropractic PBRN's by upper cervical chiropractors. (This is a conference presentation abstract and not a full work that has been published.)

Upper cervical chiropractic and gastroparesis: a case report

Todd Hubbard

Objective: Gastroparesis is defined as a delay in gastric emptying from the stomach to the duodenum without a mechanical obstruction. Symptoms may include nausea, vomiting, abdominal pain, and bloating after eating. Currently, there is no reliable medical treatment for this disorder. The purpose of this case report is to describe the chiropractic upper cervical treatment of a teenager history of gastroparesis. **Clinical Features:** A 15-year-old female with a 5-year history of GERD and gastroparesis who was nonresponsive to medical treatment.
Intervention and Outcome: The patient received low-force chiropractic spinal manipulation to her upper cervical spine. There was a significant improvement in her symptoms within 24 hours after the first upper cervical chiropractic adjustment. She was completely asymptomatic following 4 weeks of chiropractic care. **Conclusion:** We describe the upper cervical chiropractic treatment of a 15-year-old female with a 5-year history of GERD and gastroparesis. Although no confirming conclusion can be obtained from one case, the sudden absence of her symptoms after the chiropractic adjustment is interesting and warrants further investigation. (This is a conference presentation abstract and not a full work that has been published.)

Previously undiagnosed nail patella syndrome in a 67-year-old chiropractic patient: a case report

Tracey Littrell

Objective: We detail a case of nail patella syndrome, a rare autosomal dominant condition with varied clinical presentations. **Clinical Features:** Nail patella syndrome is marked by small or absent patellae with frequent dislocations, dysplastic nails, renal disease, and ophthalmological complications. Though some findings may be identified in utero, and despite a positive family history in approximately 88% of patients with the disease, many patients are undiagnosed well into adulthood. **Intervention and Outcome:** The patient sought care for iliofemoral pain and was treated successfully for those symptoms. Nail patella syndrome was diagnosed as a result of her evaluation in a chiropractor's office. **Conclusion:** Nail patella syndrome is an uncommon presentation with chiropractic offices, but presents an opportunity for early recognition and subsequent treatment for the complications of the disease. (This is a conference presentation abstract and not a full work that has been published.)

Analysis of the ergonomic risk on the employees from a company that delivers mail and packages in Serra Gaúcha

Bruna Magnaguagno, Marcia Augusta Basso de Alexandre

Introduction: The general objective of this research was to analyze the ergonomic risk with the Rapid Upper Limb Assessment (RULA) tool, on the employees from a company that delivers mail and packages in Serra Gaúcha. **Method:** The tool used on the research was the RULA and the employees also answered a quick questionnaire. The sample was composed of 30 employees. **Results and Discussion:** Musculoskeletal disorders related to work are considered a health problem, causing high costs and low productivity and when analyzing the working posture, there is the hypothesis that these disorders have influence in the day-to-day work organization and it feeds the mental stress of the employees. The reduction of ergonomic risks can be done in an effective way and affordable reassigning the tasks. It was identified that 63.33% of the employees feel pain while working. The most mentioned complaints were back pain with 36.67% and the average final score of RULA was 4.97 with a standard deviation of 1.82. **Conclusion:** it is necessary to perform interventions in all the sectors of the company. (This is a conference presentation abstract and not a full work that has been published.)

Essential literature for the chiropractic profession: a survey of international chiropractic faculty

Barbara Mansholt, John Stites, Stacie Salsbury, Lance Corber

Objective: Chiropractic practice varies in scope between states or provinces and from country to country. It is logical to consider that the focus and emphasis of chiropractic education, philosophy, and research emphasis varies between colleges as well. The purpose of this study was to survey chiropractic faculty worldwide to determine what literature these faculty deem essential reading for chiropractors and chiropractic students. **Methods:** This study was IRB exempted. We obtained a list of all chiropractic colleges worldwide through the World Federation of Chiropractic and established a method of surveying all international faculty and developed a web-based survey that was distributed worldwide to 41 separate chiropractic programs. **Results:** A total of 47 respondents contributed at least one article of importance. Respondents represented 6 international chiropractic programs and 10 United States chiropractic colleges. A total of 126 peer-reviewed and 25 nonpeer-reviewed publications were submitted at least once; 18 received multiple recommendations. Key citations highlighted safety of spinal manipulation, effectiveness of manual therapies, and diagnosis and treatment of low back pain. **Conclusion:** A systematic approach to surveying educators in all international chiropractic institutions was accomplished. The results of the survey provide a list of "essential" literature for the chiropractic profession. (This is a conference presentation abstract and not a full work that has been published.)

Ontario Chiropractic Observation and Analysis STudy (O-COAST): improving quality of care through better understanding of current chiropractic practice

Silvano Mior, Jessica Wong, Deborah Sutton, Peter Beliveau, Andre Bussieres, Simon French

Background: There is no current detailed profile of people seeking chiropractic care in Ontario, Canada. **Purpose:** We describe the profiles of chiropractic practices and their patients in Ontario, Canada. **Methods:** We randomly recruited chiropractors in active practice from a list all licensed Ontario chiropractors. Each chiropractor recorded information for up to 100 consecutive patient encounters documenting patient health profile, reasons for encounter, diagnoses, and care provided. Descriptive statistics summarized chiropractor, patient, and encounter characteristics, accounting for clustering and design effects. **Results:** Of the 135 randomly selected chiropractors, 15 were ineligible, 43 participated, and 42 completed the study (3523 chiropractor–patient encounters). Over 65% of participating chiropractors were male, with a mean age of 44 years, and had practiced on average 15 years. Participants predominantly reported treating neuromusculoskeletal problems. The typical patient was female (56% of encounters), between 45 and 64 years (43%), retired (21%) or employed in business, finance, and administration (13%). Approximately 68% of patients paid out of pocket. Most common diagnoses were back and neck problems, and back and leg pain. Treatments included manual adjustments (72%), soft tissue therapy (70%), and mobilization (35%). **Conclusions:** Results can inform workforce development, education, and healthcare policy. (This is a conference presentation abstract and not a full work that has been published.)

Chiropractic management of a geriatric patient with lumbar degenerative disc disease, foraminal stenosis, and osteoporosis using low-force manipulation: a case report

Kenice Morehouse-Grand, Alisha Kuhn

Objective: We report the positive response to chiropractic care using low-force manipulation, of a geriatric patient with severe, chronic low back pain with underlying degenerative disc disease, foraminal stenosis, and osteoporosis. **Clinical features:** A 72-year-old female patient presented for chiropractic care with a complaint of chronic, severe low-back pain. The patient had multiple comorbidities, including osteoporosis and scoliosis. Lumbar MRI findings included foraminal stenosis and degenerative disc and joint disease. The patient had been under medical management with little positive response. **Intervention and Outcome:** Chiropractic treatment included mechanical-force, manually assisted chiropractic adjustments (Activator Methods Instrument) and a low-force, table-assisted technique (Thompson technique). Cold laser or Ultrasound therapy also was used. The patient was treated for 13 visits over 11 weeks. The patient exhibited significant improvement as measured by outcome assessment instruments and visual analogue scale (VAS). **Conclusion:** Chiropractic care using low force manipulation and physiotherapy was successful in alleviating chronic lower back pain in this particular patient. (This is a conference presentation abstract and not a full work that has been published.)

The effects of chiropractic care on horses: a literature synthesis

Ashley Murray, Danielle Wiesner, Brittany Dunlop, Evan Bell, David Starmer

Purpose: Review and evaluate recent literature concerning the effectiveness of chiropractic care for horses and stimulate further high quality research in this field of study. **Methods:** A systematic search was conducted on August 9, 2015. The following search terms were used in a Web of Science and Medline search of several databases: (horse OR equine OR equus) AND (chiropract* OR adjust* OR manip* OR mobil*). Articles meeting the inclusion criteria were assessed using the Scottish intercollegiate guidelines network (SIGN) rating system to determine the methodology and bias of the articles. **Results:** The search produced 7499 articles. Five studies remained after eliminating those that did not fit the inclusion criteria. All articles investigated spinal manipulative therapy (SMT) using varying outcome measures in horses. There was one unacceptable article, three acceptable, and one high quality as assessed using SIGN criteria. **Conclusion:** Although there is minimal high quality research, SMT has been suggested to improve pelvic symmetry, spinal flexibility, range of motion, tolerance to pressure, and decrease pain in equine patients. Further quality research investigating the effectiveness of chiropractic care for horses, focused on optimal treatment dosage in athletic horses with documented pain is necessary. (This is a conference presentation abstract and not a full work that has been published.)

Use of complementary and alternative medicine to improve athletic or sport performance by adults in the United States

Harrison Ndetan, Will Evans, Ron Williams

Introduction: Enhancing performance in the area of sport, or other aspects of life is a common notion for many in athletics, the music or entertainment industry, or even in educational settings. This investigation assessed the 2012 National Health Interview Survey (NHIS) on complementary and alternative (CAM) health use for the purpose of sport and performance improvement. **Methods:** The study was a secondary data analysis of the Adult Alternative Health/(CAM) file of 2012 NHIS dataset. Analysis was performed using SAS9.3 to generate national population estimates (NPE) of reported use and perception of helpfulness. **Results:** Use of CAM therapies is reported for a variety of performance-improving areas, including over 14 million for athletic and sport performance. An overwhelming majority (76%–100%) who used them reported them to be helpful. **Conclusion:** The popularity of CAM therapies among those using them for athletic and sport performance, as well as other performance improvement is noted. Satisfaction when they are used is high. Future research could evaluative specific sports where CAM is applied to improve performance, frequency of use within specific sports, and any adverse effects or physiological mechanisms that exit. (This is a conference presentation abstract and not a full work that has been published.)

Quantifying potential wider health/wellbeing benefits of chiropractic intervention for specific disorders: a pilot study

Anne O'Donaghue, Adrian Hunnisett, Christina Cunliffe

Introduction: Patients who chose Complementary Alternative Medicine (CAM) therapies often report effects beyond those associated with their treatment goals and these are not always captured by the outcome measures currently available. This study evaluated the use of the Self Rated Health and Wellness Survey (SRHWS) within a clinic setting to collect a wider set of health/wellness patient data and determine if patients are experiencing wider health benefits. **Method:** Following ethical approval, a cohort study was undertaken. Participants were selected from patients attending the Student clinic of the local chiropractic college. The study involved the coadministration of the SRHWS alongside the, normally used, Measure Yourself Medical Outcome Profile (MYMOP2) questionnaire, which includes the Patients Global Impression of Change (PGIC). **Results:** The results of 2-tailed P tests indicated that, notwithstanding the small sample size in this study, patients experienced other benefits in Physical State, Mental/Emotional State, Stress Evaluation, and Overall Quality of Life measure. **Conclusion:** The SHRWS provided an easy to administer survey within a clinic setting and facilitated the collection of retrospective data of perceived improvements in health and wellness over a 3-month period of chiropractic care. (This is a conference presentation abstract and not a full work that has been published.)

Lipoma arborescens of the knee: an unusual case of chronic knee joint swelling in a 25-year-old male

Tunde Olatunji, Siri Leech, Ranier Pavlicek

Objectives: We describe a rare case of lipoma arborescens involving the knee in an adult male patient. **Clinical Features:** A 25-year-old man presented to a chiropractic teaching clinic with a 1-year history of progressive left knee joint pain and swelling. The patient reported a dislocation injury 7 months prior with an initial diagnosis of a medial collateral ligament (MCL) sprain. The patient came to our clinic with continued MCL pain and joint effusion. The patient had proprioceptive deficits while performing one leg balance and going up and down stairs. **Intervention and Outcome:** Patient underwent 4 weeks of physiotherapy and manipulation with MCL and joint pain relief. However, suprapatellar joint effusion continued. Radiography was performed for further evaluation with notable suprapatellar joint radiolucency and distension. Knee MRI revealed extensive fatty proliferation of the suprapatellar synovium with joint effusion. Lipoma arborescens was confirmed on arthroscopic synovectomy by an orthopedic surgeon. **Conclusion:** Unresolved knee joint effusion should be given further consideration to a synovial proliferative joint disorders such as lipoma arborescens. MRI is the best diagnostic imaging for confirmation along with pathology sampling. (This is a conference presentation abstract and not a full work that has been published.)

Spinal manipulation and dynamic neuromuscular stabilization care for a 4-year-old patient with agenesis of the corpus callosum

Mike Oppelt, Virginia Barber, Susan Larkin

Objective: Describe the chiropractic care of a 4-year-old patient with agenesis of the corpus callosum. **Clinical Features:** Chiropractic care was rendered on a twice a week basis with the inclusion of at-home exercises coupled with academic intervention of physical and occupational therapies and assistive devices. **Intervention and Outcome:** During the course of 1 year of consistent high velocity low amplitude chiropractic treatments coupled with an academic year of physical and occupational therapy intervention and home exercise program, this patient has made dramatic developmental strides. At the time of this writing, he is able to walk independently for approximately 100 feet with the use of leg braces and a walker. The parents report that he "wants to try more physical activities" versus his past contentment to remain in a seated position listening to music and staring at colors. He has had an increase in the frequency of meaningful language. His parents report that he is more "content and

social." School personnel indicate that he has made significant advances in preschool. His periods of agitation are less frequent and less severe. **Conclusion:** This therapeutic approach decreased aberrant posture and enhanced quality of life. (This is a conference presentation abstract and not a full work that has been published.)

How well do diagnosis codes from claims databases represent health issues of chiropractic patients?

Edward Owens, Joseph Esposito, Ronald Hosek, Stephanie Sullivan

Objective: We assess the diagnosis codes used by practicing chiropractors. **Methods:** In this IRB-approved study, we extracted patient demographics and diagnosis codes from a commercial Electronic Health Care System. Codes were grouped by 3-digit code roots and analyzed for frequency of use. **Results:** A set of 89,000 codes were collected from 23,354 patient records from 39 different clinics. The code group 739.xx was the most frequently found, with 29% cervical, 26% thoracic, and 22% lumbar. **Conclusion:** There was overwhelming reliance on the codes beginning with 739. These are described as "Somatic Dysfunction" or "nonallopathic lesion not otherwise defined" or simply "subluxation." In more than 1/5th of patients 739 was not accompanied by codes to indicate back pain. We suspect that 739 is used to satisfy Medicare coding requirements, and has tended to become widespread across other case types as well.
We also suspect that diagnosis codes in claims databases do not well represent the presenting complaints of patients seeking chiropractic care. Doctors might not document conditions for which they do not expect to be reimbursed. We recommend an additional chief-complaint field in EHRs to gain a better understanding of the patient profile. (This is a conference presentation abstract and not a full work that has been published.)

The long-term effects of continuing chiropractic care: a feasibility study

Edward Owens, Eric Plasker, Ronald Hosek, Stephanie Sullivan

Design: A pilot study to test procedures and feasibility of a cross-sectional practice-based study of the effects of long-term chiropractic care on health-related quality-of-life and attitudes toward longevity. **Methods:** In this Institutional Review Board (IRB)–approved pilot study, 11 practices were trained in a serial recruitment process to collect survey information from patients undergoing chiropractic care. All patients over the age of 18 were eligible. Consenting participants filled out a 101-item questionnaire, either online or on paper according to their preference. **Results:** We recruited 110 patients over a 1-month period. Patients of all age groups were recruited successfully, along with patients having a wide range of years under care. Patients were relatively affluent and predominantly Caucasian. Most practices used log sheets appropriately, but there were more patients that gave verbal consent than there were data records collected. **Conclusion:** A cross-sectional study of this kind is feasible, although processes will need to be improved before a larger study is begun. Better training methods for office staff are needed to improve log sheet compliance and a follow-up method is needed to track patients who consent, but do not provide data in a timely manner. (This is a conference presentation abstract and not a full work that has been published.)

Publicly funded chiropractic integration in an inner city community health center: a program description

Steven Passmore

Objective: We describe the initial integration of chiropractic services into the Mount Carmel Clinic (MCC) a publicly funded healthcare facility in Winnipeg, Manitoba, Canada. Our objective is to explore and interpret patient demographics, referral patterns, treatment practices and clinical outcomes. **Method:** A retrospective database review of chiropractic consultations in 2011 ($N = 177$) was performed. Ethics approval was attained from the University Health Research Ethics Board. **Results:** The typical patient referred for chiropractic care was a nonworking (86%), 47.3-year-old (SD = 16.8), who self-identified as Caucasian (52.2%), or Aboriginal (35.8%), and female (68.3%) with a body mass index considered obese at 30.4 (SD = 7.0). New patient consultations were primarily referrals from other health providers internal to the MCC (71.2%), frequently primary care physicians (76%). Baseline to discharge comparisons of numeric rating scale scores for the cervical, thoracic, lumbar, sacroiliac, and extremity regions all exceeded the minimally clinically important difference for reduction in musculoskeletal pain. Improvements occurred over an average of 12.7 (SD = 14.3) treatments, and pain reductions also were statistically significant at $P < 0.05$. **Conclusion:** Publicly funded chiropractic services are being used by patients, and referring providers. Clinical outcomes indicate that services rendered decrease musculoskeletal pain in an inner city population. (This is a conference presentation abstract and not a full work that has been published.)

Identifying training gaps in faculty as educators using a needs assessment

Kristina Petrocco-Napuli, David Seaman

Objective: With the ever changing accreditation requirements, it is incredibly important for faculty at healthcare institutions to have support relating to development as an educator to engage and connect with the current generation of students as well as meet the new demands of learner assessment. Performing a needs assessment can be beneficial in assisting academic institutions to design, develop, and create faculty development opportunities. **Methods:** A needs assessment was designed and developed based on best practices and was to assist in obtaining broad general feedback to establish a baseline of current instructional perspectives in a low risk manner. The survey was designed in a short answer format and questions were opened ended. **Results:** Of the full time faculty cohort, there was a 100% response rate in which the faculty responded to the survey in a timely manner throughout the 2-week time frame. The second cohort had $n = 3$ respondents and the third cohort had an $n = 2$. **Conclusion:** The survey suggests faculty regardless of their affiliation with the academic institution appear to have interest in participating in development associated with instruction in the classroom with the condition that it is performed in a constructive and safe manner. (This is a conference presentation abstract and not a full work that has been published.)

Attitudes and knowledge of sports injury management: a survey of chiropractic interns

Mark Pfefer, Jason Qualls, Angela Segovia, Christin Phillips

Objective: Recent studies have investigated medical residents' perceived level of comfort in treating common sports injuries across medical and nonorthopedic residency programs in the United States. Studies are lacking in the chiropractic field related to attitudes and knowledge of sports injury management among chiropractic student interns. The purpose of this study was to investigate knowledge and attitudes related to sports injury management among chiropractic student interns. **Methods:** A survey was performed at one chiropractic college to assess knowledge and attitudes related to assessment and management of sports injuries. **Results:** A total of 67 student interns completed the survey for a 63% response rate. Many chiropractic student interns have participated in high school or college athletics and are interested in managing sports injuries in their planned, future practices. Large numbers of respondents have not had specialized training in sports injury diagnosis and management, and a large number of student interns performed poorly on the knowledge portion of the survey. **Conclusion:** Additional training in sports injury assessment and management is needed among chiropractic student interns. (This is a conference presentation abstract and not a full work that has been published.)

Use of Biofreeze in addition to chiropractic care among chronic headache patients: a case series

Mark Pfefer, Stephan Cooper, Angela Segovia, Luke Lambert, Priya Albee, Derrick Dube

Objective: Anecdotally, many chiropractors use and recommend Biofreeze a topical menthol-based pain reliever, as an adjunct for back pain, neck pain, and some types of headaches. The purpose of this prospective pilot case series was to evaluate feasibility of using complex outcome assessments in patients with chronic headache and to evaluate plausibility and effects of using Biofreeze in addition to ongoing chiropractic care in patients with chronic headache. **Methods:** Adults with chronic primary and cervicogenic headache were recruited to participate in a prospective case study to investigate effects of using topical Biofreeze on the neck muscles in addition to

chiropractic care. **Results:** Five participants completed 2 months of chiropractic care with the addition of topical Biofreeze applied daily to the anterior and posterior neck muscles. Headache disability scores and headache frequencies were reduced from baseline at 4 and 8 weeks. **Conclusion:** The addition of Biofreeze topical menthol-based solution applied to the neck muscles, in addition to chiropractic care, may provide benefit to patients with chronic headache. Future research is needed to confirm this effect. (This is a conference presentation abstract and not a full work that has been published.)

Evaluation of barriers to implementing patient safety reporting and learning systems at two chiropractic teaching clinics

Katherine Pohlman, Maeve O'Beirne, Haymo Thiel, Silvano Mior, Anthony Tibbles, Craig Jacobs, Martha Funabashi, Sunita Vohra

Objective: This cross-sectional study evaluated and compared perceptions of interns and clinicians from Anglo-European Chiropractic College (AECC) and Canadian Memorial Chiropractic College (CMCC) regarding factors limiting participation in a patient safety reporting and learning system. **Methods:** We generated the survey factors using a systematic approach, including reviewing the literature and conducting focus groups of target audience and experts. In September 2014, all interns and clinicians at AECC ($n = 149$) and CMCC ($n = 209$) were invited to participate. **Results:** The response rate was 57.5% (225/359). Time pressure was the largest concern identified by clinicians and interns at both institutions with regards to participation. Interns and clinicians at CMCC reported "regulatory implications," "legal implications," and "fear of blame" as concerns compared to those at AECC ($P < 0.05$). Additionally, "resource constraint" was identified by CMCC clinicians as a significant barrier to participation. **Conclusion:** Our study reports similar barriers to implementing safety reporting systems in chiropractic teaching clinics as in other health professions. The significance of such barriers may be impacted by jurisdictional influences. (This is a conference presentation abstract and not a full work that has been published.)

Effects of grouping method on exam scores when collaborative testing

Ali Rabatsky, Michael Bovee

Objective: Collaborative testing has been shown to have many benefits. Recent research has centered on how group formation method affects learning. In this study, we compared exams scores of groups formed at random by the instructor to groups that were allowed to select their own members. **Methods:** Students enrolled in a 6th trimester technique class at a chiropractic college were used for this study. Students were assigned to either a randomized group or allowed to form their own groups. Exam scores for three exams, as well as student comments, were measured and compared. **Results:** Students that were allowed to form their own groups performed significantly better on the first exam compared to the randomized group, but both groups performed equally well on the second and third exams. Student comments revealed a clear preference for choosing their own groups. **Conclusion:** While no quantitative evidence was found in our study, qualitative evidence supported allowing students to form their own groups. Self-selecting group members may increase the intrinsic motivation of the student to learn and foster a more positive, productive learning experience. (This is a conference presentation abstract and not a full work that has been published.)

Health education to prevent age-related macular degeneration in the United States population

Dewan Raja, Bahar Sultana

Age-related macular degeneration (AMD) is an important cause of irreversible vision loss among the elderly, causing them to lose their central vision gradually. Eventually, a person with AMD finds it difficult to read, drive, or recognize familiar faces. Its exact cause is unknown, but it afflicts approximately 6.5% of the United States population over the age of 40. By 2050, the projected number of Americans with AMD is expected to reach anywhere from 2.07 to 5.44 million. The objectives of this study are to describe the scope of health education in the prevention of age-related macular degeneration, and to identify the predisposing factors preventing age-related macular degeneration. Our method was to review multiple relevant literatures from PubMed and End Note with macular degeneration as the key word. We determined that AMD can be prevented through the cessation of smoking, maintenance of ideal body weight, regulation of serum cholesterol level, and control of diabetes and hypertension. Appropriate food selection also is essential to its prevention, including intake of leafy greens (e.g., spinach, kale), broccoli, fruits, nuts, and vitamin supplements. The consumption of fish, including salmon and sardines, also can help its prevention. (This is a conference presentation abstract and not a full work that has been published.)

The polyvagal theory and its relationship to pediatric chiropractic

Drew Rubin, Haley Wilson, Ryan Harward

Background: The autonomic nervous system traditionally has been thought of as a dual system, containing a parasympathetic portion (used for rest/digest), and a sympathetic portion (used for fight/flight). This split concept was changed in 1995, when Dr. Stephen Porges introduced the polyvagal theory. The 3rd branch is the social engagement system, controlled by the myelinated portion of the vagus nerve. Addressing the vagus nerve with chiropractic care might prove to be beneficial for children suffering from neurodevelopmental issues. **Methods:** Four children with neurodevelopmental issues were adjusted with a parasympathetic vagal-centric focus. Force application was delivered using techniques, such as Network and tonal-based cranial work. **Results:** All four children showed measurable improvement not just in physical abilities but also in social engagement. **Conclusion:** The social engagement system controlled by the vagus nerve has significant potential ramifications for a child with neurodevelopmental issues. Analyzing and using chiropractic force applications within the parasympathetic system may be beneficial for special needs children. (This is a conference presentation abstract and not a full work that has been published.)

Perceptions of students, student interns, and graduates in preparedness for practice

Lisa Rubin, Drew Rubin

Background: This current study explores the perception of preparedness in students, student interns, and graduates educational experience. It also examines clinical skills and stressors that contribute to the overall educational experience readying for practice. **Methods:** Questionnaires assessed how well perceived education was for preparing participants for practice. Stressors also were questioned to determine if there was an impact related to financial, relationshipm and social stressors encountered during their education. **Results:** Participants reported the least financial stress during their first year of chiropractic school and felt more confident with clinical and diagnostic skills compared to content knowledge of basic sciences. Overall confidence was reported in radiology, physical exams, and patient interviewing skills compared to primary care and patient management. The subjects reported satisfaction and confidence with their acquired skills. **Conclusion:** This research shows that students at a chiropractic school feel prepared for some clinical aspects of practice, but not as prepared for the "real world" practice that they are thrust into after graduation. This research can contribute to chiropractic education in continually improving the educational experience as well as preparedness for practice for our students. (This is a conference presentation abstract and not a full work that has been published.)

Upper cervical chiropractic management of overuse syndrome in a violist: a case report

Philip Schalow

Objective: The objective is to encourage chiropractors to consider craniocervical junction misalignment when evaluating musicians' injuries. Symptom improvement after upper cervical chiropractic care with the National Upper Cervical Chiropractic Association (NUCCA) procedure allowed a concert violist to return to her career. **Clinical features:** A 64-year-old female violist suffered with neck, arm, wrist, and hip pain two years after a fall. Due to pain and loss of stamina, she lost the ability to raise her arms to support the instrument. **Intervention and outcome:** We determined the presence of an atlas subluxation complex (ASC); NUCCA protocol was followed, including supine leg check, postural assessment with inclinometer, and

a three-view orthogonal radiographic exam of the upper cervical spine. The primary outcome used a 0 to 15-scale visual analog scale. Following atlas correction, postadjustment evaluation with radiographs demonstrated reduction of the misalignment. The patient experienced immediate relief. After several months, she reported no further incidence of neck, arm, wrist, or hip pain while performing. **Conclusion:** These results suggest an atlas correction may be associated with functional improvement for a career violist. A longitudinal study with a control group is indicated. (This is a conference presentation abstract and not a full work that has been published.)

Perspectives, viewpoints and understanding of pain management concept among chiropractic students and chiropractic physicians

David Schimp, Cami Stastny, David Taylor

Objective: The purpose of this study was to learn if chiropractic students and chiropractic physicians share similar perspectives on pain management concepts, how experience may shape viewpoints and whether or not these viewpoints are consistent with the contemporary scientific literature. **Methods:** An anonymous internet survey was used to collect responses from chiropractic students and doctors of chiropractic. The survey contained 44 validated pain-based questions and data were analyzed in an Excel spread sheet for trends and generalizations.
Results: Chiropractic students with more than 2 years of clinical training and chiropractic physicians shared common viewpoints on 40/44 questions on this internet-based survey. There was slightly less agreement between students with less than 2 years of training and the chiropractic physician group. **Conclusion:** Chiropractic students and chiropractic physicians share similar perspectives, viewpoints and understanding of pain management concepts. Viewpoints expressed were in general agreement with the scientific literature on the majority of topics. These findings suggest that chiropractic students and chiropractic physicians have a good general understanding of pain management concepts and further that clinical experience does not tend to influence perspectives heavily. (This is a conference presentation abstract and not a full work that has been published.)

Management of a 30-year-old male mixed martial arts fighter presenting with posttraumatic spinal cord injury consistent with cord contusion

Adam Sergent, Scott Self, Matthew Richardson

Objective: To describe diagnosis and management of a 30-year-old Mixed Martial Arts fighter who experienced a hyper-extension injury to the cervical spine resulting in contusion of his spinal cord. **Clinical Features:** A 30-year-old man was struck in the face, causing his head and neck to be forced into extreme extension. He presented with swollen hands that were hypersensitive to touch, cold, air, and temperature. Muscles in his forearm and hand were in spasm, with inability to extend his fingers. **Intervention and Outcome:** He was initially examined at the clinic and cervical spine radiographs were taken and interpreted as negative for fracture. An MRI of the cervical spine was ordered due to the neurologic presentation. It showed findings consistent with spinal cord contusion. The patient was referred to a neurosurgeon for further evaluation and management. Over a 3-week period his symptoms started to decrease; however, he remains a candidate for surgery. **Conclusion:** The patient was referred a neurosurgeon and no chiropractic manipulation was rendered. The chiropractor was a vital provider in the care and management of this case, recognizing signs of neurological injury to the cord and making appropriate referrals for consultation with a neurosurgeon. (This is a conference presentation abstract and not a full work that has been published.)

A 17-year-old postconcussive male receiving chiropractic functional neurology care with whole body rotation: a case report

Stephanie Sullivan, Michael Longyear, Jonathan Vestal, Dan Tuttle, Ronald Hosek

Objective: The purpose of this case report was to document changes in clinically based outcome assessments along with brain wave and cognitive changes as assessed through qEEG and computerized cognitive testing of a 17-year-old postconcussive male athlete who received chiropractic functional neurology care. **Clinical features:** Patient presented to a chiropractic functional neurology center for postconcussive syndrome subsequent to a concussion 6-months prior. Oculomotor deficits, dystonia, and diminished fine motor skills were revealed in the clinical examination. Reaction time, executive function, and spatial working memory were diminished. **Intervention and Outcome:** Research informed consent was obtained from the parent. Care was provided for five consecutive days, two to three sessions per day. Chiropractic adjustments, whole body rotation, and tailored chiropractic functional neurology interventions were used. Patient reported improvement across all diminished domains following 1-week of care. Personality returned to preconcussion state, eye and motor coordination improved, and cognitive assessment scores improved. **Conclusion**: Patient experienced rapid recovery of PCS symptoms, and changes were observed clinically and with quantitative electroencephalography. This suggests chiropractic functional neurology care may serve as a viable therapeutic intervention for patients suffering PCS. (This is a conference presentation abstract and not a full work that has been published.)

Intraexaminer reliability of measurements of ankle range of motion using a modified inclinometer: a pilot study

Patricia Tavares, Victoria Landsman, Les Wiltshire

Objective: A modified inclinometer was designed for measuring ankle range of motion (ROM) in the standing position. This device was required to measure the ankle ROM for a large population of participants attending a mobile chiropractic outreach clinic in the Dominican Republic. The purpose of this study was to determine intraexaminer reliability of this new device and compare it to a goniometer routinely used for measuring ankle ROM in the supine position. **Methods**: A total of 19 participants of similar age took part. Two repeated ROM measurements were taken on the same day, a few hours apart, using the goniometer and inclinometer. Another ROM measurement using each of the instruments was taken again a few days later. **Results**: Intraclass correlation coefficient (ICC) values for the goniometer were 0.86 (same day measurements) and 0.83 (two different days). For the inclinometer these values were 0.88 and 0.82, respectively. **Conclusion**: The modified inclinometer is a sturdy device that controls for toe contribution to the ankle ROM and allows taking measurements in the standing rather than in the supine position. The device had high intraexaminer reliability, which was comparable to that found with a standard goniometer. (This is a conference presentation abstract and not a full work that has been published.)

Chiropractic and allopathic physician knowledge about traumatic brain injury care

David Taylor, John Ward

Objective: We assess the concussion knowledge of portal of entry chiropractic and medical practitioners. **Methods:** A survey was designed with questions to assess healthcare practitioner's knowledge and practices regarding mild traumatic brain injury. Responses were received from 23 chiropractic and 11 medical physicians. The results then were entered into Excel and summarized. **Results:** Medical physicians reported being more knowledgeable about diagnosing the severity of TBI (90.9%) compared to chiropractic doctors (82.6%). Both groups recognized that concussions can occur from impact or nonimpact injuries. Very few doctors of both groups were familiar with the Zurich Consensus Guidelines for Concussion (13% DC, 9% MD). More than half of the MDs were familiar with the SCAT 3 assessment tool, as compared to only 26.1% of DCs. Upper cervical spine injury symptom mimicry was much more recognized by chiropractors (91.3%) than MDs (54.5%). Chiropractors were shown to be less likely to interview family members of the patient about cognitive symptoms than MDs. **Conclusion:** Both groups demonstrated unique attributes. Chiropractors were more likely to understand that upper cervical spine injuries can mimic concussion symptoms. MDs were more likely to ask patient's family members about a patient's cognitive function. (This is a conference presentation abstract and not a full work that has been published.)

A survey of membership perceptions of the American Chiropractic Association Sports Council (ACASC)

Michael Tunning, Dustin Derby, Judd Gines

Background: The American Chiropractic Association was established in 1972 with a focus on bringing educational and networking opportunities to individuals interested in working with athletes. **Objective:** The authors performed a survey of membership perceptions regarding the benefits of membership and future directions. **Methods:** An expert developed, pretested survey deployed using SurveyMonkey. The study used descriptive statistics to address research questions related to perceptions of benefit values. **Results/discussion:** The study achieved a 35% response rate with members overall very satisfied with their membership. Most members joined the sports council for educational purposes, but also see great value in the networking. Under-used member benefits include the membership publication "Sports Talk" and the "Find a DC" service with doctor profiles on the council website. Networking and mentorship also present opportunities for increased involvement. **Conclusion:** The ACASC is a specialty council focused on bringing educational, service, and networking opportunities to its membership. Overall, membership is satisfied with the benefits. The ACASC can continue to bring value to its members through quality learning materials, social events, and service events. (This is a conference presentation abstract and not a full work that has been published.)

Immediate influence of lumbar spine manipulation on pain, functional reach, static balance, and walking gait kinematics of individuals with acute low back pain

Ken Tyer, John Ward, Amir Pourmoghaddam

Objective: To study the impact of spine manipulation on pain, functional reach, static balance, and walking gait kinematics of individuals with acute low back pain (LBP). **Methods:** A total of 58 participants with LBP engaged in a baseline numeric rating scale (NRS) pain assessment, functional reach test (FRT), one-legged balance test of both lower limbs, and walking gait evaluation using motion capture technology. They were randomly and equally assigned to one of two interventions: (1) bilateral lumbar spine manipulation at L-3 (Manip group) or (2) no manipulation (No-Manip group). A postintervention assessment was conducted. A between-within repeated-measures analysis of variance using between-subjects factor intervention (Manip versus No-Manip) and within-subjects factor time (baseline and posttest) was used. **Results:** There was a significant main effect for NRS pain score for participants in the Manip group, $F(1, 66) = 27.71$, $P = 0.000$, $r = 0.54$, decrease of 1.4 points. There was a significant main effect for step length for participants in the Manip group, $F(1, 66) = 4.69$, $P = 0.037$, $r = 0.26$, increase of 13.5 mm. **Conclusion:** Short-term, spinal manipulation of patients with acute LBP resulted in a decrease in pain and improvements in step length. (This is a conference presentation abstract and not a full work that has been published.)

Symptomatology compression rates of chiropractic patients with acute low back pain at 2-weeks and 4-weeks

Ken Tyer, John Ward, Coats Jesse, Amir Pourmoghaddam, William Amonette

Objective: The purpose of this study was to investigate symptom compression rates of chiropractic patients with acute low back pain over a 4-week period. **Methods:** A total of 36 patients with acute low back pain received four weeks of chiropractic care. Survey data points were recorded at baseline, and 2 and 4 weeks later. Outcome instruments used were the visual analog scale (VAS) pain score, Roland-Morris Low Back Pain and Disability Questionnaire (RDQ), and Short Form-36 (SF-36) General Health Survey. A repeated measures analysis of variance (ANOVA) was used to analyze within-group data over time. **Results:** VAS score decreased by 37.5% ($P = 0.000$) from baseline to 2-weeks post, and by 66.2% total (P=0.000, partial η^2=0.557) from baseline to 4-weeks post. RDQ score decreased by 32.9% ($P = 0.002$) from baseline to 2-weeks post, and by 44.3% total ($P = 0.000$, partial $\eta^2 = 0.260$) from baseline to 4-weeks post. SF-36 score increased by 17.0% ($P = 0.000$) from baseline to 2-weeks post, and by 25.1% total ($P = 0.000$, partial $\eta^2 = 0.534$) from baseline to 4-weeks post. **Conclusion:** Proportionately, the most rapid improvements in VAS, RDQ, and SF-36 occurred during the first two weeks of care compared to the last two weeks of care. (This is a conference presentation abstract and not a full work that has been published.)

Avulsion fracture of the lesser trochanter in a high school athlete

Michael VanNatta

Objective: We discuss the diagnosis and management of an avulsion fracture of the lesser trochanter in a young athlete, and to identify sources of groin pain in such populations. **Clinical Features:** A 17-year-old male experienced burning medial proximal thigh pain after performing a "sprint–cover" football drill and sought chiropractic care. **Intervention and Outcome:** The primary treatment modality used initially in the acute phase was rest, ice, compress, and elevate (RICE). The patient underwent a 5-stage rehabilitative exercise program. He was able to return to active football participation in 10 weeks. **Conclusion:** The patient responded favorably to exercise program for the treatment of a lesser trochanter avulsion fracture and was able to return to active football participation. The lesser trochanter avulsion fracture is a rare type of avulsion fracture involving the pelvis. (This is a conference presentation abstract and not a full work that has been published.)

Effects of chiropractic technique elective courses and extracurricular activities on students' choice of chiropractic technique

Paul Wanlass, David Sikorski, Anupama Kizhakkeveettil, Gene Tobias

Introduction: National Board of Chiropractic Examiners surveys of chiropractors indicate that Diversified is the most commonly used technique, and several published studies have shown a correlation between technique curricula and graduates' technique preferences in practice. The curriculum at our institution has been modified to require electives, including courses in chiropractic technique. We asked students' opinions of the effect of these elective courses on their future practice technique preferences. **Methods:** We conducted an IRB-approved survey of interns. **Results:** A total of 142 interns completed the survey, for a response rate of 89%. The two most preferred future practice techniques were Activator and Diversified. More than half of the respondents indicated that their choice to use a chiropractic technique in future practice was more likely after taking an elective course in that technique. **Discussion:** The current students' future practice technique preferences are similar to those of practicing chiropractors. The correlation between our curriculum and students' future practice technique preferences is similar to results published by others. Technique elective courses, because of their practical, "hands-on" nature appear to have a profound influence on interns' practice preferences. **Conclusion:** Technique elective courses had a significant effect on interns' future practice technique preference. (This is a conference presentation abstract and not a full work that has been published.)

Prevalence of low back pain, pelvic girdle pain, and combination pain in a postpartum Canadian population

Sarah Batley, Melissa Corso, Sara Ho, Kristen Wishloff, Victoria Landsman, Patricia Tavares, Jon Barrett, Carol Ann Weis

Objective: The purpose of this study is to determine the point prevalence of low back pain (LBP), pelvic girdle pain (PGP), or combination pain at 1, 3, and 6 months in postpartum women in a Canadian population. The secondary aim is to identify risk factors associated with pain at 6 months postpartum. **Methods:** A telephone survey was performed at 1, 3, and 6 months postpartum. Participants were recruited from a previous survey examining the prevalence of LBP, PGP, and Combo pain. Data were characterized by prevalence proportion and confidence intervals. **Results:** At 1, 3, and 6 months postpartum 15.2%, 19.7%, and 19.04% of women suffered from LBP, respectively, and 4.3%, 4.9%, and 3.17% women experienced combination pain. At no time point was PGP reported to occur alone. Participants who suffered from pregnancy-related pain reported higher VAS pain scale scores and still were suffering at 6 months postpartum. **Conclusion:** For some new moms, LBP is present in the postpartum phase and may increase over time. This may affect activities of daily living and their ability to return to work. Higher

VAS scores during pregnancy may predict the presence and duration of pain in postpartum. (This is a conference presentation abstract and not a full work that has been published.)

Prevalence of low back pain, pelvic girdle pain, and combination pain in a pregnant Canadian population

Carol Ann Weis, Karen Ngo, Tu Huynh, Crystal Draper, Victoria Landsman, Patricia Tavares, Jacky Leung, Jon Barrett

Objective: We determine the prevalence of low back pain (LBP), pelvic pain (PGP), or combined pain (Combo pain) in pregnant women in a large Canadian city. Secondary analysis will focus on location of pain before pregnancy and presence of pain during pregnancy and adjusted for possible risk factors. **Methods:** A 44-questionnaire regarding LBP, PGP and Combo pain was distributed to pregnant women in a Canadian urban center. Primary analysis of the data was characterized by prevalence proportion and confidence intervals. Secondary analysis included proportions and regression analysis. **Results:** The point prevalence for women who were experiencing LBP, PGP, and Combo pain the day they were surveyed was 21.9%, 15.9%, and 14.7%, respectively. The percentage of women who experienced LBP, PGP, and Combo pain on a day other than the survey day was 26.4%, 14.0%, and 33.9%, respectively. In addition, women who suffered from LBP and PGP before pregnancy were are a greater risk (7-times) of experiencing pregnancy-related back pain. **Conclusion:** In the Canadian population surveyed, most women suffered from some sort of pregnancy-related back pain. Understanding more about the individual conditions before and during pregnancy will help to determine treatment options. (This is a conference presentation abstract and not a full work that has been published.)

Attitudes and perceptions of chiropractic healthcare in the United States: an online survey

Jon Wilson, Mark Pfefer, Rebecca Burkhalter, Ruth Sandefur, William McDonald

Objective: The purpose of this study was to perform an in-depth survey of a large sample of United States adults related to their perceptions of chiropractors. An additional aim was to determine the use of using an innovative protocol for online survey of United States populations. **Methods:** The topics of the survey were wide ranging in an attempt to better understand multiple aspects of perceptions related to chiropractic. The electronic survey was delivered using Qualtrics and respondents were recruited using Amazon's Mechanical Turk (MTurk). **Results:** A total of 82% of respondents would consider going to a chiropractor in the future if needed, and 18.0% would not consider going to a chiropractor in the future. Respondents were grouped into one of four categories based on if they had been to a chiropractor in the past, and if they would consider going to one in the future. **Conclusion:** Use of chiropractic care would likely increase though a collaborative approach. There are measurable differences in those who would and who would not consider using chiropractic care in the future. This topic requires further study. Recruiting survey participants using MTurk offers high utility to academic researchers. (This is a conference presentation abstract and not a full work that has been published.)

Patient-reported side effects immediately after chiropractic scoliosis treatment: a cross-sectional survey using a practice-based research network

A Joshua Woggon, Dennis Woggon

Objective: We present the self-reported responses of 199 scoliosis patients over 3198 unique visits, collected over one calendar year from nine chiropractic clinics, regarding how they felt and the side effects they experienced immediately after chiropractic treatment. **Methods:** A response form was provided to each scoliosis patient at the end of their clinic visit, and consisted of two questions: "How do you feel after your treatment today?" and "Did you experience any side-effects as a result of your treatment today?" **Results:** We collected199 informed consent forms and 3198 response forms, suggesting an average of 16 visits per patient. Patients reported feeling worse post-treatment after 4.9% of the visits. The incidence of side-effects was 29.4%. Muscle soreness accounted for 35.2% of all side effects, and 99.9% of all side effects were classified as mild. **Conclusion:** Mild side effects were common. The rate of moderate side effects reported was one per 533 visits. No serious adverse events occurred. Based upon these preliminary data, side effects reported by scoliosis patients immediately after chiropractic treatment appear to be relatively common but generally benign. (This is a conference presentation abstract and not a full work that has been published.)

Effect of atlas vertebrae realignment in a subject with migraine: a case report

H Charles Woodfield

Objective: We report a case study on cerebral flow changes measured with phase-contrast magnetic resonance imaging, before and after an atlas vertebrae realignment intending to reduce a subject's migraine symptoms. Clinical Features: A 61-year-old male subject with a neurologist confirmed history of chronic migraine headache volunteered for cerebral flow imaging before and after atlas realignment. Subject reported history of major childhood head trauma unrelated to onset of migraine symptoms. **Intervention and Outcome:** Using noninvasive imaging, hemodynamic and hydrodynamic parameters of cerebral flow were measured before-after an intervention following the procedure of the National Upper Cervical Chiropractic Association (NUCCA). Changes in process measures determining intervention necessity confirmed realignment success. Improvements in patient-reported outcome measures substantiated resolution of subject's migraine symptoms. Imaging study results from before-intervention to 4 weeks after indicated little change in arterial inflow and a decrease in venous outflow pulsatility. Most notable, a significant increase in intracranial compliance index was measured. **Conclusions:** Apparent improvement of this subject's migraine complaints followed an atlas vertebrae realignment procedure. Further investigation into the role reduced intracranial compliance plays in the neurophysiology of migraines, and the alteration of intracranial compliance following atlas realignment is indicated. (This is a conference presentation abstract and not a full work that has been published.)

A new approach in providing qualitative evaluations for chiropractic student interns' performance

Stephen Wooten, Diane Clark

Background: A Qualitative Evaluation (QE) of student performance is a requirement by the Council on Chiropractic Education (CCE) to assure an educational standard of competency is met. **Objective:** To devise a comprehensive method of evaluating a chiropractic student intern's performance throughout their clinical education. **Methods:** This QE of student performance incorporates the CCE Meta-competencies. The Reporter-Interpreter-Manager-Educator or "RIME" method is used to describe the level of skill, learning goals, and progress expectations throughout the student intern's clinic experience. **Results:** A QE rubric is devised to provide consistency and fairness among faculty evaluators. This will allow for the following: (a) meaningful feedback with student intern, (b) clearly outlines evaluation criteria, and (c) states education goals, skills and learning expectations. **Discussion:** The R.I.M.E. method is a way to simplify the process of evaluations yet at the same time being comprehensive and more objective. **Conclusion:** A new QE has been devised. New research will need to be performed to test the effectiveness of this new evaluation method and to ensure the goals sought to achieve with this rubric have been met. (This is a conference presentation abstract and not a full work that has been published.)