Proceedings of the 1st Sacro Occipital Technique Research Conference

Las Vegas, Nevada
October 22, 2009

Sacro Occipital Technique Research Conference

Las Vegas, Nevada
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CONFERENCE PROCEEDINGS

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Proceedings of the Sacro Occipital Technique Research Conference

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Introduction

For Major Bertrand DeJarnette, DO, DC, research was an essential part of being a chiropractor and essential to the future of the chiropractic profession. As early as July 1935 Major Bertrand DeJarnette was a featured speaker at the 40th Anniversary Convention 1895-1935 of the National Chiropractic Association presenting clinical research. Always research was his passion and in an interview in 1982 DeJarnette reiterated, "as far back as chiropractic college, I saw the need for a more scientific basis for chiropractic theory. My own personal physical problems had not been solved by medicine, osteopathy, or chiropractic; so I began experimenting on myself. I'm still at it, and I can see no end of the need for continuous research in chiropractic [1]."

Dr. DeJarnette saw the importance of sharing clinical experience through case report and self-analysis. This started as he first began to find that things he instinctively did for a patient would disappear from his memory if he did not outline them carefully. So before our day and age of computers, he recommended that to begin the first step in research, you would need to buy a notebook, an eraser and long pencil. He emphasized that, "those would be your first three pieces of research equipment. You use your notebook because it is not expensive. You use a pencil because it can be erased, and of course mistakes will be made so you must own an eraser [2]." With those three pieces of equipment he sat down one evening and wrote his first case report of an unusual patient presentation and his treatment rendered. He recollected that he did not sit down to write until perhaps three months after that patient's presentation. Dr. DeJarnette could not believe how much he had forgotten about the details. The lesson he learned was "write the unusual down now [2]".

When Dr. DeJarnette began to study the treatment he had rendered he realized that if any meaningful information were to evolve from his experience, he would have to resolve it himself. Dr. DeJarnette suggested that research has to be a free agency. Basically he saw a need and worked to fulfill that need. He realized that explaining how his discoveries evolved was more difficult than the process of developing new diagnostic and therapeutic interventions [2].

Chiropractic techniques, innovative integrative methods, and methods such as sacro occipital technique, temporomandibular disorder co-management, chiropractic manipulative reflex technique, and cranial techniques need an arena to share clinical and other forms of research. Critical study of techniques and innovative methods are what will help propel healthcare forward in this era of evidence based practice and best practice research.

The SOT Research Conference looks to offer a venue for research papers; specifically those, which investigate sacro occipital technique, dental chiropractic co-treatment, cranial techniques, viscerosomatic/somatovisceral, reflex techniques, and new ground-breaking creative ways of helping humanity without necessarily the use of drugs or surgical intervention. This year marks the first time that abstracts of this annual research conference proceedings will be shared with the chiropractic profession, for review, dissemination, and in-depth study.

> *"Research is a study of what you have, and what you need to make it better, and how to make it better is the final research step. S.O.T. never wants to be just good. It always wants to be better and best and greatest and most dependable* [3]*."*

As a parting comment for his chiropractic colleagues Dr. DeJarnette said, "We must respect each other's beliefs. We must support our colleges and associations. We must work together and unite as a profession. And we must at all times be proud of chiropractic and proud of our calling as chiropractors [1]."

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1. DeJarnette MB. **Cornerstone**. *The American Chiropractor*. Jul/Aug 1982; 82: 22,23,28,34.

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Evidence-Based Practice

Evidence-based practice (EBP) refers to a decision-making process which integrates the best available research, clinician expertise, and client characteristics. EBP is an approach to treatment rather than a specific treatment.

Evidence-based practice (EBP) involves complex and conscientious decision-making which is based not only on the available evidence but also on patient characteristics, situations, and preferences. It recognizes that care is individualized and ever changing and involves uncertainties and probabilities [1].

EBP develops individualized guidelines of best practices to inform the improvement of whatever professional task is at hand. Evidence-based practice is a philosophical approach that is in opposition to rules of thumb, folklore, and tradition. Examples of a reliance on "the way it was always done" can be found in almost every profession, even when those practices are contradicted by new and better information [1].

> "*It's about integrating individual clinical expertise and the best external evidence* [2]."

However, in spite of the enthusiasm for EBP evinced over the last decade or two, some authors have redefined EBP in ways that contradict, or at least add other factors to, the original emphasis on empirical research foundations. For example, EBP may be defined as treatment choices based not only on outcome research but also on practice wisdom (the experience of the clinician) and on family values (the preferences and assumptions of a client and his or her family or subculture) [1].

---

1. Buysse V, Wesley PW. **Evidence-based practice: How did it emerge and what does it really mean for the early childhood field?** *Zero to Three*. 2006;27(2), 50-55.

2. Sackett DL, Rosenberg WMC, Muir Gray JA, Haynes RB, Richardson WS. **Evidence based medicine: what it is and what it isn't.** *BMJ.* 1996;312:71-72.

Evidence Based Practice: The Hierarchy of Evidence:

In biomedical science there is general agreement over an evidence based hierarchy: the higher up a methodology is ranked, the more robust and closer to objective truth it is assumed to be. The orthodox hierarchy looks something like the following table:

Rank:	Methodology	Description
1	Systematic reviews and meta-analyses	Systematic review: review of a body of data that uses explicit methods to locate primary studies, and explicit criteria to assess their quality. Meta-analysis: A statistical analysis that combines or integrates the results of several independent clinical trials considered by the analyst to be "combinable" usually to the level of re-analyzing the original data, also sometimes called: pooling, quantitative synthesis.
2	Randomized controlled trials	Individuals are randomly allocated to a control group and a group who receive a specific intervention. Otherwise the two groups are identical for any significant variables. They are followed up for specific end points.
3	Cohort studies	Groups of people are selected on the basis of their exposure to a particular agent and followed up for specific outcomes.
4	Case-control studies	"Cases" with the condition are matched with "controls" without, and a retrospective analysis used to look for differences between the two groups.
5	Cross sectional surveys	Survey or interview of a sample of the population of interest at one point in time
6	Case reports.	A report based on a single patient or subject; sometimes collected together into a short series
7	Expert opinion	A consensus of experience from the “good and the great.”
8	Anecdotal	An interesting story.

The Case Report: How the Doctor in Practice Communicates to the Research Community

While low on the evidence based practice hierarchy of evidence the case report it is an extremely valuable manner for doctors in clinical practice or “in the trenches” communicate what is taking place in their practice. Until the doctors in clinical practice publish their case reports the researchers in a college setting can only attempt to “guess” what is taking place “out there in the field.”

There are significant limitations to case reports such as no control subjects, the doctor and subjects are not blinded to the study, and the doctor’s bias may cloud the study. So while the case report is an important tool for communication, the doctor authoring these studies needs to exercise caution to not over-interpret their findings.

Dr. Robert Ward of Southern University of Health Sciences and past editor of the Journal of Chiropractic Education answers the question:

"Why it is important to write a case report."

Most persons believe that the case report is used to describe unique, or at least highly rare, clinical presentations or diagnostic entities (e.g.,"prostatic hypertrophy mimicking as ingrown toenail"). This is the most common use of the case report. However, equally important is the use of the case report to describe novel management approaches to more ordinary conditions.

Another aspect of why case reports are written involves the audience. Case reports are generally considered as a communication from clinicians to scientists. The pointy-headed ivory tower population doesn't get to see the interesting things that happen in clinical practice. They often rely on case reports from the field in deciding what sorts of pilot studies to run, and those often lead to real full-scale clinical trials (the sort of research that field clinicians generally don't have the time, resource or interest to undertake).

Case reports are a vital aspect of our literature base, and more of our practitioners need to write them. Until you write up that wonderful method that works in your office, the rest of the world cannot share in its benefits. Without publication, when you die or retire, your discoveries die with you.

Robert W. Ward, D.C., FAFICC

2009 SOT Research Conference

October 22nd, 2009 · Las Vegas, Nevada

2009 SOT Research Conference Schedule

1:00 – 1:50 PM **Dental Chiropractic Co-treatment**

Patient with severe tremors, complex pain syndrome, and migraines co-treated with dental and SOT chiropractic care: A case report.
Richard C. Gerardo, DC

Unity of Form and Function - A New Dental Paradigm: A Case Series
Albert S. Chinappi, DDS

2:00 – 2:50 PM **Rehabilitation, Athletes, and Pregnancy**

The Effects of SOT Category Blocking Procedures on Lower Extremity Function In High Performance Athletes: A Case Series.
Curtis M. Langer, DC

Exercises and stretches to facilitate SOT blocking treatments for category one and category two: A cases series
William P. Williamson, DC

Pregnancy, sacroiliac joint laxity, and the SOT category two pelvic distortion: A case series.
J. Rodney Shelley, DC

3:10 – 4:00 PM **Pediatrics and SOT**

SOT Chiropractic Care of a Six-Year Old Boy Diagnosed with Asperger's Syndrome and Related Conditions.
Martin G. Rosen, DC

Attention deficit hyperactive disorder of a 7 year old child utilizing chiropractic and sacro occipital technique procedures.
Scott Darragh, DC

Chiropractic manipulative reflex technique (CMRT) treatment for GERD of a 3 year old male child: A case report.
Robert D. Klingensmith, DC

4:10 – 5:00 PM **CMRT for Hiatal Hernia and Treatment of Animals**

Sacro Occipital Technique treatment of hiatal (hiatus) hernia presentation: A case report.
Gary A. Mitchell, DC

Sacro Occipital Technique: Occipital fiber technique on equine.
Jean E.Thompson, DC and Heidi Bockhold, DC

Sacro Occipital Technique: Occipital fiber technique on canine.
Jean E.Thompson, DC and Heidi Bockhold, DC

5:10 – 6:00 PM **SOT, TMJ, and Cranial: Fibromyalgia and Benign Positional Vertigo**

SOT Cranial and TMJ therapy for unresolved BPPV: A case report.
Thomas Bloink, DC

Trauma induced fibromyalgia syndrome and sacro occipital technique: A case report.
Gilbert S. Jaudy, DC

Dental chiropractic co-treatment of patient presenting with chronic severe fibromyalgia, head, neck, and jaw pain with depression.
Jeffrey A. Mersky, DC and William Halligan, DDS

6:10 – 7:00 PM **Learning SOT by Integrating Case Studies and Clinical Outcomes**

Cervicocranial and craniocervical syndromes: A case report.
I. Harvey Getzoff, DC

SOT Disc Technique: Differential diagnosis, treatment methodology, and multiple case studies.
I. Harvey Getzoff, DC

2nd Annual SOT Research Conference

October 28, 2010
New Orleans, Louisiana

Abstract Submission Due July 31, 2010

Sacro occipital technique, stability testing, and Tai Chi or yoga: A case report.

Timothy M. Barr, DC

Introduction:

An evidence base demonstrating areas of overlap for practitioners treating patients interested in wellness care is slowly emerging. In the formulation of a complementary-care wellness plan; incorporating traditional exercise practices of yoga and Tai Chi with chiropractic care may help facilitate patient outcomes. Since sacro occipital technique (SOT) has shown to have practitioners' familiar with wellness care [1] one aspect of this care could be developing patient stability, strength, and flexibility.

Characteristic of one of the three categories of SOT as developed by DeJarnette is category two which is a sacroiliac (SI) joint hypermobility syndrome which is characterized by lateral body instability or sway when standing. Category two syndrome can present as a nonspecific chronic low back pain and "there is strong evidence that unloaded movement facilitation exercise, compared to no exercise, improves pain and function [2]." Both yoga and Tai Chi can help patients with specific joint difficulties to find ways of performing exercise at their personal limits and still develop improved flexibility and stability [3].

Part of a clinician's responsibility to function in the wellness arena is becoming familiar with various types of preventative exercises such as Tai Chi and yoga. It was determined through both personal and clinical experience that there could be diagnostic aspects associated with patients unable to attain specific yoga postures or if they had difficulty with some specific Tai Chi sequences. As part of an attempt to help a patient with specific problematic postures and sequences from Tai Chi and yoga, the effects of SOT category two supine block placement for patient stability was evaluated. This case report investigates how postural stability during a Tai Chi "sequence" or yoga "pose" could serve as a patient self evaluation tool indicating the need for care and their response to treatment.

Case Report:

A 65 year old female presented with generalized back and neck pain. The focus of her complaints however was a "band of pain" around the proximal thigh when she did a specific exercise. She related that in years past she had taught Tai Chi and now, after several sedentary years she was returning to the practice and intended to teach again but could not accomplish movements that included flexion at the hip while standing. She demonstrated her problem by attempting a pose from the Yoga practice called the "tree pose". This posture is a standing balance on one leg with the arms extended overhead, palms together and the other leg in a "figure 4" [flexion and external rotation at the hip] with the foot on the medial side of the opposite knee. She was unable to maintain the pose with any stability on either leg. She then demonstrated the portion of the Tai Chi sequence ["midway in the 60 moves"] where she balanced on one leg and did a snap kick

with the thigh flexed at 90 degrees. It was during this motion that she experience the limitation associated with the "band of pain" indicating the thigh near the hip joint. In both cases, regardless of weightbearing leg, failing to balance she tended to fall to the right side.

Methods/Interventions:

On examination she demonstrated right sacroiliac sensitivity to palpation, a functionally short right leg in the supine position, and sensitivity to palpation at the right Pes anserine. The superior aspect of her right inguinal ligament had some moderate swelling however it was not exceptionally sensitive. These indicators along with some other SOT tests were consistent with a patient having a category two SI hypermobility syndrome [4]. Treatment focused on category two supine pelvic block placement right and her functional movements were then re-evaluated.

Results:

Following the first office visit for this condition the patient immediately demonstrated a well balanced “tree pose” on the left leg but unbalanced on the right leg and could not accomplish the kicking portion of the Tai Chi movement. A Serola SI trochanter belt was applied [5] and the poses were retested. With the trochanter belt in place she demonstrated a strong well balanced tree pose on both sides equally and could maintain the posture without discomfort for a suitable time. With the support belt she was able to accomplish the Tai Chi kick, however not without discomfort. During the course of subsequent treatments the patient was able perform both the yoga and Tai Chi sequences successfully without discomfort and gradually wean away from the need to use the trochanter support.

Discussion:

As the chiropractic profession is attempting to develop some cultural authority in the healthcare arena it is hoped that this will occur through ethics and proper patient management. Since wellness care could be the future of our current healthcare system having patients develop preventative behavior and a wellness mentality could be essential. Helping a patient determine when chiropractic care may be appropriate sets up a patient driven healthcare interaction which is preferable to both doctor and patient.

“Since load transfer from spine to pelvis passes through the sacroiliac (SI) joints, effective stabilization of these joints is essential. The stabilization of the SI joint can be increased in two ways. Firstly, by interlocking of the ridges and grooves on the joint surfaces (form closure); secondly, by compressive forces of structures like muscles, ligaments and fascia (force closure) [5].” Category two supine block placement facilitates both form and force closure of the SI joint. “Muscle weakness and insufficient tension of ligaments can lead to diminished compression, influencing load transfer negatively [5].” In these cases a SI trochanter belt where this is a loss of force closure “application of a pelvic belt can be advised [5].”

Yoga postures and Tai Chi sequences could be valuable tools to help guide patient recognition as to when chiropractic interventions or trochanteric belt use may be applicable. When the belt alone does not suffice then clearly based on this patient's clinical experience they would need some SOT chiropractic intervention to facilitate form and force closure to the SI joint or their category two syndrome.

Diagnostic testing is by design specific and localized, isolating body parts to determine cause and potential benefits of specific therapeutic measures. But those same parts must function in a global context including complex motions associated with daily activity. In this case the Tree pose offers a global functional challenge while also targeting the sacroiliac joint with an assortment of stressors. This pose or posture can evaluate functional balance on the weightbearing side and deformational stretch on the "figure 4" side. Where both or either joint may exhibit dysfunction in isolation, tests of a global nature such as the Tree pose may help expose a more "functional" type of failure.

Utilizing a patient's own experience regarding their activities of daily living or performing their normal series of exercise could help guide their ability to become aware of when chiropractic care may be needed. This concept was particularly evidenced by this patient who was unable to perform their yoga pose and Tai Chi sequence until receiving chiropractic interventions.

Conclusion:

This patient demonstrated that category two blocking improved SI stability and function in a complex postural weight bearing exercise impacting global balance and muscle coordination. It also demonstrated that external support in the form of a trochanter belt further improved function during the same exercise. Complex postural sequences as found in traditional martial arts and yoga could be convenient and effective ways to evaluate sacroiliac stability and effectiveness of specific interventions within the office environment. In addition this could be a way for patients to self assess their need for care at home without the problem of learning specialized analytic procedures. Further study is needed into the use of chiropractic to immediately affect a patient's activities of daily living and their ability to assess when it may be appropriate for them to see their chiropractor for preventative care. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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SOT Cranial and TMJ therapy for unresolved BPPV: A case report.

Thomas Bloink, DC

Introduction:

Vertigo, also called dizziness, accounts for about 6 million clinic visits in the U.S. every year, and 17–42% of these patients eventually are diagnosed with benign paroxysmal positional vertigo (BPPV). [1] In a 2007 study they found that BPPV accounted for 8% of individuals with moderate or severe dizziness/vertigo. The lifetime prevalence of BPPV was 2.4%, the 1-year prevalence was 1.6%, and the 1-year incidence was 0.6%. The median duration of an episode was 2 weeks [2]. BPPV is a disorder caused by problems in the inner ear. Its symptoms are repeated episodes of positional vertigo, that is, of a spinning sensation caused by changes in the position of the head. [1]

Within the labyrinth of the inner ear lie collections of calcium crystals known as otoconia. In patients with BPPV, the otoconia are dislodged from their usual position within the utricle and they migrate over time into one of the semicircular canals (the posterior canal is most commonly affected due to its anatomical position). When the head is reoriented relative to gravity, the gravity-dependent movement of the heavier otoconial debris (colloquially "ear rocks") within the affected semicircular canal causes abnormal (pathological) fluid endolymph displacement and a resultant sensation of vertigo.

A typical sign associated with BPPV is rotatory (torsional) nystagmus, where the top of the eye rotates towards the affected ear to a beating or twitching fashion. Patients should not experience other neurological deficits such as numbness or weakness, and if these symptoms are present, a more serious etiology must be considered. Two treatments have been found effective for relieving symptoms of posterior canal BPPV: the canalith repositioning procedure (CRP) or Epley maneuver, and the liberatory or Semont maneuver. [1]

Case Report

A 37-year-old female was seen for acute benign vertigo that was referred by her allopathic physician for an evaluation and determination of the need for chiropractic care. The patient had 2-3 months of constant vertigo which was diagnosed as BPPV. She had been treated with the Epley Maneuver and various medications, however they did not resolve her symptoms. Her vertigo would last the whole day with peaks and valleys related to intensity. This affected her ability to function at home, drive her car and even walk “out of the door” of her home.

Assessment: Patient presented with a category two, right temporal bone with external rotation, and significant malocclusion with clenching and anterior interferences. In evaluating the dental signs of malocclusion it was determined that due to the stress of the anterior interferences, particularly on the right side, that the repetitive stress on occlusion

created right temporomandibular (TM) condylar compression stress summating at right temporal fossa.

Treatment: Category two protocols for the pelvis were applied and an intraoral cranial adjustment to the temporal bone, maxilla, sphenoid, and zygoma were performed directed by palpatory pain indicators. Palpatory pain in and around the TM joint (TMJ) was used to help guide treatment as well as ability of patient to achieve sufficient vertical opening. Cotreatment with a dentist was used to help stabilize and maintain the chiropractic cranial and TMJ corrections.

Results: By the 7th office visit (3-4 weeks of care) the patient's vertigo had resolved. In addition her TM joint translation and opening had improved significantly and pain around the right TM joint and related tissues had been eliminated. The anterior interferences were treated with a nighttime dental appliance that allowed the patient to have bilateral posterior teeth contact and reduced contact to the front teeth.

Discussion: Occlusion and condylar position is purported to be affected by or affects cranial bone distortion patterns. In instances where the TMJ/dental dysfunction or malocclusion, associated with vertigo [3], is affecting cranial bone distortion the region of cranial distortion overlying specific regions of the cerebral cortex may have a relationship with the underlying cortical functions [4].

Similarly to Hilton's Law where the innervation of the overlying skin of a joint relates to the bone, ligament and muscles it is theorized that regions of cranial bone distortion may have a relationship underlying meningeal, CSF function, and ultimately cortical activities.

Therefore when there is malocclusion affecting the cranial suture and local periosteal tissue, it is theorized that with some patients possibly the internal periosteal dura, CSF circulation, and related cortical region might be affected. On the other hand reliving the stressors of restricted cranial motion and malocclusion could lead to improved cortical function just by reducing global stress to the CNS due to reduce pain and related myofascial tension. Since it is not uncommon for cranial trauma or stress to affect cranial nerve function, it is possible that low level sustained cranial stress or trauma could effect of be contributory to low-level clinical presentations of conditions such as BPPV [5].

Conclusion:

In this case report the patient's response to care was quite dramatic. She was unresponsive to prior care and her quality of life was profoundly affected. It is difficult to extrapolate from this one case and apply this to the general population however the patient's rapid response to care suggests that further investigation into this method of care for patients presenting with vertigo be considered. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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TMD - Chiropractic and Dentistry: Two Case Reports.

Charles L. Blum, DC, Alireza Panahpour DDS.

Introduction:

Symptoms of temporomandibular/craniomandibular disorders (TMD/CMDs) vary but often involve severe pain in the jaw musculature, severe pain or difficulty when opening the mouth and chewing, headaches, and ear pain. In conditions where a chiropractor or dentist has reached a therapeutic impasse with a patient's TMD/CMD, cotreatment may be indicated [1,2]. This article presents two case reports demonstrating how cotreatment may proceed initiated by a dental and/or a chiropractic referral.

Intervention:

The treatment involved sacro occipital technique (SOT) management of the patient's presentation, while relating to TMJ dysfunction, was focused on whole body dynamics and function [3]. The treatment with these two patients had similar aspects in that they both presented with sacroiliac joint hypermobility syndrome (category two), cervical intersegmental restricted motion, and needed craniomandibular balancing therapeutic interventions.

Results:

The essential findings in both cases showed reduced pain in TMJ function and/or symmetrical joint translation without crepitus. General relaxation in cervicocranial and craniomandibular musculature was noted by the patient, chiropractor and dentist. The focus was having the patient gain independence from chiropractic/dental care with reduced discomfort and increased function.

Discussion:

With a subset of patients body distortions ascend from the feet, pelvis, spine, and neck to affect TMJ dynamics affecting dental occlusion, condylar position, and airway space. With another subset of patients patterns of body distortions descend from TMJ dynamics affecting dental occlusion, condylar position, and airway space [4]. A main obstacle for chiropractic/dental cotreatment is the lack of awareness and knowledge of each other's professional treatment and diagnostic focus as well terminology. Research studies have noted a relationship between ascending and descending relationships associated with CMD/TMD and postural dysfunctions [5].

Conclusion:

While these two cases illustrate how the chiropractic and dental fields can work together for successful treatment outcomes, there is a need to determine what subsets of patients

may fit this model. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer-reviewed and accepted for publication.)*

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The relationship between the trapezius muscle and spinal segments T1 to L5.

Shaun Cashman DC, MSc, Sharyn Eaton DC, PhD, Rodney Bonello DC, MHA, and Julian Leslie PhD

Note: This abstract has previously been submitted as part of a thesis for the 1st author's Masters Degree.

Introduction:

The trapezius fibre technique was first described by M.B. DeJarnette as a way of detecting and locating vertebral dysfunction through the presence of palpable nodules in the trapezius muscle.[1] DeJarnette postulated that the specific position of a muscular nodule in the trapezius indicates the existence of an apparently non-neurologically connected level of vertebral dysfunction. While this technique is widely utilised for various musculoskeletal conditions, little research has been conducted to date. Our aim was firstly to evaluate the inter and intra-examiner reliability in detecting these nodules in the trapezius and secondly to confirm their presence using various imaging modalities. It was discovered that a number of German researchers had independently discovered the same relationship and described it by the name Spondylogenic Reflex Syndrome (SRS) [2-4].

Methods:

Two reliability studies were conducted using experienced practitioners in the trapezius fibre technique. Experienced Sacro Occipital Technique practitioners were blindfolded and asked to examine 50 subjects. Recordings were made of their findings and a statistical analysis performed. In addition, various imaging devices were considered in an attempt to visualise trapezius fibre nodules.

Results:

It was found that in 72% of cases there was a level of inter-examiner agreement. In the intra-examiner study there was faultless agreement in 56% of cases, rising to 89% for a minimum level of agreement. The only imaging device that merited consideration was Digital Infrared Thermal Imaging (DITI). However the results from this pilot study while interesting were inconclusive

Discussion:

There was a marked difference in the level of inter examiner reliability between the first and second trial. This was due to the fact that in the first trial the examiners were left to their own judgment as to what constituted a positive trapezius fibre finding. For the second trial we conducted a number of standardising sessions in which an agreement was reached between the examiners as to what constituted a positive finding. The results obtained from this second trial indicated a much higher level of inter examiner

agreement. The use of such standardising training sessions before a reliability trial has been shown to be quite beneficial in improving the results. [5]

Conclusion:

These results suggest that experienced practitioners have a clinically viable level of agreement in locating these nodules in the trapezius muscle. While no conclusive findings were made utilising DITI as a means of recording trapezius fibre nodules it did demonstrate a level of imaging capability that warrants further investigation. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Unity of form and function - a new dental paradigm: A case series.

Albert S. Chinappi, Jr., DDS

Introduction:

In this era of evidence-based dentistry, the profession may be limited by longstanding but unexamined assumptions that still form the framework of our diagnoses and treatment. A system of care called "functional orthopedics" seems to indicate the possibility of a different paradigm based on maxillary expansion and mandible repositioning. Exploration of the scientific literature finds support and possible explanations for the observed results.

Functional orthopedics ultimately strives to convert all malocclusions into Class I dental malocclusions prior to employing fixed mechanics. This is accomplished by using active plates and orthotics or jaw positioning appliances. Research involving using this protocol for children and adults has led to a re-examination of the basic assumptions that exist in dentistry today. In light of some novel clinical outcomes, this article will explore two of those assumptions and propose a new paradigm in which optimal function is the overriding consideration.

The first assumption, specific to orthodontics, concerns the inclination to avoid expansion in either dental arch in older children and adults. Since sutures fuse early in life, it was assumed that rapid maxillary expansion would be ineffective and unstable in patients over 12 or 13 years of age. As a consequence palatal expansion techniques were limited to younger patients.

The second assumption, common to all phases of dentistry, relates to the location of the mandible in the face. The long-held dental paradigm has been to accept the existing jaw position or to coax it posterior. However in most malocclusions, except some Class III facial patterns, the mandible may be in a compromised position. Deep bites, cross bites, and maxillary arch discrepancies likely are examples of that compromise in which the mandible hasn't been allowed to develop to its full downward and forward potential because of maxillary constriction. That altered posture, in turn, impairs the function of the cervical-mandibular musculature.

Mohl states that the role of head posture in mandibular function at least with "some of the dysfunctional problems involving the masticatory system could be in some way related to the adaptive requirements imposed by chronic or acute postural demands or vice versa."[1] While there may be support for the relationship of dentition to mandibular location; of importance is that a main concern is the etiology. Clinical experience and published studies have noted that maxillary width is not necessarily rigid but can be altered in children and also with adults [2]. Current research suggests that chronic and acute postural dysfunctions may be related to masticatory system dysfunction. [3-5]

Therefore the basis for the paradigm of functional orthopedics is to allow the mandible to "recover" from its compensatory position affecting and being affected by postural influences. If postural influences are related to the cervicomandibular muscle complex then dental diagnosis and treatment planning should include those influences.

Case Report Series

While each patient's (n=13) presentation was different from the other they all presented with dental malocclusions and reported varying degrees of cranio-mandibular dysfunction. The patient's medical histories were non-contributory. These patients were selected for this case series because post treatment the maxilla appeared to be responsible for the developmental location of the mandible and once corrected it had a profound effect on the cervical spine and head position

Methods and Intervention:

Thirteen cases are presented, 5 adolescents and 8 adults. Each was treated using the system of facial orthopedics known as functional orthopedics. Functional jaw orthopedics utilizes a philosophy that orthodontic treatment seeks to alter the shape of the bony alveolus in the maxilla and, in turn, the location of the mandible and its alveolar processes. This is accomplished along with moving teeth and re-shaping the dental arches. Functional orthopedics incorporates a style of orthodontics employing removable appliances (active plates and jaw positioning appliances) in addition to fixed mechanics. The goal of this system of treatment is to correct the pre-existing maxillary deficiency, reposition the mandible and avoid extractions and surgery if at all possible.

Results:

Each of the cases presented show dramatic dento-facial changes. Full alignment of the dentition was accomplished non-extraction and non-surgical. Outcome assessment measures utilized classic dental evaluations for class II and class I positions. Diagnostic evaluations determined that pre-treatment Class II malocclusions were corrected to Class I and showed significant improvements in both the antero-posterior and vertical positioning of the mandible to a "normal" position. In other words the amount of downward and forward repositioning of the mandible was dramatic. Most significantly were changes in the adult, "non-growing" patients, changes that would only be possible with significant correction in the cranio-cervical musculature. The changes in the cervical spine were equally dramatic and quite evident in the study. One case showed changes in spinal curve simply by changing the mechanical forces used in treatment, indicating a possible advantage of this treatment philosophy.

Discussion:

In the 13 subjects of this study functional changes included improvement of the cervical curve and relief of TMD type symptoms including, but not limited to, headaches and muscle spasms. If we consider the mandible and maxilla as being within a matrix of

tissues and function, we are led to a new premise -- that in some instances the musculature may hold the mandible in an altered posture (compensatory position) to assure and maximize contact between maxilla and mandible dentition. Theoretically, due to the maxillary deficiency the mandible may be unable to assume its "normal" rest position, because the teeth will not fit together. The maxillary malocclusion, be it narrow arch, cross-bite, deep anterior over-bite, or division 2 type incisor position actually create impedance inhibiting the mandible from positioning downward and forward to achieve a physiological compatible rest position. This, in turn, tends to have a significant impact upon the stomatognathic and cranio-cervical position and function.

Conclusion:

The cases treated in this report demonstrate that a subset of patients with malocclusions can be the result of inadequate maxillary growth and the subsequent inability of the mandible to attain a full physiologically neutral position. At any age, when a deficiency in the maxilla is corrected and the correct arch form is in place, the mandible would logically be able to assume a more neutral position within the musculature template. The effects of maxillary expansion and mandible repositioning on stomatognathic and cranio-cervical function and its relationship functional body positioning are worthy of future research. With posture having influence on the stomatognathic system and maxillary expansion and mandible positioning likewise affecting cervicocranial posture the implications for the dental and chiropractic co-treatment can be profound. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Alterations on dyspeptic signs and symptoms on patients presenting with gastroesophageal reflux disease receiving chiropractic treatment.

Fabio Dal Bello, DC, Veronica Dal Bello, DC, Luciano Neto Santos, MD, Joana Margarete Raupp, DC.

Introduction:

Knowledge on the incidence, prevalence and natural history of gastroesophageal reflux disease (GERD) is limited [1]. It is estimated that 40% of the western population has some signs and symptoms of GERD. An important aspect of this disease is how it can compromise the patient's quality of life, aside from the high cost of treatment. In general most GERD treatment focuses on clinical, pharmacological, or surgical treatment. Recently there has been some research supportive of chiropractic treatment's affect on the neuromusculoskeletal system and its subsequent relationship to the function of internal organs, through autonomic nervous system stimulation [2]. The objective of this study was to investigate the alterations of dyspeptic signs and symptoms in patients presenting with GERD following chiropractic treatment.

Methods:

This was a pilot study with a sample composed of 10 individuals sent for chiropractic treatment by a gastroenterologist surgeon. High digestive endoscopy exam was performed on all individuals before and after 8 sessions of chiropractic treatment. The treatment was a sacro occipital technique (SOT) based viscerosomatic technique called Chiropractic Manipulative Reflex Technique (CMRT) [3], and the procedure used was specific for gastric syndrome. A gastroesophageal reflux disease symptom's questionnaire and the results from high digestive endoscopy exams were used to evaluate dyspeptic signs and symptoms.

Results:

At the end of chiropractic treatment a statistically significant global reduction of GERD symptoms was observed ($p=0.0002$) especially on the evaluation of pre and post treatment postprandial pyrosis data ($p=0.000004$). Through endoscopic examinations on the 10 patients the findings noted a 58% improvement of esophagitis caused by GERD.

Discussion:

There is some research to suggest that chiropractic treatment can improve visceral conditions, possibly affecting various visceral systems, including the digestive system [4]. The stimulation of spinal structures may have a connection with reflex responses of the autonomic nervous system, which in turn may alter visceral functioning [5].

Conclusion:

At the end of the study it was possible to conclude that in these 10 cases chiropractic treatment (CMRT) was efficient in improving symptoms caused by GERD, as well as improving esophagitis signs secondary to GERD, shown by a high digestive endoscopy exam. Further research is needed to determine which subsets of patient might best respond to this type of therapy. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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A research on the effects of the chiropractic treatment on individuals with malocclusion as an aid to the orthodontic treatment.

Fabio Dal Bello, DC, Franciele Borilli, DC

Introduction:

Malocclusion is the second cause related to TMJ pain complaints due to the non-stable contact among superior and inferior teeth leading to functional imbalance between the TMJ and the neuromuscular system of the jaw [1]. Improper occlusion and condylar position of the TMJ will provoke the individual's adaptation leading to clinical discomfort and functional deficiencies leading to dysfunctional symptomatologies. These symptoms include joint clicking or crepitus, muscle spasms, bruxism, clenching, cervicalgia, cephalgia, deficiencies on the opening and closing movements of the jaw as well as pain which inhibits an individual's wellbeing and activities of daily activities [2,3].

Dental orthopedics/orthodontics is the conventional approach used to treat this condition making use of induced movement of teeth and bones to correct malocclusion [4]. Although the benefits of correcting centric occlusion may enhance the individual's well being, the treatment can be long, expensive, uncomfortable, and many times not totally efficient due to secondary dysfunctions developed cause by the therapeutic intervention to correct the malocclusion. In order to reach satisfactory results the use of other therapies and methods to treat the TMJ and musculature are involved to help assist the dental orthopedic/orthodontic treatment [5].

Methods:

The patients of this study were referred for chiropractic treatment by their orthodontist before continuing with orthodontic treatment. All patients had a diagnosis of malocclusion and related TMJ pain. The patients were treated with chiropractic techniques for a period of a month, having 4 visits total. The orthodontist, focusing on the patient's occlusion and its effects on other structures, evaluated each individual before and after chiropractic treatment. To be able to evaluate the orthodontic professional's opinion about the effects of the chiropractic treatment a satisfaction questionnaire was used after the orthodontist's second and last evaluation.

Results:

The research showed that in 50% of the orthodontic cases, according to the questionnaire, there was a positive response in relation to the patient's occlusal condition. In 66% of the cases the orthodontist found a positive relationship with chiropractic treatment and the patient's reduced malocclusion. Lastly in 83% of the cases the orthodontist found that the chiropractic treatment was a positive tool to facilitate orthodontic treatment. In the majority of the cases the orthodontic professional pointed out the benefits of the

chiropractic treatment to reduce the different symptoms related to malocclusion, giving the orthodontist better conditions to develop a specific treatment to correct the biomechanical occlusion of each patient satisfactorily.

Conclusion:

The results of this study suggest the chiropractic treatment when allied to the orthodontic professional could help facilitate improved patient outcomes. These improved outcomes include symptom reduction, maintaining and supporting the patient's global health, and reducing time and costs of the treatment. Interdisciplinary work between chiropractors and orthodontists could help promote a greater quality of life to the individual with occlusion disorders. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Pain alterations on the temporo mandibular joint in individuals with malocclusion after chiropractic treatment.

Fabio Dal Bello DC, Franciele Borilli, DC

Introduction:

The temporomandibular Joint (TMJ) is considered the most complex joint in the human body [1]. Due to this joint, daily vital functions are possible such as: speaking, smiling and crying, kissing, yawning, and eating which without it the human being would not be able to survive. When the harmony of the normal fit of the TMJ is not perfect it will provoke the individual's adaptation, causing clinical discomfort and functional deficiencies to the system, leading to muscles spasms, joint crepitus or clicking, neck pain, cephalgia, deficiencies on the opening and closing movements of the jaw and localized or general pain. All of these adaptive symptoms can interfere with the individual's activities of daily living and quality of life [1,2].

Malocclusion is the second cause related to TMJ pain complaints [3], related to a functional imbalance between the TMJ and the neuromuscular system of the jaw caused by unstable and poor dental occlusion . Orthodontics is the usual approach for these cases, although it may not always be effective and it is suggested that the use of therapies that focus on the recovery of TMJ and muscles spasms might be facilitate the orthodontic treatment [4]. The interrelation between joint, muscles and nerves lead us to believe that malocclusion has a relationship with TMJ symptoms [2], the cervical spine [5], and ultimate through the whole body kinematic chain. The purpose of this study is to approach the individual and the relationship of the TMJ to the whole body.

Methods:

The study is characterized as pilot comparative experimental study because it investigates comparisons between two non-equivalent groups. Six individuals between 10-25 years old participated in this research study all of which had an orthodontics´ diagnosis of malocclusion and TMJ pain. The individuals were divided consecutively into two different groups of treatment. The first group was treated with cervical manual adjustments and the second group treated with the basic protocol of the sacro occipital technique (SOT). At each office visit a physical evaluation and patient history were taken. In the first group, treatment consisted of palpation of subluxations and then the manual adjustment of the cervical segment involved. In the second group, the SOT categorization and treatment was employed with the basic protocol of the SOT technique. Treatments intervals for each group were 4 visits during a month. Quality of life characteristics of the participants were monitored and recorded using an informative questionnaire and a visual analogical scale (VAS) was used to monitor pain levels. Both were used in the first and in the last visit to evaluate the patient's response to treatment.

Results:

The research showed that in 83% of the cases there was a decrease in TMJ pain in individuals with malocclusion; however in 16% of the cases the chiropractic treatment did not improve the patient's TMJ function. The manual cervical adjustment group obtained 100% of TMJ pain decrease and was asymptomatic after treatment. The SOT technique group obtained a gradual reduction in TMJ pain in 66% of the cases, however 33% of the subjects had an increase of TMJ pain. Both treatments had shown to be effective for the TMJ symptoms, not only for pain, but joint clicking or crepitus, cephalgia, neck pain, muscles tension, enhancement of TM joint opening and closing and reduction of the region's sensitivity.

Conclusion:

The results of this research showed that chiropractic treatment can be an be an effective tool for treating patients presenting with TMJ symptoms associated with malocclusion, and not only relating to pain, but also for related conditions of cephalgia, neck pain, muscles tension, TM joint translation and crepitus as well as improving the subject's quality of life and well-being. Since the study had no control and was of a small size, a larger sample and control might yield greater information. Study into the relationship of chiropractic co-treatment of TMJ related dysfunction appears indicated based on the finding of this pilot study. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Attention deficit hyperactive disorder of a 7 year old child utilizing chiropractic and sacro occipital technique procedures.

Scott Darragh, DC

Introduction:

Approximately 8 million children in the United States are labeled with attention deficit hyperactivity disorder, or ADHD and generally are being medicated for this condition [1,2]. ADHD is characterized by poor attention and may also be caused by impaired vision or hearing, seizures, head trauma, acute or chronic medical illness, poor nutrition, insufficient sleep, anxiety disorders or realistic fears, depression, or even the sequelae of abuse or neglect. While it is common that many children will display these behaviors at times, to classify for the disorder, the behaviors have to be excessive, occur before the age of seven, last for at least six months, and cause a problem in a social environment, such as at school or home. Government officials, schoolteachers and medical doctors are concerned that if the children do not take Ritalin now, they will "self-medicate" with illegal substances later in life [1,2]. Since medications offer risk as well as possible dependencies alternative therapeutic options are worth investigating if they may offer some benefit and have low risk.

Case Report:

A male child was diagnosed by psychiatrist at age 3 with attention deficit hyperactive disorder (ADHD), due to behaviors such as uncontrolled violent outbreaks, difficulty to follow directions, and inability to function in social situations. From 3-7 years the child was prescribed anti-psychotropic medications, which only moderately controlled the patient's behavior. Parents were under extreme stress attempting to cope with child's aggressive behavior and sought chiropractic care as a last resort. At age 7 years old standing cervical x-rays (AP/ Lateral, OMO) were taken at a local hospital that demonstrated a predominant postural permutation of the cervical spine with a fixed right sided lateral flexion. Motion palpation revealed restrictions to normal vertebral intersegmental ranges of motion in lower cervical and upper thoracic spine. Pelvic asymmetry (torsion) was also identified.

Intervention:

Treatment rendered consisted of mirror image toggle recoil adjustment of lateral atlas to the left. Upper anteriorities (spinous inferiorities) of the thoracic spine were adjusted which helped improve lower cervical spine intersegmental ranges of motion. In addition the patient was treated for pelvic torsion using category one prone blocking, which was found to reduce lumbopelvic tension and improve local range of motion in the lumbopelvic region. Initially the patient was seen 3 times a week for 4 weeks with reevaluation and then was reduced to 2 times a week for 4-6 weeks with another reevaluation at the 24th visit. Following the 24th office visit the patient has been seen approximately 1-2 times per month until the present (total of treatment time is 1 year).

Results:

Concurrently within one month of care the patient demonstrated significant behavior improvements along with improved postural symmetry and spinal ranges of motion. The parents reported the child was significantly calmer, "less defiant," and had reduced aggressive behavior. Working with the psychiatrist after 5 months of chiropractic care the child was able to be weaned off all psychotropic medication without any relapse of his prior behavior. Currently the child is off all medications and functioning well in social situations and his environment.

Discussion:

Chiropractic care of children with ADHD has some evidence in the published literature. In 2 case reports a child who developed ADHD and developmental delays occurred after trauma to the pelvic region and symptoms were reduced when pelvic torsion and sacroiliac joint balance was sustained. In those cases also the cervical spine was addressed and treated [3,4]. Developmental delays and ADHD in some instances are believed to have similar etiologies affecting a child's ability to function in school and social situations. Birth trauma has been implicated in developmental delays and in a subset of some children presenting with ADHD it is possible that a mechanical and/or neurological dysfunction could be contributing to the patient's presentation as well as explain the success of chiropractic care with some cases [5].

Conclusion

It is always difficult to generalize a case report to all pediatric patients suffering from ADHD. It is theorized that there are instances where children may outgrow ADHD behavior or the effects of the psychotropic medication may resolve their condition. What is interesting in this case is the relationship between the time of chiropractic interventions and the resolution of the patient's symptomatology. Also it is worth notice that the patient apparently was not making any progress and the parent's ability to cope was lessening prior to the child beginning chiropractic care. Greater research is needed into the study of chiropractic care of pediatric patients presenting with ADHD and particularly the neurological interrelationships which may play a significant factor in the etiology of some subsets of children diagnosed with ADHD. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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The development of SOT occipital fiber technique: A case report

Charles L. Blum, DC, Major Bertrand DeJarnette, DO, DC *(Deceased)*

Introduction

Occipital fiber technique is a method used in sacro occipital technique (SOT) practices to develop pre and post assessment tools isolating vertebra in the spinal column that may present with some neurodynamic dysfunction. The developer of SOT and occipital fiber analysis and treatment is Major Bertrand DeJarnette, DC, DO and through years of study [1] developed points of sensitivity along the suboccipital region that would triangulate to specific vertebra following a type of sinusoidal stationary wave theory.

There are various theories to how these regions along the suboccipital region could relate to specific regions of the spine. DeJarnette has suggested that the reason for these reflex relationships may be due to visual and vestibular righting mechanisms modulated by the suboccipital region to correct for ascending spinal kinematic imbalances. There has been a paucity of study into the occipital fiber analysis and treatment [2] yet these methods have been in use by tens of thousands of chiropractors for over 80 years.

With the current advent of evidence-based study, past case reports by early innovators in chiropractic are often ignored or lost [3]. The following case report was created based on the writing of DeJarnette who used a patient's presentation and response to care as a reason as the development of his occipital fiber technique [4]. While it is expected that the understanding, diagnosis, and treatment of this patient's case was much different in 1925, there still may be information garnered from this patient encounter to gain a window into chiropractic technique development.

Case Report

"A home visit was made (in 1925) invited by the parents to treat what was described as "a very sick boy. The parents had been told that the boy would not live until night. The home visit continued throughout the day. The child was diagnosed by his allopath physician as having, spinal meningitis, cerebral type. This patient was in total opisthotonos. I could not take his temperature, but his body was felt hot enough to actually burn the palpating fingers. No typical chiropractic treatment could be applied due to the body rigidity and specifically noted was that the patient's skull was pulled to his right and down toward his shoulder." [4]

Treatment/Intervention

Due to the patient's presenting position and limited options at that time an "occipital condyle traction adjustment" [4] was performed that morning and "repeated it twenty-five times in the next twelve hours." [4] The treatment consisted of contacting "the right occiput with both hands, forming a cup with my hands, and then jerk as strongly as possible" [4].

Results

Each time the occipital condyle traction adjustment was applied, “the spasms would lessen. Within an hour, the opisthotonos had diminished to the point of almost total body relaxation. The boy's breathing slowed dramatically. His body cooled and by three P.M. he was asleep” [4]. The adjustment was focused to the right occiput, and within hours of treatment there was a “constantly improving change in tension.” The patient “was placed under quarantine by the quarantining officer as was I by being in the same house” [4]. On the following day the patient was still alive, so the quarantine was lifted. The allopathic physician lifted the quarantine and the child’s condition was then diagnosed as influenza [4].

Discussion:

Currently we are aware that meningitis is relatively a medical emergency it is inappropriate for a chiropractor suspecting a patient with this condition to do an occipital adjustment as a means of therapy. Meningitis is inflammation of the protective membranes covering the brain and spinal cord, known collectively as the meninges. The inflammation may be caused by infection with viruses, bacteria, or other microorganisms, and less commonly by certain drugs. Meningitis can be life threatening because of the inflammation's proximity to the brain and spinal cord; therefore the condition is classified as a medical emergency. The most common symptoms of meningitis are headache and neck stiffness associated with fever, confusion or altered consciousness, vomiting, and an inability to tolerate light (photophobia) or loud noises (phonophobia).

Although meningitis is a notifiable disease in many countries, the exact incidence rate is unknown. Bacterial meningitis occurs in about 3 people per 100,000 annually in Western countries. Population-wide studies have shown that viral meningitis is more common, at 10.9 per 100,000, and occurs more often in the summer. Nuchal rigidity occurs in 70% of adult cases of bacterial meningitis. Other signs of meningitis include the presence of positive Kernig's sign or Brudzinski's sign. Another test, known as the "jolt accentuation maneuver [5]" helps determine whether meningitis is present in patients having a fever and headache. The patient is told to rapidly rotate his or her head horizontally; if this does not make the headache worse, then it is NOT meningitis but if it does make it worse, it is only 50% likely it is meningitis.[5]

While the patient had been diagnosed with meningitis, had a high fever, and rigid spasms it is unclear how a physical maneuver to the patient’s cervico-occipital region could have an effect on a condition caused by a bacterial or viral infection. It is possible that DeJarnette might have produced an evaluation or treatment procedure that was a forerunner to the “jolt accentuation maneuver [5]” and the patient was improperly diagnosed.

However the patient’s response to the intervention with decreased temperature and less rigidity suggests that some relationship occurred with the treatment rendered and the child’s subsequent recovery. It is possible that reduced stress in the suboccipital region

led to improved immune capacity or reduced local irritation related to vagal nerve entrapment.

The occipital condyle traction adjustment used with this patient later evolved during 1925-1934 into a method called the, “occipital condyle side-slip' and the sunken condyle block traction technique [4].“ DeJarnette noted that following 1934, advancements in the clinical application of this method of treatment led to “the occipital fiber and reflex techniques [4]” and “into the field of visceral reflexes” known as CMRT” (chiropractic manipulative reflex technique) [4].

Conclusion

It is always difficult to extend what takes place in a case report to the general population and even more so when the case report is taken from a relatively informal newsletter describing an event that took place close to a 85 years earlier. However it does appear that the intervention did lead to a significant outcome for the patient. It is also possible that the treatment was related to the “jolt accentuation maneuver” and the patient did not have meningitis, yet had symptomatic improvement from the intervention. While in this one cause a patient had a significant response to this maneuver doctors are cautioned against using this type of a method as a treatment for suspected meningitis and a referral to an emergency room is preferred. However it is interesting how profound clinical encounters can lead to greater inquiry by the treating physician and this greater inquiry can lead to further advancements in clinical interventions and treatment. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Patient with severe tremors, complex pain syndrome, and migraines co-treated with dental and SOT chiropractic care: A case report.

Richard C. Gerardo, DC

Introduction:

A 42 year old female presented with an unsteady Parkinsonian type of gait (shaking, rigidity and pain) diagnosed as psychogenically driven based on various university healthcare clinics. She also had tremors that would occur when she would stand from a seated position starting from her right leg and radiating superiorward affecting her whole body. She also diagnosed with an atypical version of a complex regional pain syndrome (CRPS) called complex pain syndrome (CPS) due to its whole body generalization as well as a history of migraines.

"CRPS is a severe chronic pain condition characterized by sensory, autonomic, motor, and dystrophic signs and symptoms. Patients with CRPS are commonly refractory showing only modest improvement with most current therapies [1]." In one study CRPS (n=888) syndrome affected mostly white women in the 25- to 55-year-old age group. It was often precipitated by trauma (surgical or nonsurgical) and commonly involved the lower (approximately 56%) and upper (approximately 38%) extremities [2]. Evaluating referral patterns for CRPS (n=102) 61% had presented first at the general practitioner, while 80% subsequently consulted one or more medical specialists, most frequently an anesthetist (55% of the cases) or a specialist in rehabilitation medicine (41%) [3].
The patient's CPS was fibromyalgic in nature with pain that was severe, migratory and occurred in multiple major joints, all her muscle groups experienced pain, spasms, and involuntary contractions. She had nighttime leg spasms that would awaken her from sleep. The pain and muscle tension led to multiple ranges of motion limitations generalizing to all joints of her body. The patient's condition had been occurring for nine years and was gradually worsening.

The patient had seen neurologists, internal medicine, rheumatologists, and visited multiple university hospital clinics. At the initial office visit she was prescribed medications for her tremors, migratory pain, and migraines that included Aciphex, Topamax, Atenolol, Tramadol, Gabapentine, Cymbalta, Minoxidil, Fluocinonide, Zanaflex, and Neurontin. A sleep study at Stanford University Health Clinic found that the patient did not exhibit sleep apnea however she still had no REM sleep even though she was taking sleeping medication and would sleep. This finding helped explain why she found her sleep not restful. Due to the severity of the patient's symptoms and their whole body disturbance on her multiple levels chiropractic and dental care was attempted simultaneously since all other interventions were unhelpful.

Methods – Intervention/Treatment:

Initially the patient was co-treated with a dental night and day time appliance, trochanter belt, and treated for category two or sacroiliac joint hypermobility syndrome. During the course of treatment over the initial months she was treated with category two protocols, sutural cranial temporomandibular joint (TMJ) interventions, T8 chiropractic manipulative reflex technique (CMRT) for the liver along with supportive nutritional supplements and dietary restrictions to support liver function and reduce general body inflammation. The SOT cranial procedures were incorporated to facilitate her category two stabilization and enable her to accommodate to the dental modifications.

Results:

At the first office visit with the dental appliance, trochanter belt and category treatment all her shaking would stop when standing. Concurrently as the shaking would cease her pain would also be reduced and her range of motion also increased gradually but notably over the months of care. Treatment began in February 2009 and she was treated only one time per week and though she attempted to come for treatment more frequently the travel time to the office (2.5 hours one way) was too stressful, physically and emotionally since you was unable to drive her self. While she was initially treated one time a week from February 2009 through July 2009 following July 2009 she reduced care to two treatments per month.

Prior to February 2009 the patient could not stand up and cook, do housework, drive and was categorized as completely disabled. During the first 4 months of treatment, if the patient attempted to overextend herself and perform activities beyond her low physiological adaptive range her condition would relapse for one to two days. Then on the third day, following a period of rest, she would recover to a level of disability that she had attained prior to the flare-up. As of August 2009 she stabilized without the flare-ups and could stand, garden, take care of house, drive, and begun an exercise program. The patient's medication has been consistently reduced as her condition has improved and which is currently less then half of the medications that she was taking prior to when the dental-chiropractic co-treatment commenced in January.

Discussion:

A report written by her internal medicine doctor dated March 19, 2009 described the patient's progress which was significant since this doctor had been treating the patient for years. "Complex pain syndrome remarkable improved with chiropractic intervention and this dental appliance. I have seen in the past with" this patient "that, sometimes, there can be transient improvements when a new modality has been added, but this seems different. We are hopeful that she will continue to have the excellent response that she has had at this point."

It is interesting that a relationship appears to have been found with this patient's severe tremors, migratory joint pain, and migraines and her pelvis and TMJ function. Her

tremors could be affected by having a trochanter belt placed and would return when it was removed. Likewise a similar reaction occurred with her dental appliances which indirectly described a relationship between pelvic stability and TMJ occlusal or condylar function. While the pelvic TMJ relationship appeared unrelated one study found that temporomandibular joint dysfunction plays an important role in the restriction of hip motion experienced by patients with CRPS (n=20) [4]. In another study a relationship between the sacroiliac joint, cervical spine and TMJ so that pelvic function and TMJ function was found [5] indicating an evidence based association.

It is always difficult to determine whether a treatment is offering a placebo effect or not. However in this case the patient had been to multiple doctors and facilities and had no idea the type of dental or chiropractic care she would be receiving. Her initial symptoms, while described as idiopathic or psychologically driven, responded in a consistent predictable continual physiological manner and her ability to return to prior activities, reduced pain, and increased function were welcomed by the patient and family.

Conclusion:

The patient's response to care was dramatic particularly since her condition had persisted for 9 years and was progressively worsening. The patient was not responsive to any care she had prior to February 2009 and this made her response to chiropractic and dental co-treatment all the more significant received. Further research is indicated to determine what patients with tremors, fibromyalgia, and migraines may respond to chiropractic and dental co-treatment. The unusualness of this patient's presentation will make this type of study difficult. However when a patient has multiple unresponsive neuromusculoskeletal clinical conditions a trial period investigating whether chiropractic SOT and cranial care in conjunction with dental appliance therapy may be indicated. The future challenge is developing a predictive group of tests to determine what subset of patient with severe tremors, fibromyalgia, and migraines would be responsive to this type of care. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Disc technique, differential diagnosis and treatment methodology: Two case reports.

I. Harvey Getzoff, DC

Introduction:

Sacro occipital technique's (SOT) method of treating lumbosacral disc, sciatica, and related myofascial dysfunction is called category three. SOT allows for conservative management of lumbar herniated discs and their possible affects on the thecal sac and CSF circulation. The hallmark of the category three technique is the use of prone pelvic blocks utilized to reduce pelvic torsion and through a triangulation process attempt to reduce or central radicular pain and improve function.

In a case study a 53-year-old male with significant low back and radicular pain presented for chiropractic evaluation following mild injury. MRI findings included large uncontained central disc herniation at the L4-L5 level. Chiropractic intervention consisted of sacro-occipital category three procedures. The patient responded well to a 6-week intervention and follow-up MRI at 5 months demonstrated significant reduction in the size of the herniation. They concluded that characteristic of category three technique forced used "are low force and do not involve placing torsional stress on the low back, and potentially may be well tolerated and safe for patients in high-level acute pain that is often associated with symptomatic lumbar disc herniation [1]."

Disc Technique [2] along with the "Step Out Toe Out" maneuver (SOTO) [3,4] are central to the SOT category three protocol. The SOTO diagnostic and treatment procedure is a core part of SOT's category three (lumbopelvic problems) protocol. It serves to not only identify and treat subluxations of the pelvis and lumbar spine, but also determines the degree of involvement of the surrounding soft tissues [3,4]. The Sitting Disc Technique requires only a stool or an armless chair, a willing patient, and your thumb [2]. One study evaluating the sitting disc technique [2] and its treatment being rendered were visualized during a video myelogram fluoroscopy. Following the procedure the patient reported less pain, and greater movement could be visualized of the vertebra as well as increased CSF circulation during application of the sitting disc technique during video fluoroscopy [5].

"A clinical study was performed to test the diagnostic accuracy of the SOTO maneuver in patients (n=5) with lumbar disc lesions. The study was accomplished by comparing initial examination SOTO indicators and results of MRI. A high degree of accuracy was observed in being able to differentiate a disc bulge versus disc herniation via the SOTO Maneuver, as supported by MRI. Therefore the five cases studied, where positive disc finding were indicated by the SOTO maneuver followed by MRI, offered consistent findings for segregating disc fragmentation from disc protrusion and prolapse [4]."

The purpose of the paper is to describe 2 case reports of symptomatic sciatica and lumbar disc herniation, successfully treated using sacro-occipital chiropractic technique procedures.

Case Report

Patient #1 is a male patient seen September 2005 presenting with right lateral posterior thigh pain into the right leg consistent with sciatica which had persisted for two days. He had no prior pertinent history. Patient #2 is a male patient seen August 2005 presenting with lower back pain localizing to the lumbosacral region and right sacroiliac and hip joints with radiculitis below knee. He presented with his body leaning to the left as an antalgic accommodation. He had a chronic history of low back pain.

Treatment/Intervention:

Patient #1 received category three block treatment and was treated for a right piriformis muscle syndrome incorporating the right iliofemoral and SOTO procedures. Cervical spine was accessed and treated for reduced cervical range of motion. Patient #2 received category three block treatment and was treated for a left piriformis muscle syndrome incorporating the left iliofemoral and SOTO procedures. Cervical spine was treated utilizing the SOT cervical stairstep figure eight technique.

Results:

Patient #1 was treated for 6 office visits through mid October of 2005 patient had significant improvement with decreased pain and improved function. The SOTO test was negative and cervical range of motion was both normal and symmetrical. Patient #2 was treated for 8 office visits through mid September 2005 with reduced pain as well as reduced peripheralization with pain not below the knee. Psoas muscle tension had been reduced and cervical range of motion was normalized in range of motion.

Discussion

Developing an effective method of treating traumatized lumbosacral joints, discs, and related myofascia that is low force and would reasonably offer low risk is of value in the treatment of these complex disorders. SOT category three block placement offers a method of treating lumbosacral discopathy without imparting forceful torsion, rotation, or pressures to sensitive swollen tissues [1]. Incorporating myofascial diagnosis and treatment methods of the SOTO [3] and sitting disc technique [2] help expand the ability to treat piriformis muscle syndrome, sciatica, and disc bulging or herniation.

There are various MRI pre and post studies that illustrate the effectiveness of category three pelvic block placement for lumbar disc herniations and severe low back pain. The treatments have been found to reduce a patient's pain and improve function, and the pre and post MRI are congruent with the patient's response to care [1].

Based on Blum et al study [5] there are various theories as to why there would be this increased CSF circulation in the lumbosacral region following the application of the sitting disc technique. These might be associated with an actually mechanical increase in disc height through a form of distraction on the disc and local L4/L5 decompression**,** balancing tensions on the related meningeal or thecal structures**,** and affects of increased CSF fluctuations and circulation secondary to diaphragmatic or vascular influences.

The SOTO (Step Out Turn Out) maneuver is used both diagnostically and therapeutically in the treatment of disc herniations. The SOTO maneuver is performed on patients with lower extremity radiating pain. The patient is prone, the affected leg is abducted, and then the leg is externally rotated with the foot dorsiflexed. This position is held for 10 seconds and then placed in the neutral position for one minute and then repeated. The patient's report of the change in pain intensity (same, better or worse) determines the indicated findings. The SOTO maneuver is purported to help differentiates between lumbar disc lesions from a piriformis muscle syndrome. Additionally the SOTO maneuver is also used to assist diagnosis into the type and severity of the disc lesion [3,4].

Positive SOTO maneuver findings for piriformis muscle syndrome is determined by elimination of the radiating pain after the first time the maneuver is performed. Disc findings, on the other hand, were associated with reports of no change or worsening of the patient's symptomatology, after the first maneuver. For these patients the maneuver was performed two additional times at one-minute intervals. Findings of "same, same, better" or "same, better, better" offered a good prognosis following SOT Category Three chiropractic conservative care [3,4].

The category three treatment protocols involve the use of pelvic blocks, the SOTO maneuver, and sitting disc technique [2]. With the two cases discussed each patient noted significant improvement with this treatment methodology. With a subset of patients with severe pain there can be a high fear avoidance behavior and the slow gentle pressure may be a viable option for treatment. Ideally conservative low risk methods of care for low back discopathies, versus the risks associated with medications, epidurals, and surgeries, would be preferred.

Conclusion:

This report suggests that chiropractic treatment of symptomatic lumbar disc disorders may, in certain cases, be effectively treated via use of SOT procedures: pelvic blocks, SOTO, and sitting disc technique. The procedures utilized in this technique are low force and do not involve placing torsional stress on the low back, and potentially may be well tolerated and safe for patients in high-level acute pain that is often associated with symptomatic lumbar disc herniation. Further study is needed to determine the most effective and best tolerated strategies to be used in the chiropractic setting for the treatment of symptomatic lumbar disc herniation. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Cervicocranial and craniocervical syndromes: A case report.

I. Harvey Getzoff, DC

Introduction

While there is a paucity of information regarding chiropractic treatment of cervicocranial/craniocervical syndromes (CC/CC S) [1] or related pain, it does appear that clinically these are not unusual presentations in chiropractic practices. Since many patients with chronic (CC/CC S) chose medication [2] and these medications often have secondary adverse affects, finding alternative low risk treatment is a considered option. A relationship between stomatognathic implications of cervical spine posture and airway dysfunction [3] it is not uncommon for there to be secondary symptoms associated with (CC/CC S) to include sinus, headache, jaw pain, and other related conditions. For practitioners treating (CC/CC S) it is not uncommon for there to be a subset of patients that will need dental-chiropractic co-treatment [4].

Case Report:

A 48 year old female was first seen at my office for CC/CC S and related disorders. A comprehensive history revealed the neck pain in the suboccipital area predominantly on the left along with pain in the left upper trapezius region (especially when at the computer). She also presented with left ear and jaw pain, frontal headaches, debilitating sinus and allergy symptoms, and a chronic history of digestive problems. She was taking medications including hormone replacement therapy, various allergy medications along with daily use of non-steroidal anti-inflammatory drugs.

Methods and Intervention

Sacro occipital technique (SOT) examination [5] revealed various pertinent findings, While standing on a platform to monitor balance instability was noted in all directions with eyes closed, there was asymmetrical increased sensitivity at the 1st left costovertebral junction and her left occiput was visually inferior compared to the right side. In the seated position cervical ranges of motion was found limited in right rotation, left lateral flexion and forward flexion [5]. In the prone position a line two area three occipital fiber was found active with a T5 inferior spinous and right transverse process sensitivity to palpation [5]. In the supine position there was a right leg deficiency, left sided reduced hip internal rotation, and indication of a positive arm fossa test relating to sacroiliac joint hypermobility syndrome (category two) [5]. Cranial restrictions evaluated through active cranial range of motion testing found marked restriction at the right maxillary zygomatic suture.

Treatment in the following sequence focused on reducing the occipital fiber vertebral reflex and adjusting the T5 spinous inferiority from I/S [5]. The left hip internal rotation was improved symmetrically with the right side and supine pelvic blocks were used to

improve category two findings, primarily the arm fossae indicator, and balance the leg length deficiency [5]. The cervical spine was adjusted using the "cervical stairstep – figure 8" method and craniofacial suture adjusting to the right maxillary zygomatic junction was performed [5]. Chiropractic manipulative reflex technique (CMRT) was used to balance any viscerosomatic components to T5 [5] and she was given related nutritional counseling. Cervical home care instructions along with ergonomic guidance were also given.

Results

The patient was seen initially 2 times per week and ultimately for 19 office visits at two times per month between September 2008 through February 2009. Of significance there was better postural stability when standing with eyes closed. She had less pain at the left costovertebral junction, occipital reflex point, T5 vertebral spinous, and related CMRT anterior body reflex points. Range of motion of the left hip improved along with a normalization of motion in the cervical region. Category two indicators resolved and craniofacial palpation revealed improved motion and less pain at the right maxillary zygomatic suture [5]. As of the February 2009 office visit the patient reported no cranial cervical pain and improved digestive symptoms. She was no longer taking any non-steroidal anti-inflammatory drugs. The patient also commented on their improved postural habits while working.

Discussion

Sacroiliac joint hypermobility syndrome or category two can affect or be affected by whole body kinematic function [4,5]. The ability of the weight-bearing structural system of the body to fully communicate through the nervous system (visual or vestibular righting mechanisms) so that maximum weight-bearing function can occur can be essential to healthy spine, neck and head coupling. Occipital fiber analysis and CMRT can be both diagnostic and therapeutic. This is because the sensitivity at the occipital reflex, related vertebra, with related viscerosomatic pain reflex points express a neurodynamic body "picture" that purportedly represents an image both structurally as well as viscerally, it must be considered as part of the patient's clinical needs [5].

Poor postural and dietary habits can significantly influence patient outcomes; therefore, they must be considered. While the field of chiropractic at this time cannot make direct recommendations regarding medications, we can educate our patients on how to be aware of the contraindications of various medications through pharmaceutical literature, reputable sites put on the internet. In this particular case, the patient apparently was having digestive problems complicated by chronic anti-inflammatory drugs use. Because the cranium is related to the cervical spine and pelvis [4] often with these types of cases dental occlusion has to be considered. Poor dental mechanics can contribute to or be affected by cranial sutural dysfunction. Attempting to balance cranial function in the presence of poor dental mechanics can lead to unsuccessful outcomes.

Conclusion

The patient's improved function monitored at each adjustment along with diminished pain offered successful outcomes assessment tools for both the patient and doctor. Due to the chronic nature of the patient's presentation and dental orthopedic dysfunction she was referred for dental co-treatment and her orthodontic progress is occurring. Postural and dietary habits are being managed and maintained. At this time the patient is receiving care at two times per month to facilitate her body's ability to accommodate to orthodontic changes. Comprehensive care ongoing, as initially outlined, in my opinion led to successful outcomes. Since this case represents a single subject case report it is difficult to generalize her recovery to the whole patient population, however it does suggest that further research into SOT and dental co-treatment of patients with CC/CC S would be indicated. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Fibromyalgia syndrome, trauma induced, and sacro occipital technique: A case report.

Gilbert S. Jaudy, DC, Charles L. Blum, DC

Introduction:

The pathoetiology of fibromyalgia syndrome is rooted in disordered sleep, increased stress, and abnormal neurosensory processing, with secondary endocrine and autonomic dysfunction in those who are genetically predisposed. Because fibromyalgia is multifactorial, it is best understood from the perspective of an inclusive biopsychosocial model rather than a limited biomedical model. Its characteristic signs and symptoms are best understood as emanating from a physiologic state, called central sensitization syndrome, in which the nervous system over-responds to stimuli. This anomalous state of heightened nervous system response is not confined to the peripheral nervous system, but is also present in the autonomic and central nervous systems [1].

Fibromyalgia syndrome is common, affecting 0.5% to 5% of the general population, and is either the second or third most common diagnosis in a rheumatology practice. Importantly for internists, a diagnosis of fibromyalgia syndrome should be made in 10% to 15% of primary care patients. The high prevalence alone demands diagnostic recognition [2].

According to Wilke the number of tender points, a surrogate for diffuse pain, does not fully capture the essence of fibromyalgia syndrome, in which accompanying fatigue is often severe and nearly always present [1]. He therefore determined that the "Symptom Intensity Scale is a more accurate surrogate measure for general health, [1]" to "detect fibromyalgia as a comorbidity in other clinical illnesses; serving as a surrogate measure of depression, anxiety, other serious personality disorders, previous or ongoing abuse, and, when fatigue is the dominant symptom, a consideration of obstructive sleep apnea—all part of the pathoetiology of fibromyalgia in that individual. [1]" Recent findings have indicated that there may be non-pharmaceutical approaches to the treatment of fibromyalgia syndrome and its myriad of symptoms [3]. In this paper we present a patient diagnosed with a severe debilitating fibromyalgia syndrome, determined by the patient to be triggered by a trauma, and treated non-pharmaceutically with chiropractic care, sacro occipital technique (SOT).

Case Report:

On April 2009 a 49 year-old female presented to my office diagnosed with fibromyalgia and what she described as debilitating pain all over her body. She said that her migratory pains that shifts from one region of her body to another with an intensity of 9-10 on a scale of 1-10 with 10 being the worst possible. The patient noted that for almost 8 years and suffering concurrently from stomach pain, belching, flatulence, depression, jaw pain, headaches, constipation, back and neck pain, shoulder and left arm pain, knee and ankle

pain, loss of hearing in the right ear, painful joints, right hip and leg pain, migraines, left facial pain, fatigue, muscle spasms, bowel and bladder problems.

The patient was evaluated and treated by multiple allopathic physicians including rheumatologists, internists, cardiologists, pain management specialists, neurologists, and others. Her head pain was causing her so much debility that she resorted to a "migraine surgery" in 2006, which gave her 40% relief for three months, however the head pain and migraines returned to a level more than she thought possible. At the April 2009 office visit she was taking various medications such as Lexapro, Topamap, Leroxyl, Halcion, Klonopen, Lorcet, Tylenol, and Fioricet; however they were described by the patient as ineffective.

Patient attributed the onset of her condition to an incident of severe airplane turbulence, short of a crash, which happened in 2002. She indicated that she has been almost bed-ridden ever since and her condition had become progressively worse as time passed. She could not even prepare a small meal to eat or perform her prior activities of daily living. For instance she was not able to take a shower by herself and due to her inability to function her marriage was severely affected. The patient was referred to this office by a physician at the Cleveland Clinic, in Cleveland Ohio [1].

Methods/Interventions:

SOT protocols and neurology analysis were used on the patient. At the initiation of the treatment the patient was treated for pain control utilizing category three procedures focused on L4/L5 and L5/S1 discopathy. Orthopedic pelvic blocking procedures were used in addition to decompress a right sided L5/S1 disc compression and to reduce a left L5 rotation to the left as determined by R+C factors of analysis. SB+ procedure was performed to balance sacral nutation. Increased asymmetrical psoas tension on the right side was treated so that it was balanced as compared to the left side. The patient continued with care and during the ensuing weeks her treatment progressed from pain relief category three treatment to treatment for her sacroiliac joint hypermobility syndrome (category two). Right piriformis muscle syndrome was noted with reduced hip internal rotation necessitating iliofemoral procedure to balance myofascial asymmetry. As treatments progressed her right TMJ was treated utilizing cranial sutural and TMJ procedures as well as basic two cranial procedures.

Results:

The patient reported significant relief of her chronic lower back and lower extremity pain following her first visit and following each procedure the patient reported marked reduction in her migratory pains. As her pains and aches subsided following the first few treatments she noted improved function and ability to care for herself. She was able to begin to walk normally and return to her prior activities of daily living along with reducing her pain medication. After two months of care the patient was off all her medication, was able to walk around normally, go to the mall, drive around in her car and cook a meal, which was a huge shift for her since 2002. By three months of care her

symptoms had resolved and she had returned to her activities of daily living as she had prior to the 2002 airplane incident. It is unclear following the three months of chiropractic care whether what she had was fibromyalgia or related to other related to other factors.

Discussion:

DeJarnette the developer of SOT attempted to help chiropractors develop a method of generalizing specific patient presentations into three specific categories. The category three syndrome relates to severe pain syndromes and often involves disorders relating to the sciatic nerve or lumbosacral discs. Treatment is multifactorial and involves the placement of pelvic blocks under the prone patient and modifying their angulations based on pain relief or centralization. With this patient category three treatment created significant pain relief and this might have been due to actual improvement of disc function, reduction of any impingement syndrome, or reduction of pain sufficient to increase the threshold of her central sensitization presentation [4].

The category two complex is associated with sacroiliac joint hypermobility syndrome which often results in a loss of stability to the body's structural integrity. This instability can offset the person's gravitational line and manifests in a compromise of the cerebellar pathways which coordinate balance and inability of the subject to accommodate to their environment. As the patient progress her pain threshold increased however we needed to treat her ability to function and be weightbearing. Balancing her category two complex allowed her to improve her ability to exercise, walk, and perform activities of daily living which further helped her ability to recover both physically and emotionally [4]. Part of the category two complex can sometimes involve TMJ dysfunction (TMD) which this patient had. The category two treatment and specific care for her TMD reduced her head pain/ aches and since the third month of care has not had a migraine headache which was commonly occurring 2-4 times per month.

With any severe condition that has a biopsychosocial component it is challenging to determine if an intervention is offering solely a placebo effect or whether it is actually creating a definable detectable clinical response. This patient's presentation with migratory, multiple regions of severe pain, and associated disabilities appeared consistent with a fibromyalgia syndrome. From a clinical perspective the patient's response to care seemed to be consistent with the treatment rendered and her responses coordinated with reduced SOT category indicators. It was significant that there was also a gradual improvement over the months of care which resulted in a return to her prior activities of daily living, reducing to eliminating her need for pharmaceutical medication, and improved quality of life. SOT has a unique perspective in the field of chiropractic in that it offers a "more comprehensive paradigm of chiropractic care, beyond routine musculoskeletal complaints, that conceptualizes the systemic, nonspecific effects of the chiropractic encounter in much broader terms [5]."

Conclusion:

This patient presented with a severe form of fibromyalgia syndrome triggered by a stress response associated with air travel. Her condition was multifactorial, had migratory pain, and multiple associated conditions such as fatigue, migraines, and gastrointestinal disturbances. It is always difficult with single case studies to make generalizations to all patients presenting with fibromyalgia. It may be that specific subsets of patients may respond to non-pharmaceutical interventions such as chiropractic care and in particular SOT with its integrative therapeutic applications. Further study is needed into chiropractic care of fibromyalgia utilizing controls, possibly sham interventions, and patient randomization. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Sacro occipital technique, cranial technique, "faux" fibromyalgia syndrome and self-reported improvement in vision: A report of four patients.

Sunny Kierstyn, RN, DC, Charles Blum, DC

Introduction

It is believed the pathoetiology of fibromyalgia syndrome (FMS) is rooted in disordered sleep, increased structural stress, and abnormal neurosensory processing, with secondary endocrine and autonomic dysfunction in those who may be genetically predisposed. Its characteristic signs and symptoms are best understood as emanating from a physiologic state, called central sensitization syndrome, in which the nervous system over-responds to stimuli. Chiropractic can be a valuable part of a treatment team for patients presenting with FMS, [2] which is one of the most commonly diagnosed nonarticular soft tissue conditions in all fields of musculoskeletal medicine, affecting 0.5% to 5% of the general population

In general FMS is diagnosed by evaluating a list of 18 anatomic areas in which the patient is asked if he or she feels pain (the total number of yes answers being the Regional Pain Scale score), and a visual analogue scale for fatigue. According to the Survey Criteria, a diagnosis of FMS can be entertained if the Regional Pain Scale score is 8 points or higher and the fatigue visual analogue scale score is 6 cm or higher [1].

While chiropractic care has been found effective for musculoskeletal issues, what is interesting is whether complex idiopathic conditions such as fibromyalgia may respond to a more comprehensive paradigm of chiropractic care (sacro occipital technique), with a focus beyond routine musculoskeletal complaints [3]. In this clinic, that emphasizes sacro occipital technique (SOT) and cranial care, a subset of patients presenting with allopathically diagnosed FMS are found to present with a varied form termed a "Faux" Fibromyalgia Syndrome (FFMS).

Typically FFMS patients present without muscle aches or pains or metabolic involvement however they still have the classic FMS trigger points. While these patients generally enter the clinic diagnosed allopathically with FMS, in this clinic FFMS patients have been found to follow an SOT category two distortion pattern. Commonly the FFMS patient has occipital frontal headaches, neck tension, trapezius tension, cervicobrachial issues, T3-7 costovertebral swelling and sensitivity, lumbosacral and sacroiliac low back pain, medial or lateral knee pain, ankle weakness, and medial longitudinal arch pain. Cranially they present with occipital and frontal imbalance with generalized increased cranial suture tension. While there are characteristic patient presentations of FFMS the major factor in diagnosis is the patient's positive response to category two SOT and cranial treatment. This case series reviews 4 patients who presented to this clinic diagnosed with FMS, and were later re-diagnosed and treated as FFMS patient. Of interest was that as they had a positive response to FFMS care, they simultaneously had a self-reported positive nonmusculoskeletal response with improved vision.

Case Study:

The following 4 patients primarily presented with a diagnosis of FMS and osteo-arthritic issues. These patients were reclassified at this clinic as FFMS and, supporting this re-diagnosis, all responded within a six week period to category two SOT and cranial care. Unexpectedly they concurrently noted a self reported improvement of their vision.

Methods/Treatment:

Treatment consisted of category two analysis and treatment, SOT extremity techniques, and complete cranial sutural analysis and treatment. Category two treatment involves releasing pelvic myofascial influences affecting leg length inequality (e.g., iliopsoas, piriformis, etc.) and utilizing specific indicators to then balance pelvic torsion in a supine position which purportedly helps to reduce SI joint ligament laxity or hypermobility. SOT extremity technique differs from a isolated specific application to a dysfunctional extremity joint and has a pattern of treatment that evaluates specific indicators and treats imbalance from feet, knees, hips, pelvis, scapula, shoulder, and elbow with their effect on the upper cervical spine.

Sutural cranial technique is a seven step process which incorporates pre and post assessment analysis involving palpation for pain and its relief to determine the need for specific cranial and sutural interventions. In this clinic a usual/initial cranial adjustment involves therapeutic applications to the occiput, sphenoid, parietals, craniofacial region and RTRT (temporal bone balancing techniques). FFMS patients in this clinic were seen in the first week 3 times, then in the following 3 weeks 2 times per week, then once a week for 1-3 weeks, and then decreasing visits until patient is being seen once a month. Once the patient tapers off to once a month for 3-4 months, then treatment is patient directed by symptoms and is recommended to be seen quarterly per year for evaluation, analysis, and determined if treatment is needed. At the six week mark following beginning care the FFMS patients are given rehabilitative exercise, which include the use of an upper body therapeutic band and a “rebounder.”

Results:

Within six weeks of SOT and cranial care these FFMS patient’s symptoms resolved to the point that as long as they were within a few days of receiving care they were asymptomatic. Following the initial 6 weeks period of time, the time between visits is increased in the manner as previously described.

A 49 year old female (long-time chiropractic patient), noted that she had never experienced cranial treatment prior to treatment at this office. Unsuspectingly, on her second visit, she self-reported a significant improvement in her vision described as allowing her to see colors brighter and better discern writing. This patient is a teacher and routinely needed to use a magnifying glass to read and reported since her second office visit a reduced need to use a magnifying glass.

A 57 year old female self-reported following her second treatment that she had noted improvement in her vision (near and far) along with a reduction of her "fibromyalgia" symptoms.

A 68 year old female, 3 months after starting care patient self-reported a change in vision along with reduction of "fibromyalgia" and decided to see her optometrist. She was informed that the doctor found it unusual but that her eyesight had improved and she needed a different prescription.

A 54 year old female self-reported that, following 2 weeks of care, she was experiencing a gradual improvement in her ability to see the "brightness of colors." This was an unusual occurrence for her and had never happened in her prior memory.

Discussion:

Fibromyalgia is a growing field of study and, as research incorporates the various clinical chiropractic practices treating FMS, it is possible that a subset of patients may be erroneously being treated and would better be reclassified and treated as a FFMS. Another issue is the side effect of nonmusculoskeletal symptoms occurring along with chiropractic care. Hawk et al evaluating the evidence on the effect of chiropractic care on patients with nonmusculoskeletal conditions found 179 papers yielded 50 papers addressing different nonmusculoskeletal conditions [4].

Therefore while the improvement of vision in the patients being treated for FFMS is ancillary, studies are suggesting that there is a group of patients which do have positive nonmusculoskeletal responses to chiropractic care. In a study investigating coincidental improvement of nonmusculoskeletal patient complaints following chiropractic care 385 chiropractors (United States, Mexico, Hong-Kong, Japan, Australia, and South Africa) collected valid data on 5607 patients. Of particular interest were self-reported improved nonmusculoskeletal reactions (allergy, asthma, breathing, circulation, digestion, hearing, heart function, ringing in the ears, sinus problems, urination, and others). Positive reactions were reported by 2% to 10% of all patients and by 3% to 27% of those who reported to have such problems [5].

Since SOT has been defined as a more comprehensive paradigm of chiropractic care with a focus beyond routine musculoskeletal complaints, it is important to review its categories of analysis and their related factors. DeJarnette developed sacro occipital technique (SOT) which has a category system of analysis assisting the chiropractor in generalizing a patient presenting for care so that a treatment plan can be developed based on specific reproducible pre and post assessment indicators. This category system involves three categories, category one involves pelvic torsion, sacroiliac (SI) joint fixation, with altered sacral nutation; category two involves SI joint hypermobility and is commonly associated with fibromyalgia; and category three which involves lumbosacral discopathy, sciatica, and related myofascial influences. Clinically in this office the majority of patients are in the category two pattern of distortion and have related cervical and cranial imbalance.

Conclusion:

Greater research is needed incorporating chiropractic clinics that have successful practices treating FMS. With various methods of chiropractic, it may be that some FMS patients may fit some specific techniques better than others. With SOT and cranial care, a subset of patients FMS could be reclassified into a novel diagnostic form of FMS called FFMS. As further study goes into chiropractic myofascial and neurological relationships, we may better gain a grasp why some patients presenting with musculoskeletal conditions may have simultaneous self reported positive non-musculoskeletal results, such as an improvement of vision. This case series offers an interesting view into a clinical practice treating patients diagnosed with FMS who had a positive response to care along with improved vision and may warrant research into both the patient group and treatment utilized. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Chiropractic manipulative reflex technique (CMRT) treatment for GERD of a 3 year old male child: A case report.

Robert D. Klingensmith, DC

Introduction:

Gastroesophageal reflux disease (GERD) can be due to incompetence of the lower esophageal sphincter, transient lower esophageal sphincter relaxation, impaired expulsion of gastric reflux from the esophagus, or a hiatal hernia. GERD in children may cause repeated vomiting, effortless spitting up, coughing, and other respiratory problems. Inconsolable crying, failure to gain adequate weight, refusing food, bad breath, and belching or burping is also common. Children may have one symptom or many — no single symptom is universal in all children with GERD. It is estimated that of the approximately 4 million babies born in the U.S. each year, up to 35% of them may have difficulties with reflux in the first few months of their life, known as spitting up. Most of those children will outgrow their reflux by their first birthday. However, a small but significant number of them will not outgrow the condition. Beyond infancy, up to one fourth of children and adolescents have recurrent abdominal pain, whereas only 5% report heartburn or epigastric pain [1].

Because GERD is common, it is important to distinguish pediatric patients with pathologic reflux that may lead to complications of GERD from those with physiologic GERD who have a better prognosis. The presence of associated symptoms such as poor weight gain, excessive crying, disturbed sleep, and feeding or respiratory problems distinguishes infants with GERD from those with physiologic gastroesophageal reflux. Surgical treatment is called fundoplication. [2] Mortality rates for pediatric fundoplication have ranged from 0% to 4.7% [2] with 6% of children sustaining postoperative complications such as GERD and dysphagia [2]. This is a case study to determine if Chiropractic CMRT treatment would affect change in an infant diagnosed and being treated medically for gastroesophageal reflux disease (GERD).

Case Report:

This single case study involving a 3 year old male being treated medically for gastroesophageal reflux disease with various antacids (Prilosec) since the age of 2 months and Prilosec since the age of 24 months.

Methods:

The patient received 5 treatments, the second 24 hours after the first and 3 others at 72 hour intervals. Treatment consisted of utilizing the chiropractic manipulative reflex technique (CMRT) protocol for occipital fiber #3 on line 2 with the T5 spinal level involved and the stomach reflex manipulated. The mother was asked to not change any aspect of his normal eating routine for the first 4-5 days to determine what effect could be observed. CMRT protocol for Line 2 Occiput fiber #6 spinal level T8 and liver reflex

and pump was manipulated on treatment #4 at which time the patient was instructed to drink at lease 36-48 ounces of water within 6-8 hours but not within 3 hours of bedtime.

Results:

The mother reported on the second visit that the patient has slept well, which was an improvement since almost every night prior to treatment he had been waking with reflux pain. After the third visit the mother reported that he did not wake complaining of his "belly aching," which he had since he could talk. The fifth visit was two weeks after the initial treatment and the mother reported no reflux pain and that she had discontinued the Prilosec after the second treatment. Follow-up contact 12 months later upon a return visit found the patient doing well without reflux pain or symptoms nor taking any medications.

Discussion:

Conservative care for pediatric GERD includes feeding modifications such as "a protein-hydrolysate formula thickened with one tablespoon of dry rice cereal per ounce, at restricted volumes. Positioning changes included avoidance of seated and supine positions. Elimination of all tobacco smoke exposure was advised [3]." However short of these modifications addressing myofascial and viscerosomatic reflex imbalance, chiropractic care has not traditionally been a consideration for pediatric GERD. GERD symptoms in young children are similar to those experienced by adults and in some individuals; GERD is a lifelong disease that may require aggressive therapy early in life to reduce the risk of long-term sequelae [2].

Ideally this aggressive therapy would start with low intervention care such as dietary modifications, position alteration and reduction of smoke exposure and then could switch to conservative interventions such as CMRT. While sacro occipital technique's (SOT) CMRT has methods of treating GERD [4] other chiropractic methods may also offer options for pediatric patients with this condition [5]. In a study (n=10) on adult patients with GERD referred by a gastroenterologist for chiropractic cotreatment high digestive endoscopy exam was performed on all individuals before and after 8 sessions of chiropractic treatment utilizing CMRT for gastric syndrome. Incorporating a GERD symptom's questionnaire and the results from high digestive endoscopy exams the treatment noted a statistically significant global reduction of GERD symptoms was observed ($p=0.0002$) especially on the evaluation of pre and post treatment postprandial pyrosis data ($p=0.000004$) [4].

Conclusions:

Positive outcomes such as this offer the incentive to warrant further pediatric studies to determine consistency of outcome with chiropractic interventions and particularly CMRT for GERD. Treatment that offers low risk and may offer an option to long term medication and reduced need for lifestyle modifications would appear to be worth investigating. While it is essential to determine what subset of pediatric patients with GERD may benefit from this care a short period of trial therapy may function as a

diagnostic test and a viable option to GERD that is unremitting in a young child. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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The effects of SOT category blocking procedures on lower extremity function in high performance athletes: A case series.

Curtis Langer, DC

Introduction:

The ability for an athlete to perform consistently and at their peak is of utmost importance in high performance athletic activities. In spite of demanding training schedules to accomplish this task, it is not uncommon for an athlete to have an "off day." Explored in this case study is whether chiropractic care could be valuable for the elite athlete [1] where it is essential that that have the ability to train, recover, and excel in their specific activity.

Chiropractic care of athletes has been growing over the past few decades. A survey of 35 health professionals, including physicians, physiotherapists, athletic therapists and chiropractors was performed. The survey determined that "sports medicine has an emphasis on performance, which is the basis for a client-centered model of practice." The emphasis on performance and client centered practice has "provided the main grounds for the inclusion of chiropractic into sport medicine. While the common understanding is that 'athletes wanted them' has helped to secure a position for chiropractic within the system of sports medicine professions, this position is marked by ongoing tensions with other professions over the scope and content of practice, and the nature of the patient-practitioner relationship [2]."

Aside from athletes within the amateur ranks and Olympics, chiropractic care is beginning to make in roads into professional sports. For instance "there is significant chiropractic participation in US professional football. Certified athletic trainers see a role for the sport chiropractor in the NFL, primarily as a spinal specialist treating low back and other musculoskeletal injuries. A substantial majority of NFL trainers have developed cooperative relationships with chiropractors, with 77% having referred a player to a chiropractor [3]."

There are various types of chiropractic care. One method entitled Sacro Occipital Technique (SOT), developed by M.B. DeJarnette, evaluates the role of biomechanical faults. These biomechanical imbalances can be represented as a category system of diagnosis and treatment. DeJarnette attempted to create a generalization of patients presenting for chiropractic care so that predictability could be attained for specific testing indicators that could be used for diagnosis and to evaluate a patient's response to treatment. The category system could be briefly described as follows: Category I relates to anterior sacroiliac (SI) joint fixation with subsequent reduced nutation; Category II relates to SI joint hypermobility, and Category III relates to lumbosacral discopathy often with accompanying sciatica [4,5].

Case Report Subjects:

The following three subjects in this study are patients, receiving normal evaluations and treatment. This was a retrospective use of data from their charts. Three subjects were used in this study: (1) Male professional mountain biker, age 33, participating in multiple World Cup, National and International competition, (2) Female Olympic mountain biker (2004 and 2008 games), professional mountain biker and former U.S. National Women's X-Country Champion, age 37, and (3) Male tri-athlete, age 54, participating in 120 tri-athletic competitions (including two Ironman this year) over the last 22 years. Due to the nature of their endeavors, multiple pains, discomforts, muscle "pulls", injuries and aches occur. These would vary from neck pain, gluteal tightness, pain in the Achilles tendon, knee pain, TMJ tension, wrist pain, shoulder pain and delayed recovery from physical exertion. All participants in this study at one time had experienced some of the above symptoms as well as other symptoms.

Method:

The three subjects were examined and evaluated using Sacro-Occipital Technique (SOT) procedures, including SOT categorization, testing for symmetry of muscle flexibility, strength and function, sensitivity to palpation of specific muscle's bellies and tendons. Specifically, subjects were evaluated by manual muscle testing of the lower extremity musculature (i.e. quadriceps, hamstrings, gluteal group, gastrocnemius, etc.), symmetry of flexibility of muscle groups (piriformis/gluteus medius, iliopsoas, etc.) positional stability tests (e.g., single leg stances, balancing on rollers, etc.) and palpation of lower extremity (including Achilles tendon) musculature and joints for increased sensitivity.

The manual muscle tests were considered positive if they demonstrated any of the following: 1) weakness 2) cramping on exertion 3) pain on exertion 4) asymmetry in strength from one side to another. Stability tests were considered positive if a differential in capacity from one side to another was demonstrated and/or an inability to perform the test on either side. Palpation was considered positive if upon palpation pain or discomfort was elicited and hyperemia or swelling was noted.

Results:

Following the SOT blocking procedures [4,5], which would vary between category one or two interventions, the three patients demonstrated greater strength in the weakened muscles, more stability where stability was diminished, reduced pain when pain was present on muscle testing or palpation and absence of cramping on muscle testing.

The various indicators used to determine the need for care such as heel tension, arm fossa test, SB+/-, R+C factors, occipital and trapezius fiber analysis, sacral cup, cervical stairstep analysis, weakness or cramping of muscle on muscle testing, improved flexibility, reduced tenderness to palpation, improved postural stability testing, and, all improved during each office visit and would correspond to improved function, reduced pain, and accelerative recovery from injury.

The following are the most common findings with each patient however there were times that a patient might present with completely different set of symptoms or diagnoses due to accidents, crashes, strains and sprains during athletic competition.

1) Patient #1 presented with muscle cramps on exertion, fatigue and low energy, neck and shoulder stiffness, difficulty getting heart rate "up" on exertion. Treatment included Category I procedures, chiropractic manipulative reflex technique (CMRT), and SOT extremity adjusting. He would get treated for a week or two and then travel for 6 weeks, generally receiving care 8-12 times per year. Response to the care noted significant improved perceived effort, greater capability of exertion, and reduced body discomfort.

2) Patient #2 presented with stiffness in her neck and upper back, pain in wrists, low back strain, gluteal and hip discomfort. SOT Category I, and sometimes Category II procedures were applied when exacerbated, along with intra-oral cranial specifics, CMRT procedures, and SOT extremity techniques. Response to care included elimination of wrist pain, greater flexibility of neck and upper back and reduced exertion on lower back and hips.

3) Patient #3 presented with stiffness in the neck, pain and limited range of motion in his left shoulder, tightness and tenderness on the right hip with radiation towards the knee, as well as fatigue in the legs on exertion. Treatment included SOT Category II procedures (occasionally Category I presentations), CMRT, intraoral cranial specifics, sutural release, and SOT extremity techniques. Response to care included increased range of motion in neck and shoulder with improved strength, reduced pain in right hip, gluteal muscles, the lateral aspect of the lower extremities, and reduced effort on exertion.

Discussion:

It is a matter of speculation as to why, following SOT category treatment, there was increased function and improved outcomes relating to the patient's muscle(s) pain, asymmetry, and altered strength. It may be suggested that a patient presenting with a Category II is experiencing the direct mechanical effects of SI instability and pelvic torsion (i.e. lengthening, shortening, torquing and recruitment) on the lower kinematic chain which maybe a cause of reduced capacity. On the other hand, a Category I dysfunction would seem a more likely candidate for creating neurological inhibition or facilitation affecting the muscles via dural port torquing and meningeal stress [4,5].

At this time, a majority of elite athletes receive massage and physical therapy to tend to their symptomatic needs. This treatment is known to be palliative, however, we question whether there is a therapeutic component being missed. It is theorized that there is a primary factor of dysfunction affecting the whole body structurally, muscularly, myofascially and neurologically related to pelvic balance. This pelvic balance can be associated with sacroiliac joint hypermobility (Category II), sacroiliac joint fixation and reduced sacral nutation (Category I) and lumbosacral joint and disc dysfunction

(Category III) [4,5]. Based on the response to care from these three patients, it may be suggested that the missing component is the SOT categorization and treatment. Part of the Sacro Occipital Technique Organization – USA's focus of teaching SOT has been to build a greater evidence base and well as to update its terminology and language to fit current evidence based practices.

Another challenge for SOT practitioners working in the field of professional and amateur athletes is to develop and incorporate evidence based SOT language and care in order to facilitate trust and communication in this allopathic dominated field. Hoskins et al also suggests that "identifying a chiropractic practitioner who uses multimodal treatment of adequate duration, who incorporates active and passive components of therapy including exercise prescription whilst using medical terminology and diagnosis without mandatory x-rays or predetermined treatment schedules or prepaid contracts of care will likely result in selection of a chiropractor with the approach and philosophy suited to appropriately managing athletic conditions. Sporting organizations and associations should consider using similar criteria as a minimum standard to allow participation in health care team selections [1]."

Conclusion:

Systems as complex as the human bio-mechanical system are hard to deconstruct and as a practical matter it is not necessary to do so for a clinical application. What is suggested in this study is that all the SOT categories can affect function of the lower extremities and that basic SOT category treatment (blocking procedures) may be effective in improving strength, balance, and stability of elite athletes. The application of these procedures, when indicated, could enable the performance conscious athlete to enhance their capabilities and produce more consistent outcomes when regularly applied. Further research is indicated to determine which athletes would best respond to this care and at that time have a control group so a comparative study could be performed. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Dental chiropractic co-treatment of patient presenting with chronic severe fibromyalgia, head, neck, and jaw pain with depression.

Jeffrey A. Mersky, DC, William Halligan, DDS

Introduction:

Dental chiropractic co-treatment of temporomandibular joint disorders (TMD) may be an important part of patient healthcare. Reviewing a claims data base of a large New England managed care organization comparing the health care utilization patterns of patients with TMD to non-TMD subjects, found that TMD patients were greater utilizers of health care services and had higher associated costs than non-TMD subjects. For some of the major diagnostic categories, such as nervous, respiratory, circulatory, and digestive, the inpatient and outpatient claims differences in utilization and costs were as large as 3 to 1. The psychiatric claims for TMD patients exhibited differences that were at least twice as large as those for the non-TMD subjects [1].

Various studies have found relationships between dental occlusion and body posture and conversely relationships between body posture and dental occlusion. In a study with 46 asymptomatic subjects body posture was more stable when subjects would bite down in centric relation. However altering body posture by changing leg length with a heel lift, shifted the occlusal force distribution to the ipsilateral side [2]. Therefore if patients can be helped with TMD related symptoms and related patterns of postural dysfunction this may offer patients a viable alternative for recalcitrant pain and discomfort as well as reduce healthcare costs relating to various TMD associated health conditions.

Case Report:

A 35 year old female was referred to this office by her dentist for dental chiropractic cotreatment of multiple chronic unremitting conditions. She was under the care of a rheumatologist who diagnosed her as having fibromyalgia, along with severe head, neck, and jaw pain with depression. Following her intake with the co-treating dentist he decided that she would need chiropractic care as well as biofeedback to facilitate any dental splint treatment he would use for treatment. The dentist found that the patient had 28 trigger points associated with temporomandibular joint (TMJ) dysfunction and myofascial responses related to this imbalance.

When the patient had her first intake examination at the chiropractic office she noted that she was currently taking 14 medications. She was taking multiple medications for her fibromyalgia, various pain relievers, medication for both depression and anxiety, and Prilosec to deal with the secondary stomach pain from the medication. Base line EEGs were taken and she also began biofeedback therapy. Having tried virtually everything the patient felt this was her last option.

Methods:

Chiropractic treatment consisted of sacro occipital technique (SOT) diagnosis and analysis. Of interest the patient presented without any leg length discrepancy and the posterior sacroiliac (SI) joint was stable and functional. Evaluation of sacral nutation (SB+/- cough test) found reduced movement on sacral counternutation (SB+) also known as sacral flexion occurring with sacrocranial inhalation phase of motion [3]. The patient was treated with pelvic blocks while prone (SB+) with blocks placed bilaterally at the ASIS facing caudally at 45° angles [3,4]. On inhalation pressure was applied to the sacral apex encouraging sacral counternutation.

During the block placement and sacral pressure the vertebral column was monitored and at regions of decreased blood flow (vasomotor response) pressure was applied inferior/superior at the related vertebra's spinous process asking the patient to determine if there was pain and which point was the most sensitive. Sensitivity was noted during multiple office visits with the range localizing to the spinouses of T4, T5 and T6. In SOT occipital fiber analysis these areas related to viscerosomatic regions related to reflexes associated with the gall bladder, stomach, and pancreas. Chiropractic manipulative reflex technique (CMRT) was applied to those regions of involvement when there were related viscerosomatic reflexes and referred pain patterns associated with the specific organ [5].

The cervical spine was treated using an SOT method called cervical stairstep technique which allows for repositioning and normalizing motion of cervical motor units. Since the patient requested not to have joint cavitation to her cervical spine this became the treatment of choice. Cranial and TMJ techniques were applied to reduce any ascending postural patterns of imbalance affecting occlusion and assisting the dentist to create an optimal dental splint. This specific dental splint or orthotic was centered with the mandibular condyles in the glenoid fossae with the condylar-disc assembly braced against the posterior slope of the eminence, and verified with joint images with the orthotic in place.

As the patient used the splint for day and night-time the chiropractic care then was used to assist her body's ability to accommodate to descending postural influences from her adjusted new occlusion. Biofeedback was also incorporated to assist the patient's ability to relax without medications as well as develop internally driven coping skills.

Results:

Chiropractic and dental evaluations 5 weeks post-treatment found that the patient had markedly decreased pain with 28 trigger points reduced to only two. Spinal range of motion had been significantly improved as well as her ability to open her mouth to a normal range (38-42 mm as compared to initial office visit of 28 mm). Prior to care she was having difficulty sleeping where as at the evaluation she noted she was sleeping better, felt more relaxed, less anxious, and had sensations of well-being. She was only taking 4 medications and noted that her digestive issues had improved. Her activities of daily living such as outside activities, energy levels, and social relationships had significantly improved. EEG findings found significant improvement comparing initial

scan to 5 week post-treatment phase of care. Of interest is that the biofeedback practitioner found significant improvement of EEG findings with dental splint in place compared to without, even at the 5 week evaluation period.

Discussion:

With any patient presenting with chronic pain and dysfunction it is difficult to clearly state that one method of care will create a positive change. In this case it appears that the chiropractic care working in conjunction with her dentist and biofeedback practitioner helped reduce the patient's level of pain, dysfunction, reliance on medications, and improved her quality of life and activities of daily living.

Dental chiropractic co-treatment and integration can be a valuable tool evaluating and treating ascending and descending patterns of postural distortion relating to dental occlusion. SOT chiropractic's ability to evaluate and treat sacral nutation as well as locate areas of dural port tension [4] may be a valuable tool co-treating TMD and related airway dysfunction. CMRT may also have been important to reduce any viscerosomatic feedback to the T4-6 region and function to improve visceral function [5].

The cervical stairstep technique, which adjusts cervical articular facet motor units, as well as TMJ and cranial therapy, can be important tools assisting a patient's response to dental orthotic splint treatment. These therapies can facilitate joint coupling and kinematic accommodation between body posture and dental occlusion, TM condylar position, and airway dysfunction.

Conclusion:

The future of healthcare will likely include interdisciplinary co-treatment involving low risk procedures and offering alternatives to long-term medication use and extensive invasive costly procedures. As the field of dentistry develops methods of treating TMD, chiropractors can be a valuable member of an interdisciplinary team treating ascending body posture imbalance affecting pelvis, head, and neck position. Chiropractors trained in SOT have a unique ability to facilitate cranial bone balance and motion along with treating non-dental mechanical TMJ dysfunction. Single subject case reports without controls do not allow for broad generalization of findings from treatment interventions. However the patient's non-response to various prior therapies along with her degenerating condition and the temporal nature of her recovery immediately following care should encourage further research. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Sacro occipital technique treatment of hiatal (hiatus) hernia presentation: A case report.

Gary A. Mitchell, DC

Introduction:

A hiatal hernia (HH) is the protrusion of the upper part of the stomach into the thorax through a tear or weakness in the diaphragm. Common symptoms include acid reflux, and pain, similar to heartburn, in the chest, difficulty swallowing, and upper stomach worsened with deep breathing. HH affect anywhere from 1 to 20% of the population with 9% being symptomatic. HH has its maximum prevalence in economically developed communities in North America and Western Europe and rarely occurs in rural African communities [1].

HH risk factors include increased pressure within the abdomen caused by: heavy lifting or bending over, frequent or hard coughing or sneezing, pregnancy, violent vomiting, straining with constipation, and obesity. Allopathic treatment includes antisecretory drugs like proton pump inhibitors and H2 receptor blockers can be used to reduce acid secretion and in unresponsive cases surgical intervention [2]. Chiropractic techniques such as sacro occipital technique have some specific methods to conservatively treat HH symptoms [3,4].

Case Report:

A 54 year old male patient presented with severe pain in the epigastric area worse with deep breathing, eating any food, and sensations of unremitting persistent upper abdominal aching, feeling of fullness, and throbbing pain. The condition started after he had been fasting for 4 days and then had eaten an unusually large meal. That evening he was unable to sleep due to pain, and nothing he could do would relieve his pain or discomfort. When he would not eat for 10 hours the pain would gradually subside but would return as soon as he would eat a small amount of food. The condition had persisted for three days before he sought treatment at my office.

Intervention:

Upon evaluation he had symptoms of HH which was characterized by excessive tension in his diaphragmatic region and weakening of a strong muscle when tested as pressure was placed superiorward into the epigastric region. Treatment involved an adjustment of "anteriorities" in the T11-L2 region, releasing of diaphragmatic tension in the mid and left lower rib region, sacrooccipital technique (SOT) chiropractic manipulative reflex technique (CMRT) HH release technique (gently pulling stomach downwards during exhalation) and solar plexus technique [5].

Results:

Immediately upon pulling the stomach downward the patient sighed and said he could breathe comfortably for the first time. Approximately 2 minutes he reported the constant tension in the epigastric which had persisted for three days had gone. The following day he indicated it was the first time in 3 days that he hadn't woken up between 3-5am to pace the bedroom due to pain and aching in his stomach. A week following he indicated his discomfort had not returned and was eating and functioning normally without discomfort.

Discussion:

In healthcare risk benefit ratios need to be applied so that most conservative care can be applied for the patient's best interest. Instead of pharmaceutical interventions and possibly surgery with its accompanying complications chiropractic treatment for HH may offer a viable alternative. Generally in addition to chiropractic care other low risk interventions would include that patients should elevate the head of their beds and avoid lying down directly after meals until treatment is rendered. HH is attributed to insufficient dietary fiber and the use of the unnatural sitting position for defecation [1]. Both factors create the need for straining at stool, increasing intraabdominal pressure and pushing the stomach through the esophageal hiatus in the diaphragm.

Conclusion:

SOT - CMRT has multiple methods for treating HH and this could offer an excellent opportunity for interdisciplinary treatment of HH between the fields of chiropractic and allopathic gastroenterology. Greater investigations should be performed to determine which patients may be presenting with HH that could be associated with diaphragmatic imbalance reducing sphincter action and affecting the stomach's relationship to the diaphragm. Future research should involve determining which subset of patients could benefit from chiropractic care of HH symptomatology. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Effects of Pregnancy on Cranial Structures.

Frank O. Pederick, DC

Introduction:

A relationship between women's brain volume and pregnancy has been found in the literature. Responses to this change in brain volume have also been associated with neurohormonal reactions before and after pregnancy. "The brain decreases in size during pregnancy and increases in size after delivery. The changes follow a consistent time course in each woman. The mechanism and physiologic importance of these findings are speculative at the present time [1]." From a clinical perspective the cranium purportedly relates to this change in brain volume and these effects on cranial bones and dura persist long after giving birth.

Therefore observations made and recorded in the literature, (Chiropr J Aust 1993;23: 106-112 and Chiropr Technique 1994; 6:112-3), over 15 years ago on the effects of pregnancy on women's cranial structures during chiropractic care have received a degree of confirmation from more recent medical studies of 3-D MRI images of the effects of pregnancy on the volume of women's brains [1-3]. These changes have the potential to affect women's physical and mental health and attention to them could be included in the care provided by chiropractor's working in the cranial field.

Diagnostic Intervention:

The Malcolm Test described by Denslow et al notes that "..low threshold segments are those in which a relatively large portion of the motoneurons are maintained in a state of facilitation, due to chronic bombardment from some unknown source. Presumptive evidence indicates that the facilitating impulses arise from segmentally related structures [4]." A modified Malcolm Test has been proposed by Kotheimer for assessing spinal and cranial distortions. This test relies on observation of changes in leg length when a subluxated spinal segment or cranial bone has pressure applied in a specific direction [5].

Kotheimer determined the most desirable direction of cranial adjustment by using the challenge test. The optimal direction for the manipulation is considered to be opposite to the positive challenge direction [5]. Clinically evaluating pregnant women for cranial imbalance, most especially after pregnancy, apply light two handed pressure first in evaluating cranial bone extension patterns; then check leg length effect; and then evaluating cranial flexion patterns and recheck leg length. This test is particularly directed to the midline structures of the cranium. Before making this test on the cranium, the recommended procedure is to make every effort to reduce structural distortions and restrictions in the rest of the body to minimize somato-somatic reflex effects

Treatment Rational

Due to its low pressure venous return pressure is affected by any restriction in the spinal articulations and ribs, and striated muscles and fascia affecting the thoracic outlet, the respiratory diaphragm and the uro-genital diaphragm. The effect of restrictions in and between these structures, (which combined have been called the 'sternal pump'), is to increase venous back pressure. Any increase in venous back pressure is reflected in the internal jugular vein which is the main drainage point for the venous sinuses of the skull and spine. As the venous back pressure rises the CSF pressure and cranial interstitial pressures will also increase

The increased pressure in the jugular foramen may result increased pressure on the spinal accessory nerve which could increase the tension in the trapezius and sternocleidomastoid muscles increasing restrictions to the movement of the sternal pump, further increasing venous back pressure in a self-locking fashion.

The effect of the pressure changes outlined seems to be a primary restriction in the motion of the skull in the sagittal plane. At the cranial midline, the falx cerebri and the spheno-basilar synchrondrosis (SBS) are two of the major structures likely to be affected. As the sagittal sinus is intimately associated with the falx, prolonged venous pressure changes in the sinus are likely to result in changes in tension in the falx with resulting SBS restrictions also. The other cranial sinuses are also associated with the major membranes in the cranial cavity. Increased tension in these membranes may be the cause of restricted motion of related cranial bones which is palpable by and may be released by a trained practitioner.

A major emphasis is placed on the cranial midline structures because they also involve the hypothalamus and pituitary. The hypothalamus synthesizes and secretes neurohormones, often called hypothalamic-releasing hormones controlling body temperature, hunger, thirst, fatigue, and circadian cycles. These in turn stimulate or inhibit the secretion of pituitary hormones that control blood pressure, water and osmolarity regulation, secretion of anti-diuretic hormone, and directly affect reproductive functions such as, uterine contraction in childbirth, breast milk production and sexual organ functions.

Discussion:

A reduction in women's brain volume during pregnancy was found by Holdcroft's team while investigating causes of pre-eclampsia and reported in New Scientist magazine in 1997 [1]. The study developed three sets of 3-D magnetic resonance images of 10 healthy women: (1) the first set were taken towards the end of pregnancy, (2) the second 6-8 weeks after delivery and (3) the third about 6 months later. It was concluded that when the women's physiology returned to normal after pregnancy, their brain volume increased [1]. Holdcroft concluded that the changes noted were normal and unrelated to pre-eclampsia [1]. (Pre-eclampsia relates to findings of high blood pressure and proteinuria in pregnant women. There is no established cause.)

While the brain volume decreased, the pituitary - the main hormone regulator for the body, including some hormones involved in reproduction - showed an opposite effect by increasing in volume during pregnancy. Holdcroft believed that the change in brain volume could be attributed to reduction in individual cell size rather than any reduction in the number of cells [1].

This work was later repeated and reported in a 2002 by Oatridge, Holdcroft, et al [2]. Images were obtained of nine healthy women before and after birthing and in two cases before, during and after pregnancy. Images of five women with pre-eclampsia were obtained before delivery and 6 weeks after delivery , and for three of these further images were obtained within 52 weeks of delivery. Both the pre-eclampsic and healthy groups showed a reduction in brain volume that was greatest at full-term and regained normal dimensions within six months of delivery. Ventricular size increased during pregnancy and decreased afterwards. In pre-eclamptic women the brain volume was significantly less than in the healthy group before and after birthing. The changes in all of the women followed a consistent course with time. The changes in volume are large, with the two subjects examined before conception, the reductions in brain volume were 4.1%, (or 46.7 cubic cm) and 6.6%, (or 80.2 cubic cm) [2].

Johnson [3] corroborating the work of Oatridge and Holdcroft et al [2] and Holdcroft [1] suggested that pregnancy related depression may be associated with volumetric changes in the brain, such as alterations in discrete neural regions. "For example, preliminary evidence suggests depressive symptoms may be associated with decreased size of the hippocampus, a region critical for memory and other cognitive functions [3]."

Although only speculation at this point, Johnson [3] presents a theory that the longer someone is depressed, the more changes will occur in their brain. "Maybe early on you can reverse it, but later you can't [3]". 50% of patients can expect a full remission in the first 6 months of treatment -- if they are diagnosed and treated appropriately, whereas this number drops dramatically with inappropriate therapy [3]. Commonly the treatment involves mood stabilizers and antidepressants [3].

A suggestion to explain these observations is based on what is known of pressure gradients governing the pressures within the brain. These vary from the highest, mean arterial pressure, (approximating cranial perfusion pressure), to cranial interstitial fluid pressure, to cerebrospinal fluid pressure, to sagittal venous sinus pressure and finally bodily interstitial fluid pressure which is negative and helps to hold us together. Perhaps, on the basis of some evidence in the literature, while the auto-regulatory systems of the body generally cope well with fairly rapid changes in fluid pressures, (such as when lifting a heavy object, or straining at stool), this may not be so when the changes are slow and prolonged such as during the development of a fetus.

Therefore the work of Oatridge and Holdcroft [2] on changes in women's brain volume during pregnancy and the cranial effects noted; may both stem from the limitations of the auto-regulatory system when governing prolonged slow changes in venous back

pressures. Perhaps pre-eclampsia is an inappropriate late response to such changes in women with a smaller brain volume. Clinically it has been found that cranial work is ineffective if the patient is taking psychoactive drugs for postnatal depression.

Conclusion

The effect of cranial work on women during and after pregnancy is a matter which could be the subject of many case reports. Subsequently, perhaps more intensive trials to test the effectiveness of cranial adjusting for postnatal depression could be arranged. There could be a prophylactic role for cranial work in controlling pre-eclampsia. Such reports and trials could make a major contribution towards the health of childbearing women. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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SOT Chiropractic Care of a Six-Year Old Boy Diagnosed with Asperger's Syndrome and Related Conditions.

Martin G. Rosen, DC

Introduction:

Asperger's syndrome is considered a high-functioning autism [1] and since its exact cause is unknown some research supports the likelihood of a genetic basis. It differs from other autism spectrum disorders by its relative preservation of linguistic and cognitive development. Although not required for diagnosis, physical clumsiness and atypical use of language are frequently reported [2]. There is no single treatment, and the effectiveness of particular interventions is supported by only limited data. Intervention is aimed at improving symptoms and function. The mainstay of management is behavioral therapy, focusing on specific deficits to address poor communication skills, obsessive or repetitive routines, and physical clumsiness. A 2003 review of epidemiological studies of children found prevalence rates ranging from 0.03 to 4.84 per 1,000, with the ratio of autism to Asperger's syndrome ranging from 1.5:1 to 16:1[3]. The field of chiropractic may play a part in the treatment of autism spectrum disorders [4] and sacro occipital technique (SOT) and cranial techniques have been found to be of promise for improving symptoms and function [5].

Case History:

A six year old male patient was brought to my office on October 2000 for evaluation and treatment for several medically diagnosed conditions that had not responded to standard medical care. The patient had seen another chiropractor for 6 months who then referred the patient for SOT and cranial chiropractic care at this office.

His initial complaints included: Asperger's Syndrome that resulted in uncontrollable "rocking, jumping and flapping" of his hands, asthma triggered by exertion, seasonal allergies and colds or bronchial congestion, and severe allergies to mold, dust, animal dander and seasonal triggers. Standard medications for the Asperger's "made his asthma and allergy symptoms worse." Therefore at the time of his initial office visit he was only taking asthma medication (Intal and Albuteral) and a multivitamin. His Asperger's symptoms started at age 3 and he had asthma and allergy symptoms since early childhood.

Methods - Treatment/Intervention:

A standard chiropractic, orthopedic and neurological exam was performed on the patient as well as a specific SOT (Sacro Occipital Technique) spinal and cranial evaluation. Cranial and spinal subluxations patterns were detected and a treatment program was implemented to address these patterns using SOT protocols and procedures.

Initially treated as a category two (sacroiliac joint hypermobility) with active occipital fibers line two T3 and T7. His occiput was determined to be in left lateral flexion, he had right temporomandibular joint dysfunction (TMD) and cervical subluxations at C2 and C1. The category two stabilized in 3 weeks corresponding with improvement of his Asperger's symptoms. Initially cranial adjustments focused on the occiput, spinal adjustments to the upper cervical spine (C1 – C2), pelvis (Category II protocols) and thoracic regions (T3 and T7). Viscerosomatic reflexes relating to T3 and T7 were balanced utilizing chiropractic manipulative reflex technique (CMRT).

By the second month the patient was treated as a category one (sacroiliac joint fixation, pelvic torsion, and altered sacral nutation) and the cranial imbalance began to resolve. His office visits were reduced from every 3-5 days to every 7-10 days until May 2001 and following that time was shifted to be seen every two weeks.

Results:

The patient and family reported that the Asperger's Syndrome symptoms "settled down within the first week of care." While first seen in October 2000 by January 2001 his Asperger's symptoms had been stabilizing and was off medications for asthma and allergies. Initially he was seen at the office in October 2000 every 3 to 5 days. From November 2000 to May 2001 he was seen at the office every 7-10 days. Following the May 2001 he was reduced to 2 times per month and was put on a wellness treatment schedule which for him was 1-2 times per month.

During that first year he was seen for 2 exacerbations through summer 2001. In the first three years of care there were some minor exacerbations however he would be seen for chiropractic care at this office and treatment would resolve his symptoms never needing medication. His Asperger's symptoms continued to improve and only occurred infrequently when under extreme stress.

While his asthma and allergies responded positively within the first few weeks of care in August 2001 he had an asthma flare-up. Allergy testing revealed an allergy to mold so he was given a homeopathic allergen to help treat the condition and he responded well to this intervention. Presently the patient is 15 years old and has not needed any medication, nor has his Asperger's symptoms returned during the past 7 years. At the present time this patient is being seen on a wellness/maintenance chiropractic care program. There has not been any significant flare-up of his Asperger's, asthma, or allergies since the summer of 2001.

Discussion:

It is of interest that there appears to be a temporal relationship between SOT spinal and cranial therapy and the patient's Asperger's symptoms and ability to function. When there were flare-ups of behavior and treatment was rendered the patient's symptoms would subside. While it is possible the patient had a variation of Asperger's no prior treatment or medication affected his symptoms and in fact tended to exacerbate his other

conditions. Also it is not common for Asperger's syndrome to "just go away," as it appears to have happened with this patient. Therefore there may be a subset of children diagnosed with Asperger's syndrome that have a mechanical or neurological component that will respond to specific types of chiropractic interventions.

Conclusion:

Further research is needed into the relationship between SOT spinal and cranial care for Asperger's and other autistic spectrum disorders. With the risk benefit ratios associated with the reduced risk of chiropractic care with increased risk of the typical medications used for this condition, a trial of chiropractic care for children or adults with this condition may yield important information. It is difficult to extrapolate extensively from a single case study but the findings of this case should encourage further research into SOT spinal and cranial treatment of Asperger's or autism spectrum disorders. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Sacro occipital technique treatment of patient with pervasive craniofacial and body pains secondary to chronic TMD: A Case Report.

Albert R. Salem, DC

Introduction:

Chronic low back, neck, head and temporomandibular joint (TMJ) pain and dysfunction can be profound conditions affecting a patient's quality of life and activities of daily living. "Chronic back pain is sometimes defined as back pain that lasts for longer than 7-12 weeks. In fact, some people argue that chronic disability in back pain is primarily related to a psychosocial dysfunction [1]." "The literature suggests that the prevalence of neck pain increases with age and that it is more common in women [2]." It is also interesting to note that there is a significant finding of TMJ disorders (TMD) in women than men and there is a controversy in the dental field, which refutes that TMD is related to dental factors of occlusion or condylar position [3] but that is solely a biopsychosocial condition.

For chronic low back, neck, head and TMD there are various types of treatments from conservative care involving exercises or rest, to other methods of treatment such as chiropractic care or dental appliances. Allopathic alternatives often involve medication, injections, and surgical interventions. Developing a treatment regime that is effective and offers low risk is preferred and it is incumbent upon healthcare practitioners in clinical practice to share situations where significant results are obtained in particularly challenging cases.

Case Report:

A 54-year-old female, housewife, mother of 3, was seen in my clinic for chronic low back, neck, head and jaw pain which had begun in 1990 and persisted. Due to the pain and discomfort she indicated that she was unable to focus, read, perform housework, sit for long periods, bend over, and walk intermittently. The jaw pain affected her ability to chew and may have been associated with an airway compromise which led to her difficulty to breathe at times and symptoms of claustrophobia. She noted that she had been consistently on pain medication and intermittently on anti-depressant drugs. For the past 18 years she regularly used prescribed dental appliances for day and nighttime use, described by the patient that they were used to keep her "bite" open and reduce any bruxism. The patient was referred to my clinic by the dentist who is currently treating the patient by fitting a crown onto a left lower molar.

Treatment/Intervention:

During the month of care following the patient's initial presentation she was treated with sacro occipital technique (SOT) and cranial techniques. In the first two consults, due to her chronic low back pain the patient was treated for lumbosacral pain control utilizing Category 3 procedures. Cervical stairstep techniques were used to treat her cervical spine

and surprisingly it was found that by balancing the cervical spine this completely relieved her TMJ and associated musculature pain and discomfort. Therefore cranial and TMJ therapy was not employed in the first two clinical encounters. For the next few weeks she was treated for category two (sacroiliac joint hypermobility) symptomatology with cranial balancing techniques as needed.

As part of the evaluation and treatment process to relieve discomfort and increase TM function, the patient was instructed to insert a simple "gapping device," a tongue depressor placed between her front upper and lower incisors, and use this "device" for a few periods each day.

Results:

Following the 2nd consult the patient reported that since receiving treatment, "the pain around my head and face stopped. My shoulders and neck were more relaxed and jaw didn't ache… my back pain is gone. I haven't had any ear noises." This progress resulted in her improved physical strength and ability to then perform housework, read, to concentrate and sit for longer periods.

During the initial month of care, she was seen 2 times per week, totaling 8 consults. When asked to give updates on her condition she consistently indicated that she did not have any pain or complaints. At 7 weeks, a full cranial sutural treatment resulted in the patient's jaw translating with greater range through open and closing without crepitus, deviation, deflection or locking, as had chronically been the case.

Discussion:

There are various possible theories as to why prone pelvic block placement to reduce pelvic torsion and block angulations based on pain reduction could have assisted the patient's symptoms [4]. One theory could be that the "unwinding" of the chronic discal low back could kinematically ascend in myofascial influence to reduce neck and jaw dysfunction [5]. It is possible also that the visual and vestibular righting mechanisms cause cervical and TMJ accommodations to imbalance originating from the lumbopelvic region. DeJarnette, the developer of SOT, discussed how the category 3 syndrome could include the whole cartilaginous system of the body and this might relate to the temporomandibular discs [4].

Conclusion:

Chronic generalized body complaints necessitating medication, TMD, and related limitations to focus, read, and perform activities of daily living can be devastating. When patients do not see a hopeful future this can further complicate their recovery and explain how physical conditions and psychosocial issues can become intertwined. Ideally therapeutic interventions that offer low risk or costs and offer effective outcomes would be preferred. While this paper only reports on the outcome of one such particular case, it is reasonable to assume that a subset of patients with similar presenting symptoms may

well respond to SOT and cranial care. Further research is indicated to determine what subset of patients with generalized body pain and TMD might best respond to chiropractic care. It is also reasonable that a trial period of treatment could function as an evaluative tool to determine if SOT and cranial care could facilitate recovery. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Pregnancy, sacroiliac joint laxity, and the SOT category two pelvic distortion: A case series.

J. Rodney Shelley, DC

Introduction:

Is sacroiliac (SI) joint laxity associated with pregnancy and delivery cause objective findings of an sacro occipital technique (SOT) category two pelvis? Pelvic insufficiency or SI ligament laxity, which can occur during pregnancy "is defined as a condition with pain at the pubic symphysis and/or the sacroiliac joint developing in connection with pregnancy or delivery [1]." The frequency is 7.6-18.5 per 1000 deliveries. The incidence is increased in multiparae and women with occupations, which strain the back. Recurrence occurs in 41-77%. The condition appears for the first time usually in the 5th-8th months of pregnancy. The majority of patients recover shortly after delivery but in some a condition of prolonged pain persists [1]."

In a study by Mens et al they found that," about 45% of all pregnant women and 25% of all women postpartum suffer from pelvic girdle pain and/or low back pain (PLPP) [2]." They concluded that "during the last months of pregnancy and the first 3 weeks after delivery, motion of the pelvic girdle joints is 32-68% larger in patients with PLPP than in healthy controls [2]." Ultimately their "findings support the idea that enlarged motion is one of the factors that causes PLPP and justifies treatment with measures to reduce this motion [2]."

SOT describes a category of PLPP associated with increased posterior SI joint motion or ligamentous laxity called category two [3]. "Since load transfer from spine to pelvis passes through the sacroiliac (SI) joints, effective stabilization of these joints is essential. The stabilization of the SI joint can be increased in two ways. Firstly, by interlocking of the ridges and grooves on the joint surfaces (form closure); secondly, by compressive forces of structures like muscles, ligaments and fascia (force closure) [4]."

Patient histories of females presenting symptoms whose onset began during pregnancy or after delivery are common and upon clinical examination at this office a very high percent of these patients suffering chronic conditions "since I gave birth to my child" were found to have indications of an SOT category two. This retrospective case series study involved 103 pregnant women whose SOT category two pelvic findings [4] were neutralized before delivery, and then were reevaluated after delivery for SOT category two findings.

One hundred and three pregnant women age range from 21-32 years old were seen at this clinic from 1979-83. The majority of the patients were referred to this clinic by nearby Bradley and Lamaze Birthing Classes and La Leche League facilities. The preponderance of the patients (75%) began their evaluation and treatment in their third trimester with the rest (25%) began their evaluation and treatment in their first two trimesters.

Methods:

Patients were evaluated via SOT diagnostic protocol, which included the SOT arm fossa test [5], increased unilateral or bilateral iliopsoas tension, palpation for pelvic torsion, leg length differentials, and Moiré contour photography. Frequency of evaluations was generally monthly during the first trimester, bi-weekly during the second trimester, weekly during the final trimester. This method of evaluation and treatment was a standard procedure at this office during that period of time. Post delivery visits were 2-3 times per week until their arm fossa test was negative.

Treatment with Category two blocking was performed in the presence of a positive arm fossa test (AFT+) with the patient supine, the superior block placed on the side of the posterior ilium, and on the contralateral side a block placed through the acetabulum superiorward at 45 °, until the arm fossa test was negative (AFT-) (less than two minutes). The goal of the process was to "clear" the category two before the delivery and evaluate after delivery for the presence of category two indicators of arm fossa test positive, leg length differential and pelvic torsion [3]. Cervical stair step evaluation and treatment procedures [3] were used when indicated and reciprocal temporal rocker technique (RTRT) or alternating mastoid compression synchronized to patient respiration was also performed.

Results:

Using SOT's arm fossa test as a method to evaluate clinically active category two or sacroiliac joint laxity, a large percentage of the patients (95%) had AFT+ findings, with 5 of the 103 patients having an AFT-. Moiré contour photography showed posterior ilium rotation of the pelvis in all cases of AFT+ however the posterior rotation of the pelvis was not always on the short leg side upon supine evaluation. Posterior rotation of the pelvis corresponded ipsilaterally with side of AFT+ findings. Sensitivity of inguinal ligament to palpation was not necessarily related to side of AFT+. Restricted SOT (over the head arm stretch) iliopsoas test was most often on the short leg side. SI joint sensitivity or side of sensitivity was not always related to side of AFT+.

Of the 98 patients who had an AFT+ with the treatment all but 15 became AFT- before delivery. Of the 98 patients with an AFT+ ten patients never achieved an AFT- status after delivery. AFT- patients showed pelvis rotation on Moiré and short leg on supine evaluation in the same proportions as the AFT+ patients.

Post delivery AFT- was achieved in 5-7 visits, which was more than the clinic's average of 3-5 visits for AFT- in non-postpartum patients. Of interest women who birthed in the squatting position returned to AFT- faster than typical supine delivery. Women who became ambulatory sooner and walked also had better return to AFT- than the patients who did not walk as soon. Women were more prone to re-injury (return of AFT+) if they did not walk daily soon after delivery.

Discussion:

The natural laxity of the SI joints occurs in preparation for birthing process and while essential for delivery this condition can sometimes lead to a loss of juxtaposition of the pubic symphysis and sacro-iliac joints. It is postulated that category two pelvis distortion uncorrected may lead to chronic pelvic pain and dysfunction. With the high percentage of participant's delivery leading to SI laxity it is reasonable to assume a subset of pregnant patients may likely have a category two presentation during pregnancy and delivery.

SOT practitioners have used the AFT for 4 decades to evaluate posterior SI joint laxity and pelvic torsion. The reliability and validity of the AFT was discussed by Hestœk L, Leboeuf-Yde [5], and "results from the different reliability studies varied widely with some evidence favoring the validity of the arm-fossa test ... [5]" "Two intraexaminer reliability studies of sacrooccipital technique tests both scored greater than 80% (88% and 100%). One examined the arm- fossa test and demonstrated excellent agreement, whereas the other examined a variety of tests with good results for one examiner and poor for the other [5]." "Two studies were found of the validity of the arm-fossa test (80% and 90%), both demonstrating some validity of the method [5]."

Purportedly the AFT can evaluate various levels of SI dysfunction from joint laxity affecting joint form closure and its ability to sustain sufficient supportive capacity. The AFT incorporates: (1) The relationship between the SI joint imbalances associated with secondary inguinal ligament (lowered threshold) sensitivity, (2) The testing of an arm muscle which is simultaneously causing the lumbodorsal fascia to tense, and (3) The patient's ability to respond without a delay to when inguinal ligament and lumbodorsal fascia are challenged. Therefore this allows the AFT to be a sensitive test so that SI dysfunction might be found sub-clinically, particularly when there is force closure dysfunction secondary to joint hypermobility, pelvic torsion, and joint dysrelationship. This would explain why sometimes the AFT could be found positive with patients who are not exhibiting SI joint pain or apparent discomfort, such as the some of the pregnant patients in this study.

Category two supine block placement facilitates both form and force closure of the SI joint by reducing pelvic torsion and compressing the posterior SI joint. The compression helps reduce the secondary swelling in the joint capsule allowing the joints to come into better juxtaposition. Theoretically the reduction of ligament laxity reduces proprioceptive excitation and therefore has a positive neuromuscular effect. While the chiropractic profession may have methods of treating pregnant patients with SI laxity the face validity and safety aspects for SOT pelvic block treatment of this specific subset of the patient population appears reasonable. It would appear that a supine treatment that applies a low continual force with pelvic blocks that can be modified based on specific assessment indicators as found with the SOT approach would be preferable method of care for a pregnant patient.

Of interest in the county where this retrospective case series took place during the era (1979-1983) over 30% of pregnancies ended in cesarean section. Of the women (n=4) in

this study only 3% ended in cesarean section. Of the women in this case report only three previously had cesarean sections yet their pregnancies (associated with the case report) ended in a natural birth which was atypical at that time since there was a common policy of "once a cesarean, always a cesarean." Not all women in the pregnancy program decided to carry on with recommended post-delivery treatment plan of 2-3 times per week. The reasons given were that they were (1) too busy with child and (2) not able to afford the care. (Visits and treatment during pregnancy at the clinic were no charge, as well as the follow up visit after delivery and the first treatment if AFT+.)

Limitations to this study involve the reliability and validity of the arm fossa test [5] and that the patients were relatively young, 21-32 years old. No control group was used and the majority of patients were receiving training with Lamaze, Bradley, and La Lechi League which suggests patients familiar with wellness behavior and pregnancy.

Conclusion:

Of significance is the relationship between category two arm fossa test findings and pregnant patients. Studies need to be performed to determine what percentage of patients', male or female has this finding in the general population to do an adequate comparison study. Greater study into the arm fossa test is needed to determine its accuracy in determining SI joint laxity in pregnant patients as well as the use of pelvic blocks to reduce pelvic torsion and improve form and force closure of the SI joints. It would seem that since pregnant patients have difficulty being treated prone or on their side a supine form of evaluation and treatment would be preferred. The biological plausibility of the treatment and the low force nature of the pelvic block placement offer a low risk procedure for pregnant patients that warrant a call for greater study and research investigation. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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The relationship between a C2 subluxation and vital signs in a Duchenne's muscular dystrophy patient: A case report.

Noel A. Taylor, MM, DC

Introduction:

Duchenne's muscular dystrophy (DMD) is a severe recessive X-linked form of muscular dystrophy characterized by rapid progression of muscle degeneration, eventually leading to loss of ambulation and death. This affliction affects one in 3500 males, making it the most prevalent of muscular dystrophies [1]. The patient in this study is a male, mid 40s quadriplegic secondary to Duchenne's muscular dystrophy, and living in a nursing home. He has enough use of his left thumb to control a joystick or a mouse, and can still talk and breathe. Via computer, he teaches Linux operation, and does mission work in China and Bulgaria.

Case Report:

Assessment:

The patient began fighting for breath one night and was sent to local emergency room. Vitals were O2 saturation in the mid-80's, BP 156/110, pulse 145, respiration 25, and temperature 100.5. He had the classic "deer in the headlights" look and early stage Chenne-Stokes breathing. Over the following 24 hours the hospital did a thorough workup, finding that he had a mild UTI, the possibility of some pneumonia although two of the three chest films they did (#1 and #3) over the course of that first 24 hours were clear, and the ER physician stated that she could not be sure about #2 because of his scoliosis. They put him on IV antibiotics "just in case" and CPAP 50% O2 with no effect on O2 saturation. They wanted to put him on full ventilation, but he cited his "do not resuscitate" status and refused. He did give permission for them to go as high as 90% O2.

Intervention:

During a visit 36 hours after he was transported, I noted his vitals still at the above levels, but also noticed that his head position was in a 45 degree left turn. For his comfort I offered to turn his head forward. He thought that would be a good idea. I then attempted to bring him gently to neutral, and could not. In checking to see why, I found the C2 left lamina protruding. I obtained his permission to maintain corrective pressure on that structure for a while, and received it. Using a Sacro-Occipital Technique (SOT) cervical protocol, sustained pressure was applied to the C2 left lamina from left posterior to right anterior [2]. In about two minutes, the protrusion resolved.

Results:

Within less than one minute from treatment application, his O2 saturation had gone from 87 to 98, his pulse slowed to 116 (which is normal for him), his respiration dropped to 13,

his temperature dropped to 98.0, and his "deer in the headlights" look disappeared. Only the BP remained unaffected (and is now being treated effectively -- 112/72 -- with Lisinopril). His attending physician transferred him from ICU to a regular room for two days of observation and then released him. He's doing fine, although he reports a new condition -- that his arms and legs fall asleep in positions which didn't bother them before, suggestive of less blood perfusion possibly related to overmedication. He has been referred back to his attending physician to evaluate his Lisinopril levels.

Discussion:

The patient has very little neck strength, and is able to balance his head only if his torso is kept completely upright. Hypothetically it is suggested that something -- a rougher then usual transfer or similar jolt -- caused a C2 subluxation. Since C2 has full connection to the dura (rectus capitus posterior minor and nuchal ligament [3]), this subluxation may have restricted flow of CSF at the brainstem level, resulting in adverse changes in autonomic function [4]. Since correction of the C2 subluxation was followed by immediate resolution of O2 saturation, pulse, respiration, and temperature aberrations, it would appear that the C2 subluxation may have been causative or at least directly related to these altered vitals [5].

Conclusion:

While there have been studies suggesting that blood pressure can be affected by chiropractic upper cervical adjustments [5], it is of interest in this case that other vital signs were affected, whereas the blood pressure was not immediately resolved. This may indicate that there are various neuromusculoskeletal parameters that vary with different presentations and patient populations. Evaluating risk benefit ratios, it would appear that the very low force correction in this case had profound effects on the patient's well being. Since this is a single case non-controlled subject it is difficult to be make broad sweeping conclusions, but further study into this type of presentation and SOT upper cervical vertebra adjusting may be warranted. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Sacro Occipital Technique: Occipital fiber technique on canine.

Jean E. Thompson, DC, Heidi Bockhold DC, Charles L. Blum DC,

Introduction:

Although available to veterinarians and practiced by some of them for years, the use of Integrative Health Care Modalities for animals has been on a steep rise in the last decade. These modalities are commonly referred to as CAVM's, or Complimentary and Alternative Veterinary Medicine. Specific certification in veterinary acupuncture has been available through the International Veterinary Acupuncture Society (IVAS) since 1974 and instruction and certification in animal chiropractic has been offered by either the American Veterinary Chiropractic Association (AVCA) or the International Veterinary Chiropractic Association (IVCA) since 1988. Although the utilization of basic chiropractic methods of analysis and treatment are somewhat standard [1], the methods of analysis and treatment using specific, recognized chiropractic techniques such as SOT are still in the formative stages. Although this care has taken place for years, there is still limited research specifically identifying the use of chiropractic in the canine [2]. In this case report we utilized a chiropractic technique called occipital fiber analysis and treatment (OFT) [3], which is a method within sacro occipital technique (SOT) used to analyze and treat thoracic, lumbar, and sacral segments. The rational for using OFT is to find regions of the body that have some interrelationships through direct musculoskeletal, and indirect reflex, to the occipital region, spine, and possibly to visceral referred pain pathways. This study investigated whether the OFT could be found in canines and whether a treatment based on OFT would yield any response.

Case Report:

A 10-year-old female cattle dog with known chronic symptoms of bloating (Canine Gastric Dilatation-Volvulus), mood changes, joint pain, and chronic psoas tension unresponsive to prior interventions presented for chiropractic care.

Methods and Intervention:

OFT may be of value for treatment of various conditions found with animals such as canines, equines and felines. Occipital Fibers were analyzed on a female 10-year-old canine and their relationship to corresponding spinal levels was verified. Comparative anatomy was taken into consideration (13 thoracic vertebrae, 7 lumbar vertebrae, and 3 sacral segments are present in the canine) and examination for relationships between the occipital fibers and the standard corresponding vertebrae as well as with the adjacent vertebrae were identified. The procedure was performed at the main campus of Options for Animals College of Animal Chiropractic; with the owner's consent.

Occipital fiber analysis and treatment was performed on the canine in a sternal recumbent position with her head slightly flexed for analysis. Occipital Fiber 5, line 2, was found

and corresponded to a tender L3 nodule. Tender reflex pain areas were found at the sternum, ischium, thigh muscles, pubic bone, and S2 and S3 foramina. L3 was adjusted and chiropractic manipulative reflex technique (CMRT) was performed after neutralization of the occipital fiber. Tenderness was determined by the dog's reaction to pressure in various regions whereas some points of palpation did not elicit any reaction while other areas, particularly the reflex pain points did react. Palpation of the points of "tenderness" also noted regions of increased local swelling and had a different texture in comparison to regions that the dog did not react to during palpation.

Results:

Following the occipital analysis and treatment procedure the reflex pain areas were significantly diminished except slightly at S2. The occipital fiber was longer swollen or boggy. Following the treatment the dog was very relaxed, there was decreased joint pain, and the psoas tension was notably less.

Discussion:

In bipedal humans the rational for OFT rests upon visual and vestibular righting mechanisms, which occur as a method of accommodation to keep the head upright and parallel to the horizon [4]. Of interest is whether these reflexes could be found in quadrupeds and if these reflexes were similar to what has been found clinically in bipeds. OFT and CMRT has been used successfully to treat visceral mimicry in humans [5] and the referred pain patterns were found to be reversed in one case which matched the presentation of a patient with situs inversus [5]. What this study investigated was whether animals and specifically canines might also have these reflex patterns. It did appear from the dog's response that there was a positive correlation between OFT and CMRT typically applied to humans when applied to the dog in this study.

Conclusion:

In a single case report investigating an animal that has limited ability to share information pre and post treatment it is difficult to make certain statements regarding a mode of analysis and treatment. However based on the owner's interpretation of the dog's response before and after treatment there was reason to believe that some positive change had occurred. Due to these findings it is reasonable to assume that further investigation into the use of OFT and CMRT for canines and possibly other animals is warranted. . *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Sacro Occipital Technique: Occipital fiber technique on equine.

Jean E. Thompson, DC, Heidi Bockhold DC, Charles L. Blum DC,

Introduction:

Although available to veterinarians and practiced by some of them for years, the use of Integrative Health Care Modalities for animals has been on a steep rise in the last decade. These modalities are commonly referred to as CAVM's, or Complimentary and Alternative Veterinary Medicine. Specific certification in veterinary acupuncture has been available through the International Veterinary Acupuncture Society (IVAS) since 1974 and instruction and certification in animal chiropractic has been offered by either the American Veterinary Chiropractic Association (AVCA) or the International Veterinary Chiropractic Association (IVCA) since 1988. Although the utilization of basic chiropractic methods of analysis and treatment are somewhat standard [1], the methods of analysis and treatment using specific, recognized chiropractic techniques such as sacro occipital technique (SOT) are still in the formative stages. In this case report we utilized a chiropractic technique called occipital fiber analysis and treatment (OFT) [2], which is a method within SOT used to analyze and treat thoracic, lumbar, and sacral segments. The rational for using OFT is to find regions of the body that have some interrelationships through direct musculoskeletal, and indirect reflex, to the occipital region, spine, and possibly to visceral referred pain pathways. This study investigated whether the OFT could be found in equines and whether a treatment based on OFT would yield any response.

Case Report:

A 10-year-old gelding quarter horse with known symptoms of anxiety and stress induced behavior changes described by the owner as the appearance of "worry and/or unhappiness" presented for chiropractic care.

Methods and Intervention:

OFT may be of value for treatment of various conditions found within animals such as equines, canines and felines. Occipital Fibers were analyzed on a 10-year-old quarter horse and their relationship to corresponding spinal levels was verified. Comparative anatomy was taken into consideration (18 thoracic vertebrae, 6 lumbar vertebrae, and 5 sacral segments are present in the equine) and examination for relationships between the occipital fibers and the standard corresponding vertebrae as well as with the adjacent vertebrae were identified. The procedure was performed at the main campus of Options for Animals College of Animal Chiropractic; with the owner's consent.

Occipital Fiber analysis and treatment was performed while the horse was standing for analysis. Occipital Fiber 6, line 2, was found and corresponded to a tender L4 nodule on the left. Tender reflex pain areas were found at the right posterior acetabulum, right and left lateral and posterior iliac crest, right sub occipital, right parietal, and the 18th rib on

the right. A doctor of veterinary medicine auscultated the horses bowel sounds (borborygmi) pre-treatment and they were found to be a +1 in the right upper and lower abdominal quadrants and a +2 in the left upper and lower quadrants.

L4 was adjusted and chiropractic manipulative reflex technique (CMRT) was performed after neutralization of the occipital fiber. Tenderness was determined by the horse's reaction to pressure in various regions whereas some points of palpation did not elicit any reaction in other areas, particularly the reflex pain points. Palpation of the points of "tenderness" also noted regions of increased local swelling and had a different texture compared to regions that the horse did not react to during palpation.

Results:

Following the occipital analysis and treatment procedure the reflex pain areas were significantly diminished except the left lateral and posterior iliac crest. The occipital fiber was no longer swollen or boggy. After the treatment the horse was very relaxed, calm, and more tolerant during the post exam. Bowel sounds were now more progressively motile. All abdominal quadrants had increased by 3 and 4 fold.

Discussion:

In bipedal humans the rational for OFT rests upon visual and vestibular righting mechanisms, which occur as a method of accommodation to keep the head upright and parallel to the horizon [3]. Of interest is whether these reflexes could be found in quadrupeds and if these reflexes were similar to what has been found clinically in bipeds. OFT and CMRT has been used successfully to treat visceral mimicry in humans [4] and the referred pain patterns were found to be reversed in one case which matched the presentation of a patient with situs inversus [5]. What this study investigated was whether animals and specifically equine also might have these reflex patterns. It did appear from the horse's response that there was a positive correlation between OFT and CMRT typically applied to humans when applied to the horse in this study.

Conclusion:

In a single case report investigating an animal that has limited ability to share information pre and post treatment it is difficult to make certain statements regarding a mode of analysis and treatment. However based on the owner's interpretation of the horse's response before and after treatment there was reason to believe that some positive change had occurred. Due to these findings it is reasonable to assume that further investigation into the use of OFT and CMRT for equines and possibly other animals is warranted. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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Exercises and stretches to facilitate sot blocking treatments category one and category two: A case series.

William P. Williamson, DC

Introduction:

The treatment of lower back conditions through the use of chiropractic manipulation are routinely facilitated by rehabilitative exercises and stretches, [E/S], that patients are instructed to do at home between office visits. However a recent study did find "that specific exercises are effective for the treatment of acute low back pain. Exercises may be helpful for patients with chronic low back pain to increase return to normal daily activities and work [1]."

It may be that determining what specific E/S is used in a study is not evaluating the varied functional aspects of the sacroiliac (SI) joint with its posterior portion being weightbearing and the anterior having a synovial bed allowing for sacral nutation. Specific low-back problems treated with sacro occipital technique (SOT) blocking techniques [2], SI fixation or hypermobility syndromes, may need specific E/S. Due to the uniqueness and specificity of the SOT blocking systems, it is suggested that the typical E/S may be more effective if modified to the specific patient presentation, utilizing SOT protocols.

DeJarnette developed a method of generalizing patient presentation so that a specificity of care could be rendered which would help determine the nature of E/S that may be needed for rehabilitation and facilitate response to care, improving patient outcomes. DeJarnette's generalization led to three distinct types of categories of pelvic distortion, category one relates to sacroiliac (SI) joint fixation (pelvic torsion and reduced sacral nutation) whereas category two relates to SI joint hypermobility syndromes [2,3]. Category three relates to lumbosacral dysfunction and/or discopathy.

Therefore optimum patient response to chiropractic treatment and particularly SOT blocking should have exercises and stretches that will facilitate its' influence on the category of patient it treats. This is not to say that general, routinely used E/S maneuvers are bad or counterproductive. But rather, with some "tweaking" E/S applications for SOT blocking can be more specific and on target. To evaluate the benefit of E/S applications to SOT category treatment a retrospective review of patients treated in a 6 month period from May–December 2006 when E/S applications were not used in treatment at this clinic were used as a control. Then a retrospective review of patients in a 6 month period from June–December 2007 where E/S applications were used in combination with SOT category treatment were used as the study group. Then these groups were both compared. Cases were selected if: SOT category 1 or category 2 blocking was incorporated and if that patient completed care to the point where SOT blocking was no longer necessary.

Case Series:

Patients were selected from a group of patients from the past year of patients who had SOT category one and two treatment clearly with or without E/S applications. In the category one group without E/S (control) there were 18 patients, 10 female and 8 male, and an age range of 32-89 years old with an average age of 68.9 years. In the category one group with E/S there were 14 patients, 11 female and 3 male, and an age range of 37-83 years old with an average age of 67.1 years. In the category two group without E/S (control) there were 8 patients, 4 female and 4 male, and an age range of 45-86 years old with an average age of 62.6 years. In the category two group with E/S there were 9 patients, 5 female and 4 male, and an age range of 16-75 years old with an average age of 56.6 years.

Methods and Intervention:

Patient treatment routinely involves testing of muscles to monitor patient initial presentation and response to care. The aim of this ongoing examination and re-evaluation is to try to determine if particular exercises and/or stretches consistently show up through muscle testing patients with category one and category two presentations. As a baseline testing muscle the hamstring muscle was used, because of its ease of access and its connection to the pelvic region. The patients tested were always in a prone position on the treatment table and were evaluated so that they could consistently respond to testing. In this manner various E/S were suggested to patients with category one and two presentations and then evaluated to determine whether the E/S improved their function as well as to fine tune patient specific rehabilitative exercises.

Results:

The results of the four groups were generally standard across age and gender and the exercises appeared to facilitate a quicker recovery. In the category one with E/S treating group there was a reduction of 31.9% treatment (average reduction from 6.4 for the category one without E/S group to 4.7 for the E/S treating group) needed to reach an optimal resolution of their presenting category. Findings of this clinical investigation found that a primary E/S maneuver that helped facilitate category one patient's recovery was an exercise described as, "The Rotated Hip Extensor." Assuming a right physiological short leg (pelvic torsion), the patient would stand (in a doorway) and extend their right hip (backward) while keeping the leg straight and internally rotated (toe-in). The recommendation is for the patient to hold this exercise for 10 seconds and repeat for a total of 10 repetitions, twice daily.

In the category two with E/S treating group there was a reduction of 19.5% treatment (average reduction from 4.1 for the category two without E/S group to 3.3 for the E/S treating group) needed to reach an optimal resolution of their presenting category. The primary E/S maneuver that helped facilitate category two patient's recovery was a stretch described as: "The Bedside Stretch." Assuming a left physiological short leg (pelvic torsion), the patient would lie on their left side along the edge of their bed and allow the

right leg to hang over the side, downward and at 45 degrees, (not perpendicular to their body). At the same time, the right arm would be brought (straight if capable) backward, but not directly over the head. The arm and leg should form a straight line. The recommendation is for the patient to hold this stretch position for 20 seconds and repeat for a total of 3 repetitions, twice daily.

Another E/S maneuver discovered for the category two patients of value was an exercise described as: "The Standing Knee Press." The patient stands erect, flexes both knees slightly (10 degrees), and then slowly presses their knees together very tightly. The recommendation is for the patient to hold this press for 5 seconds and repeat for total of 5 repetitions, twice daily.

Discussion:

The SOT exercises and stretches were a product of clinical observations using a subjective technique routinely on patients during the usual flow of patients. Certain E/S maneuvers attempted consistently helped improve patient care and these seemed to isolate based on the patient's SOT category presentation. Ultimately with each of the categories (one or two) a particular stretch or exercise was found to facilitate patient recover and response to care at this office.

The category one's "Rotated Hip Extensor" exercise is important in toning the weak gluteal muscle group on that side (right physiological short leg) that is related to pelvic torsion and particularly the SI joint. Stimulating the muscles overlying the joint is theorized to both increase blood supply to the joint and facilitate improving the joint dynamics, strength, and through motion flexibility.

The category two's "Bedside Stretch" is probably most important in helping to unwind the right side elements of the back that contract somewhat in response to the unstable sacroiliac on the other side (left physiological short leg). The category two's "Standing Knee Press" appeared in this study to be a fairly reliable indicator that a while the patient may present with SI hypermobility, that when balanced there still maybe pelvic torsion with reduced sacral nutation. This exercise theoretically tones the weak pelvic floor muscles that can occur with a patient that has pelvic torsion and reduced sacral nutation yet also a compromise of the posterior SI joint's ligamentous support structure.

It may be considered by some researchers that muscle testing to evaluate treatment is unreliable and lacks specificity [4] however a recent study has found support with its use in chiropractic clinical practice [5]. The hamstring test evaluation to monitor a patient's response to various E/S used for rehabilitation was utilized to discover consistent commonality to the exercising and stretching needs of the category one and the category two. Muscle testing, like DeJarnette's category system, provides a direction and a starting point for further investigations by monitoring both a patient's response to the muscle test and their ongoing outcome to the therapy rendered.

Conclusion:

When a patient's response to typical SOT category one or two therapeutic intervention seems limited or refractory incorporating these E/S particular maneuvers may be indicated. While there were other E/S maneuvers found helpful for the patients in this study presenting with a category one and two, these were not found to be as consistent or reliable as the one previously discussed. With so much discussion over the recent years concerning core exercises and rehabilitation, it may be of value to use creative and alternative methods of investigating which E/S is best for which patient. This study found that there were some specific E/S techniques which had an optimal effect on patients diagnosed with SOT category one or two presentations. Further research is needed with case controls, various practitioners and patients so that greater information can be gathered to determine how to deliver the most efficacious care possible. *(This is an abstract from a research conference presentation only and does not represent a full work that has been peer reviewed and accepted for publication.)*

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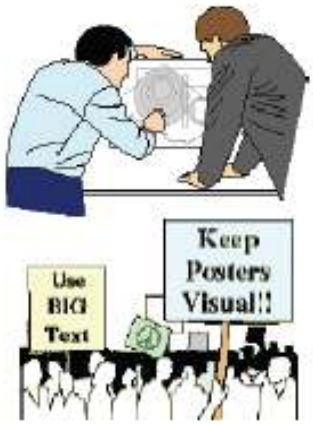
Effective Scientific Posters: Quick Reference

George R. Hess
[http://www.ncsu.edu/project/posters/NewSite/documents/QuickReferenceV2.pdf]

A poster is a visual communication tool.

An effective poster will help you …
… engage colleagues in conversation.
… get your main points across to as many people as possible.

Posters serve as …
» a source of information
» a conversation starter
» a summary of your work
» an advertisement of your work



Tips for Effective Poster Presentations

- Get your message across with effective visual displays of data and small blocks of supporting text. Think of your poster as an illustrated abstract.
- Tell readers why your work matters, what you did, what you found, and what you recommend. Avoid excessive focus on methods – it's the results and implications that count!
- Overall appearance. Use a pleasing arrangement of graphics, text, colors. Your poster should be neat and uncluttered – use white space to help organize sections. Balance the placement of text and figures.
- Organization. Use headings to help readers find what they're looking for: objective, results, conclusions, etc. A columnar format helps traffic flow in a crowded poster session.
- Minimize text – use graphics. Keep text in blocks of no more than 50-75 words – don't create large, monolithic paragraphs of prose.
- Text size. All text should be large enough to read from 1-2 meters, including the text in figures. Title should be larger, to attract attention from far away.
- Use color cautiously. Dark letters on light background are easiest to read. Stick to a theme of 2-3 colors. Avoid overly bright colors – they attract attention but wear out reader's eyes.
- Don't fight reader gravity, which pulls the eyes from top to bottom (first), and left to right.
- Include full contact information. You want to be found – the reader should not have to look up anything to find you.

Clean graphs show data clearly!

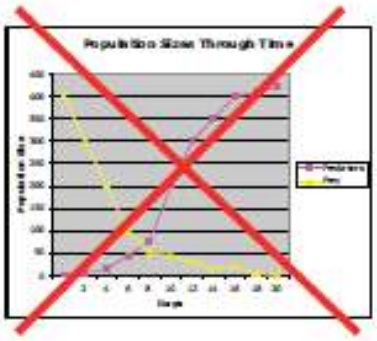
Desired message: Prey decreased as predators increased.
Focus on relationships – exact values are usually not important.

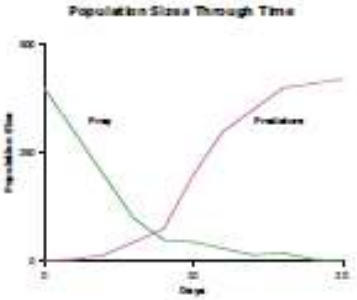
Eliminate "chart junk" to keep focus on data.
Grid lines, detailed ticks on axes, data markers, and grey backgrounds are not needed.

Label data directly, when possible.

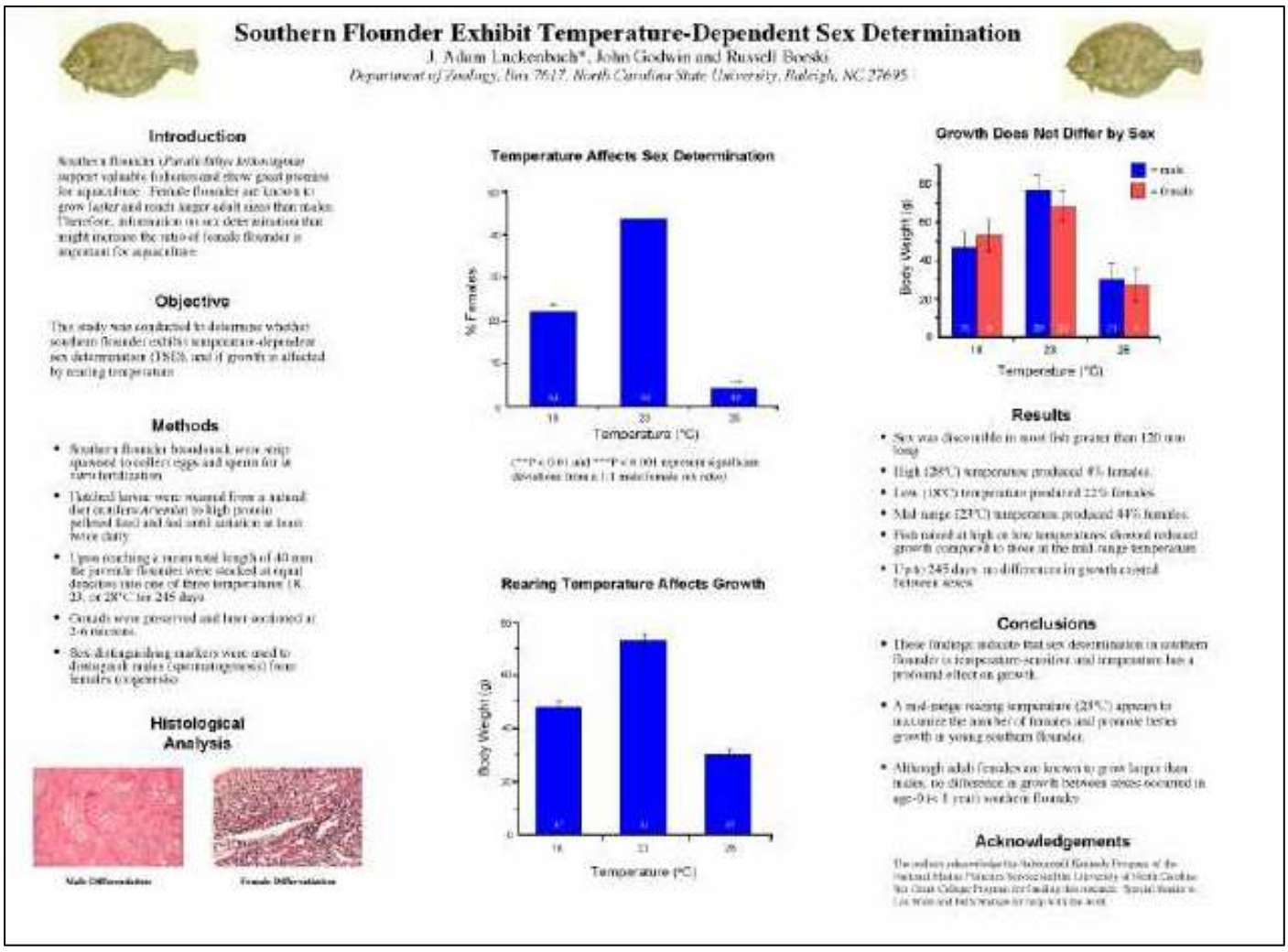
Legends force reader to look back and forth to decode graph.

Message is now loud and clear!





Sample Poster [http://www.ncsu.edu/project/posters/examples/example11.html]



2010 Sacro Occipital Technique Research Conference

October 28, 2010 • New Orleans, Louisiana

INSTRUCTIONS ON SUBMITTING ABSTRACTS

We are well aware that doctors in practice often see the submission of research to be daunting and we wish to encourage all interested doctors to submit a request for help if they want to participate, but need assistance. We are here to assist your process participating with presenting your research at this conference. With our assistance this year we are hoping that next year you might be in a position to help someone else who may be in a similar position to you at this time.

Categories of Sacro Occipital Technique (SOT) Related Research.

SOT related research is fairly open ended and inclusive of many aspects of investigative science, clinical experiences, as well as pertaining to historical presentations and other related perspectives. In general the submission should pertain in some way to sacro occipital technique, which includes but are not limited to topics such as:

- Traditional SOT Category Analysis and Treatment
- Use of Pelvic Blocks for Treatment
- Treatment or Theory Involving the Stomatognathic System
- Treatment or Theory Involving Temporomandibular Disorders
- Treatment or Theory Relating to Cranial Bone, Dural Membrane or CSF Flow
- Treatment or Theory Relating to Viscerosomatic or Somatovisceral Reflex Balance
- Any Treatment or Theory that could be Reasonably Related to SOT
- Dental Chiropractic Co-Treatment of Temporomandibular Disorders

Abstracts should be submitted in one of the following categories:

Basic Sciences. Includes the use of animals and computer-related research or investigation on cadavers, in fields such as anatomy, physiology, biomechanics, biochemistry, immunology, etc.

Diagnostic Sciences. Includes the evaluation of various diagnostic or analytical methods or instruments. Where new concepts are presented there should be accompanying data collection on normal and abnormal populations of patients. Clinical examination techniques such as palpation or x-ray and interexaminer reliability studies are encouraged.

Clinical Management. Includes clinical trials, retrospective studies and multiple case studies. The presentation of new adjusting/manipulation methods are encouraged but such presentations should include some clinical data collection on why the techniques should be considered.

Special Interest. Papers on history, anthropology, epidemiology, cost of care, standards of care and educational methods fall into this category. Philosophical papers will also be reviewed provided they follow formal philosophical argument with references rather than the presentation of personal opinion.

Deadline for Abstracts: July 31, 2010

Publication. If your abstract is accepted for this conference it will be part of the Proceedings of the 2010 Sacro Occipital Technique Research Conference (SOTRC) and the Conference Proceedings may be published in the Journal of Vertebral Subluxation Research (JVSR).

Submission Instructions. Use the following form to submit your abstract directly to the SOTRC by e-mail. **Please remember that you must submit your abstract by e-mail**.

Please type your abstract in 12 point Times New Roman font, single-spaced. TITLE OF THE PRESENTATION SHOULD BE IN TITLE CASE ONLY. (This means that only the first letter of the words in your title is to be in uppercase.) Please list all authors, including degree(s), institutions/organizations, and contact information. Please note which of the authors will be the presenter. Abstracts should be no more than a maximum of three (3) pages in length. If you consider references to be necessary for your abstract, please submit a maximum of FIVE references only.

Sample Abstract. Here is a sample abstract to assist you.

Sitting Disc Technique: Video Myelogram Fluoroscopy Study

Charles L. Blum, DC[1], Marc G. Pick, DC[1], Lisa Lovett, DC[2]
Private Practice[1] – United States, Private Practice[2] – Australia

Introduction: Conservative management of lumbar herniated discs and their possible affects on the thecal sac and CSF circulation deserves consideration as a possible modality. Sacro occipital technique method of care called the sitting disc technique **[1]** and its treatment being rendered were visualized during a video myelogram fluoroscopy. The fluoroscopy study allowed for direct visualization of the CSF, thecal sac and the doctor's thumb contact at the L4 spinous process.

The procedure was performed in Japan with the patient's consent and was part of the treating medical doctor's normal procedure for guiding and rendering treatment. The treatment was videotaped so that the practitioner could evaluate the results of therapy and that fluoroscopic studies would not be needed when future therapy was rendered. The treatment was rendered 15 years ago and at that time the videotape was not initially anticipated to be used for research purposes.

Methods and Intervention: The sitting disc technique was performed on a 50-year-old man presenting with a left spinal inline, right sided sciatica, and decreased CSF circulation as visualized on video myelogram fluoroscopy. The sitting disc technique was applied approximately 3-5 intervals to L4 as the patient flexed and extended their lumbar spine under the direction of the doctor.

Results: Following the procedure the patient reported less pain, and greater movement could be visualized of the vertebra as well as increased CSF circulation during application of the sitting disc technique during video fluoroscopy.

Discussion: There are various theories as to why there would be this increased CSF circulation in the lumbosacral region following the application of the sitting disc technique. These might be associated with an actually mechanical increase in disc height through a form of distraction on the disc and local L4/L5 decompression **[2],** balancing tensions on the related meningeal or thecal structures **[3],** and affects of increased CSF fluctuations and circulation secondary to diaphragmatic or vascular influences. **[4]**

Conclusion: While the patient's improved posture and decreased pain were successful outcomes of the sitting disc technique procedure, **[5]** of greater magnitude was the visualization of the increased circulation of the CSF following and during application. Greater investigation into this conservative method of care and determination of whether this single procedure might have a greater application beyond this single subject study is warranted.

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Questions

If you have any questions, please direct these in the first instance to Charles L. Blum, DC, SOTRC Coordinator at drcblum@aol.com

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Your work is eligible for acceptance at the 2010 Sacro Occipital Technique Research Conference even if it has been presented at another meeting, but not if it has been published and you have signed over copyright privileges.

Please enter your abstract as a Word Document making sure you are using 12 point Times New Roman font. Please use the following headings in your abstract: Introduction, Method, Results, Discussion, and Conclusions. When finished, you will need to attach your presentation to an email. If you have any difficulties or questions please do not hesitate to contact us at drcblum@aol.com