Proceedings of the 4th Sacro Occipital Technique Research Conference

Atlanta, Georgia

May 3, 2012

Sacro Occipital Technique Research Conference

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CONFERENCE PROCEEDINGS

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Proceedings of the Sacro Occipital Technique Research Conference

Atlanta Georgia - May 3, 2012

Table of Contents

CONFERENCE PROCEEDINGS

Paper Title, Author(s) *(Listed Alphabetically by Lead Author)*

Proceedings of the Sacro Occipital Technique Research Conference

Atlanta, Georgia - May 3, 2012

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 collaborations, 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 informed 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's proceedings of the second annual SOT research conference 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]."

> "*Research in Chiropractic must go on forever. Someone must do this type work, for it simply will not take care of itself. A profession cannot stand still. Momentum must constantly be generated.Chiropractic research needs many things it does not now have* [4]."""*Sacro Occipital Technic, like all Chiropractic Technics, needs further study. We certainly do not have all the answers to all of man's problems, and neither does any other group of people* [4]."

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.

2. DeJarnette MB. **The Sacro Occipital Technique Bulletin**. Mar 1975.

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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 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].

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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.

Evidence Informed Practice

The term evidence based medicine (EBM) has traditionally been used to describe a means of treating patients based on research published in biomedical journals. Even though EBM also incorporated expert opinions and a doctor's clinical experience, it was common that insurance companies and other agencies - presumably seeking to protect patients or save money - would focus solely on the randomized controlled trial as the backbone of EBM.

When EBM appeared to be too restrictive or just clearly misinterpreted new terms such as Evidence Based Practice and now Evidence Informed Practice (EIP) have appeared. The value of EIP is that it takes research into account when making a clinical descision but also utilizes patient values and preferences, risk benefit ratio of related or chosen therapy, and the doctor's clinical experience. Because this represents a clearer depiction of an actual clinical experience and at the same time seeks to offer the patient the highest level of care, the belief is that EIP is the best of what EBM has to offer.

It is important that a practitioner is aware of the current research on effectiveness of their care so that they do not inadvertently make false or exagerated claims regarding the potential benefits of the treatment rendered. Therefore keeping up to date on the research and literature, while time consuming, is an ethical obligation of doctors in practice.

Ideally doctors practicing EIP would best be able to predict and provide outcome expectations against which progress could be measured. In essence we all, as patients or doctors, should receive or offer treatment based on research and clinical experience. New research can uncover therapeutic interventions or benefits of certain types of care that were never before discovered. Also this research may determine that prior care that was customarily rendered is now inappropriate.

The challenge with chiropractic and its various techniques is that we are functioning from a situation where we have limited funds and limited methods to adequately study our innovative therapeutic applications. This conference attempts to offer a tempered and reasonable voice for practitioners on the forefront of care, such as has been the case with Sacro Occipital Technique (SOT) for years. Incorporating current research performed in the patient's best interest with one's own clinical experience is the hallmark of a responsible and ethical physician. Allied healthcare practitioners, chiropractors, and particularly SOT doctors have a responsibility to lead the way with EIP and focus first and foremost on patient based care.

Major Bertrand DeJarnette DO, DC developed SOT with outcome based assessment protocols and with research accountability as its backbone. The onus is upon us, those who learn and utilize his methods to be informed of the evidence and evolving research, and utilize this in the clinical application of SOT and its related methods.

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 is an extremely valuable manner for doctors in clinical practice or "in the trenches" to communicate what is taking place in their practices. Until the doctors in clinical practice publish their case reports, 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 his or her 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 [1]."

1. Ward RW. **Why it is Important to Write a Case Report**. *Dural Connection Internet Edition*. 2006;3(3). [http://www.sotousa.com/wp/?page_id=716] Last accessed September 26, 2010.

2012 SOT Research Conference Schedule

May 3, 2012 · Atlanta, Georgia

1:00 – 1:50 PM	**Interdisciplinary Care, SI Joint, and Cranial Treatment**
	SOT chiropractic and acupuncture for SLAP tear: A case report. Christine D. Benner, DC, Daniel Gardner, DC
	Is Sacroiliac Joint Hypermobility an Overlooked Syndrome in Chiropractic?: Designing a Survey Based Research Investigation. Dov Pine
	Treatment of Low Back Pain by Cranial Adjustment: A Case Report. William J. Boro, DC
	Rotator cuff conservative care utilizing sacro occipital technique (SOT) and supportive taping: Two case reports. Leo Powers, DC
2:00 – 2:50 PM	**Occipital Fiber and Temporosphenoidal Reflexes**
	Sacro Occipital Technique: Occipital Fiber Technique and CMRT for Treatment of Canine Fecal Incontinence. Heidi Bockhold, DC, Jean E. Thompson, DC
	Sacro Occipital Technique: Occipital Fiber Technique on Equine with Shortness of Breath and Chronic Sinusitis. Heidi Bockhold, DC, Jean E. Thompson, DC
	A study of the nature of SOT occipital line fibers: A retrospective case series of 65 patients. Harvey Getzoff, DC
	Integrating temporal-sphenoid reflexes, sacro-occipital technique procedures, and reflexology for treatment of chronic cervical cervical pain and reduced range of motion: A report of two cases. Harvey Feenstra, DC
3:10 – 4:00 PM	**Lumbosacral Disc and Sciatica Research**
	Latent sciatic technique and cervical traction test: A DeJarnette discovery and case report. J. Rodney Shelley, DC
	Sitting disc technique and the relationship to the straight leg raise: A retrospective case series of thirty patients. Harvey Getzoff, DC
	SOT chiropractic care of a 47 year-old female with left-sided sciatica caused by a 16mm left paracentral disc extrusion: A case report. Martin G. Rosen, DC
	Styloid process sensitivity in a patient with low back pain and radicular syndrome: A case report. Dwight Shaneyfelt, RN, DC

4:10 – 5:00 PM	**Integrative and Innovative Healthcare & The Future of Research**
	Pregnancy, sacroiliac support belts, and active straight leg raise (ASLR): Incorporating new diagnostics into sacro occipital technique. Rick Serola, DC
	Chiropractic and dental care of a patient with temporomandibular and sacroiliac joint hypermobility: A case report. Richard C. Gerardo, DC
	Research, Scholarship, and the Future of the Chiropractic Profession. Matthew McCoy, DC, MPH

SOT chiropractic and acupuncture for SLAP tear: A case report.

Christine D. Benner, DC, Lac, Daniel Gardiner DC, Charles L. Blum, DC

Introduction:

A SLAP tear or SLAP lesion is an injury to the glenoid labrum (fibrocartilaginous rim attached around the margin of the glenoid cavity). SLAP is an acronym that stands for "superior labral tear from anterior to posterior". The first report on superior labral lesions associated with the long head of the biceps origin, in a population of throwing athletes, was done by Andrews and colleagues, in 1985 [1]. Several years later, Snyder and coworkers described a superior glenoid labral lesion that "begins posteriorly and ends anteriorly," and coined the term SLAP lesion [2].

Superior labral anterior posterior (SLAP) tears are an abnormality of the superior labrum usually centered on the attachment of the long head of the biceps tendon. Tears are commonly caused by repetitive overhead motion or fall on an outstretched arm. SLAP lesions can lead to shoulder pain and instability [3]. Two normal anatomic variants can be arthroscopically and radiographically confused with SLAP lesions. A sublabral recess or sublabral foramen, defined as a physiologic detachment of the superior labrum, has been observed in up to 73% of normal shoulders [4,5]. Secondly, the appearance of a cord-like middle glenohumeral ligament, with an absent anterosuperior labrum, coined the Buford complex, has also been described [6-9]. This variant is less common, with reported incidence varying from 1.5% to 5% [6-9]. Although these anatomic variants exist, the extent to which they predispose or protect the superior labrum from injury is not well understood.

Snyder and associates [2] classified SLAP lesions into four types:
The **type I lesion** (21%) is characterized by fraying and degeneration of the edge of the superior labrum, with maintenance of a firm attachment of the labrum and biceps anchor to the glenoid.
The **type II lesion** (55%) consists of fraying and degenerative changes similar to those seen in a type I lesion, but the superior labrum and attached biceps tendon are detached from the underlying glenoid, resulting in an unstable labral-biceps anchor.
The **type III lesion** (9%) is a bucket handle tear of the superior labrum, with the remaining portions of the labrum and biceps anchor remaining firmly attached.
In a **type IV lesion** (10%), there is a bucket handle tear of the superior labrum that extends into the biceps tendon, and the partial biceps tendon tear can displace with the labral tear into the joint [10].

The symptoms caused by SLAP lesions are vague and inconsistent, so the clinician must have a high index of suspicion. Pain is the most common complaint, especially with overhead activities, similar to impingement-type pain. Patients may also describe mechanical symptoms such as catching, popping, locking, or grinding. Other common complaints include pain when lying on the affected shoulder, pain with activities of daily living, loss of strength, loss of motion, and a sense of the arm "going out." Throwing athletes may complain of a "dead arm [10]."

The diagnosis of these lesions is difficult due to vague symptoms and high degree of overlap with other shoulder disorders, and this requires a high index of suspicion [10]. The following are some tests that can help assess patients with the possibility of a SLAP lesion:

Provocative Tests for Patients with Suspected SLAP Lesion or Tear

Test Description	*Sensitivity/Specificity*
The compression rotation test, also known as the "**grind test**" is performed by having the patient lay in either the supine or lateral position, with the shoulder abducted 90°, the elbow flexed 90° with a compressive force applied to the humerus with internal and external rotation of the shoulder (similar to the McMurray's test for meniscal tears in the knee). Pain on testing is considered a positive test result.	This test is relatively sensitive for labral tears, but is not specific for SLAP lesions [10,11].
The biceps tension test, also known as "**Speed's test**," is performed by having the patient resist forward flexion with the shoulder flexed 90° with the elbow extended and the forearm supinated. The test is positive if this maneuver elicits anterior shoulder pain. This test is more useful for anterior type II SLAP lesions than posterior type II SLAP lesions.	The biceps tension test is also not very specific for SLAP lesions; false positive tests are found in patients with biceps tendonitis [10,11].
The anterior slide test (**Kibler's test**) is performed with the patient either sitting or standing, with the hand on the ipsilateral hip with the thumb posterior and fingers anterior. The examiner pushes upward and forward on the elbow against resistance. A positive test produces anterior shoulder pain and/or a pop or click, as well as a subjective reproduction of the symptoms felt during overhead activity.	This test is reported to have a 78.4% sensitivity and a 91.5% specificity for superior glenoid labral tears [10,12].
The **crank test** is performed with the patient either upright or supine. The arm is elevated 160° in the scapular plane, and the humerus is then loaded axially with maximal internal and external rotation. A positive test produces pain (usually in the externally rotated position) with or without a click, and also reproduces the patient's subjective symptoms that occur during offending activities.	This test has a reported sensitivity of 93% and specificity of 94%, with a 94% positive predictive value and 90% negative predictive value for glenoid labral tears, but is not specific for SLAP lesions [10,13].

The active compression test (**O'Brien test**) is performed with the patient standing, the arm forward flexed 90° with the elbow extended and the arm adducted 10° to 15°, and maximal internal rotation. The examiner then applies a resisted downward force to the arm. The patient then maximally supinates the arm and the maneuver is repeated. A positive test elicits pain during the first maneuver, which is reduced or eliminated with the second maneuver. Pain localized to the AC joint must be differentiated from pain or painful clicking inside the shoulder.	This test has a reported sensitivity of 100% and specificity of 98.5%, with a 94.6% positive predictive value, and a 100% negative predictive value for labral abnormalities [10,14].
The pain provocation test (**Mimori's test**) is performed with the patient sitting and the arm abducted 90° to 100°.The examiner externally rotates the shoulder and places the arm in maximal pronation and then maximal supination. A positive test provokes pain only when the forearm is in the pronated position or when pain in the pronated position is greater than pain in the supinated position.	This test is reported to have a sensitivity of 100%, a specificity of 90%, and 97% accuracy for diagnosing superior labral tear [10,15]
The **Biceps load test** to evaluate the integrity of the superior glenoid labrum in shoulders with recurrent anterior dislocations, in order to differentiate a type V SLAP lesion from anterior instability alone. The test is performed with patients with anterior shoulder dislocations by externally rotating the shoulder to the apprehension position, then having the patient perform resisted elbow flexion, and assessing for a change in apprehension. If the apprehension was unchanged or the shoulder was more painful, this was considered positive for a SLAP lesion, and if the apprehension was less or the patient felt more comfortable, this was a negative test.	Using this test, the investigators reported a 100% sensitivity, a 90% specificity, and a 97% accuracy for diagnosis of a superior labral tear [10,16].
The **biceps load test II** is used to specifically evaluate patients for the presence of a type II SLAP lesion. The exam is performed with the patient supine, with the arm elevated 120° and maximally, externally rotated. The elbow is then flexed 90°, the forearm is supinated, and the patient is then asked to flex his elbow against resistance. A positive test elicits pain during resisted elbow flexion.	This test has a reported sensitivity of 90%, a specificity of 97%, with a 92% positive predictive value and a 95% negative predictive value for diagnosing type IISLAP lesions [10,17].

Magnetic resonance (MR) arthrography of the shoulder has been found to be reliable and accurate for the diagnosis of superior labral anterior posterior (SLAP) tears [18]. According to Maurer et al conservative treatment of SLAP lesions has been found to be generally unsuccessful; however, these lesions are amenable to arthroscopic treatment [10]. While arthoscopic surgery is a common occurrence with SLAP lesions [19] the purpose of this paper was to investigate whether conservative care, which utilized sacro occipital technique (SOT) chiropractic care and acupuncture, could facilitate recovery with a patient presenting with a SLAP lesion.

Case History:

42 year old male, in good overall health, injured right shoulder while doing boxing training on an 'upper-cut bag'. The goal of the exercise was to punch the bag from below with enough force and follow-through to lift the bag.

Symptoms, which started approximately as of May 2009, ranged from discomfort with minimal movement to pain with certain strenuous movements, such as incline press and upper cut type punches while exercising. The range of motion had become more limited with increased clavicular displacement and instability as well as an increase in brachial radiculitis to right arm and fingers.

The patient had attempted chiropractic care as well as some self-prescribed rehabilitative shoulder exercises. This proved to be somewhat helpful, but he still had instability and the pain returned with just minimal shoulder joint stress. When the rehabilitative exercise and chiropractic care was not creating a significant improvement, an MRI was taken and SOT and acupuncture were included within the treatment regimen.

MRI Jan 15, 2010 study of the right shoulder revealed:

1. Superior labral tear, involving entire labrum - anterior and posterior.
2. Supraspinatus tendinosis and minor partial-thickness bursal surface tear.
3. Mild AC arthrosis and findings of distal clavicular posttraumatic osteolysis.
4. Minimal subacromial/subdeltoid bursitis.
5. Minimal diffuse teres minor muscle edema suggesting denervation injury.

The patient was treated with a combination of SOT and acupuncture for 5 office visits over a two-and-a-half month period. SOT chiropractic care began on February 24, 2010 and then acupuncture was added on March 3, 2010, with the last office visit May 12, 2010.

Methods/Intervention:

Chiropractic SOT care involved category 1 (pelvic torsion with reduced sacral nutation) with a left physiological short leg, left heel tension (reduced ankle dorsiflexion). right dollar sign (increased sensitivity in region where piriformis and gluteus medius cross), and SB + (restricted in sacral nutation). L3, L4, L5 all adjusted with a drop pelvic piece directing the lumbar spinous processes from right toward the left side. The sacrum was adjusted to encourage counternutation and using pelvic blocks (padded wedges), with the PSIS as a landmark, the left ilium was adjusting in a posterior inferior direction and right ilium in the anterior superior direction to reduce any pelvic torsion. The third through the fifth thoracic was adjusted posterior to anterior and C5-6 was adjusted on the right with C3-4 adjusted on the left, along with releasing any occipital compression. The patient's right clavicle and humeral head were adjusted from anterior to posterior and the biceps tendon was reset into a functional position. The 1st rib was found anterior on the right and was adjusted anterior to posterior.

Acupuncture was performed with each treatment in the same manner to maintain continuity and determine efficacy of the care rendered. The following is a review of the acupuncture therapy rendered. With the patient prone: Ear Shen Men, Kidney 3, UB 58, GB 34, SI 3 and SI 11 bilaterally. Right side only: Hua to points at T3-4, SI 8, SI 10, UB 10 . Needles were left in place w/out manipulation for 25 minutes. With the patient supine: 4 Gates (Liver 3 and LI 4), yin tang, Ren 6,12,17, St 36 bilateral. Right side only: LI 11, local shallow needling around the anterior humeral head and along the biceps tendon, Lu 1. Needles were retained for 15 minutes w/out manipulation.

Results:

When acupuncture was included with the chiropractic care an immediate improvement in range of motion and a substantial decrease in pain was found. While there was some discomfort and limitations with certain exercises, the patient was able to return to his customary exercise routine. For the patient it was significant since prior to instituting SOT and acupuncture his symptomatology was unchanged regardless of prior physical therapy, home rehab, and rest. The patient noted that his improvement in function had a direct relationship to the SOT and acupuncture rendered.

Discussion:

A search of PubMed, MANTIS, and chiroindex.org with the search phrases of acupuncture and chiropractic, SLAP, labral or labrum found only one article relating to an intraosseous ganglion cyst of the humeral head in a competitive flat water paddler [20]. While there have been some studies investigating shoulder pain or dysfunction in the acupuncture [21] and chiropractic [22] fields, none were found specifically for SLAP tears or lesions.

In the case of the competitive flat water paddler [20], the patient received physical therapy, chiropractic care (16 visits), acupuncture and appropriate activity modification. The regimen was moderately successful in reducing the pain when the patient was not paddling but the pain quickly returned following a session on the water. It was due to this unusual recurrence pattern, atypical for a normal soft tissue/overuse injury, that further investigation was initiated. Therefore she underwent an MRI which revealed an intraosseus ganglion cyst subjacent to the lesser tuberosity and floor of the intertubercular groove. A subsequent MRA was ordered to assess the labrum, which was intact, but the cyst had progressed in size. She was referred to an orthopedic surgeon who performed surgery [20].

SOT chiropractic and acupuncture has been integrated successfully in the treatment of a patient with asthma [23] as well as oligomenorhea [24]. Yet at least more extensive integrative care studies are needed as well for the treatment of SLAP lesions. Most of the SOT related care described in this study are covered in depth in the SOT Manual by Robert Monk [25] and are based upon the work of M. B. DeJarnette [26]. See the appendix for the locations and rational for the acupuncture points and protocols used in this study.

As with any case study it is difficult to figure out whether the patient might have gotten better without care or whether the care rendered had a placebo effect. It is interesting that the patient did have chiropractic care, physical therapy, and even attempted rest but no change occurred until having received SOT chiropractic and acupuncture. Caution must be taken with the treatment of SLAP lesions or tears to make sure that their condition improves and stabilizes since if muscle atrophy starts to take place the muscle may not be able to recover function. Therefore with patients who have challenging SLAP lesions or tears it may be important for those offering conservative care to work with allopathic physicians such as a physiatrists or orthopedic surgeons.

Conclusion:

With all case reports it is difficult to make generalizations since no controls, sham procedures, or randomization is utilized to address issues of placebo, ideomotor, regression to the mean and other types of effects. Yet the chronicity of the patient symptoms, over 8 months, and the temporal relationship between treatment and response to care is of interest. It is also of interest that the patient was receiving chiropractic care and doing home physical therapy. There is hope that this study may generate greater acupuncture and chiropractic interdisciplinary care relationships that will help patients gain an option for therapy that offers a lower risk than medications or other more invasive procedures. Research should be taken to evaluate whether a subset of patients may be better suited for this alternative method of care or whether this case was an anomaly.

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Treatment Application	Acupuncture Points for Therapy
Patient Prone – Bilateral	**Ear Shen Men**: Calms the spirit.
	Kid 3: The Kidneys dominate bones and water. Control the flow of qi. This is used as a point to ground the treatment and to support the skeletal system, as well as to move any water (inflammation) from around a joint.
	UB 58: A master point for the upper back. For pain in the occiput, neck and back. It harmonizes the upper and lower parts of the body. Generally indicated for neck and joint pain.
	GB 34: The master point for the Sinews (tendons and ligaments). Indicated for any disorder, contraction, turmoil or pain in the sinews, muscles, joints.
	SI 3: Benefits the occiput, neck and back. Indicated with stiffness or pain in the neck, pain of the back and shoulder, elbow or arm and for contraction of the muscles of these areas.
	SI 11: A local point to release trigger points in the muscles overlaying the scapula. Treats heaviness and pain of the shoulder, pain and inability to raise the arm.
Prone Right Side	**Huatuojiaji points**: Located just lateral to the spaces between the spinous processes, these are used in the thoracic area to treat disorders of the lung and upper limb.
	SI 8: Located near the elbow, this point was used to activate the SI channel, alleviate pain, calm the spirit and dissipate swelling.
	SI 10: In the depression just below the scapular spine, it is indicated for pain and swelling of the shoulder that radiates to the scapula, weakness and pain of the arm and shoulder, and inability to raise the arm and shoulder.
	UB 10: Located just under the occiput on the lateral aspect of the trapezius muscle. One use is for pain, heaviness, stiffness of the neck and shoulder.
Patient Supine Bilateral	**4 Gates: Bilateral Liver 3 and LI4.** Liv 3: Spreads the qi, nourishes blood and yin. A broadly used point with dozens of uses, this point, along w/ GB 34 will benefit the tendons and ligaments, move the qi and nourish those tissues.
	LI 4: Master point of the head and neck, this point also has dozens of uses. The 4 Gates treatment implies that these points treat any type of painful obstruction involving pain or spasm. Together these two points, used bilaterally have a strong moving action and will help relieve stagnation and stiffness.
	Yin tang: Calms the spirit, centers the mind.
	Ren 6, 12, 17 together: Triple Heater regulatory treatment: these will balance the upper, middle and lower jiaos so that the patient is functioning in a grounded, focused and spiritual way.
	St 36: Also a point with dozens of uses. For this treatment used for its ability to resolve dampness (any inflammation), tonify qi, nourish blood and yin, alleviate pain and clear the channels, calm the spirit.
Supine Right Side	**Right side LI 11**: Clears heat, drains damp (gets rid of inflammation), regulates blood and qi flow, activates the channel and alleviates pain
	Lu 1: Used in this case as a local point over the Pectoralis Major and to dispel fullness or oppression through the chest.
	Local shallow needling around the injury site was done to dispel superficial qi blockages, support the biceps tendon and boost the qi.

Chiropractic and Dentistry– The Need for Mutual Understanding of TMD Co-treatment: A Case Report.

Charles L. Blum, DC

Introduction:

Like the story of the blind men groping around an elephant and each one proclaiming they know what the elephant is by their limited experience it is common in healthcare that professions tend to wear diagnostic blinders. Both the field of dentistry and chiropractic are entering the arenas of interdisciplinary care [1-4]. With the treatment of the temporomandibular joint (TMJ) and its related disorders (TMD) dentists and chiropractors commonly see their roles as being independent and sufficient for "all" types of presentations. The purpose of this case report is to illustrate how a patient presenting for chiropractic care clearly needed dental co-treatment for his chronic TMD bruxism condition.

Bruxism is characterized by the grinding of the teeth and is considered an oral parafunctional activity that often occurs during sleep. In most people, bruxism is mild enough not to be a health problem. In some cases bruxism may relate to some other underlying condition which may be emotional, stress related, airway related dysfunction, and a myriad of other triggers.

Within the chiropractic community it is commonly understood that there are many different chiropractic techniques all of which claim that they have the answer for most conditions. Since chiropractic care, regardless of the technique, is considered helpful and most practitioners utilize a conglomeration of techniques, it is likely that each technique has something valuable to offer. Figuring out which subset of patient may respond best to which technique is worthy of future investigative comparative studies.

Similarly in the field of dentistry and particularly with the care of TMD there is a vast expanse of methods and techniques to treat patients with clenching, bruxism, oral parafunctional behavior, and other related TMJ disorders. One faction believes all TMD conditions are biopsychosocial [5,6] whereas another group, while acknowledging a biopsychosocial component, believes that dental occlusion also can play an important role [7-9]. Within each group there are multiple factions who have various treatment methodologies and rationales, commonly discussed with confidence beyond the evidence. Regretfully dentistry differs from chiropractic in that some treatments can be relatively irreversible.

As a means to build a bridge between the professions [10-3] Steigerwald and Maher developed an outcome assessment tool for chiropractors to determine when a patient might have a TMD condition and warrant a dental referral [14]. Blum and Globe developed a preliminary outcome assessment tool for the dentist to use when a patient might have myofascial postural influences affecting a patient's TMD condition and warrant a chiropractic referral [15]. At this time neither tool seems to be widely utilized.

In discussions with dentists who specialize with TMD care one common response about their reticence to refer to a chiropractor is that chiropractors will tell the patient that their dental problem is a "cervical vertebra that is out of place [16]." For some chiropractors they contend there are chiropractic studies illustrating that some forms of TMD have been successfully treated with chiropractic manipulation to the spine [17-23].

In discussions with chiropractors who treat patients with TMD and do not co-treat with a dentist they commonly believe that chiropractic treatment can take care of the patient's presenting condition and that all dentist do is make splints or affect the teeth which make the condition worse. However the dental literature has many published studies of TMD patients treated without chiropractic care successfully [24].

Which profession is right? Which technique or methodology within each profession is the correct one?

The answer cannot be conclusive at this time, and even a preliminary answer is guarded. What seems reasonable is that both professions could be right and all techniques may be helpful for a subset of the TMD patient population. However it may also seem reasonable that for some conditions one or the other profession, or possibly both professions may be needed for the optimal outcome. Likewise many techniques may help but with some patients only one might be preferable. At this time both the dental and chiropractic profession have much work to do to build an adequate evidence base in this regard.

With the following case history it illustrates the limitations of chiropractic care for the treatment of a patient with an acute trauma induced cervical sprain/strain and chronic bruxism.

Case Report:

A 19-year-old male presented to my office with a history of attempting to do a back flip on a trampoline when he landed on his head and compressed his neck. While taking the case history his parent, who was in the room, noted that he also had persistent and intense bruxism at night creating significant sounds that would waken others near his room at night. Upon questioning the patient reported that he has had multiple orthodontic procedures and currently has a maxillary metal bridge placed lingually along his incisors, which was described by the patient as a retainer. The orthodontic care the patient received began initially with a transverse expander to widen his hard palate and then was under orthodontics for what was believed to be aesthetic reasons.

Methods/Intervention:

Evaluation revealed decreased cervical range of motion with some sensitivity to palpation at the right C3 transverse process, sacroiliac joint sprain with pelvic torsion (left short leg), and significant TMJ related findings. Upon examination it was noted that on closing his incisors would contact end to end typical of a dental class three (mandibular occlusal protrusion) presentation and when palpating his retro-condylar space (between the

mandibular condyle and mastoid) there was very minimal space typical of a dental class two (mandibular condylar retrusion) TM condyle position. He had a left opening deviation, where he would open at the midline, shift to the left and end at full opening at the midline.

Treatment:

Treatment involved reduced thoracic anteriorities, sacro occipital technique (SOT) orthopedic blocking to treat the L3 right rotation until the swelling and sensitivity at the C3 transverse subsided [25], pelvic supine block placement to reduce pelvic torsion [26-8], and treating the cervical spine with cervical stairstep [29], HVLA adjusting based on cervical stairstep findings, and DeJarnette step one sutural cervical cranial releases [30]. Some attempt was made to evaluate the upper and lower dental arch development by releasing the cruciate suture sagittally and the mandible transversely with the goal of determining whether this might help both the occlusion (class three) and condylar position (class two).

He was given an exercise with his tongue placed at a region behind the front teeth and pressing firmly as he opened and closed, which normalized his TM joint translation eliminating the deviation [31]. He was told to do this exercise 3 sets of 10, 5 times per day, and reevaluate in 2-4 weeks whether he would need to continue by opening without the tongue pressure repeatedly.

Results:

The cervical spine range of motion and pain improved immediately following the treatment. The TM joint translation relating to the deviation was improved but it was evident that he would need to continue with the exercise likely daily for 2-4 weeks to sustain any lasting change.

It was clear however that there was no improvement in the occlusion or condylar position, which warranted a referral to a dentist familiar with functional orthodontics trained within a dental chiropractic co-treatment methodology.

Discussion:

While the response to the treatment for the presenting complaint of cervical pain and decreased range of motion was improved what appeared a greater concern was his chronic bruxism and mandibular position. Typically patients with a class two position will have some degree of obstructive airway compromise [32-5] found frequently at night leading to bruxism. One theory for night-time bruxism is that the body unconsciously attempts to open the airway space by advancing the jaw forward along with the tongue and when the jaw naturally goes back to its resting position backward it draws the tongue with it and will close the airway space. This process then repeats itself the whole night leading to chronic bruxism.

The challenge with this particular case is that proper dentition is optimal with a class one position and the patient's presentation of a protruded jaw with incisor's touching end to end when closed is commonly treated by retruding the mandibular condyle backward within the condylar fossa. However his condyle was already retruded to the point where there was virtually no space for palpation between the ramus of the mandible and the mastoid. Commonly with this type of condylar position the mandible is advanced forward to facilitate bringing the tongue forward and opening the airway space. But with this patient his mandibular teeth were already positioned too far forward relative to the upper dental arch, hence the dental challenges of treating this case.

A dentist who specialized in functional orthodontics and dental chiropractic TMD co-treatment was contacted via email and a letter introducing the patient along with the chiropractic clinical findings. The following was an excerpt from the dentist's email published with permission from the dentist:

> "Dental relationships are very often a different classification than skeletal ones, which many practitioners believe cannot coexist, but I know it does, having seen it and treated it many times in my career. Missing the coordination of skeletal and TMJ diagnoses leads to improper or inadequate treatment.
>
> "Cases in which the mandible is actually hypertrophic are really, really rare, but do exist, and can require a surgical intervention. More commonly, it is the lack of midface growth and development expression in the maxillae and cranial base that is the root of the issue. The more severely affected the midface is, the more it supports condylar distalization as the mandible tries to complete its genetic growth potential downward and forward and the maxillae and its teeth hold it back. Many orthodontic doctors address only the dental issue and actually pull the mandibular incisors lingually toward the tongue in an attempt to get them behind the maxillary ones. Usually they end up with an end on incisor relationship. The ALF (Alternative Lightwire Functionals) appliance has been a godsend for these patients, working far superiorly than any other appliances I have used for this over the years, and I have used almost all of them.
>
> "A nice easy diagnostic tool to use is to mentally scribe a level plane (or place a ruler) from the tragus of the ear to the ala of the nose of the patient's profile. Then drop a 90° angle from this plane just inside the nares and the lips and chin should be on this perpendicular. It really reveals well the midface's lack of development, regardless of where the teeth are positioned. Most malocclusions of whatever Class exhibit some degree of unrealized midface expression and will look flat (instead of the more ideal convexity) in this area. Most of these cases have airway issues, swallowing issues, sinus issues, and some degree of TMD. This creates parafunctional 'habits' perpetrated by the neuromuscular system in an attempt to self correct [36]."

Dental chiropractic co-treatment [10-2] can be a part of a rapidly growing field of interdisciplinary care [13, 37]. Since postural changes have been found to have an ascending

affect on dental occlusion, condylar position, and airway space [38-43]; treatment of postural influences prior to irreversible dental procedures is preferred. Likewise occlusion, condylar position, and airway space has an affect on posture [38-42] so following any changes to those regions by the dentist, if the patient has a myofascial response (e.g., increased neck or back pain); a referral to a chiropractor may be indicated to facilitate the patient's accommodation to the descending postural influences.

Nocturnal bruxism [44] is not a condition that can be ignored particularly when it is chronic and associated with unusual dental morphological patterns, such as with this patient. Aside from the noise associated with bruxism there is often related masticatory muscle tension leading to a long-term affect on the dentition and airway space that can lead to serious sequela [45-6].

So that greater interdisciplinary relationships can be developed it is essential for the chiropractic profession to understand that no chiropractic type adjustment will change the shape of the teeth or the size of the mandible or upper dental arch. Chiropractic has its place in the treatment of TMD but we need to be reasonable and complementary so that our patients can receive the best care possible.

Conclusion:

SOT chiropractic analysis and treatment allowed for a relatively quick and easy resolution to this patient's neck trauma however his bruxism appeared to be much more complex than what could be expected to be helped by just chiropractic care alone. Therefore he was referred to a dentist who could assess and help co-treat this patient with the hopes of him not needing surgery to shorten the mandible, which is a common procedure for this type of presentation. The purpose of this case report was to illustrate a working treatment program where both chiropractic and dentistry can play an integral part in an attempt to improve patient care and outcomes.

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Treatment of Low Back Pain by Cranial Adjustment: A Case Report.

William J. Boro, DC

Introduction:

Lower back pain (LPB) is a commonly occurring reason for patients to present themselves for chiropractic care. The evidence base of information is growing to support chiropractic's care of low back pain. Whereas a 2011 Cochrane review found "combined chiropractic interventions slightly improved pain and disability in the short term and pain in the medium term for acute/subacute LBP, [1]" Lawrence et. al., determined that "as much or more evidence exists for the use of spinal manipulation to reduce symptoms and improve function in patients with chronic LBP as for use in acute and subacute LBP [2]." While studies have found positive effects of chiropractic care for patients with acute pain a study was performed to evaluate short-term changes in care of chronic LPB. Using inflammatory markers interleukin-6 (IL-6) and C-reactive protein (CRP) a total of 9 chiropractic lower back manipulations caused the mediators of inflammation to present a normalization response in individuals suffering from chronic low back pain [3].

A comparative cost-effectiveness study of medical and chiropractic care for the treatment of LBP found that, "Chiropractic care appeared relatively cost-effective for the treatment of chronic LBP. Chiropractic and medical care performed comparably for acute patients. Practice-based clinical outcomes were consistent with systematic reviews of spinal manipulation efficacy: manipulation-based therapy is at least as good as and, in some cases, better than other therapeusis [4]." Similarly to the Roy et. al., study [3] which found inflammatory changes in chronic low back patients, Haas also found "There was a positive, clinically important effect of the number of chiropractic treatments for chronic low back pain on pain intensity and disability at 4 weeks. Relief was substantial for patients receiving care 3 to 4 times per week for 3 weeks [5]."

The purpose of this case report is to examine if there could be a possible clinical connection between lower back pain and dysrelationships of the cranium.

Case History:

A 39 year old male policeman, 5'9", weighing 275 pounds suffering from an injury, 3-4 years previously, to his lower back presented to this office. The initial injury was due to lifting a suspect on a stretcher subsequent to a fight to subdue and restrain the suspect. He had received physical therapy treatment and his LBP condition had resolved. In July of 2011 the policeman was involved in another work related altercation and injured his knee. Due to this injury, he found himself limping and once again experiencing LBP. He had his knee operated on surgically on March 2012. Following the surgery, his back pain became constant and unresponsive to rest or physical therapy. One month later (April 2012) he presented to this clinic for examination and treatment for his unremitting LBP.

Method/Intervention:

The patient complained of pain in his knees of 4/10 and pain in his low back on flexion of 5/10. The examination results included the following: Posture evaluation revealed: Hip low on the right, right shoulder low, and ear low on the left. Trendelenburg test was positive on the right, the left arm fossa test [10] positive in upper fossa, pressure to L5 spinous was positive to pain on the left. Following the exam, adjustments were performed using a Van Rumpt double thumb toggle.

Sacro occipital technique evaluation procedures and analysis [11] were used in conjunction with methods developed by Van Rumpt [12]. Using Van Rumpt's cranial patterns [12] the patient was determined to have an anterior cranial distortion pattern. In addition to cranial adjustments to the sphenoid, temporals and mandibular regions, adjustments were made to the frontal, parietals, nasal bones, maxillas, zygomatics and the occiput. All bones were rechecked after the adjustment to verify that the subluxations originally present no longer created a reactive leg response (pre- and post-assessment test developed by Van Rumpt) upon testing. Various muscles were tested to determine if a positive functional change could be found clinically following care [13].

Results:

Shortly post-treatment the patient stated that he "felt great and all the pain in his knee and his lower back had resolved." Upon getting off the table the patient responded that he felt "different." The next day, he reported a marked reduction of LBP that was sustained and it was the first time in a month that he could walk without a limp and not concurrently experience LBP. On reevaluation posture presentation revealed a right hip low, shoulders level, and left ear low. Trendelenberg was negative bilaterally, arm fossa test was negative bilaterally, however the left sided pain at L5 spinous process on pressure shifted superiorward to pain on pressure at lumbar 4 spinous process, also on the left.

Muscle	Pre-Treatment	Post-Treatment
Transverse Abdominals	+4 bilaterally	+4 bilaterally
Psoas Major	+4 bilaterally	+5 bilaterally
Adductor Brevis	+4 bilaterally	+5 bilaterally
Gluteus Maximus	+4 bilaterally	+5 bilaterally
Multifidus	+4 bilaterally	+5 bilaterally
Iliocostalus Lumborum	+4 bilaterally	+5 bilaterally
Sternocleidomastoid	+4 bilaterally	+5 bilaterally
Splenius Capitus	+4 bilaterally	+5 bilaterally
Gluteus Medius	+5 bilaterally	+5 bilaterally

Discussion:

Most cranial techniques and concepts have their basis and origin in the work of William Garner Sutherland [14,15]. He examined the bone anatomy, studied their articulations, and manufactured apparatuses to compress and put forces into his own skull in order to affect /impair its natural movement. He also used these apparatuses to correct the dysfunction that he had created in himself as a result of his experimentation. With the results of his experiments he became convinced that cranial bones moved and began developing manual techniques to create movement and undo fixations that might exist in a patient's skull.

Gray's Anatomy states that "suture closure begins at twenty-two years in the sagittal and sphenofrontal, at twenty four years in the coronal and at twenty-six years in the lambdoidal and occipitomastoid. The process is most rapid from twenty-six to thirty years then slows down and may not be complete until old age [16]." A study looking at the fronto-zygomatic suture, however, demonstrated that individuals even in their 80's and 90's still had non-union [17]. Retzlaff et. al. [18] and Todd and Lyons [19] also found that sutures do not fuse in later life. More and more there can be less and less debate about whether cranial bones move. Frymann [20], St. Pierre [21], Michael [22], Retzlaff [23], Moskalenko [24,25], and Oleski [26] have performed studies to investigate the possibility of cranial bones motion and its clinical application. The letter to the editor by Blum and Cuthbert [27] offers some significant studies suggesting that cranial bone therapeutic interventions does have evidence based support.

The methods and chiropractic techniques used in this case study were those developed and researched by Richard Van Rumpt, D.C [28,29]. "VanRumpt (1904 - 1987) was a professional boxer in New York at the young age of 16. When Dr. VanRumpt and the other boxers would prepare for a fight, the boxing trainer did a rudimentary leg check before performing a cervical manipulation. This experience left him with a curiosity about leg checks, and he subsequently spent many years observing the phenomena involving dynamic changes of relative leg length [30]." Van Rumpt graduated from National College of Chiropractic in 1922 and by the late 1920's had met Dr. Major DeJarnette and became his student . Not much later he was chosen by DeJarnette to head up the SOT east coast research group. By the late 1940's the two men parted ways and Van Rumpt began to teach his own adjusting technique and system of subluxation analysis.

Van Rumpt's protocol was fairly direct. He had discovered a neurological reflex that was elicited when the feet of a patient are moved very specifically around an axis of rotation of the subtalar joint [31]. When one foot is fully everted and the other foot is everted only half way, a whole body reflex is elicited which triggers contraction of muscles all along the half-everted side of the body creating a relative short leg to occur. That shortening can be as little as an 1/8 of an inch or more than a full inch. Once the doctor has established this "leg shortening reflex", he/she can use it as a feedback tool, in conjunction with a body tissue challenge, to identify the presence of nerve interference almost anywhere in the body.

A study by Shelley found a positive response relating to fertility with a 32 year old female and initially "surface EMG showed significant muscle asymmetry,with a marked elevation of muscle tension on the left side in the area of L3 [32];" whereas a follow-up at 6 weeks found that "surface EMG showed a substantial improvement in muscle symmetry, as well as a reduction in the muscle tension previously noted at L3 [32]."

Van Rumpt utilized a simple Descartian system of three dimensional analysis to determine if the body's proprioceptive receptors are working properly. The doctor challenges any anatomical structure to the right or the left, anterior or posterior, cephalad (superior) or caudad (inferior). After challenging the structure, the doctor performs the foot eversion procedure to check for leg shortening. If the reflex activated leg demonstrates relative shortening, then there was some mechanoreceptor dysfunction, assuming that the reflex was not inhibited at the spino-cortical level. Purportedly if there was no response to the "subtalar reflex challenge" that it was due to some inhibition of the local proprioceptor response, and therefore there was no interference with the reflex activated leg mechanism. The doctor would then adjust the "offending" structure to reset the proprioceptor, removing the subluxation.

Applying this to the cranium, Van Rumpt researched challenging the external bones of the skull, including the sphenoid, temporals, parietals, frontal, occiput, maxilla, zygomatic, nasal bones and mandible. He analyzed for anterior, posterior, superior, infierior, medial and lateral subluxations. Van Rumpt identified what he called four basic patterns of subluxations: an anterior pattern, a posterior pattern, or a mixed pattern. The anterior pattern consists of an anterior-superior sphenoid, anterior-superior temporal bones accompanied by an anterior-inferior mandible. The posterior pattern consists of posterior-inferior sphenoid and temporal bones, accompanied by a posterior-superior mandible. A mixed pattern consists of one side of the cranium having an anterior pattern and the other side of the cranium having a posterior pattern of the sphenoid and temporal bones. The fourth pattern consists of a skull which does not follow any of the other three configurations, wherein any of the bones may be atypical.

Van Rumpt wrote very little about his research and cranial techniques [12] and likely incorporated a wide variety of chiropractic cranial methods of care such as DeJarnette [33]. Van Rumpt's approach, however, excepting significant concern for proper anatomy, bears little resemblance to other cranial techniques. The analysis is not based on findings of visual observation, palpation or limited ranges of motion of the cranial bones. Rather, the focus of the adjustment is determined by the assumed bio-electric reaction that the patient's body has when the cranial structure is challenged and found to not be communicating appropriately with the central nervous system [34].

There are various possible rationales why a cranial adjustment might have facilitated this patient's relief of lower back pain. Theoretically correcting cranial bone imbalance could change the center of gravity of the skull thereby causing a general shift in posture contributing to the relief of back pain. Correcting cranial subluxations may change the intermembranous tensions of the dura allowing for improved cerebrospinal fluid

circulation and a better integrative firing pattern of nerve impulses down the spinal cord returning muscle activity to previously impaired muscles.

In a 2009 study, Unger et al described a change in cranial bone distortions patterns due to modification of the pelvis via pelvic wedges or blocks with a supine patient [6]. Chinappi and Getzoff suggested that based on their study the position of the jaw, head and vertebral column, including the lumbar region, are intricately linked [7]. Beck and Blum found that a patient who had a relationship between visual dysfunction and LBP, had improvement in vision and LBP through the use of cranial manipulation [8]. While Fink also discussed a functional relationship between the craniomandibular system, cervical spine, and the sacroiliac joint [9] , research studying a relationship between cranial adjusting and low back has not been readily found in the literature.

Conclusion:

While there have been few studies investigating Van Rumpt techniques in the treatment of back pain, in this one case, it appears that a "Van Rumpt style" cranial adjustment offers a therapeutic benefit to an adult with chronic lower back pain. With case reports where there are no control groups utilized, there is always the chance of biased reporting. It is also possible that the improved clinical findings are related to a regression to the mean. However, considering the relative immediate response to care and the prior unremitting nature of the condition (4 weeks), as well as its lack of improvement to rest or physical therapy, suggests a compelling temporal relationship. Further research is needed to determine how long this improvement will last from this one correction. Also further research would help determine the best subset of individuals with lower back pain who might be best served by this type of cranial adjustment.

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Integrating temporal-sphenoid reflexes, sacro-occipital technique procedures, and reflexology for treatment of chronic cervical cervical pain and reduced range of motion: A report of two cases.

Harvey Feenstra, DC, Charles L. Blum, DC

Introduction:

Neck pain is a common disorder [1-5]. About 70% of adults will experience neck pain during their lifetime, and its point prevalence in the general population is around 22% [1,2,,4,5]. After low back pain, neck pain is the most common reason patients give for seeking chiropractic care, and the second most common reason for the use of spinal manipulation [1,6,7]. Treatment of neck pain is costly in terms of utilization of health care services, disability, compensation payments and lost work productivity [7,8].

The cause of neck pain is multifactorial and can be due to musculoskeletal conditions, trauma, systemic conditions, infections, inflammatory conditions or neoplasm [1,4]. Usually, the underlying cause of neck pain is non-specific and cannot be related to a particular pathology as a cause of the presenting symptoms [4,5]. Numerous reviews [2,3, 9-11] have assessed the evidence for the effectiveness of cervical spine manipulation and mobilization in the treatment of non-specific neck pain with mixed results [1]. Very few clinical trials have studied manual therapy for subacute neck pain [8,12-14], with the research emphasis being placed on those subjects with complaints lasting for longer than 6 months [14].

There is much discussion in the literature about the risk of stroke caused by cervical manipulation; however, Cassidy et al. [15] found the risk of stroke associated with GP or chiropractor visits was equal[1]. This suggests that cervical manipulation may not be a cause of stroke, but associated with a stroke in progress. Chiropractors need to be aware that some patient's presenting with head or neck pain, may have a stroke in progress [16].

Welcha and Boone suggest that cervical adjustments may result in parasympathetic responses, whereas thoracic adjustments result in sympathetic responses[17]. Historically chiropractors have suggested the positive effects of chiropractic adjustments on musculoskeletal and visceral health.[18-20] Some studies have investigated chiropractic vertebral subluxation, spinal manipulative therapy, and cranial adjusting in relation to autonomic function [17-30].

The purpose of the following two case studies was to investigate how a novel combination of temporal sphenoidal reflexes, chiropractic manipulation, viscerosomatic reflexes, and foot reflexology could have a positive effect on cervical spine range of motion [31-3].

Case Reports:

Case #1 involved a 38 year old female with chronic (17 years duration) neck and low back pain. She demonstrated limited cervical range of motion unresponsive to multiple

prior interventions. Cervical range of motion evaluated flexion, extension, right and left lateral flexion and rotation. Prior to the adjustive procedure, the patient had marked restriction of range of motion and noted exquisite pain when limits of range of motion were reached in all directions.

Case #2 involved a 43 year old male presenting with chronic (6 months) neck and low back pain with limited cervical range of motion. Cervical range of motion evaluated flexion, extension, right and left lateral flexion and rotation. Prior to the adjustive procedure, the patient had marked restriction and noted exquisite pain in the upper thoracic spine on right lateral flexion and left rotation restrictions which produced significant pain generalized to the cervical spine.

Methods/Intervention:

This novel intervention utilizes sacro occipital technique (SOT) protocols for analysis and treatment, temporal sphenoidal (TS) reflexes, cervical manipulation, and foot reflexology to treat chronic cervical pain associated with limited range of motion.

A general assessment of lumbar range of motion is assessed initially. SOT Category II protocols are performed, as appropriate, including a rib cage assessment by stretching the patients arms over their heads. If there is reduced motion on one or both sides, this is treated by releasing the ipsilateral psoas or sometimes also the quadratus lumborum muscles. Then the patient's pelvis is assessed for torsion and any sacroiliac joint instability (category two). If a category two imbalance is found then that is treated before proceeding to the cervical spine.

The cervical spine is analyzed with the patient supine. Sidebending the head right and left is performed. The side that has no side bend or shows restriction (lateral flexion only not rotation) is chosen as the posterior cervical side. The posterior cervical side is then rotated to the opposite side and the doctor palpates for intersegmental muscular congestion, swollen facets or painful articular facets.

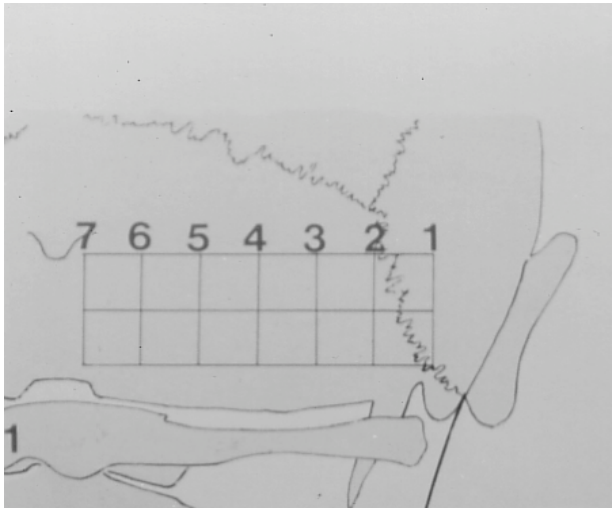
Once the most painful cervical articular facet is identified, the head is turned toward the opposite side. TS reflex points are palpated searching for the most sensitive point (e.g., Cervical 3 would relate to either Thoracic 4 or 5, or Lumbar 1) as determined by patient sensitivity to palpation.
The region of cervical vertebra congestion is held in the downward position with the head turned so the TS reflex region is placed upwards. The doctor manipulates the tender TS reflex approximately 15 seconds and then has the patient give a deep cough. This is repeated until sensitivity at the TS reflex point is relieved, which usually takes less than a minute.

With the head turned away from the posterior cervical side, have the patient look down towards their feet as the head is moved slightly into flexion while exhaling. A cervical adjustment is made as the patient moves their head upward and looks at the doctor's eyes while inhaling.

Utilizing the occipital fiber CMRT relationship and TS reflex point relationship, a specific organ will be determined to be used with the foot reflexology aspect of the treatment protocol. Generally these point(s) will be very painful. They are manipulated with pressure for about 15 seconds followed by having the patient cough. The manipulation and coughing are repeated until the pain is gone, approximately 1-2 minutes, at which time the other foot is evaluated and treated in the same manner.

Chiropractic Manipulative Reflex Technique

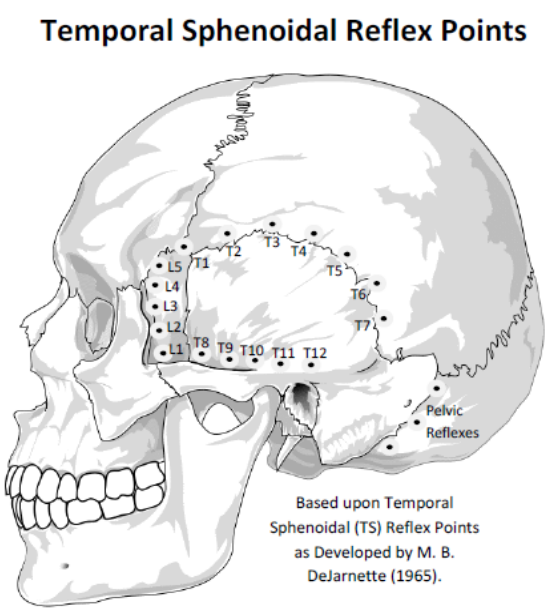
Cervical Vertebra - Occipital Fiber – Line Two - Fiber Association

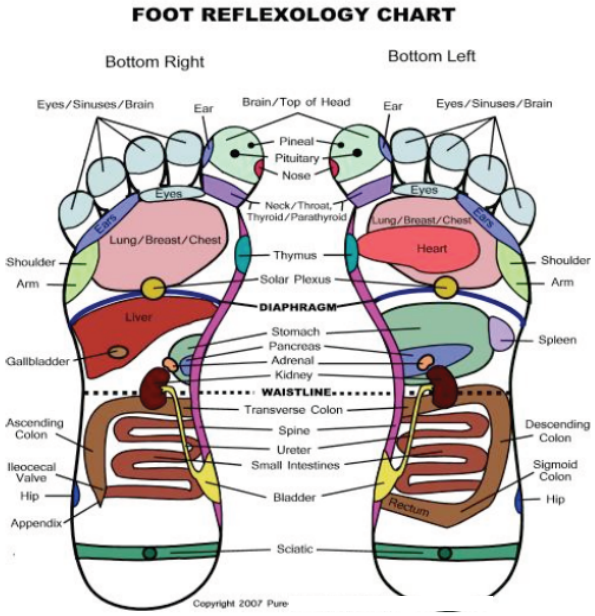


Fiber 1: T1 (cardiac), T2 (myocardial), and T10 (intestinal) = **C1**
Fiber 2: T3 (respiratory), T11-12 (kidney) = **C2**
Fiber 3: T4 (gall bladder), T5 (gastric), and L1 (ileocecal) = **C3**
Fiber 4: T6 (pancreas) and L2 (cecal) = **C4**
Fiber 5: T7 (spleen) and L3 (glandular) = **C5**
Fiber 6: T8 (liver) and L4 (colon) = **C6**
Fiber 7: T9 (adrenal) and L5 (prostate/uterus) = **C7**

Maintaining the same position as when manipulating the TS reflex the head is maintained in this same position and the cervical spine is then adjusted in the following manner. Initially the patient is instructed to look footward, tilting chin downward, and exhale and then have the patient look upward, tilting chin upward, and inhale. At the instant the patient inhales and both tilts head and looks upward the doctor makes the cervical adjustment. If the patient prefers the doctor can also adjust the cervical spine using SOT's cervical stairstep procedure.

Once completed, the patient's lumbar and cervical ranges of motion are re-assessed and compared to their initial presentation.





Specific care for case #1 involved releasing any imbalance in the psoas and supine pelvis (category two). Cervical congestion was found at C4 bilaterally, with a TS reflex point on the contralateral side at the T6 region also bilaterally and the TS reflex points were manipulated until no longer sensitive. C4 was adjusted on the right and left side and associated T6 reflex. Per DeJarnette's protocol, CMRT procedures for the pancreas were performed along with related foot reflexology points related to the pancreas.

Specific care for case #2 involved releasing any imbalance in the psoas and supine pelvis (category two). Cervical congestion was found at C7 on the right, with a TS reflex point on the contralateral side at the T9 region on the left which was manipulated for 15 seconds and having the patient cough until TS reflex sensitivity was eliminated. In retesting right lateral flexion, the patient still reported upper thoracic pain. Therefore, occipital fibers were assessed and an area one, fiber 7 was noted on the left without sensitivity. Occipital fiber technique adjustment was used to T2 on the right and CMRT myocardial reflex work was utilized. Foot reflexology for the heart reflex (area below the little toe) on the right was very sensitive. After 15 seconds of stimulation, the foot reflex became non-painful. Cervical reflex area lateral side of "big toe" was also very painful. After 1 ½ to 2 minutes of manipulation this reflex point also became non-painful.

Results:

The patient in case #1, following the first treatment, had her cervical range of motion reassessed. Full range of motion was noted in all directions and the presenting pain (8 on a pain scale of 1-10) was reduced to "soreness" (3 on a pain scale of 1-10). The patient in case #2 received 11 treatments over a 3-4 week period of time. By the 11th office visit right lateral flexion was full, but instead of pain in the upper thoracic (7 on a pain scale of

1-10) the discomfort was reduced to “soreness” (2-3 on a pain scale of 1-10). Left rotation was full without any discomfort. All other motions were full and pain free.

Discussion:

In both cases the patients presented with long term cervical spine discomfort and limited range of motion that improved following treatment. Clinically attempts have been made to add or eliminate one or other aspect to the presented method, but what has been presented appears to be consistently effective for the treatment of chronic cervical spine pain with associated limited range of motion. This improvement in pain and increase in range of motion has been found to be an effective tool to assess patient progress and response to care in the long term [34].

There have been studies that have demonstrated a relationship between cervical spine manipulations and improved cervical range of motion [31-3]. A relationship between the cervical spine and sacroiliac joint and a relationship between a category two (sacroiliac instability) and cervical spine extensor isometric strength [36] and lumbar range of motion [37] have been discussed in the literature [35].

Temporal-sphenoidal (TS) lines or reflexes was first introduced by M. B. DeJarnette in 1965 [38] and later further investigated and developed by M. L. Rees. DeJarnette had already investigated and developed reflex methods of analyzing patterns of vertebral imbalance using trapezius [39] and occipital fiber palpation [40] and treatment methods. The TS reflex was an additional tool using patient’s report of pain to palpation at a region surrounding the temporal and greater wing of the sphenoid, essentially the region of temporalis muscle insertion. He postulated that sensitivity at specific points superior portion of the temporalis muscle insertion near the squamous portion related to thoracic 1 through 7 (anterior to posterior) whereas thoracic 8 through 12 (anterior to posterior related to regions near the temporal eminence towards the mastoid process. The anterior portion of the greater wing of the sphenoid related to lumbar vertebra 1 through 5 (inferior to superior) and sensitivity at the occipitomastoid suture to the parietomastoid suture regions was related to the pelvis [38].

The thoracic and lumbar points of sensitivity along the TS lines were determined by DeJarnette and Rees to have a relationship to DeJarnette’s occipital fiber vertebral relationships as described in chiropractic manipulative reflex technique (CMRT) [41]. CMRT methods have been gaining evidence in recent years as evidenced by studies on animals [42, 43], a patient with situs inversus [44], a controlled clinical pilot study [45], and a small randomized controlled study [46].

As chiropractors have been exploring the treatment of nonmusculoskeletal conditions with manipulative procedures [47], incorporating foot reflexology into a patient clinical encounter seemed reasonable. Foot reflexology treatments apply pressure to specific points or areas of the feet. According to the principles of reflexology, areas of the feet correspond to different parts of the body, and applying pressure to these areas can affect

the corresponding parts of the body. In some cases, pressure may also be applied to the hands or ears [48].

For thousands of years, techniques similar to reflexology have been used in Egypt and China. A technique called "zone therapy" was developed in the early 20th century by an American physician named William Fitzgerald. Dr. Fitzgerald suggested that maps of the foot could be used to diagnose and treat medical conditions. He divided the body into 10 zones and labeled what he believed to be the corresponding parts of the foot. He proposed that gentle pressure on the foot could bring relief to the corresponding zone [48].

In the 1930s, Eunice Ingham, a nurse and physiotherapist, further developed these maps to include specific reflex points. Zone therapy was renamed reflexology. Reflexology charts have diagrams of the feet with corresponding parts of the body. The right foot corresponds to the right side of the body, and the left foot corresponds to the left side [48].

Evidence for this method of care is limited but studies suggesting its effectiveness are slowly emerging. Recent research has found foot reflexology helpful in treating specific female conditions [49-51], respiratory disorders [59-61], various other disorders [62-69], and as a part of oncology treatment [52-58].

As with any case report or series, without a control group or comparison intervention, it is difficult to rule out regression to the mean, ideomotor, or placebo effects. However, the chronicity of the patient's presentation, the previous unsuccessful methods attempted to resolve their condition, and the successful response to the specific intervention makes compelling evidence for further study.

Conclusion:

These case reports illustrate one patient who had chronic cervical spine pain and limited range of motion for 17 years (case #1) and another for 6 months (case #2) who both responded favorably to SOT category two treatment, TS reflex and cervical manipulation as well as foot reflexology. Further research is indicated for a larger sample with control group, and comparison interventions. Greater outcome assessment tools involving pre and post neck disability index forms and a reliable range of motion assessment tool would be useful.

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Chiropractic and dental care of a patient with temporomandibular and sacroiliac joint hypermobility: A case report.

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Introduction:

Generalized joint hypermobility (GJH) is a hereditary connective tissue disorder characterized by lax joints and the presence of musculoskeletal symptoms. The syndrome has been under-recognized and has only recently been taken more seriously [1-3]. Prevalence in children has been estimated at 10-25% [2,3]. Females tend to be affected more than males, and those of African or Asian descent appear to be affected more than Caucasians. GJH may underlie common orthopedic problems such as back pain. Certain sequelae of GJH are common. "These include acute ligament and soft tissue injury, overuse injuries, possible increases in fractures and a possible predisposition to degenerative joint disease after years of excessive joint motion [4]. Left untreated or undiagnosed, hypermobility may result in a chronic pain cycle and high levels of disability [5]. Further, it has been shown that there is increased pain sensitivity in teenagers who have had early pain experiences [6]. There is some disagreement as to the definition of GJH and a number of scales have been used to aid diagnosis [1]. "

In 2003 Hakim and Grahame developed a simple and reproducible self-reporting questionnaire that identifies individuals with hypermobility. Analysis demonstrated that a positive answer to any two questions in this five-part questionnaire gave the highest combined sensitivity and specificity for detecting hypermobility. The sensitivity and specificity was 84% and 80-89% , and overall the questionnaire correctly identified 84% of all cases and controls [7].

1. Can you now [or could you ever] place your hands flat on the floor without bending your knees?
2. Can you now [or could you ever] bend your thumb to touch your forearm?
3. As a child, did you amuse your friends by contorting your body into strange shapes or could you do the splits?
4. As a child or teenager, did your kneecap or shoulder dislocate on more than one occasion?
5. Do you consider yourself "doublejointed"?

Temporomandibular joint disorders (TMD) are a multifactorial condition with aspects of biopsychosocial and mechanical implications [8]. A primary cause of TMD can be muscular hyperactivity and parafunction, as in the case of bruxism, with secondary

effects on the oral musculoskeletal system, like various types of displacement of the disc in the temporomandibular joint (TMJ) [9]. TMD can often result in significant pain, with symptoms affecting other regions of the body [10]. As TMD persists, dental occlusion, tooth health, condylar position [11], and airway space may be affected [12]. The issue of GJH has been studied in the dental field and its possible relationship to TMD. The issue of GJH is therefore important when chiropractic and dental professionals are co-treating TMD patients [13,14].

Generalized joint hypermobility (GJH) has been considered a predisposing factor for the development of temporomandibular disorder (TMD). In the study by Pasinato, they found that "individuals with TMD associated or not to GJH do not differ significantly regarding clinical and psychosocial aspects, except in the mandible opening range of motion, which if kept at physiological levels can lead to a late diagnosis of TMD in these individuals [15]." "One epidemiological study [16] has shown that individuals with GJH have a higher risk of developing reciprocal click, indicating a diagnosis of disc luxation and a lower risk of mouth opening limitation [15]."

Winocur et al. stated that "hypermobility by itself does not affect the TMJ, unless there is a movement dysfunction such as a *click* or a joint lock. Thus, the GJH-associated parafunction may be worse to the TMJ, since the condylar translation movement happens with a higher pressure because of the joint overload [17]." While there are studies that have not found relationships between GJH and TMD, some studies have a correlation [18,19]. In the Hirsch et. al, study (n=895) the associations between GJH and reproducible reciprocal clicking or limited mouth opening were statistically significant in a trend test [20].

Pasinato et al., note that "as more health-care professionals and patients understand TMJ hypermobility, the more contributions we'll have to develop a more specific preventive approach to the TMD. Thus, the GJH could be included as a standard diagnostic component of this dysfunction. [15]." The purpose of this case report is to share a novel protocol for the treatment of chiropractic and dental treatment of a patient with TMD that presented with hypermobility of the sacroiliac joint (category two [21]) and TMJ.

Case History:

A 47 year old female patient presented November 2010 with chief complaints of pain when chewing, jaw pain, limited mouth opening range of motion, and TMJ crepitus. Patient was evaluated dentally and was found to have multiple areas of the masseters, open and closed joint capsule, cervical and trapezius trigger point pain. Imaging revealed disc displacement without reduction on left TMJ, with early degenerative joint disease as well. Motor reflex testing [22] showed patient as neurologically TMD primary, descending presentation.

Following dental evaluation and delivery of daytime repositioning orthotic and night deprogramming orthotic, the patient was referred for concurrent chiropractic treatment in early December 2010; sequence of the use oral orthotics prior to chiropractic referral was

based on Motor Reflex Testing. Chiropractic evaluation noted pain to the jaw, left leg, and right hand. The patient reported a healed fracture of the thoracic spine (T7, T8). The cervical compaction test (Milgram's Test with Cervical Foramina Compression) noted primary cervical involvement. Range of motion in the cervical and lumbar regions were generally reduced by 10%. Evaluation of the sacroiliac joint [23,24] found indications of a hypermobility syndrome (category two) with a right physiologically

Methods/Intervention:

Dental orthotic therapy was initiated within the first two weeks, with a daytime and night orthotics, to be worn 24 hours. Referral to chiropractic was initiated after orthotic delivery, based upon Motor Reflex testing presentation. After approximately 8-week, when it was determined that capsulitis of TMJ was no longer present, procaine injections were initiated at one month intervals, followed by prolotherapy.

In the first two months of chiropractic care the patient was treated for her sacroiliac joint hypermobility syndrome, manipulations to the thoracic, cervical, and craniomandibular system. Emphasis was made to treat the psoas and tensor fascia lata muscles bilaterally. The patient could not tolerate cervical adjusting and decided to stop chiropractic care for a period of time and substitute massage. By July 2011 her condition had not progressed and the dentist insisted that it appeared for her condition to resolve that the chiropractic care was integral for her recovery.

From July 2011 through February 2012 the patient was seen for chiropractic care weekly and then from February 2012 to April 2012 has been seen every other week. Dentally the patient received prolotherapy injections every 2-3 weeks on the side of TMJ adhesions and joint restriction, secondary to the hypermobile retrodiscal tissue. The injections (with procaine, dextrose and bacteriostatic water) were localized in the retrodiscal tissue and sometimes in the ligaments or adhesive tissues to break down the scarring. The prolotherapy was also used to create increased retrodiscal tissue tension to start a posterior 'pull' on the disc, owning to the anteriorly displaced disc.

The first four injections were with procaine alone, which was intended to act as lubricant to aid in joint movement, as well as utilize procaine's' unique quality of breaking down into PABA, a 'B' vitamin. Procaine itself, should theoretically reduce scar tissue. adding dextrose to the injection tends to make it a pro-inflammatory compound that induces the body's ability to address issues of increasing connective tissue stabilization via the prostaglandin/inflammatory pathway. After the first four procaine only injections the injection was switched to a 10% dextrose solution (prolotherapy), the other 90% being bacteriostatic water and procaine, for 6 more visits. Afterwards, it was increased to 25% dextrose, to induce a greater inflammatory response. In general, when there is a purely anterior disc displacement, the injection is given in the posterior joint space, as was this case. If the joint is medial or anteromedial, then it's given laterally or posterolaterally, respectively.

The chiropractic care worked closely with the dental application of prolotherapy but

informing the dentist when the disc and condyle were in an optimal position. Once in an optimal position the goal was to inject the retrodiscal tissue to help support the disc position on joint translation and preventing close locked positioning. Initially the left TMJ was not moving adequately due to adhesions in the capsule tissue and the joint would translate with a left deflection pattern. Joint distraction would cause pain to the left TMJ region.

Since her progress was slower than anticipated the dentist referred patient to an oral surgeon for an arthocentesis procedure into the left TMJ. However, she preferred the chiropractic care and prolotherapy, because she was resistant to the idea of the arthrocentesis. With the continued chiropractic care and prolotherapy injections by January 2012 the adhesions on the left side released and she was able to open normally. Following January 2012 the patient was seen every other week for chiropractic care.

Results:

The patient has made a good recovery of TMJ function. Initially the patient presented with chronic jaw pain, limited jaw range of motion - 27mm (normal range is 42-66mm), headaches, neck pain and lower back pain. As of April 2012 the patient is free of most pain, has full range of motion in the cervical and lumbar spine, negative sacroiliac hypermobility findings, and can open her mouth greater than 42mm with normal joint tracking and translation. The patient is still being treated with chiropractic SOT cranial and TMJ procedures on a bi-weekly basis to maintain stability and balance in the sacroiliac joint. The cranial and sacroiliac joint treatment was to help to support adjacent musculature as well as the musculature in her TMJ region, maintain disc position since she has a tendency to tense and clench her jaw which could predispose her to relapse.

Discussion:

In general, whenever there is a chronic disc displacement without reduction, there are strained, stretched ligaments in the posterior joint space. When cranial/chiropractic manipulation reduces the disc but it doesn't stay reduced, prolotherapy is indicated to strengthen and tighten the posterior band of ligaments.

"Prolotherapy is an injection-based complementary and alternative medical therapy for chronic musculoskeletal pain. Prolotherapy techniques and injected solutions vary by condition, clinical severity, and practitioner preferences; over several treatment sessions, a fairly small volume of an irritant or sclerosing solution is injected at sites on painful ligament and tendon insertions and in adjacent joint space during several treatment sessions [25]." "Side effects related to prolotherapy for back and neck pain, such as temporary postinjection pain, stiffness, and bruising, are common and benign. Adverse events related to prolotherapy for back and neck pain is similar in nature to other widely used spinal injection procedures [26]."

Prolotherapy, or "proliferative therapy," is also known as regenerative injection therapy and can be an effective modality for the treatment of TMD. Hakala discussed how prolotherapy can be used to help reduce “TMJ pain and joint noise in a majority of patients who have reached a plateau with use of an intraoral appliance, physical therapy, and home care [27].” Refai et. al., found that prolotherapy with 10% dextrose appeared promising for the treatment of symptomatic TMJ hypermobility, as evidenced by the therapeutic benefits, simplicity, safety, patients' acceptance of the injection technique, and lack of significant side effects [28].

Dental and chiropractic co-treatment has been found important for integrative care of patients presenting with complex musculoskeletal and craniomandibular presentations [29-32] Much of the interrelationship between dentistry and chiropractic treatment of TMJ condition involves an interdependence between posture and occlusion. Head position [33], TMJ condylar position [34], airway space [35], and posture all seem to work together to create a relationship between occlusion and the body’s position in space [36,37].

Conclusion:

This patient’s condition necessitated a long-term ongoing conjoint dental chiropractic care to reach a successful outcome. It is possible that if the patient had the arthrocentesis as suggested her progress might have moved faster but she determined that there were risks from the procedure she did not wish to sustain. Therefore she chose a longer course of care which had led to a full recovery of TMJ function without pain. Concurrently her sacroiliac joint hypermobility syndrome and related soft tissue tension patterns in the lower extremity, cervical spine, and jaw region have also significantly improved. With case reports it is difficult to rule out placebo or ideomotor effects or that the patient would have improved without care, yet the chronicity of her condition and unresponsiveness to other interventions, suggests a temporal relationship. Further research is indicated to determine if the results from this case can be extrapolated to a specific subset of TMD patients.

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A study of the nature of SOT occipital line fibers: A retrospective case series of 65 patients.

Harvey Getzoff, DC

Introduction:

Sacro-occipital technique (SOT) occipital fibers is a Chiropractic technique developed by Major Bertrand DeJarnette, DO, DC [1] with multiple aspects integrated into a single system of care. Occipital fibers technique (OFT) locates and adjusts subluxations. It also identifies specific viscerosomatic/somatovisceral reflex organ problems while incorporating specific soft tissue therapies. This system allows for the management of dis-ease while providing a philosophy of care [2].

In this retrospective case series we utilized a chiropractic technique OFT [3,4], which is a method within sacro occipital technique (SOT) used to analyze and treat thoracic, lumbar, and sacral segments. The rationale for using OFT is to find regions of the body that are interrelationship via direct musculoskeletal, and indirect reflex, to the occipital region, spine, and possibly to visceral referred pain pathways. In bipedal humans the rationale 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 [5]. Ascending postural accommodations are believed to be modulated through the position of the cervical spine by way of the suboccipital muscles to maintain eyes and ears level to the horizon.

DeJarnette's theory of OFT is that a pattern of imbalance caused by postural or spinal dysfunction or subluxations will be represented in specific sustained tension in particular portions of the suboccipital muscles. The purpose of this paper is to present a retrospective study of 65 patients treated with occipital fiber techniques and to discuss the historical perspective, nature, relevance as well as basis of clinical application of SOT's occipital fiber reflex analysis and treatment.

Selection Criteria for Retrospective Study:

This is a retrospective study that reviewed the records of 65 patients adjusted using SOT occipital fiber technique. The patients' records included in this study had the following characteristics:

1. The patient was adjusted at this office for more than five consecutive years.

2. The patient received at least ten adjustments per year in each of the last five years.

3. At each office visit the patient's occipital fibers were examined and the related vertebrae noted and recorded in the individual's chart notes.

Any patient's chart records that satisfied the above criteria was included in this study. The 65 patients in this retrospective study varied in age. The chart below lists the number of patients per decade of birth.

Birth Decade	1920s	1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s
# of Patients	4	9	16	10	10	3	1	7	5

Sample case study:

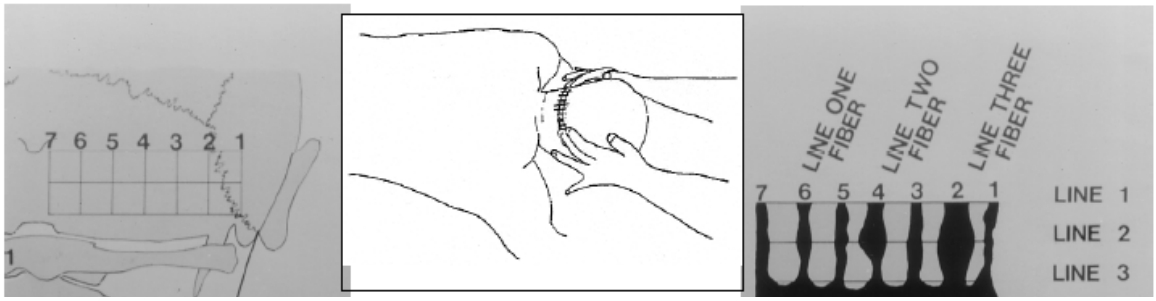
The following represents one of the 65 patients that met the criteria for inclusion in this retrospective study. A six year old male was first seen at this office February 9, 2007 experiencing upper respiratory congestion, frequent ear infections and fevers, general difficulty breathing and frequent use of antibiotics.

This young boy exhibited an occipital line two fiber, area five, thoracic seven (spleen) major and met the qualifying criteria to be included in this paper. At his last adjustment, January 13, 2012, he still exhibited a line two area five occipital fiber and had a related vertebral subluxation. Neither the occipital fiber reflex nor vertebra were as sensitive to palpation as when presenting initially. Throughout his care he has experienced no more ear infections and occasional but mild upper respiratory congestion. Since the early stages of his adjustments he has not required antibiotic therapy.

Methods/Intervention:

Occipital fiber reflexes are located along the nuchal line from the occipitomastoid junction (fiber number one) to the external occipital protuberance (occipital fiber 7). Muscle fibers are located in seven vertical fibers on each side of the occiput and are near the aponeurosis of the cervical musculature where they attach to the occiput [2,4].

The seven vertical occipital fibers also have three specific lines, which run horizontally. Line one is positioned along the seven fibers from the occipitomastoid junction to the external occipital protuberance. The line two is located approximately one half inch inferiorly and is believed to be related to visceral function. Each fiber within horizontal line two refers to a specific vertebral grouping which is purported to have musculoskeletal and neurological relationships [2,4].



The occipital fibers are palpated with the patient prone, and the most sensitive fiber is the one chosen to assess the vertebra in the reflex arc. Once the sensitive vertebra is determined, the line two occipital fiber is manipulated until the reflex at the vertebral level develops warmth. At that time the vertebra is adjusted. Chiropractic manipulative reflex technique (CMRT) is then utilized if there is some viscerosomatic/somatovisceral reflex involvement. Determining what CMRT visceral reflex and organ is treated incorporates occipital fiber analysis and vertebral transverse process sensitivity as well as referred pain patterns associated with the dysfunctional organ. As occipital reflex, vertebra sensitivity, and visceral reflex patterns are determined further information can be gathered through history, examination, and laboratory tests to guide and evaluate the patient's response to treatment [2,4].

Results:

All 65 patients had an occipital fiber with a related vertebrae subluxation present on all visits. Some were no longer experiencing soft tissue (visceral reflex) palpation sensitivity. All felt improvement from their initially stated symptoms. While all 65 patients maintained clinical improvement they still presented at each office visit with an occipital fibers reflex and a related vertebral subluxation. Some evolved from occipital line two fibers to line one; however, most remained as line two fibers but with much less tenderness to palpation and stimulation. All patients understood the meaning of the occipital fiber reflex work and at different levels participated with their care in respect to nutritional intake and dietary modification.

Discussion:

DeJarnette, the developer of SOT, was concerned with the reoccurring vertebral subluxation that would not resolve with treatment and would continually return. He had various theories such as myofascial postural disturbances, extremity related dysfunction, and also reflex neural input from the viscera afferents. While he postulated that there was a somatovisceral relationship between the vertebra and viscera, generally the determinant factor for treating the organ reflex was reoccurring vertebral subluxation and not visceral dysfunction. DeJarnette discussed the following relationships concerning occipital fiber reflex techniques [2,4].

1. Occipital fibers are defensive and are a responsive and part of a controlling body system."The occipital fiber is purely defensive and the result of other happenings. It is not causative, as long as the fiber responds, the body's defense is normal [2]." This retrospective of 65 patients noted that all the patients presented with positive occipital fibers and a related vertebrae subluxation remains at each visit.

2. DeJarnette taught that chiropractors have the ability through occipital fiber identification to locate, adjust, and improve subluxations along with the related soft tissue organ deficiencies. "The occipital line two fiber is diagnostic of altered physiology which may be pathological [2]."

3. DeJarnette noted that understanding occipital fibers can enable practitioners to identifyaberrant viscerosomatic/somatovisceral reflex or organ problems and manage their care. “The occipital line two patient must have nutritional help as well as total health care [2.]”

Occipital fibers appear on three distinct but interrelated lines with seven points on each side of the occipital bone. Dr. DeJarnette states the following: “When a fiber is identified on the occipital line one as painful to fingertip pull, it is a fiber in need of investigation, and by following it inferior you can feel a small nodule if line two is involved. If the fiber passes through line two as a swollen fiber, with nodulation, then it is an occipital line three fiber [2,6].”

According to DeJarnette, line one monitors and responds to an organ that functions but with some difficulty. Line two monitors and responds to a dysfunctional organ under stress. Line three monitors and responds to an organ that has evolved to a pathological state. “The occipital line one defends you against visceral upsets without pathology. The Line two defends you against visceral upsets with pathology. The occipital line three defends you as far as possible against onsets of visceral degenerative processes in which pathology becomes destructive [2].”

Line one fibers do not require stimulation and the related vertebrae is adjusted by spinous process pressure or adjustment. Line two fibers need to be stimulated and the related vertebrae is adjusted at the most prominent transverse process nodule. Soft tissue reflexes that stimulate afferent related neural impulses are part of the line two therapy. “In all occipital line two involvement, you have to deal correctly with soft tissue involvements, which means non-striated muscular tissues. This is met by specific hand manipulations to specific parts or organs of the body as indicated by the vertebral segmental level involved. Without those hand manipulations the tissue cannot regenerate and the progress of pathology will continue [2,7].” The soft tissue work with line two is known as chiropractic manipulative reflex technique (CMRT). Line three is adjusted at different parts of the spinal vertebrae based on palpatory findings [6].

This retrospective study appeared to support DeJarnette’s contention that subluxations determined through occipital fiber analysis are associated with a cause and effect. He purported that subluxations cause pain and dysfunction (dis-ease) and can lead to pathological states. He believed that subluxations also respond to internal dysfunctional and pathological organs and occipital fiber analysis is part of a process of identification (diagnosis) and adjustment (treatment). By using occipital fibers and the related soft tissue techniques (CMRT) DeJarnette believed these methods could improve organ function, reduce the effects of the subluxation and help the doctor to direct the patient to proper supportive behaviors [2].

The occipital line two fibers and their related organs reflex relationship according to DeJarnette [2,8] are listed as follows:

Area	Vertebrae	Organ
Line 2 Area 1	Thoracic 1, 2, 10	Coronary, Myocardial, Intestines
Line 2 Area 2	Thoracic 3, 11, 12	Lungs, Kidneys
Line 2 Area 3	Thoracic 4, 5, Lumbar 1	Gall Bladder. Gastric, Iliocecal
Line 2 Area 4	Thoracic 6, Lumbar 2	Pancreas, Cecal
Line 2 Area 5	Thoracic 7, Lumbar 3	Spleen, Glandular
Line 2 Area 6	Thoracic 8, Lumbar 4	Liver, Colon
Line 2 Area 7	Thoracic 9, Lumbar 5	Adrenal, Prostate/Uterus

Some compelling studies that involved the use of OFT and CMRT involved treatment of animals with this procedure, particularly a horse and a dog, since they do not appear subject to a placebo effect [9,10]. OFT was used with both animals to diagnose and treat vertebral imbalance and direct CMRT care. Following OCT and CMRT procedures the horse was relaxed, calm, and bowel sounds became normalized and progressively motile [9]. In the case of a 10-year-old female cattle dog complete resolution was found for her chronic symptoms of bloating, mood changes, joint pain, and chronic psoas tension [10]. A case control study utilizing pre- and post-endoscopic studies and OFT/CMRT care of gastroesophageal reflux disease as well as a small randomized controlled trial investigating OFT/CMRT care of patients with dyspepsia both revealed positive outcomes [11, 12].

Conclusion:

This retrospective study of 65 patients suggests the use of SOT's occipital fiber analysis and treatment followed the methods as discussed by DeJarnette. As with any clinical intervention in a single practitioner's office there is always the possibility that doctor or patient's expectations can affect the outcome of any retrospective study. Further research with multiple practitioners and patients utilizing controls and sham procedures would help rule out confounders such as placebo or ideomotor effects. Based on this study, greater investigation into occipital fiber analysis and treatment and its relationship to patient care is warranted.

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Sitting disc technique and the relationship to the straight leg raise: A retrospective case series of thirty patients.

Harvey Getzoff, DC

Introduction:

The purpose of this study was to determine if a chiropractic intervention, the sitting disc technique (SDT), could be used in coordination with a common orthopedic/neurological test, the straight leg raise (SLR). Clinically the SLR could be used as a pre and post assessment tool to assess the effectiveness of SDT application. Improvement of SLR following SDT application could help determine which specific lumbar spinal segments related discs might be helped by SDT adjustments.

Orthopedic and neurological tests are commonly used with chiropractic diagnostic methods to evaluate patients with chronic mechanical low-back pain. However, studies have found these tests are not readily reproducible [1]. In general, it has been found that "most procedures commonly used by clinicians in the examination of patients with back pain demonstrate low reliability [2]." Since studies to date suggest that a patient's sensitivity and response to palpation for pain demonstrates good reliability [3], change in pain response has been seen as a good tool to measure patient improvement during a clinical encounter [4].

The straight leg raise (SLR), also called Lasègue test, can be performed during the physical examination to determine whether a patient with low back pain has an underlying herniated disk, mostly located at L5 /S1 level [5]. A systematic review of the literature including statistical meta-analysis noted that the SLR test has had its diagnostic accuracy limited by its low specificity [6]. Yet other studies have found that that the SLR can be useful. Jönsson and Strömqvist found that the SLR as performed in clinical practice has a strong correlation with various parameters that signify the pain level of the patient [7]. Summers et al noted that "acute low back pain associated with significant restriction in SLR is likely to be caused by a disc prolapse compressing the anterior theca [8]."

A study by Xin et al of 113 patients "showed a close relationship between the location of the pain and the position of the protrusion of the disc. The degree of limitation of SLR was also found to have a direct relationship to the size and position of the protrusion and to its relationship to the spinal nerve. The protrusions were classified into three types according to position in relation to the dura mater and to the pattern of pain that was induced by passive SLR. On SLR, central protrusions tended to cause pain in the back, lateral protrusions caused pain in both the back and lower extremity. On this basis, the distribution of pain on SLR allowed an accurate prediction of the location of the lesion in 100 (88.5 per cent) of the 113 patients [9]."

The Sitting Disc Technique (SDT) has been found clinically to be an effective method of adjusting the lumbar spine for any lumbar subluxation or related discogenic syndrome [10]. In combination with the SDT, the SLR can be both a subjective (patient's pain response)

and an objective (patient's range of motion) test to elicit and locate lumbar and sciatic pain. It can also be used to judge the function of the lumbar spine, pelvis, and hamstring muscles [11]. Clinically, the SDT has been found to have a positive effect on the SLR findings when it is performed correctly [12]. This paper is a retrospective analysis of how patients presenting with a specific selection criteria responded to the SDT intervention.

Case Series – Intervention/Methods:

This paper is a retrospective study of 30 sequential patientstreated at one practitioner's office that, following assessment and evaluation, were determined to have a positive SLR bilaterally, and then were adjusted with the SDT. They were then reassessed utilizing the SLR. To qualify for the study all 30 patients had to have similar SLR findings on both leg lifts. Although the SLR is often used as diagnostic when a positive response is elicited unilaterally, for the purpose of this study only patients with bilateral symptomatology were used. All 30 patients' cases reviewed for this study had pain in the lumbosacral area with some pelvic area pain and unilateral lower extremity pain not below the knee, with pain localizing to the lege contralateral to the antalgic lean..

Methods/Intevention:

The Straight Leg Raise (SLR) was performed with the patient lying in the supine position. The doctor would passively lift the patient's one leg straight up, with no knee flexion either side and with no lifting of the pelvis. The examiner passively helped the patient, by lifting at the Achilles area until resistance or pain was met. Using a flexometer, the degree of hip flexion was measured. As a matter of importance in this study, the measurement for each SLR was measured [5]. If pain was elicited, the area of pain was noted whether it was in the lumbar spine and if the pain that radiated down the leg. Since the three lower lumbar discs tend to have distinct pain patterns in the lower extremities, care was used when evaluating pre and post SLR findings relative to the SDT intervention. Generally the L5/S1 disc sciatica is more posterior in the thigh/leg, the L4/L5 disc sciatica is lateral in the thigh/leg, and the L3/L4 disc sciatica is more anterior in the thigh/leg.

The SDT used was performed to five times at each interspinous space, L3/L4, L4/L5, and L5/S1 with the patient sitting on a stool or a chair with the back of the chair to the side. The doctor made contact with his thumb just inferior to the tip of the spinous process of fifth lumbar. The patient was instructed to move into lumbar spine flexion by pulling their abdomen inward while arching the spine back (from lordosis to kyphosis). The doctor maintained a holding pressure in the superior direction on the spinous process of fifth lumbar. At the same time, the patient brought their chin to their chest. The patient then returned the spine and head to a neutral position, while the doctor maintained a holding pressure in a superior direction on the spinous process. The process was repeated approximately three times on the inferior aspect of each lumbar spinous process. At the same time that the spinous process inferior tip was contacted, the doctor attempted to feel the space between the adjacent spinous processes of the lumbar vertebra below using the same thumb making the spinous process contact.

Thirty Patients – Pre and Post SLR Improvement Following SDT								
Degree of SLR Improvement	0°	5°	10°	15°	20°	25°	30°	35°
Number Patients	3	4	4	4	7	5	2	1

As can be seen from the chart above, the greatest change was an improvement between 5-25 percent. Three patients had no improvement following the SDT,and three patients had greater than 25 percent improvement following SDT.

Discussion:

The SDT may be indicated when any sign or symptom of lumbar involvement is present [10]. Diagnostically, the SDT is needs to be repeated if any spinous process of the lumbar spine is painful while executing the SDT, and if the spacing between the lower adjacent spinous process does not improve as the doctor repeat the process. In this study, after the SDT was performed the patients showed improvement with less sensitivity at the spinous process to palpation, more interspinous space, general improvement in lumbar flexion, and improved findings on repeated SLR.

Conclusion:

The SLR appeared to be a helpful method to monitor the functional improvement of the lumbar spine after successful SDT adjustments. The SLR also appeared to parallel symptomatic changes that accompanied lumbar spine improvement following the SDT applications, which included less sensitivity at the spinous process to palpation, more interspinous space, and general improvement in lumbar flexion. From this limited study it was determined that utilizing the SLR and the SDT relationship in conjunction with spinal patterns, pain patterns, and ranges of motion can guide the management of dysfunctions of the lumbar spine and disc-relatedpresentations. Further study with a larger sample utilizing a control, sham intervention, and randomization would be indicated.

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SOT Chiropractic in Luxembourg.

Volker Herbert, DC

Working as a chiropractor in Luxembourg is pioneering work. Very few know what chiropractic is and what a chiropractor does. Some people have heard about it, but only by word-of-mouth which leads to wrong information being shared and misunderstanding. Therefore, patient education is very important and it is very rewarding to see how grateful patients are once they experienced the benefits of chiropractic.

The same is true for health practitioners, such as General Practitioners, physiotherapists and dentists. Some of them might have heard about chiropractic, but nothing more. Unfortunately, some physiotherapists/orthopaedists are taking weekend courses in 'chiropractic' and think they practice chiropractic.

Therefore I am approaching healthcare practitioners and explaining to them why it is beneficial for them to work together with a 'real' chiropractor. This, in my view, is crucial because if they don't know what education chiropractors have and how we are practicing, then it is unlikely that they will want to work with us. Once we have explained to them what we do and they understand how it can be beneficial to the work they do, chances are higher that they will be cooperative.

Since I am a SOT chiropractor, I have started to contact dentists here in Luxembourg. I think dentists and chiropractors should work together because this type of interdisciplinary care can be very beneficial for a lot of patients, especially TMD (temporomandibular disorder) patients.

After I had a meeting with the President of the Luxembourg Implantology Club; Dr. Henri Diederich, I was invited to give a presentation about chiropractic and the benefits of an interdisciplinary relationship between our fields.

For chiropractors, if the patient has structural teeth problems or inflamed/decayed teeth, we cannot do anything against these pathologies and they are therefore limitations to our treatment success. Conversely, for dentists, a stable and functioning pelvis, spine, cranium and temporomandibular joint would facilitate their work.

After I gave the presentation the dentists were impressed with what we SOT chiropractors are doing and how we can help each other. The implantologists were interested in what we are doing, for example, if the chewing muscles (masseter, temporalis muscles) have an increased tension. For the implantologists this is a problem because if there is too much tension in the bite, the new implants might get distorted. Their solution to the problem is to inject botulinum toxin (Botox) into the muscles, to take them out of the equation. As we all know treating only symptoms does not help the patient in the long term [1]. Now this is where chiropractors should come in to ensure an optimal functioning TMJ, cranium, and occlusion before they set the implants in.

I think the key factor is explaining to the other health care practitioners that they would benefit from us and that their treatment results could be enhanced. If we would only talk to them about *our* treatment results, then they could get intimidated and an interdisciplinary relationship would be more unlikely. So we should perhaps talk about *them* and their results and how we make their life easier.

So why is the temporomandibular joint so important and why should it not be neglected? The TMJ has a neurological, myofascial and biomechanical interrelationship with the cranium, cervical spine and even the pelvis. Therefore if the patient suffers from headaches, upper cervical or pelvis subluxations, for example, it would be worth investigating the TMJ. For something so important, it doesn't take much time to examine and if there is an issue with the TMJ it would enhance the treatment success.

From a biomechanical viewpoint, the pivotal axis of the mandible occurs at the dens between the atlas and axis vertebrae [2-4]. Hence it is self explanatory that one should not only treat the cervical spine, but also reduce the stressors that might lead to these subluxations in the upper cervical spine.

The temporomandibular joint is hanging in many myofascial chains, hence it is not surprising that patients with TMD might have symptoms such as tension type headaches [5]. Therefore one should ensure that these myofascial chains are functioning optimally. These chains might be influenced negatively by, for example, a sacroiliac joint subluxation, which could result in an ascending muscular chain distortion.

Other studies [6-8] have shown the interrelationship between the pelvis and the TMJ. So overall there are many factors, which should be taken into consideration when treating a TMD patient. Because chiropractors are looking at the whole body and trying to find the cause of the symptoms, we are often successful in finding these 'chain' factors and other health professions will benefit from that. Nevertheless, we should not be too ignorant because of our successes.

We might find some tools useful, which some dentists are using here in Luxembourg. To evaluate the movement and the functionality of the TMJ they are using the so called 'DIR ® System' (Dynamics and Intraoral Registration). They then treat the TMJ dysfunction with a splint, again not considering the whole interrelationships of the body and so chiropractors would be the ones to help out. For us it might be beneficial to use this 'DIR ® System' when doing research studies which involve the TMJ, TMD or interrelationship between TMJ, cranium, pelvis and occlusion. It provides an objective measure and may increase reliability and validity [9]. This would give us good research to present when talking to other professions, so that they see what we already know and also to reinforce our arguments.

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Volker Herbert, DC was born and raised in Namibia (Southern Africa). After finishing his physiotherapy degree in Germany he went on to study chiropractic at the Anglo European College of Chiropractic (AECC) in Bournemouth, United Kingdom. After graduating from the AECC he started to work in Cologne (Germany) and Luxembourg (Luxembourg).

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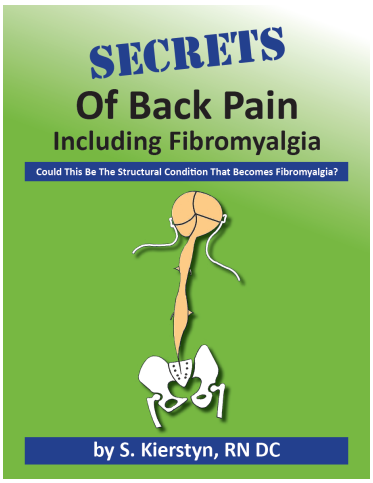
Secrets of Back Pain,..Including Fibromyalgia.
Sunny Kiersten, RN, DC

Having spent 12 years working as the Chief Chiropractic Officer for the Fibromyalgia Care Center of Oregon, our successes with fibromyalgia were becoming evident. It was time to tell others of our methods. Several tries into that writing of that book brought a strong realization that I was spending more book time telling people what fibromyalgia *wasn't* than telling them what it was. It had quickly become apparent that a *pre-book* needed to be written: a book that talked about the structural condition *leading into* fibromyalgia. This is that book.

Barring trauma, acquired structural patterns soften tend to have a similar nature. On any given day, we Americans encounter much the same forces: gravity, concrete, vibrational settling from riding in vehicles or walking on concrete. These are the same types of forces encountered by any vehicle and we all seem to understand the need to periodically take our vehicles in for a "front end alignment". Yet somehow, that doesn't seem to translate into an understanding of the need to get the human body adjusted. The human body is subject to all of those same forces but is not nearly as endurable as a vehicle. Yet we are still learning the benefit to periodically adjusting our bodies. Disease, in all of its forms, is influenced by structural misalignment patterns. Even bacterial and viral infections are influenced and improved by correction of the body's misalignment patterns.



Misalignment patterns can affect and distort the performance of both of the body's nervous systems. Nerves that are torqued or buckled are unable to function properly and are unable to deliver the powerful impulse needed by the body's tissues and organs and joints. Ignoring those misalignment patterns allows the nerve dysfunction to slowly increase in its dysfunction and chaos.

As those misalignment patterns are ignored, the neural chaos that manifests from them builds, complicates and can expand to the point of affecting entire metabolic and organ systems, putting that part or body region or organ into increasing dysfunction and disease. Over time, those misalignment patterns can involve entire body systems, putting the entire skeleton and its overlying components of muscles, connective tissues and organs into the level of stress and symptoms that has come to be known as fibromyalgia.

Repeated evidence-based studies have found that people, who consistently use the structural care provided by the chiropractic physicians of this country, enjoy, over time, a 43% reduction in hospital admissions, a 58% reduction of the time they needed to be IN the hospital, a 43% reduction in need for outpatient surgeries and procedures and a 51%

reduction in need for pharmaceutical medications. They also found a 31% reduction in the rate of back surgeries resulting in a lowering of *per capita hospital costs* of 15%! "Patients who were seen by chiropractor during the initial episode of care were less likely to have a surgery and had a shorter average duration of the initial episode.

This landmark book for patients, chiropractors, and particularly sacro occipital technique doctors, describes the condition that, when left unchecked, becomes "True Fibromyalgia."

Sunny Kierstyn, RN, DC has participated in health care through most of her life, both as a Registered Nurse and a Chiropractic Physician, Dr. Kierstyn brings the insight of both disciplines to her practice at the Fibromyalgia Care Center of Oregon. The last twelve years of specializing in fibromyalgia has brought new insight to the condition and its surrounding disease entities. Keenly aware of the limits and resultsd of pharmaceutical medicine, especially when it comes to quieting chronic pain and/or addicting people, Dr. Kierstyn brought her years of 'making bodies comfortable' skills together with her understanding of nutritional and structural medicine, watching changes that surprised everyone. People got better. Fibromyalgia people got better. People got back into their lives. And insight into the structural condition that appears to precede true fibromyalgia is coming to surface.

For more information about Dr. Kierstyn's perspective on fibromyalagia please see:

Kierstyn S, Blum CL. Sacro occipital technique, cranial technique, "faux" fibromyalgia syndrome and self-reported improvement in vision: A report of four patients. 1st Annual Sacro Occipital Technique Research Conference Proceedings: Las Vegas, NV. 2009:48-51.

Research, Scholarship, and the Future of the Chiropractic Profession.
Matthew McCoy, DC, MPH

Having grown up around chiropractic from a young age I never questioned the value of chiropractic. I had always understood it to be a necessary part of health care. Indeed for me it formed the bulk of the primary care I received. This was true for me all the way through grade school, high school and college.

All that changed for me once I entered chiropractic college however. There I was in many courses being told at worst that subluxations didn't exist or at best we might be able to help people with back pain. Several quarters into the chiropractic program it was becoming hard not to get disillusioned. Luckily for me there were a several factors that stopped that from happening. For one there was my background having been brought up on chiropractic and having been exposed to the old War Horses from an early age. This left me pretty solid in my philosophical understanding and foundation relative to chiropractic.

Then there were my classmates. I was fortunate to have a class that was also fairly well grounded in the fundamental tenets of chiropractic. The children of several of those old War Horses were sitting right there with me speaking truth to power when a professor belittled the profession. I seem to recall a few times when people stormed out of the classroom after the exchanges got a little too heated.

I was also fortunate to have three roommates also in chiropractic college who were close friends from childhood and this provided an outlet for dialogue and debate that may even remain unmatched to this day.

The other fortunate piece was that I was attending Life University (Life College back then) so while there were certainly detractors amongst the faculty and students there were also some teachers who were bred in the War Horse tradition and at the same time were analytical and scientifically inclined. While their philosophical underpinnings were solid, at the same time - they questioned. But the questioning was not derogatory or meant to tear down. It was done with a genuine desire to seek answers to questions about chiropractic in an effort to expand it. It was done with the perspective of standing on the shoulders of those who had come before and attempting to see farther than we could on our own. There were certainly no pronouncements from them that we didn't need research and that the profession would do just fine without it because of the principles.

I often think about one of them, the late John Grostic, whose father developed the technique that bears their name. I was fortunate enough to have him as an instructor in anatomy during my first quarter at Life. He was also the Director of Research. His love of knowledge, his keen insight and dry sense of humor kept me going long after his course was over. I recall listening to him talk about the concept of subluxation and its implications. He was the first person to review models of vertebral subluxation for us and I still have my notes from those days in class. They have served me well. Several others

including Larry Webster, the grandfather of chiropractic pediatrics come to mind. I don't know what I would have done without them.

I remember sitting around late one night with my roommates discussing the contradictory information we were being exposed to. How could one professor say subluxations didn't exist while another could lecture for days about its nuances? It was that night (or perhaps I remember it as one night) that I realized it was going to be up to me to figure this out for myself because the contradictions could be overwhelming. From that moment on I began collecting everything I could get my hands on relative to chiropractic, subluxation and its relationship to health and well being. It started with one filing cabinet that grew to several. Then a second bedroom became storage. Then a basement was needed. And now, thank God for computers.

It was these early experiences with such good mentors that led me into academics and research. When I started as an editor over a decade ago little did I think I'd be doing what I'm doing now. The need for chiropractic research and scholarship has never been greater and over the next 15-20 years the need is only going to increase. This research and scholarship is needed to ensure our rightful place within healthcare and its needed to provide current and future chiropractic students with the background and ammunition they will need to confront an increasingly hostile faction of our profession that would like to see lifetime, family wellness, subluxation centered chiropractic go away. In fact, it almost seems that the majority in the profession have given up as witnessed by the huge majority of chiropractors that want to bring drugs into our scope.

When I started the *Journal of Pediatric, Maternal & Family Health - Chiropractic* two years ago it was out of the realization that our profession had failed our most vulnerable. Children cannot help but experience the world through a subluxated nervous system if health policy is such that chiropractic is considered experimental and investigational for them. This is exactly what Blue Cross and other carriers decided several years ago and prompted me to start the journal. If our profession is going to exist in 20 years I believe our best shot is demonstrating that we have improved the lives of those who will be 20 years old at that time.

Perhaps because of my long term affiliation with Life I have always had a deep interest in upper cervical work. I've often thought that if we are going to get to the bottom of the nature of vertebral subluxation, why not start with the area of the spine considered to be the most crucial? A research journal devoted to the upper cervical spine has been needed in this profession since its inception. Just as occurred with children, the largest chiropractic managed care provider in the United States considers the use of specific upper cervical chiropractic adjustments to be experimental and investigational. The most dedicated, analytical and scientifically minded chiropractors I have ever known were upper cervical practitioners. A couple of the greatest textbooks in chiropractic are focused on upper cervical work. Through the publication of the *Journal of Upper Cervical Chiropractic Research - JUCCR* I hope to provide a venue and a forum to those doctors who are passionate about upper cervical work.

Vertebral subluxation is the cornerstone of our great profession and it remains the cornerstone of my own clinical and research interests. This past year alone found the subuxation concept attacked from every corner. From the nonsense in the United Kingdom to the removal of subluxation from CCE accreditation standards, 2010 was a particularly tumultuous year for subluxation fixers. I don't believe it's going to get better any time soon given the political climate in the profession. Now more than ever basic and clinical science research is needed on the concept of vertebral subluxation. In that regard it is my hope that the *Annals of Vertebral Subluxation Research* will play a part in this process. Beyond serving as a vehicle for future research it also contains a repository of subluxation related literature spanning nearly 15 years.

In addition to the science regarding our profession being attacked on a regular basis, the philosophical underpinnings have also become a serious target for our detractors. For example, in addition to their attempts to do away with the clinical application of subluxation correction, the European cartel took a hard line at the teaching of philosophy within the chiropractic curriculum. The majority surveyed seemed to feel it was not necessary and in many cases outdated. Thus far a scholarly publication for the dissemination of dialogue on the philosophy, principles, and practice of chiropractic from a conservative, traditional approach has not existed. My hope is that *Dialogues – The Journal of Philosophy, Principles and Practice of Chiropractic* will fill that void and give the up and coming War Horses the ammunition needed to take us into the third generation of chiropractic.

But ultimately the existence of a journal does not in and of itself mean much if there are no contributions to the scholarship. So please take this as a Call for Papers to each one of the journals and a call to subscribe. If at the very least your contribution to the research infrastructure in this profession is through your subscription to a scholarly journal then you have done more than most.

My hope is that 20 years from now I am writing an Editor's Perspective that reports on a massive cultural change within the profession through the embracing of research and scholarship.

Is Sacroiliac Joint Hypermobility an Overlooked Syndrome in Chiropractic?: Designing a Survey Based Research Investigation.

Dov Pine

Introduction:

The purpose of this study is to determine if sacroiliac joint (SI) hypermobility is an overlooked syndrome in Chiropractic. Sacro Occipital Technique (SOT), developed by Major Bertrand DeJarnette, utilizes a categorical system to distinguish classes of mechanical and neurological dysfunctions based on pelvic indicators. Two aspects of the SI joint, the anterior synovial portion and the posterior fibro-cartilagenous portion are considered in SOT. The anterior SI joint becomes dysfunctional in cases of joint restriction (Category 1) and the posterior SI joint becomes dysfunctional with hypermobility (Category 2) [1,2].

Chiropractic typically views SI joint dysfunction as a fixation, not a hypermobility syndrome [3]. This project asks and addresses question "is the SI joint fixation paradigm supported by clinical observations?" Clinical studies are to be performed within two groups: SOT practicing chiropractors and non-SOT chiropractors. The two groups will be surveyed in order to record their observed frequencies of SI joint hypermobility versus fixation. SOT practitioners are considered appropriate observers of SI joint hypermobility considering the diagnosis and evaluation of Category 2 indicators. The results of this survey will also explore the possibility that a doctor's analytical bias may predispose to view a patient's presentation in a specific manner.

Methods/Intervention:

An online survey will record clinical observations made by chiropractors who:

a. utilize SOT indicators and treatment protocols in their practice (Group 1) and

b. chiropractors who do not (Group 2).

Group 1 doctors with some SOT experience will be surveyed via the following online platforms:

- Sotlist, Sacrooccipitaltechniqueforum, and Sotcasereports

Group 2 doctors with mixed experience (most non-SOT based) will be surveyed via the following online platforms:

- Chiropracticuncensored, Spinedocs, Chirolist-ca, Clinicalchiropractic, Chirosci

Online surveys were chosen as the desired method of data collection as they are cost effective and easily reach a large population of potential participants. Additionally, the project is more concerned with frequency of SI joint hypermobility/fixation observed

rather than individual patient presentation data. The below survey has been included as an example for the breakdown of questions asked and their simplicity. Basically, the author wants to establish to what degree Group 1 (SOT practitioners) utilizes SOT and what type of technique/analysis the Group 2 (non SOT practitioners) utilizes. Additionally, does the technique utilized by a Group 2 participant consider SI joint hypermobility syndrome within its pelvic analysis? [See appendix for sample survey form]

Research Considerations:

In order to perform a research eligible for peer review publication the author must complete the Protecting Human Research Participants online course provided by the National Institute of Health and then complete and submit a research proposal to their local Institutional Review Board (IRB). The IRB is concerned with the rights and welfare of individuals involved in the research, the appropriateness of the research methodologies used to obtain information and informed consent, and the balance of risk/benefit of the investigation [4].

Expected Results:

It is unclear at this time what the survey will illustrate so the stratification of information gathered cannot yet be organized into various categories and properly analyzed.

Discussion:

This study is a follow-up study to one performed earlier by Blum [5]. That study had significant limitations due to its small sample size and lack of an adequate survey questionnaire. Further study will need to be performed to investigate SOT's Category II paradigm and SI joint hypermobility as well as the use of the SOT tests as diagnostic indicators for SI joint hypermobility [6]. Also to properly understand the concept of hyper- versus hypomobility of the SI joint form force closure patterns [7,8], anterior and posterior force closure by way of myofascial slings [9], and form force closure assessment and corrections [10-13] will be discussed in relative detail.

One study investigated comparative MRI studies utilizing pre and post MRIs of a patient with pelvic block placement in the supine and prone positions [14]. While that study had some flaws, the initial assessment was the possibility that the use of pelvic blocks in the supine position to affect SI joint hypermobility may have more of a neuromuscular than a mechanical function. Knutson described the neuromuscular reactions, diagnosis and treatment with pelvic blocking in 2004 [15]. Studies of the Category II treatment modality has found following therapeutic application improvement in ranges of motion in the lumbar [16] and cervical spine [17] as well as in hand grip strength [18] and temporomandibular disorders [19].

Conclusion:

Investigating diagnostic and therapeutic aspects of all manual healthcare are challenging due to the gray region between art and science or objective and subjective doctor/patient interactions. How a doctor views possible outcomes may well influence how they diagnose and treat their patients. In the case of this survey attitudes of chiropractors will be assessed to view how they differentially diagnose sacroiliac (SI) joint dysfunctions and if their training represents a bias in their analytic process.

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Appendix: Sample Survey Form

Survey on sacroiliac joint dysfunction

You are being asked to participate in an online survey about the practice of chiropractic in regards to sacroiliac joints. The survey will take less than 10 minutes to complete. We will not request your identity; your answers will remain anonymous. The information collected will not be used to reflect negatively on you in any way. Participation is voluntary; completion and submission of the survey implies consent to participate. If you have any questions please contact the investigators at any time.

Do you utilize Sacro Occipital Technique (SOT) in your practice?

Yes No

Are you a certified practitioner of SOT?

Yes No

What percentage of SOT is utilized in your practice?

(0-25%) (25%) (50%) (75%) (100%)

What is the primary Chiropractic technique utilized in your practice?

a. Activator
b. Thompson
c. Sacro Occipital Technique/Technic
d. Gonstead
e. Applied Kinesiology
f. Full Spine / Diversified
g. Chiropractic Biophysics
h. Pierce
i. Network Spinal Analysis
j. Other

Does the Chiropractic technique you use analyze for sacroiliac joint hypermobility or instability? Yes No

Do you analyze for and address sacroiliac hypermobility or instability?

Yes No

Does the Chiropractic technique have specific methods to treat sacroiliac joint hypermobility or instability? Yes No

In your practice what percentage of patients who receive pelvic corrections are observed to have sacroiliac joint hypermobility syndromes?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

In your practice what percentage of patients who receive pelvic corrections are observed to have sacroiliac joint fixation syndromes?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Rotator cuff conservative care utilizing sacro occipital technique (SOT) and supportive taping: Two case reports.

Leo Powers, DC

Introduction:

The rotator cuff is the name for a group of four muscles: the infraspinatus, supraspinatus, subscapularis, and teres minor. The cuff adheres to the glenohumeral capsule and attaches to the humeral head. The main functions of the cuff are to stabilizes the glenohumeral joint. The infraspinatus, supraspinatus, and teres minor externally rotate the humerus, whereas the subscapularis internally rotates the humerus.

Rotator cuff tears are usually tears of one or more of the four tendons of the rotator cuff muscles. Rotator cuff tears are among the most common conditions affecting the shoulder [1]. The rotator cuff muscles are the deepest and smallest muscles of the shoulder and are structured to fine tune motions and not for gross muscular function. The tendons of the rotator cuff, not the muscles, are most commonly torn. Of the four tendons, the supraspinatus is most frequently torn as it passes below the acromion; the tear usually occurs at its point of insertion onto the humeral head at the greater tubercule [2].

Environmental factors such as increase in age, smoking, and diabetes mellitus can enhance the probability of a tear [3]. Acute tears may occur after falling on the shoulder or while exerting too much force during an overhead motion. Overuse of the muscles is subject to chronic shoulder conditions, such as arthritis and bone spurs, which can eventually lead to a tear. Once a tear happens, it is much more likely to recur. Partial tears can be treated with conservative care [4] while a complete or full thickness tear usually requires surgical interventions [5].

One cause of muscle dysfunction occurs when a joint has a sprain or ligament tear. With shoulder ligament or joint dysfunction the rotator muscles will sacrifice their mobility and strength in order to attempt to splint the two bones and provide the function of the damaged ligaments. This case study illustrates how the shoulder is part of the myofascial kinematic chain and that supporting any stressed shoulder joint ligaments with taping can help patients recover from rotator cuff tears.

Case Series:

Case #1 is a 60 year old male who routinely lifts firewood above his head for storage. He injured his shoulder working with his wood and was only able to move his arm up to 90 degrees flexion and abduction. His shoulder was assessed and ligament instability was found along with pelvic instability and associated pelvic torsion.

Case #2 is a 90 year old male initially seen for low back pain. During the course of his initial intake examination and evaluation, it was noted that he could not extend or abduct his shoulder over 90 degrees. The patient reported that he was just not used to using his shoulder since he hasn't moved it above his shoulder for 2 years. He agreed to try

conservative shoulder care since he had assumed that his shoulder condition was a permanent one and something he was supposed to "just live with it."

Treatment/Intervention:

The treatment involved various sacro occipital technique method of chiropractic (SOT) related interventions but focused on SOT's use of category two pelvic block placement. Category two block placement involves assessing the patient for pelvic torsion and any sacroiliac joint instability and treating imbalance with padded wedges (blocks) to reduce pelvic torsion and support sacroiliac joint integrity. In both cases following supine pelvic block placement and the neutralization of SOT category two indicators, flexible cotton tape was placed over the SI joints bilaterally. Following stabilization of the sacroiliac (SI) joints, the shoulder joint was assessed for any ligamentous instability and was treated initially with a flexible cotton based adhesive tape.

Taping the SI joint is performed with the patient prone. The side to be taped has the ipsilateral knee bent and the ankle placed in the popliteal fossa of the contralateral leg. Taping begins from inferior to superior supporting the sacrum to the lower boot of the articular boot on that side. The taping starts ½ to 2/3 down the ilium and with overlapping the tape goes up to the crest of the ilium. On most people expect to use 2-3 feet of tape.

Treating the shoulder ligamentous instability at the first office visit is performed after SI stabilization and involves using the flexible cotton based adhesive tape for support. To place the tape, the patient sits with the arm to be treated horizontally abducted at the level of their shoulders, with elbow bent and the upper arm extended backwards so as to stretch the anterior deltoid muscle. The tape is placed from the initial anchor point (sternoclavicular joint) to the secondary anchor point (acromioclavicular joint) without any stretch. The 2nd piece of tape goes from just anterioinferior to the acromioclavicular joint 1 and ½ inches and then back toward the cervical region about 1 inch from the spine. A 3rd and 4th piece of tape are attached perpendicular from the 2nd piece of tape with a 50% stretch on it. These perpendicular (3rd and 4th) tapings with the 50% stretch should be proximal to the acromioclavicular joint about 1 to 1 ½ inches and go over the superior aspect of the shoulder. This requires approximately 5-6 inches of tape per perpendicular anchor. The purpose of the 3rd and 4th tapes is to help anchor the 1st and 2nd taping and support shoulder stability. Range of motion, strength, and sensitivity are monitored pre and post taping to ensure that following tape placement the patient has improved function.

The second office visit was three days after the initial treatment which consisted of category two correction and taping of the shoulder. On the second office visit, the patient was evaluated and had their category two pelvis presentation treated. Prior to taping on the second visit, the shoulder was adjusted in a manner that involves lifting a "slipped" bicipital tendon. The taping is performed again and the patient returned three days later.

The "slipped bicipital tendon" adjustment involves the following steps, all with the doctor standing behind the patient.

step 1: Doctor places his/her forearm under the seated patient's axillary region and gently stretches shoulder to generally relax the shoulder joint.

step 2: Doctor then adjusts the shoulder A/P with the bent elbow next to the patient's chest using a gentle short motion A/P to unlock the shoulder.

step 3: Doctor then adjusts the shoulder with the bent elbow in a horizontal position in front of patient and there is a gentle short A/P motion to unlock.

step4: Next the doctor adjusts the shoulder with the bent elbow in as high a position as the patient can tolerate (in front of patient) and there is a gentle short A/P motion to unlock.

step 5: "Slipped Bicipital Tendon Adjustment"
The patient sitting and the arm is held horizontal in line with the shoulder however the forearm is bent at 90 degrees facing forward. The doctor uses one hand to support the shoulder using their fingers on the upper pectoral clavicular region to push the tissues medially while simultaneous the doctor lifts the patient's forearm in a motion upward so it ultimately hand faces straight up.

Taping can be important for unstable or slipped bicipital tendons. Flexible cotton based adhesive tape is used and placed with the arm in the same position as described above to stabilize the sternoclavicular and acromioclavicular joints. This taping usually requires three pieces of tape. To begin, the 1st taping is over the mid-upper trapezius on the back side of the shoulder requiring treatment coming up and over the clavicle, to some degree, without significant stretch. The 2nd and 3rd taping is performed to the upper and lower part of the forearm with the arm in a bent elbow position with the forearm facing to the front and thumb facing straight upwards. The goal is to facilitate support at the proximal and distal aspects of the radial and ulnar syndesmosis and annular ligament. The tape is wound around the proximal and distal aspects of the forearm with 50 % stretch and about 2 circumferential wraps around each forearm area. It is important to make sure that the support is sufficient to improve stability but does not have any adverse effect upon circulation. Patient is instructed to remove the tape if there is unusual pain, loss of circulation, or anything else that might indicate the need to remove the tape.

With these patients it is estimated that there was 20 to 30 degrees of improved shoulder range of motion with the shoulder adjustment and then an additional 10 to 30 degrees with taping. A relationship between the pelvis and shoulder was found in each case. Correction of their category two presentation improved the shoulder's range of motion approximately another 10 to 30 degrees. These patients received approximately 8-10 office visits and responded positively to care, case #1in 6 weeks and case #2 in 3 weeks.

Results:

Case #1: Following 6 weeks of weekly treatment the patient had shoulder range of motion to 170 degrees flexion and abduction and he was able return to stacking firewood without discomfort. He was seen for follow up care every 6 weeks for about one and a half years and with one flare-up which required two treatments to reach a full recovery. Case #2: Following 3 weeks of biweekly care the patient was able to raise his arm up to about 160 degrees flexion and abduction without discomfort. Incidentally his low back pain also resolved during that period of time.

Discussion:

Whole body musculoskeletal kinematic chains of influence have been studied in the literature for manual and manipulative therapeutic interventions [6]. SOT category two treatment monitors the whole body kinematic chain when assessing and treating patients who present with sacroiliac joint instability and pelvic torsion [7]. While category two treatments have commonly thought to treat this torsion and instability mechanically some research has suggested that the therapeutic action of pelvic padded wedges (blocks) may be neuromuscular in action [8,9].

There have not been any specific studies that discuss a relationship between SOT treatment of pelvic torsion and instability (category two) to help with conservative care of rotator cuff disorders. Yet there have been studies of category two treatment to the sacroiliac joint that discuss improvement of cervical ranges of motion [10] as well as improvement of grip strength [11].

Chiropractic care for upper extremity disorders and particularly the shoulder is building evidence for its efficacy and with some cases has been found to be an effective conservative approach for rotator cuff trauma [12-4]. The novel aspect of these current two cases was the use of the flexible tape to support any ligamentous instability of the shoulder versus focusing on the muscle or tendons of the shoulder (rotator cuff). This support of the shoulder ligaments by the flexible tape purportedly was to assist the rotator cuff muscles to recover more normal ranges of motion and function without pain.

The theory for this care is that when the skin is taped in this position it holds the memory of the joint close together and this allows the over stretched ligament to better support the connection between the bones that were unstable. Ideally supporting the joints and when approximated will initiate the healing of the sprained ligaments between the bones. The tape is made of cotton in a wave pattern that has adhesive on it that allows full range of motion when the tape is applied in the correct position. There have not been many studies investigating the use of flexible cotton based adhesive tape (e.g., kinesio tape) however a recent study has found that flexible tape may be of some assistance to clinicians in improving rotator cuff dysfunction or shoulder pain [15].

Once the patients has reduced pain and increased shoulder range of motion rotator cuff exercises can be utilized to help improve the shoulder and pelvic joint support and

facilitate long-term shoulder joint function to provide a good quality of life and allow for continued activities of daily living. Since the body functions as a myofascial integrated kinematic chain reducing any sacroiliac joint imbalance and influences that may have a shoulder influence along with using flexible tape to further stabilize the shoulder joint in these two cases had a positive result. It is unclear if there is a subset of patients that have concurrent rotator cuff disorders that also have sacroiliac joint instability however this may be present in patients with generalized ligament hypermobility syndromes [16].

Conclusion:

As with all case reports it is difficult to make generalizations since no controls, sham procedures, or randomization is utilized to address issues of placebo, ideomotor, regression to the mean and other types of effects. Yet with one case that had an acute rotator cuff disorder onset and followed for over a year as well as another patient who had a chronic rotator cuff disorder for over 2 years, the temporal relationship between treatment and response to care is of interest. It is also notable that both patients were elderly, one 60 and the other 90, as geriatric response to care is often problematic. Further study should be performed to investigate whether the finding of this case may influence the treatment of patients with rotator cuff disorders unresponsive to other methods of care.

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SOT chiropractic care of a 47 year-old female with left-sided sciatica caused by a 16mm left paracentral disc extrusion: A case report.

Martin G. Rosen, DC

Introduction:

Lumbar disc injuries to L5-S1 and the accompanying neurological radicular syndrome are one of the most common discogenic injuries to the spine. The common occurrence of this condition and its devastating effects on the health and well-being of the individual is staggering. In the United States the lifetime incidence of LBP has been reported to be 60-90% with an annual incidence of 5%. LBP affects men and women equally. Most people with LBP do not seek medical care, they do not have significant functional impairment, and they recover rapidly.

Despite this fact, LBP accounts for 14.3% of new patient visits to physicians each year [1]. Nearly 2.5 million Americans are disabled by LBP, half of these chronically. In 1990, 400,000 industrial low back injuries resulted in disability in the United States [2]. This value accounts for approximately 22% of all workplace injuries, yet LBP represents 31% of all compensation payments. The total cost estimates of LBP range from $25-85 billion [3]. In one systematic review of low back pain estimates of the economic costs they found that but by any standards low back pain and ultimately must be considered a substantial burden on society [4].

Back-related leg pain (BRLP) is a common variation of LBP [5,6] is defined as the constellation of symptoms characterized by unilateral or bilateral radiating pain originating in the lumbar region and traveling into the proximal or distal lower extremity with or without neurological signs [7] and with lifetime prevalence estimates as high as 40% [6]. In the U.S., half of those with back-related conditions seek complementary and alternative medicine (CAM) treatments, the most common of which is chiropractic care [8,9].

The most common reason patients pursue CAM treatments in the U.S. are for back pain conditions [9]. An estimated 20-30% of these patients seek care from chiropractors [8,10], making it the most frequently sought CAM treatment for back disorders [8,9]. SMT is the most frequently used treatment modality in chiropractic practice [11], and chiropractors are the primary providers of SMT in North America [12]. Several systematic reviews have evaluated SMT for LBP conditions [13-6] and are in general agreement that SMT is one of several treatment options of modest effectiveness for LBP.

A randomized clinical trial by Santilli et al (n = 102) assessed chiropractic SMT versus sham manipulation for patients with acute sciatica and confirmed disc herniation [17]. Significant differences were observed between groups in both back and leg pain in favor of the active SMT group at the 6 month follow-up period. Importantly, no adverse events were observed. In a study investigating chiropractic care for chronic low back pain there was a positive, clinically important effect of the number of chiropractic treatments for chronic low back pain on pain intensity and disability at 4 weeks. Relief was substantial for patients receiving care 3 to 4 times per week for 3 weeks [18].

A 2004 prospective, longitudinal, nonrandomized, practice-based, observational study by Haas et al evaluated reported pain and disability outcomes up to 4 years for chiropractic and medical patients with low back pain (LBP) and assessed the influence of doctor type and pain duration on clinical outcomes. Sixty chiropractic (DC) and 111 general practice (MD) physicians participated leading to a total of 2870 acute and chronic ambulatory patients with LBP of mechanical origin selected for this study [19].

Most improvement was seen by 3 months and sustained for 1 year; exacerbation was seen thereafter. Acute patients demonstrated greater relief at all time points. A clinically important advantage for chiropractic patients was seen in chronic patients in the short-term (>10 VAS points), and both acute and chronic chiropractic patients experienced somewhat greater relief up to 1 year (P<.000). The advantage for DC care was prominent for chronic patients with leg pain below the knee (P<.001). Ultimately this study's findings were consistent with prior systematic reviews of the efficacy of spinal manipulation for pain and disability in acute and chronic LBP [19].

While chiropractic care does offer at least modest benefit for LBP of significance in weighing risk benefit ratios of chiropractic interventions is their safety. Conservative chiropractic care is both safe, cost effective and may offer long-term resolution of LBP without the negative side effects or recurrence of the symptomatology found in traditional approaches [20]. While there is preliminary evidence suggesting chiropractic spinal manipulative therapy is beneficial for patients with LBP further studies are needed to evaluate its effectiveness [21].

Other traditional approaches for LBP include: physical therapy, epidural steroid injections, NSAID's, intradiscal electrothermy (IDET), and surgery. While these modalities may offer palliative relief they are not usually focused on addressing the causative factors leading to the actual disc herniation, a recurrence of symptoms, and/or other compensatory symptomatology that may occur.

Chiropractic care has been found at least comparable to medication for back pain, risk benefit ratios might need to be recalculated due to the current concern (e.g., liver, kidney, cardiac, and gastrointestinal side effects) with the use of Cox 2 inhibitors, steroids, and even other non-steroidal anti-inflammatories, such as Aleve and Advil. In a 2003 study they attempted to assess the effectiveness of spinal manipulation, medication and acupuncture for chronic spine pain (LPB included). The overall results of the study showed that 47% of the chiropractic patients improved, while only 18% and 15% improved in the medication and acupuncture groups respectively [22].

Intradiscal electrothermy (IDET) is perhaps one of the newest and most innovative treatments aimed at chronic LBP resulting from IDD. Targeted thermal therapy with the IDET procedure is designed to modify annular collagen, thermocoagulate annular nociceptive nerve fibers, and cauterize ingrowth granulation tissue. These effects promote collagen remodeling and changes in the annular integrity. However in the instance of disc protrusion and extrusion this procedure offers less promising results.

For those patients with chronic LBP that is unresponsive to nonsurgical management, lumbar fusion remains the surgical procedure of choice. Unfortunately, a significant proportion of patients obtain suboptimal clinical results. Lumbar disc arthroplasty has been developed as a potential means to improve the long-term outcome of these patients. Although these devices have had relatively good early clinical results, questions still remain about their long-term efficacy in the maintenance of motion and relief of pain, the life span of the devices, and the results of randomized comparative trials with fusion. Microsurgery is also another option but follow up studies have found that the removal of the entire or partial disc leaves the area more prone to further degenerative changes.

The chiropractic paradigm and treatment modalities, specifically Sacro Occipital Technique (SOT) [23] in this case, are purportedly designed to correct both the immediate pathophysiological state as well as address the underlying causes. In this manner not only is symptomatic relief obtained but spinal rehabilitation and correction is more apt to occur ideally leading to an increased threshold against future injury and limit any return of symptomatology.

SOT uses conservative as well as standard chiropractic adjusting protocols based on the specific patient need and evaluation outcome [23]. Due to this fact SOT chiropractic care has been found clinically to be a safe and effective treatment for most disc related presentations including: degeneration, herniation, extrusion, bulging, prolapse and vertebrogenic causes [24-7]. Once resolution of the symptoms has occurred and the patient reaches an acceptable functional level, continued SOT chiropractic care to sustain symmetry in structure and function is often helpful in preventing recurrence of the condition and preventing future injury [28].

The purpose of this paper is to demonstrate how conservative SOT chiropractic care safely, effectively, and efficiently helped a patient with sciatica believed caused by a 16mm left paracentral disc extrusion return to normal functional capabilities in a relatively short period of time with no negative side effects. The effective resolution of symptoms associated with sciatic radiculitis in the presence of lumbar degenerative changes, partial disc extrusion and impingement of the S1nerve within the lateral recess of the of the 5th lumbar vertebrae was significant in this case particularly since the patients pain level was a 10 on a scale on 1-10 and her functional capability rating at the initiation of her treatment was 20%.

Case Study:

On February 12, 2010, a 47 year-old female, entered my office stating that 3 days ago she began to feel pain in her low back and left leg and has progressively gotten worse. The pain radiated from her low back into her left buttock and down her leg to the ankle. She was barely able to walk, could not stand or sit for more than a few minutes, and while lying down was somewhat better she was unable to get very comfortable or sleep for more that an hour or so. She described the pain as a 9-10 on a pain 1-10 pain scale with 10 being most painful pain imaginable. The patient had been a patient in my office

intermittently since 1999 therefore some baseline parameters were available and given the nature of her present condition SOT evaluation protocols and adjusting procedures were instituted immediately.[29].

Method/Intervention:

Besides the standard chiropractic, orthopedic and neurological tests performed on the patient SOT specific protocols were used to determine the appropriate treatment protocols [30]. This analysis included a standing, prone and supine evaluation as well as specific indicators to determine the cause and extent of any neurological or musculoskeletal consequences. In this instance the patient exhibited an antalgic posture to the right with left sciatica, unilateral rib head fixation (guarding), and no sway in her posture upon standing. Prone analysis revealed a right short leg (pelvic torsion), extreme tenderness in the mid calf on the left leg upon palpation, weakness in both the gluteus maximus and hamstring on the left and positive reflex and contraction (R+C) factors (left rotation of the L5 spinous process) [31]. In the supine position a positive cervical compaction compression test was noted (positive Milgrams test on foramina compression) suggesting an ascending spinal related subluxation from the pelvis or lumbar region.

Upon incorporating the SOT evaluation findings and the patient's symptomatology the determination of an active category three discogenic radicular syndrome with lumbar vertebral involvement was determined. Given the probability of lumbar disc trauma SOT category three pelvic blocking procedures [24,25] and orthopedic blocking (low force leverage adjusting using pelvic blocks in accordance with SOT indicators) [26,27] was initiated. These procedures have a check and balance system inherent in their protocols to not only allow the chiropractor to monitor the patient's progress but also provide specific indicators to let the doctor know when the treatment is not effective or when slight changes in the protocols are necessary.

As stated earlier adjustments/treatment was initiated immediately using SOT category three protocols. These include placing pelvic blocks under the prone patient at specific angles to reduce the pressure on the involved intervertebral disc while at the same time creating a mild traction to the involved area decompressing the disc and corresponding nerve root [24,25]. While in this position a Step Out Toe Out (SOTO) procedure [32,33] was performed to determine if there was piriformis involvement as well. This test was negative so further application was not necessary. Once a comfortable corrective position for the patient was attained she was left on the blocks for approximately 10 minutes. After the 10 minutes manual traction was applied while the patient remained on the blocks to facilitate the decompression of the lumbar discs.

Once the patient reached an acceptable level of comfort (about 15 minutes) of 60% reduction of her pain level exploration of her resistance and contraction (R+C) factors was performed to determine any vertebrogenic involvement. The R+C factors revealed and L5 spinous process rotated to the left. To correct this subluxation orthopedic blocking protocols were used. This is a low force protocol that creates an input into the

body's proprioceptive system, in this case the lumbar spine, facilitate the righting response in the involved vertebrae (L5 in this case) to allow it to be corrected to its normal position with a minimum of force or localized trauma [31].

The patient was seen again on February 14, 15, and 16th and treated with the same protocols. When seen on February 19th her symptoms had begun to subside, her condition was responding positively and her neurological indicators were reducing. She was again seen on February 22 and 23rd using the same protocols. By February 24th her condition had improved so markedly and her SOT indicators had changed so that standard high velocity low amplitude (HVLA) adjusting protocols could be safely applied to her 5th lumbar subluxation to allow for further correction.

An MRI was performed on March 9, 2010 to confirm the diagnosis and determine future care. The significant findings of the MRI were: at L3-L4 there is disc bulge central disc protrusion and annular tear, at L4-L5 a listhesis and disc bulge resulted in mild lateral recess narrowing without significant central narrowing, disc and osteophyte results in inferior foraminal narrowing and effacement of fat around the exiting L4 nerve roots and at L5-S1 there was a 16mm left paracentral epidural mass suspicious for disc extrusion, that resulted in effacement of left lateral recess and impingement on the descending left S1 nerve within the lateral recess

Results:

After the initial two weeks of care the patient showed marked improvement in her symptomatology and functional ability. By the third week of care her condition was stabilizing significantly and the radicular pain was 90% reduced. By March 10, 2010 the patient's condition had improved so markedly that her treatment regime was significantly reduced to a once per week level.

Evaluation on March 10, 2010 showed resolution of the SOT category three, orthopedic and neurological indicators. Category one protocols were then initiated to address both the meningeal aspects of her condition and the sacral base anteriority. The patient continued to make excellent progress and continued to resume normal activities of daily living without pain or discomfort, by June of 2010 was able to play golf.

The patient continued her chiropractic corrective care and as of December 2010 the patient has been seen at this office for chiropractic adjustments approximately once per month. There has been no return of her symptomatology or category three indicators since March 2010. Currently the patient is at full functional capability and pain free. Continued chiropractic care has been effective in this case in resolving the presenting symptoms, stabilizing the patient's spine, correcting the underlying cause of the problem, returning the patient to normal function and preventing the recurrence of the condition.

Discussion:

De Jarnette introduced the pelvic blocks or wedges in the development of the Sacro Occipital Technique and their use is indicated by identifying specific criteria, with the positional placement under the pelvis directed by identifying pelvic torsion and

pain reduction [34]. Cooperstein suggests that pelvic blocks can be used for orthopedic testing, and that the blocks may be used to place the pelvic joints under "stress or potentially de-stressed positions, noting the symptomatological changes and drawing appropriate clinical conclusions [35]."

SOT has a specific categorization process of analysis and treatment for spinal and cranial subluxation patterns including lumbosacral discopathy. Within the SOT paradigm is a system of monitoring progress independent of the patient's level of pain [23-7,34-41]. Pelvic block treatment for lumbar discopathy is only beginning to be found in the literature even though this method of care is broadly used clinically by chiropractors. [24-27,42]

SOT specifically affords the practitioner both a neurological indicator system to differentiate the myriad causes of low back pain and sciatica as well as several treatment options to deal with the different causes and presentations [34, 43].

SOT has a specific group of examination, diagnostic, and treatment procedures called category three, that were used in this case. The parameters of a category three include: damage to the intervertebral discs, spinal and meningeal distortion patterns to the degree that they cause either a compression or tractioning of the nerve root as it exits the intervertebral foramina, creating radicular syndromes with accompanying histological changes in the involved spinal joint. These histological changes can include degenerative disc disease, disc protrusion, prolapse, rupture or herniation, osteophyte formation, hypermobility due to loss of ligamentous integrity, and chronic muscle guarding leading to avascularization and degeneration of the vertebral motor unit. This category is usually the end result of years of spinal trauma and abuse [34, 43].

In this instance SOT chiropractic evaluation and adjusting protocols were used to determine and administer proper patient care. In the SOT paradigm the patient is classified into three distinct and definable subluxation/distortion patterns. They are: Category I – dealing with the dural/meningeal system and its relationship to sacral nutation and occipital reciprocal distortion patterns, Category II – dealing with hyper-mobility and ligament laxity of one or both sacroiliac joints and well as the structural compensatory patterns that occur with this instability and Category III – dealing with the effects (barring specific injury) of uncorrected underlying subluxation patterns resulting in disc injury, nerve root tractioning or vertebrogenic subluxation leading to radicular syndromes; most common sciatica [34, 43].

While reductions in disc herniation have been found to occur over time [44-7] the patient's clinical symptoms and ability to function had improved considerably even though her MRI findings were quite significant. This case particularly is interesting because of the positive clinical response to a severe presentation involving exquisite levels of pain, antalgic positioning, and marked limitations of function. Her response to care following SOT category three evaluation protocols and treatment followed a step-by-step analysis and treatment that corresponded with anticipated patient response to the improved SOT indicators.

Conclusion:

As with any case report it is difficult to generalize finding of one patient's encounter to the population at large. Issues such as the placebo effect, regression to the mean, and ideomotor effect suggests that is difficult to draw conclusions without a larger sample. With a larger group of similar patients it would be important to utilize a control group, sham procedures, and if possible randomization. Even with the limitations of this study the significance of the patient's reduction of pain and improved function, while still having a L5-S1 16mm left paracentral epidural mass suggests that the care rendered is worthy of further investigation and research.

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Pregnancy, sacroiliac support belts, and active straight leg raise (ASLR): Incorporating new diagnostics into sacro occipital technique.

Rick Serola, DC, Charles L. Blum, DC

Introduction:

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 of occurrence is 7.6-18.5 per 1,000 deliveries. The incidence is increased in multiparae and women with occupations that strain the back. Recurrence occurs in 41-77% of the patients. The condition usually appears for the first time in the 5th-8th months of pregnancy. The majority of patients recover shortly after delivery, but in some patients, prolonged pain persists."[1]

A study by Mens, et.al. demonstrated that "about 45% of all pregnant women and 25% of all postpartum women suffer from pelvic girdle pain and/or low back pain (PPLP) [2]." The researchers 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 PPLP than in healthy controls."[2] Ultimately, the "findings support the idea that enlarged motion is one of the factors that causes PPLP and justifies treatment with measures to reduce this motion [2]."

Berg, et.al.[3] performed a prospective study in which 862 pregnant women completed a questionnaire in weeks 20, 30, and 35 of gestation. Of these women, 49% reported that they experienced sacroiliac joint (SIJ) pain at some time during the pregnancy. In this study, the most common reason for severe low back pain was dysfunction of the sacroiliac joints.

SIJ disorders during pregnancy are considered relatively common as the hormone relaxin increases SIJ laxity, which is assumed to induce PPLP. In one study, serum concentration of relaxin showed a significant association to the active straight leg raise (ASLR) test (positive findings associated SIJ disorders) and contributed to laxity of pelvic joints in pregnancy.[4]

If SIJ instability and PPLP is common in pregnant women, therapeutic interventions that offer low risk are indicated. A recent study indicated that reported cases of adverse events were relatively rare in patients receiving spinal manipulation during pregnancy and the postpartum period. Preliminary analysis suggests chiropractic care may be a reasonable treatment option.[5]

The purpose of this paper is to discuss the use of the ASLR test as a potential part of sacro occipital technique's diagnostic regimen for the treatment of pregnancy-related SIJ disorders. In addition, this paper will review the literature concerning the use of the sacroiliac support belt as both a diagnostic and treatment modality for this common presentation.

Use of the Arm-Fossa Test (AFT) in Sacro Occipital Technique, PPLP or SIJ Disorders in Pregnancy

Sacro occipital technique describes PPLP or SIJ disorder associated with increased posterior SI joint motion or ligamentous laxity as a Category Two disorder.[6] 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 most often be affected dynamically by compressive forces of structures like muscles, ligaments and fascia (force closure). [7]

The natural laxity of the SI joints occurs in preparation for the birthing process and, while essential for delivery, this condition can sometimes lead to a loss of juxtaposition of the pubic symphysis and sacroiliac joints. It is postulated that Category Two pelvis distortion or sacroiliac joint dysfunction uncorrected may lead to chronic pelvic pain and dysfunction.[8] With the high percentage of the participants' deliveries 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.

In sacro occipital technique, the arm-fossa test (AFT) is commonly used to analyze the need for treatment as well as the effectiveness of care for SIJ instability. Sacro occipital technique 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 [6] and "results from the different reliability studies varied widely with some evidence favoring the validity of the arm-fossa test ..." [9] "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 [9]." "Two studies were found of the validity of the arm-fossa test (80% and 90%), both demonstrating some validity of the method." [9] Research supporting the reliability and validity of the AFT is still in its infancy stage, and greater study is still needed.

Purportedly, the AFT can evaluate various levels of SI dysfunction, from joint laxity affecting joint force 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 when the inguinal ligament and lumbodorsal fascia are challenged.[6] Therefore, the AFT is a sensitive test allowing SI dysfunction to be discovered sub-clinically, particularly when there is force closure dysfunction secondary to joint hypermobility, pelvic torsion, and joint disrelationship. This could explain why the AFT is sometimes positive with patients who are not exhibiting SI joint pain, such as some of the pregnant patients in this study.[12]

Category Two supine block placement facilitates 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.[10] While the chiropractic profession may have methods of treating pregnant patients with SI laxity, [11] the validity and safety aspects for sacro occipital technique pelvic block treatment of this specific subset of the patient population appears reasonable.[12] It would appear that a supine treatment that applies a low continual force with pelvic blocks, which can be modified based on specific assessment indicators as found with the sacro occipital technique approach, would be a preferable method of care for a pregnant patient.

It is clear that sacroiliac joint dysfunction is believed to be a significant source of low back and posterior pelvic pain. However, there are no widely accepted guidelines in the literature for the diagnosis and treatment of sacroiliac instability.[13] There are some studies that are attempting to bridge this gap, particularly investigating sacroiliac joint hypermobility.[14] Since ligamentous laxity is relatively common with pregnancy, it should be noted that "this ligamentous system associated with the sacroiliac joint serves to enhance stability and offer proprioceptive feedback in context with the rich plexus of articular receptors." [15]

Sacro occipital technique's arm-fossa test (AFT) [9] and pelvic block protocol for Category Two were investigated in a retrospective case series study involving 103 pregnant women ages 21-32 years old. From 1979-1983, the patients were evaluated via sacro occipital technique diagnostic protocol, which included the AFT, increased unilateral or bilateral iliopsoas tension, palpation for pelvic torsion, leg length differentials, and Moiré contour photography. Using sacro occipital technique's AFT as a method to evaluate sacroiliac joint laxity, a large percentage of the patients (95%) had AFT positive (AFT+) findings, with 5 of the 103 patients having an AFT negative (AFT-). AFT negative findings were associated with reduction or elimination of pelvic or inguinal pain, improvement of muscle strength, the ability to rise from a seated position, lifting and/or carrying objects, and improved sleeping and restfulness.[12]

Active Straight Leg Raising Test

Since the reliability and validity of the AFT has not been fully studied, it may be important for the sacro occipital technique practitioner to investigate the use of the ASLR test, which has been proposed as a clinical test for the assessment of load transfer through the pelvis. Clinical observations show that patients with sacroiliac joint pain have suboptimal motor control strategies and alterations in respiratory function when performing low-load tasks such as an ASLR. A study by O'Sullivan, et. al., investigating the ASLR for SIJ pain, "identified altered motor control strategies and alterations of respiratory function in subjects with sacroiliac joint pain. The changes observed appear to represent a compensatory strategy of the neuromuscular system to enhance force closure of the pelvis where stability has been compromised by injury."[16]

The ASLR Test: Have the supine patient perform a straight leg raise approximately 12 inches off of the table without bending their knee and repeat of the other side. The doctor is looking for a patient's report of pain or if there is recruitment of other muscles with significant trunk rotation. If the test is negative, add resistance and see if the increased stress load creates pain or trunk rotation,

If either test is positive, try the following and recheck if the test is negative by having the patient actively brace his or her lumbar spine (determine if lumbar spine is a key contributor) or compress the ilia manually or with a sacroiliac support belt (determine if SIJ is a key contributor) . Sacro occipital technique practitioners might assess pelvic torsion and place pelvic blocks in the category two position for pre and post assessment.

What does this mean? Pain or poor motor control during ASLR is caused by SI joint dysfunction or abdominal or hip flexor inhibition. Improved function caused by pelvic compression (manual, belt, or blocks) could help establish the need for SIJ treatment. [16,17]

Murphy, et. al. studied the ability of the ASLR to differentiate sacroiliac pain versus lumbar pain, and they concluded that a positive ASLR is substantially more common in patients with sacroiliac pain than in patients with lumbar pain.[17] While sacro occipital technique's test (AFT) for SIJ instability has some degree of validity, [9] the ASLR test has shown reliability and validity for the evaluation of SIJ disorders particularly in pregnancy.[18-20] In a study by Mens, et. al., the ASLR test was determined to be a suitable diagnostic instrument to discriminate between patients who are disabled by PPLP and healthy subjects. The ASLR test was determined to be easy to perform with reliability, sensitivity, and specificity considered high.[19]

Since increased serum relaxin levels in pregnancy appear to relate SIJ disorders and PPLP Vøllestad, et. al., sought to determine an association between relaxin levels, PPLP and the ASLR test. They found that serum concentration of relaxin showed a significant association to a positive score on the ASLR test and indicates that relaxin contributes to laxity of pelvic joints in pregnancy.[21]

SIJ Support Belts for Diagnosis and Treatment

With the supportive evidence regarding the use of the ASLR test for pregnancy- related SIJ laxity and PPLP, utilizing the ASLR pre- and post-assessment for chiropractic treatments such as the Category Two pelvic block protocols [12] might offer greater diagnostic information. The SIJ compression caused by the pelvic blocks when placed under the supine patient [22,23] may offer a good opportunity to use the ASLR as a means to study the need for SIJ treatment and the efficacy of the treatment rendered.

It is also possible that the ASLR could differentially diagnose SIJ disorders by using compression caused by a pelvic support belt (e.g., Serola) upon the SIJ. Murphy, et. al. used the ASLR to comparatively assess patients by having the doctor compress the patients' ilia against their sacrums to stabilize their SI joints; it was determined that the patients' SIJ pain was reduced significantly.[17] In a study by O'Sullivan, et. al., the ASLR was utilized on subjects with SIJ pain using manual compression through the ilia to identify altered motor control strategies and alterations of respiratory function. They concluded that study findings formally identified altered motor control strategies and alterations of respiratory function, which were improved with pelvic compression, in subjects with SIJ pain.[16]

A pelvic support belt, such as one manufactured by Serola Biomechanics, has been found to reduce mobility/laxity of the SIJ.[24] Mens, et. al., attempted to objectively measure SIJ laxity using a SIJ belt and the ASLR test. Using Doppler imaging of vibrations, Mens et. al., studied the laxity of the sacroiliac joint in women with pregnancy-related pelvic girdle pain. All subjects performed the ASLR test without the belt, and then with the belt, in both the upper and lower belt positions. With the belt on, there was a significant decrease in laxity and a corresponding increase in ability to perform the ASLR test. They suggested that either test can be a good diagnostic test for sacroiliac joint instability, with Doppler imaging of vibrations being more objective and the ASLR being simpler.[25] Other studies have also found similar findings.[26,27]

Other studies likewise have shown that the use of "a low non-elastic sacroiliac belt was a cost effective, harmless tool for pain relief in many women with posterior pelvic pain" [28] and SIJ pain.[29,30] Foley, et. al. noted that a SIJ belt is preferred supportive care for pregnancy-induced SIJ dysfunction given the high risk alternative of medicines, fluoroscopy, and injections.[31] In addition, a pilot study using a prospective, two-group design showed a positive effect in pain scores and on daily activities after using a maternity support binder for relief of pregnancy-related back pain.[32] Walheim corroborated these findings and noted that "one of the most common treatments for pelvic instability is a stabilizing sacroiliac belt." [33]

Mens, et. al. found that the application of a pelvic belt significantly decreases mobility of the sacroiliac joints. The decrease of mobility is larger with the belt positioned just caudal to the anterior superior iliac spines than at the level of the pubic symphysis. The findings are in line with the biomechanical predictions and might be the basis for clinical studies about the use of pelvic belts in pregnancy-related pelvic girdle pain. [34]

Discussion:

Finding low risk beneficial therapies for pregnant patients with SIJ disorders or PPLP is important due to the precarious nature of this specific patient. Medications and other interventions are considered to offer risks to both the mother and viability of the fetus. Therefore, being able to diagnose and treat SIJ instability or laxity due to increased relaxin levels in pregnancy is important. [4]

The ASLR has been found to be a reliable and valid measurement of SIJ instability or PPLP in pregnancy.[18-20] The supine Category Two pelvic block placement used in sacro occipital technique has been purported to facilitate SIJ or pelvic stability.[12] Sacro occipital technique practitioners might attempt to measure the AFT against the ASLR to determine the need for pelvic block placement and its effectiveness to reduce any SIJ instability secondary to pregnancy. The supportive research indicates the importance of the SIJ support belt being used in conjunction with the sacro occipital technique's pelvic block treatment to enhance the SIJ stability in pregnant patients with PPLP between office visits.

Conclusion:

Developing diagnostic and treatment strategies for pregnant patients with PPLP and SIJ instability is important due to the need for low risk modalities for the mother and fetus. Simple tests such as the ASLR may offer good options to monitor pre- and post-treatment of PPLP and SIJ in this specific subset of patients. Using sacro occipital technique analysis and treatment with pelvic blocks along with the AFT and ASLR could enhance the viability of the need for treatment and its effectiveness. The sacral support belt has been found effective for the relief of pain and support of SIJ instability, and the ASLR test could aid both in evaluating the need for a SIJ support belt and its effectiveness, particularly between chiropractic office visits.

Acknowledgment: Serola Biomechanics [http://www.serola.net/] Last accessed April 19, 2012

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Styloid process sensitivity in a patient with low back pain and radicular syndrome: A case report.

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Introduction:

The styloid process projects down and forward from the inferior surface of the temporal bone, and serves as an anchor point for several muscles associated with swallowing and vocalization. It also provides a site of attachment of the following ligaments and muscles: stylohyoid ligament, stylomandibular ligament, styloglossus muscle, stylohyoid muscle , and the stylopharyngeus muscle.

A small percentage of the population suffers from an elongation of the styloid process and stylohyoid ligament. If greater than 30 mm, this condition, also known as Eagle syndrome [1,2], may cause the tissues in the throat to rub on the styloid process during the act of swallowing resulting in pain along the glossopharyngeal nerve. Pain may be experienced upon turning the head or extending the tongue. A person may suffer from a myriad of other symptoms including voice alteration, cough, dizziness, migraines, occipital neuralgia, pain in teeth and jaw and sinusitis or bloodshot eyes. While surgical treatment of this condition is common, one case study discussed an intervention consisting of manual therapy and therapeutic exercises [3].

Case History:

A 57 year-old right-handed white male, presented in our offices with a chief complaint of acute sudden onset left jaw pain. The patient gave a history of a three day episode of jaw, neck and ear pain, with no known cause. He is a self-employed general contractor of 35 years and now holds a senior management position. On an average day he works three crews, in a supervisory capacity, and denies physical labor. The patient has a very high pain threshold and rarely complains of pain. There was concern, due to the nature and degree of irritation, that he might possibly have an infective process (e.g., swelling pain, discoloration and pain to palpation). Therefore, prior to beginning treatment, dental x-rays were obtained. They were reported as negative for any local infection in the styloid process or from a nearby tooth.

Intervention/Methods:

Postural examination revealed a patient with a left antalgic lean, anterior head carriage; a high right ear, high right shoulder, and high right hip. Patient's stance was noted with the left foot back with the right foot forward. Palpation found marked sensitivity of the left styloid, left first rib (scalene muscle attachments), and to the left sternocleidomastoid. Marked tension to the upper cervical chain and trapezius with palpable nodulations in the rhomboids bilaterally was also noted. The paraspinal muscles throughout the lumbar spine were painful to palpation, with profound guarding and muscle rigidity most specifically within the right lower quadrant. Significant tension was also noted upon palpation of the right thigh muscle.

Supine examination of the patient elicited exquisite sensitivity along the right sciatic track with a positive straight leg raise at 45 degrees. Tenderness to palpation was noted in the plantar fascia as well as clubbing of the five toes on the right foot, but not on the left foot. Ranges of motion to the cervical and lumbar spine were performed with markedly decreased cervical rotation, especially to the left with pain localized behind his left ear. When asked to locate the source of pain the patient pointed to his left styloid process. Lumbar ranges of motion were also markedly decreased in all six directions. Supine analysis revealed ipsilateral pain at 45°, bilaterally on passive straight leg raise. Patient's thoracic expansion was measured with a soft tape measure and was found to be less than one half inch with deep inhalation, due to guarding.

Sacro Occipital Technique (SOT) analysis was performed with the patient standing using a plumb line to guide evaluation. He was found to be standing with an antalgic lean to the left side. His left first costotransverse joint was rigid and painful on palpation. His arm fossa test was negative. Palpation of medial and lateral aspects of his knees found medial pain on the right and lateral pain on the left. Palpation of his inguinal ligament found the upper right aspect sensitive to palpation with swelling and nodulation. Over the head stretching of arms to evaluate lower rib motion (psoas test) produced relative reduced motion on the left as compared to the right. Evaluation of pelvic torsion noted what appeared to be a right physiological short leg [4,5].

The patient's left psoas muscle was released and relaxed until the over the head arm traction test allowed the rib cage to move equally and arm lengths were equal from side to side [4,5]. The diaphragm muscles were released bilaterally under the anterior and lateral rib cage. The patient was treated with category three orthopedic blocking [6-8] which utilizes the left styloid process as a guide to possible related L5/S1 discopathy affecting sciatic nerve irritation [4,5,9].

Results:

As treatment was provided, the sensitivity to the styloid process was rapidly eliminated [9]. Concurrently the right sciatic pain and related muscle tension in the right thigh significantly diminished. Diminished tension in the plantar fascia of the right foot with a visualized reduction in clubbing of that same foot. On standing following treatment, a marked decrease in antalgic position relative to the intial plumb line findings was observed.

Discussion:

What should a patient do when they have significant sensitivity at their styloid process? The first steps might be to rule out Eagle Syndrome and any possible dental contribution. But what happens when the dentist, oral surgeon, or ear nose and throat specialist cannot find any pathology? One option could be the development of a prediction instrument for assessing ascending or descending contributions to temporomandibular joint (TMJ) disorders. Blum and Globe offer such a tool for dentists to evaluate patients with TMJ

disorders who might have concomitant musculoskeletal disorders [10]. Additionally, it may be important that patients with acute styloid process sensitivity be evaluated for other related musculoskeletal pain, particularly in the low back region.

A styloid process sensitivity test was developed by M. B. DeJarnette. He identified a relationship between styloid process sensitivity and ipsilateral fifth lumbar vertebra tilting or inferiority relative to the veretebra's transverse process. This condition could lead to L5/S1 disc compression and sciatica [11]. He investigated balancing the vertebra or increasing the L5/S1 disc space to see if there would be a subsequent reduction or elimination of sensitivity at the styloid process [4-6]. He determined that "the left styloid process is definitely an indicator of the lumbar disc syndrome. [12]"

Aside from cases of dental origin, a case of a patient with a styloid process fracture was found to have the presence of tender muscles of mastication, facial pain especially upon awakening, frequent grinding sounds, and tooth attrition. The initial diagnosis was temporomandibular disorder (TMD) with bruxism; however, the patient's pain on cervical rotation and follow-up radiography confirmed the styloid process fracture [13]. In another study Ishiura et. al., evaluated serial changes in the pressure pain thresholds (PPT) in a comparative sample of 7 healthy subjects and 7 patients with temporomandibular disorders (TMD). They concluded that based upon their findings of styloid process sensitivity to palpation could be a useful as a means for the evaluation of muscle symptoms of TMD patients [14].

In 1934 Emmanuel Libman drew attention to an important factor in the production of the pain of disease - the patient's sensitivity to pain upon pressure to the styloid process. Libman chose this site since he considered that here he was pressing on the greater auricular nerve and he gauged the sensitivity of patients from their response to this pressure into two grades "hyposensitives" and "sensitives." Of interest he found that the symptoms of many diseases such as peptic ulcer and coronary disease were different in the two groups [15,16]. A follow-up study using an algometer and evaluating brainwave feedback corroborated a relationship between increased beta wave activity with styloid process pressure to "sensitives" as compared to the "hypersensitive [17]."

Interdisciplinary relationships may be of great importance for patients presenting with styloid process sensitivity and low back pain. Ruling out ascending myofascial imbalance from the lower back causing styloid process sensitivity could facilitate improved differential diagnostic protocols thus improving patient care and outcomes.

Conclusion:

In this single subject case report of a patient presenting with acute styloid process sensitivity, differentiating the patient's presentation was essential. Once a dental contribution was ruled out, other factors were investigated. A relationship between the styloid process sensitivity, the lower back pain and antalgia was assessed and treated. As the lumbar spine was treated, the styloid process sensitivity was eliminated and the patient had significant improvement of function with a reduction of pain. Further studies

are needed to determine what subset of the population has this relationship and to facilitate greater communication between professions treating this entity. As with any case report the placebo and ideomotor effect, regression to the mean, and other confounds must limit its generalization to patients at large, however the temporal nature of the changes to the styloid process's pain and improvement of the patient low back presentation is noteworthy.

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Latent sciatic technique and cervical traction test: A DeJarnette discovery and case report.

J. Rodney Shelley, DC

Introduction:

Today evidence based practice incorporates published research and a doctor's clinical experience. In the early stages of chiropractic research many of the chiropractic pioneers [1], such as M. B. DeJarnette, DO, DC utilized discussions with his students and then share "new" procedures to students to test and report back their experience if they were helpful or not. While not a systematized research study, still in the early years of sacro occipital technique (SOT) this was an effective way to share information and to eliminate procedures that were not helpful and further develop procedures that were. This is how SOT evolved each year while under the tutelage of DeJarnette.

In the early 1980s DeJarnette would commonly come to California on a quarterly basis to work in doctors (his students) offices to treat their patients oftentimes with complex presentations. The doctors would often watch DeJarnette diagnose and treat patients and during this time DeJarnette would share some novel diagnosis and treatment methodologies. Since DeJarnette was in his mid-eighties at this time he was beginning to cease writing his yearly texts and newsletters. Therefore some of his later discoveries may have been lost and the purpose of this paper is to share a procedure developed by DeJarnette in these later days termed the "Latent Sciatica Technique" and which incorporated the "Cervical Traction Test."

Latent Sciatica Technique

My office was one of the offices where DeJarnette would work in quarterly in California. During those visits I noticed, that he would routinely palpate patient's posterior mid-calf and upper-thigh and gluteal region (above the dollar [$] sign) for sensitivity. While traditionally sciatica is commonly associated with SOT's category three pattern of imbalance [2,3], with a subset of patients a resistant form of sciatica would persist regardless of their SOT categorization. This subset of patients with a persistent sciatica might have a predominate presentation of posterior sacroiliac joint instability syndrome (category two) or pelvic torsion with reduced sacral nutation (category one) [2,3]. With sensitivity upon palpation in the patient's posterior calf, thigh and/or gluteal region this presentation he noted as a "Latent Sciatica," a condition of sciatic irritation with no subjective presentation of pain in the leg or buttock.

Cervical Traction Test

In the SOT evaluation process the cervical compaction test is used to differentiate between whether a patient's presentation is predominately caused by lumbopelvic or cervical spine imbalance [2,3]. This involves incorporates some standard orthopedic tests, Milgrams Test [4] performed with and without cervical foramina compression [4]. Initially with this test the patient performs an active bilateral leg lift, then cervical foramina

compression is performed and the ability to lift the legs is reevaluated. With compression if the leg lift is harder DeJarnette noted that is indicative of a primary lumbopelvic condition whereas if leg left it is easier it relates to a primary cervical condition (ligamentous laxity) of imbalance [2,3]. After watching him do the Latent Sciatica indicators in months previous I began to trial a modification of this evaluation by adding cervical traction into the diagnostic process. With cervical traction if the leg lift is easier it seemed to relate to discopathy anywhere in the spine, if it was more difficult it would relate to generalize ligamentous hypermobility. I presented my findings and hypothesis to DeJarnette and he affirmed my experience and continued to use the Cervical Traction Test in my practice from then on.

Cervical Compaction (Compression) and Cervical Traction	
TEST	EXAMINATION FINDING
Leg Lift without Cervical Compaction	Difficult to Lift = May have lumbopelvic involvement Easy to Lift = May have lumbopelvic or cervical involvement
Leg Lift with Cervical Compaction	Difficult to Lift = Likely has lumbopelvic involvement Easy to Lift = Likely has cervical spine involvement (hypermobility)
Leg Lift with Cervical Traction	Difficult to Lift = May have lumbopelvic ligament instability Easy to Lift = May have lumbopelvic disc involvement

Case History:

A 38-year-old male presenting with a history of low back pain resolved with SOT category two treatment. While the category two care helped resolved the patient's pain and discomfort he still continued for years to have irregularity of the bowels (constipation) and erectile dysfunction.

Intervention/Results:

Palpation of the patient while prone found "Latent Sciatica" (LS) indicators present on right lower (calf) and right upper (gluteal) regions. Evaluation of pelvic torsion and physiological leg lengths were found to be equal and balanced. The SOT cough test to evaluate sacral nutation found the sacrum and associated meninges to be in a condition of excess tension or sacral nutation (SB+) [2,3]. Due to the LS findings traction of right leg while patient tractioned with their arms at the top of the table. Then the patient was instructed to cough during traction [5] which resulted in a "release in lumbar region" with a "pop." Following this release leg lengths were re-evaluated in the prone position and the right leg appeared longer compared to the left however the cough test showed balanced or neutral findings. LS indicators were not sensitive. Evaluation for category two pelvic

instability was negative and cervical traction test (bilateral active leg lift) remained stronger with cervical traction.

The patient was seen four days later and presented with an upper right LS indicator, with leg lengths equal and SB+ findings. Right sided leg traction while the patient pulled on the head of the table and coughed produced no clear sign of release however on this visit traction still cleared the LS indicator. Evaluation for category two pelvic instability was negative and bilateral active leg lift remained stronger with cervical traction.

On the following week the patient was evaluated and presented with equal leg lengthes and SB+. There was no LS indicator on this visit and the patient was treated in the prone position with pelvic blocks, bilaterally placed caudally through the ASIS. While on the blocks the patient was evaluated using R+C indicators [6] and right styloid process sensitivity was found indicative of right L5/S1 disc compression or a right inferior L5. L5 was decompressed with pumping action while patient remained on SB+ blocks until the styloid process sensitivity decreased. Following this treatment bilateral active leg lift remained equally strong without and with cervical traction.

At a one week follow up the patient reported regularity of bowel movements and his other bodily functions. No LS signs were found, cervical compaction and traction were uneventful on bilateral active leg lift, sacral nutation was normal, and category two findings were negative. Further home treatment included recommendations for nutritional support, stretching exercises, hanging by arms from chin up bar to lengthen the spine, as well as regular chiropractic check-ups for preventative wellness care.

Discussion:

DeJarnette was continually focused on improvement of diagnosis and treatment options hence SOT has attempted to develop many diagnostic and treatment modalities to help improve chiropractic care of patients. While DeJarnette has written many books and manuals over the years many of his discoveries and clinical explorations may have not been published and recorded for posterity. It is possible that some of the work of DeJarnette can still be preserved by the memories and clinical experiences of those (his students) who worked with him directly.

While the case above offers one clinical encounter the LS and cervical traction evaluation method could offer various diagnostic and treatment directions. DeJarnette noted that with improved leg lift on cervical traction that this could indicate disc compression anywhere in the spine however these were most commonly found in the lumbar region, particularly with a positive LS. With a positive LS and cervical traction test DeJarnette would use R+C indicators and orthopedic block treatment for treatments. The related lumbar vertebra would be released until tenderness improved in the LS and cervical indicator.

My experience using DeJarnette's LS and cervical traction test patients has continued for three decades. Patients are evaluated for mid-calf, mid-thigh, and gluteal region for LS

indicators. With some instances patients presenting with category two while in a process of stabilization a LS indicator might be present. If the LS indicator was present and the patient's arm fossa test [7] (used to assess sacroiliac joint ligamentous disorders) was negative, the patient would then be evaluated for sacral nutation (SB findings). Once the SB findings were determined pelvic blocks are placed in the appropriate position based on test findings. On the side of LS the leg would be tractioned, the patient traction the head of the table, and cough. With resistant cases R+C indicators and using the cervical spine indicators to guide specific lumbar spine decompression would be used. In general, a release in the lumbar spine would be found and the LS indicator would be negative.

Once the LS indicator would be cleared then if the patient had category one or two findings treatment protocols would continue in their usual manner which would involve myofasical imbalances, category block placement, visceral work, and cranial work if indicated. Particular caution with category two patients needs to be used with the LS technique so as not to worsen any sacroiliac joint instability (category two). Therefore the arm fossa test is used before and after and LS treatment to ensure that a patient's category two would not worsen.

Like with all case reports it is difficult to discern the placebo or ideomotor effect as well as regression to the mean from the clinical outcome. It is particularly difficult to explore methods learned through personal experience learned in clinical encounters with mentors and preserve these experiences.

Conclusion:

The Latent Sciatic and Cervical Traction Tests developed and affirmed by DeJarnette can be valuable tools to guide patient care particularly in cases with resistant sciatica findings. It is hoped that greater study into this method of evaluation can be performed to determine if this case can be generalized to patients at large or if a specific subset of patients could benefit from these tests. It may also be of value to reach out to other doctors who worked directly with our chiropractic pioneer mentors such as DeJarnette to see if other useful clinical methods could be preserved for future generations.

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Sacro Occipital Technique: Occipital Fiber Technique and CMRT for Treatment of Canine Fecal Incontinence.

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 [1-3]. 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 [1].

While the utilization of basic chiropractic methods of analysis and treatment are somewhat standard [1-3], the methods of analysis and treatment using specific, recognized chiropractic techniques such as sacro occipital technique (SOT) are still in the formative stages. For years while this care has taken place, there is still limited research specifically identifying the use of chiropractic in the equine [4-8] and canine [9-13]. In this case report we utilized a chiropractic technique called occipital fiber analysis and treatment (OFT) [14,15], which is a method within sacro occipital technique (SOT) used to analyze and treat thoracic, lumbar, and sacral segments. The rationale for using OFT is to find regions of the body that have some interrelationships through musculoskeletal and neurological reflexes 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 12-year-old neutered male German Shepard mix with daily fecal incontinence which was unresponsive to prior interventions presented for chiropractic care. The dog was unresponsive to acupuncture, laser therapy, ultrasound, physical therapy, and traditional chiropractic adjustments. The dog's owner had just begun to accept that it would not change at this point. She brought the dog in for a regular chiropractic adjustment and CMRT was applied, along with full spine and extremity adjusting.

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 male 12-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 Dogs and Company in Columbia, MD with the owner's consent.

Occipital fiber analysis and treatment was performed by a chiropractor trained in SOT and veterinary chiropractic care on the canine in a standing position with his head slightly flexed for analysis. Specific regions are palpated along the canine's suboccipital region and based on OFT were related by reflex arc to specific vertebra. The reflex is only considered active if there is sensitivity at both the specific occipital fiber area and the related vertebra(s).

Occipital Fiber 7, line 2, was found and corresponded to a sensitive fifth lumbar vertebra nodule. L5 was treated with spinal manipulative therapy and chiropractic manipulative reflex technique (CMRT) [16] was performed after neutralization of the occipital fiber. Neutralization occurs as the vertebral level is contacted as the occipital fiber is manipulated via cross fiber manipulation until warmth is palpated at the sensitive spinous, which in this case was L5. Once the warmth is palpated then the vertebra can be adjusted and specific viscerosomatic reflex points (CMRT) are contacted in a specific pattern.

After three weeks, the dog was re-evaluated. Occipital Fiber 6, line 2 was found and corresponded to the L4 nodule. L4 was treated with spinal manipulative therapy and chiropractic manipulative reflex technique (CMRT) [16] was performed after neutralization of the occipital fiber.

Sensitiveness was determined by the dog's reaction to pressure in various regions whereas some points of palpation did not elicit any reaction. Palpation of the points of "sensitiveness" 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 occipital fiber was no longer swollen or boggy. During the days that followed the treatment the dog's fecal incontinence was reduced to eight times in 20 days after the first treatment, and then two times a month for the next three months. Prior to this treatment the dog had not any sustained relief from any other modality, including traditional chiropractic care.

Discussion:

In bipedal humans the rationale 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 [17]. 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.

In humans OFT and CMRT [16] have been used as a method of treating the spine or vertebral visceral syndromes associated with viscerosomatic or somatovisceral reflexes [18-20],

dysafferentation at the spinal joint complex [21], and visceral mimicry-type somatic relationships [22]. Treatment involves location and analysis of an affected vertebra in a reflex arc by way of occipital fiber muscular palpation, similar to trigger point analysis or Dvorak and Dvorak's spondylogenic reflex syndromes [23]. Once specific vertebra reflex arcs are located, corroborated with referred pain pathways, and clinical symptomatology, then the specific vertebra to be treated is isolated by pain provocation, muscle tension, and vasomotor symptomatology. Often times if a vertebral dysfunction is chronic or unresponsive to chiropractic spinal manipulation then a viscerosomatic or somatovisceral component is evaluated [24]. Treatment of the viscerosomatic or somatovisceral component is performed using soft tissue manipulation, myofascial release techniques and reflex balancing methods [16].

OFT and CMRT [25] has been used successfully to treat viscerosomatic or somatovisceral reflex dysfunction, visceral mimicry in humans [32-3]. In another interesting patient presentation the CMRT referred pain patterns were found to be reversed in one case which matched the patient's situs inversus presentation [34]. What this study attempted to investigate was whether animals and specifically canines might also have similar reflex patterns [35]. 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.

This case study is very limited because it used one trial of adjustment and followed the response of the canine to this intervention. While the canine had not had responses to prior care in this manner, this study does indicate that more extensive longitudinal studies with controls or sham procedures could yield greater indication to what degree the treatment had with the symptom outcome. Since this was only one animal and one treatment it is unclear what specific aspect of the treatment helped, whether it was necessary to do all the protocols or whether one aspect of the care would have been sufficient. The chiropractor trained in both SOT and veterinary chiropractic decided to follow CMRT protocols in this study and, therefore, followed the same treatment regimen that would have been used on a human. Just like with humans, animals also warrant greater study and comparative chiropractic technique assessment and treatment to determine what subset may respond to any specific type of intervention.

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 strong 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.

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Sacro Occipital Technique: Occipital Fiber Technique on Equine with Shortness of Breath and Chronic Sinusitis.

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 [1-3]. 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 [1].

While the utilization of basic chiropractic methods of analysis and treatment are somewhat standard [1-3], the methods of analysis and treatment using specific, recognized chiropractic techniques such as sacro occipital technique (SOT) are still in the formative stages. For years while this care has taken place, there is still limited research specifically identifying the use of chiropractic in the equine [4-8] and canine [9-13]. In this case report we utilized a chiropractic technique called occipital fiber analysis and treatment (OFT) [14,15], which is a method within sacro occipital technique (SOT) used to analyze and treat thoracic, lumbar, and sacral segments. The rationale 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 [16] and whether a treatment based on OFT would yield any response.

Case Report:

AB, a 12 year old Dutch Warm Blood began having shortness of breath during work as a level 3 Dressage competitor. She was diagnosed with a sinus infection and treated multiple times with a variety of antibiotics which only provide short periods of relief. She could not perform due to her condition.

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 AB, a 12-year-old Dutch Warm Blood 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 in Georgia at the horse's barn with the owner's consent.

Occipital Fiber analysis and treatment was performed while the horse was standing for analysis. Occipital Fiber 2, line 2, was found and corresponded to a tender third thoracic (T3) nodule. The horse was tender to palpation on the maxilla and frontal bones bilaterally. Relating to the T3 syndrome, this horse also had subluxations at C2 and the sternum. T3 was adjusted (posterior left subluxation) and chiropractic manipulative reflex technique (CMRT) was performed after neutralization of the occipital fiber [18]. The CMRT included lung massage, intercostal massage and a diaphragm release. Tenderness was determined by the horse's reaction to pressure in various regions, whereas some points of palpation did not elicit any reaction. Palpation of the points of "tenderness" also revealed regions of increased local swelling that 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 horse took a deep breathe of air and began to relax. The occipital fiber was no longer swollen and boggy. The maxilla and frontal bones remained tender which were evident upon palpation.

Twenty-four hours post-treatment the owner was quite upset reporting that AB's symptoms were much worse. She was depressed, refused food, was very restless, and stood and threw her head up and down violently. At approximately 30 hours post treatment the horse threw her head one more time and a large amount of dark thick mucus came out of her mouth and nose. Again AB was able to take a deep breathe of air. She also walked over to her hay and began eating. For the next 12 hours she continued to drain from her nose as well as cough up thick mucus. AB showed so much improvement that the owner decided to turn her loose in the pasture. She bucked and galloped off (something she had not done for two months). Five days post treatment the horse was put back into work. Sixty days after the first treatment the OF and indicators came back. The above procedures were repeated. AB continues to do well, she has returned to full work and competition.

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 [18]. Of interest is whether these reflexes could be found in quadripeds [17,19] 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 [20] and the referred pain patterns were found to be reversed in one case which matched the presentation of a patient with situs inversus [21]. A case controlled study and small randomized control study investigating OFT and CMRT for upper gastro-intesintal dysfunction with pre and post upper endoscopic studies showed positive findings to this form of diagnosis and treatment. What this study investigated was whether animals and specifically equine also might have these reflex patterns. From the horse's response a

positive correlation between OFT and CMRT typically applied to humans was found 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. Animal studies are interesting since it might be assumed that issues of placebo or ideomotor effects would be minimized as compared to working with human subjects. 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.

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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.

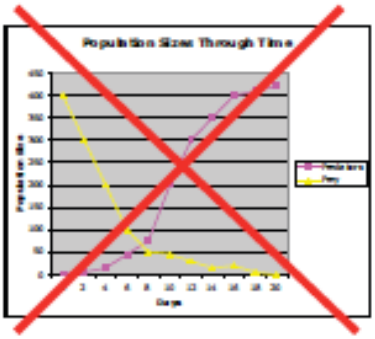
An effective poster will help you …
… engage colleagues in conversation.
… get your main points across to as many people as possible.

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!



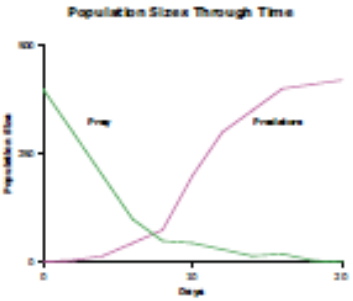
Desired message: Prey decreased as predators increased.
Focus on relationships – exact values are usually not important.

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 Case Report Poster Presentation

Names of Authors and Affiliations

INTRODUCTION

In the introduction section you describe the purpose of your poster presentation. Describe the importance of the topic, why the reader should bother to read this poster, and briefly summarize the poster's focus.

CASE REPORT INFORMATION

This is the place where you share the patient's gender, age, and any pertinent information. Why did they come to you for treatment, is there any unusual information about this patient, and any prior or current treatment they received?

INTERVENTION/TREATMENT

What treatment did the patient receive at your clinic? How long and how many treatments were rendered? Were any unusual tests performed and did they guide treatment?

RESULTS

What was the patient's response to your treatment? Can you objectively quantify their response with outcome assessment pre and post forms? Were there pre and post laboratory, imaging, or other type of findings?

A brief caption under a picture is helpful.

DISCUSSION

Can you give a research or "evidence" basis for why you think your treatment had the purported effect on the patient discussed in this poster?

DISCUSSION (Continued)

Why do you think that the patient would not have gotten better on their own without treatment or that some other treatment they received was not the reason for their response to care? What are the limitations to your study?

CONCLUSION

Summarize your whole poster in a sentence. How could future studies be improved and how is this one a call for further research?

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May 2013 Sacro Occipital Technique Research Conference

Location and Date to be Announced

Call for Scientific Submissions
Sacro Occipital Technique Organization - USA
5th SOT Research Conference, May, 2013

This call for scientific submissions invites the submission of original research that will promote the dissemination and discussion of new information. The categories for the 2012 conference are:

1. **Research (Integration)** integrated/integrative healthcare, integration related research topics (e.g., policy, healthcare programs, quantitative/qualitative research, etc)

2. **Research (Basic Science)** (e.g., experimental trials, quantitative basic science research, etc.)

3. **Research (Clinical/Health Care Systems)** (e.g., experimental clinical trials, quantitative clinical research, case reports, qualitative clinical research, public health, etc.)

4. **Research (Innovative)** (e.g., experimental sacro occipital technique or cranial integrative methods assessed with reliable and valid assessment tools, etc.)

Submission Requirements

1. **Blinded submission for peer review - due electronically January 31, 2013**

   a. The submission must be a completed study. Incomplete work (e.g., concept proposal, a proposed idea for a research project that has not begun yet, a project has started but no data) will not be considered. If you are uncertain or have any questions about this, please contact the Peer Review Chair prior to the submission deadline.

   b. Word limit: submission may be up to approximately **2000 words** (but may be shorter). The 2000 word count allows authors to demonstrate the data/results of their findings and the scholarship quality of their completed work. One file in Word or rich text format (RTF), 12-point type font, double-spaced, maximum 2MB.

   c. Do not include author names or institutional affiliations anywhere in title or text.

d. The submission must include appropriate sections such as: Title, Introduction (e.g. Background, Objectives, Purpose), Methods, Results, Discussion, Conclusion, and References sections. References are expected, but are not included in the word count.

e. Due to file size limitations, it is preferred that you submit up to 2 of any combination of the following embedded in the Word/RTF document: diagrams, figures, pictures (JPEG, TIFF or BMP), graphs or tables (e.g. one graph and one table.) Only submit these if they are essential for the peer reviewers to evaluate the proposal. Do not submit tables, graphs or pictures as separate files. Do not submit other visual aids (no videos or power point).

f. Your accepted paper will be published in the Sacro Occipital Technique Research Conference Proceedings 2012 but you will not sign over copyright to this conference and reserve the right to publish your article at another research conference or journal.

2. **Abstract for proceedings if accepted and author information - due January 31, 2013**

a. The abstract should be a structured abstract and include appropriate sections such as: Introduction (e.g. Background, Objectives, Purpose), Methods, Results, Discussion and Conclusion sections.

b. Word limit: **200 words maximum**. No pictures, tables, figures, or references are included in the abstract.

c. Do not include author information or institutional affiliations in the abstract.

d. The abstract will be published on the *SOTO-USA.org* website and within the SOT *Compendium of Peer Reviewed Literature 2010-2015* if submission is accepted.

3. **Signatures of all authors - due postmarked or faxed by January 31, 2013**

a. Signatures of all authors shall be submitted on the authorship statement form

b. Presentations of accepted works are expected. Presenting author(s) must register and attend the conference to present. Only authors may present the study. All presenters must register for the conference. We strongly recommend that funding is secured or confirmed in advance of submission. Submission is a commitment for presenting authors of accepted submissions to attend the conference and be present at the scheduled session.

4. **For studies involving human subjects – a copy of IRB/Ethics approval, expedited, or exemption letter – due postmarked or faxed by January 31, 2013**

a. All studies involving human subjects must go through appropriate IRB/ethics review and state these processes in both the blinded submission and abstract. Case reports are exempt. Any questions should be directed to your institution's IRB or Ethics Committee.
b. For studies involving human subjects research, provide a photocopy of the approval, expedited review or exemption to the peer review chair. For studies not involving human subjects, this document is not required.

Submissions that do not meet the above requirements will be returned to the submitter.

Submission Information

All paper submissions shall be submitted electronically via email to Dr. Charles L. Blum – drcblum@aol.com. A website link relating to the SOT Research Conference and registration for this conference will be posted on the website www.soto-usa.org. The primary author is responsible for proper submission of all items. Non-authors (eg, staff) are not allowed to submit or query about submissions.

Important Information:

1. If the submission does not meet the submission requirements (eg, not a completed research study, missing items), the SOT Research Conference Peer Review Chair will contact the authors. If however the paper cannot be accepted for this conference then notification will be sent to the submitting author. Concept proposals and incomplete works will be returned to the authors and those authors can contact Dr. Blum at drcblum@aol.com for further information.

2. It is the responsibility of the primary author to ensure that all requirements are met. The primary author will be the contact person responsible for submission of all required materials and all correspondence. Do not send communications through a third party, staff member, or co-author.

3. If the Peer Review Board confirms that there is an inappropriate submission, it will be disqualified. Examples of inappropriate submissions include but are not limited to: one that has been presented before at this conference, incomplete submissions, concept proposals, duplicate submissions, no human subjects/ethics review when one was necessary (includes expedited review), non-authors listed as authors, plagiarized work, etc.

4. Only electronic submissions will be considered. No faxed or mailed submissions will be considered.

5. Presentations of accepted works are expected. Authors must register and attend the conference to present. An author who does not register and present an accepted work will be disqualified from submitting/presenting for the following 2

years. It is the author's responsibility to find funding to register and attend the conference. We strongly recommend that funding is secured or confirmed in advance of submission. Presenter information and registration for the conference is required or the invitation to present will be revoked. Only authors may present their work at the conference.

6. Due to time and space limitations, and ability to cover poster presentations, there may be a limitation for the number of poster presentations per primary author/presenter.

All submissions will be evaluated for completeness, strength of contribution to the profession and relevance to the SOT research conference. Submissions will be reviewed by the peer review committee based upon the following criteria:

1. Practical significance

2. Originality

3. Theoretical/conceptual framework

4. Quality of experimental or descriptive design

5. Discussion/findings/results - clarity of presentation of findings

6. Conclusions, interpretation of results, implications for chiropractic education, theory, research, or practice

7. Citation of appropriate literature

8. Applicability for: the chiropractic profession, classroom use, further research, current/critical concerns, etc.

9. Completed study

10. Overall rating of the paper.

Notification: Primary/corresponding authors will be notified of peer review results by April 2013. If accepted, an acceptance communication and other information of the presenting author must be returned to the peer review committee. For submissions that are accepted, an author is required to register and present the work at the conference. If you have any questions or would like to request forms please contact the Peer Review Chair: Dr. Charles L. Blum at drcblum@aol.com

OTHER INFORMATION:

If accepted, the **200 word** maximum *abstract* will be printed on the SOTO-USA.org website and within the *Sacro Occipital Technique Compendium 2010-2015. The paper will be published within the proceedings of the* SOT Research Conference 2013. This will still allow you to publish your completed paper in any journal you wish.

Email a pdf or jpeg scan to drcblum@aol.com, or fax this completed by **January 31, 2013** to:

SOT Peer Review Committee 2013
Attn: Charles L. Blum, DC Peer Review Chair
Email: drcblum@aol.com
Multiple authors involved with one submission may send their forms in separately

The following two submission forms can all be found on the SOTO-USA website by going to www.SOTO-USA.org and clicking on SOT Research Conference Proceedings Submission box.

Authorship Signatures Form

Sacro Occipital Technique Research Conference V

May, 2013

INSTRUCTIONS: This form must be completed, signed, and submitted by **January 31, 2013**

Submission title (print):

_____

By signing this form:

1. I/We confirm that each of us qualify as an author of this submission, am/are responsible for all of its content, and give permission for: 1) its presentation if accepted to the SOT 2013 research conference, 2) the publication of the *abstract on the SOTO-USA.org* website and within the SOT *Compendium of Peer Reviewed Literature 2010-2015*, 3) your accepted paper to be published in the Sacro Occipital Technique Research Conference Proceedings 2013 but you will not sign over copyright to this conference and will retain the right to publish your article at another research conference or journal, and 4) am/are capable of presenting/defending all of its content (for information about authorship visit www.icmje.org)

2. If accepted, I/we understand that registration and presentation of this work at the conference is required and that funding should be secured or confirmed in advance of submission. Submission is a commitment for presenting. Authors of accepted submissions must attend the conference and be present at the scheduled session. I/We understand that withdrawing after acceptance may prevent us from submitting to future SOT Research Conferences.

For studies involving human subjects – a copy of IRB/Ethics approval, expedited, or exemption letter – due postmarked or faxed (310-478-1918) by January 31, 2013. Evidence of IRB or ethics review approval/exemption is required for all research studies involving human subjects. It is recognized that projects that use human subjects are expected to follow appropriate human subjects review procedures depending on the type and nature of the research (more information about human subjects review/ethics review/IRB can be found at http://cme.cancer.gov/c01 and http://ohrp.osophs.dhhs.gov/irb/irb_guidebook.htm).

Primary Author Print name Email address Signature Date
Other Authors Print name Email address Signature Date

_____

_____

_____

If more authors, please sign and date on an additional form. If multiple authors, each may send in their completed forms separately (need not be on the same form).

Patient Case Consent for Publication and Presentation

Title of case study/series:

_____

Author(s)
names:_____

As the patient in this case study/series, I hereby give my consent for clinical information relating to my case to be reported at a scientific conference, in a conference proceedings, and/or published in a scientific journal.

I understand that my name, initials, and/or any protected health information such as my identification number, billing information, address, etc. will not be published and that efforts will be made to conceal my identity, but that anonymity cannot be guaranteed.

I understand that the material may be published in a journal, a website of a journal, and/or in products derived from the publication. As a result, I understand that the material may be seen by the general public.

_____ _____
Name of patient (print) Date

_____
Signature of patient (or signature of the person giving consent on behalf of the patient if patient is a minor or deceased)

If you are not the patient, what is your relationship to him or her? (The person giving consent should be a substitute decision maker or legal guardian or should hold power of attorney for the patient.)

_____

Why is the patient not able to give consent? (e.g., is the patient a minor, incapacitated, or deceased?)

_____

If images of the patient's face or distinctive body markings are to be published, the following section must also be signed in addition to the section above:

As the patient stated above, I give permission for images of my face or distinctive body markings to be published and recognize that I might therefore be identifiable even though my name and initials will not be published.

_____ _____
Signature of patient (or signature of the person giving consent on behalf of the patient) Date

Please keep a copy of this completed form for your records.

Integrating temporal-sphenoid reflexes, sacro-occipital technique procedures, and reflexology for treatment of chronic cervical cervical pain and reduced range of motion: A report of two cases.

Harvey Feenstra, DC, Charles L. Blum, DC

Introduction:

Neck pain is a common disorder [1-5]. About 70% of adults will experience neck pain during their lifetime, and its point prevalence in the general population is around 22% [1,2,,4,5]. After low back pain, neck pain is the most common reason patients give for seeking chiropractic care, and the second most common reason for the use of spinal manipulation [1,6,7]. Treatment of neck pain is costly in terms of utilization of health care services, disability, compensation payments and lost work productivity [7,8].

The cause of neck pain is multifactorial and can be due to musculoskeletal conditions, trauma, systemic conditions, infections, inflammatory conditions or neoplasm [1,4]. Usually, the underlying cause of neck pain is non-specific and cannot be related to a particular pathology as a cause of the presenting symptoms [4,5]. Numerous reviews [2,3, 9-11] have assessed the evidence for the effectiveness of cervical spine manipulation and mobilization in the treatment of non-specific neck pain with mixed results [1]. Very few clinical trials have studied manual therapy for subacute neck pain [8,12-14], with the research emphasis being placed on those subjects with complaints lasting for longer than 6 months [14].

There is much discussion in the literature about the risk of stroke caused by cervical manipulation; however, Cassidy et al. [15] found the risk of stroke associated with GP or chiropractor visits was equal[1]. This suggests that cervical manipulation may not be a cause of stroke, but associated with a stroke in progress. Chiropractors need to be aware that some patient's presenting with head or neck pain, may have a stroke in progress [16].

Welcha and Boone suggest that cervical adjustments may result in parasympathetic responses, whereas thoracic adjustments result in sympathetic responses[17]. Historically chiropractors have suggested the positive effects of chiropractic adjustments on musculoskeletal and visceral health.[18-20] Some studies have investigated chiropractic vertebral subluxation, spinal manipulative therapy, and cranial adjusting in relation to autonomic function [17-30].

The purpose of the following two case studies was to investigate how a novel combination of temporal sphenoidal reflexes, chiropractic manipulation, viscerosomatic reflexes, and foot reflexology could have a positive effect on cervical spine range of motion [31-3].

Case Reports:

Case #1 involved a 38 year old female with chronic (17 years duration) neck and low back pain. She demonstrated limited cervical range of motion unresponsive to multiple

prior interventions. Cervical range of motion evaluated flexion, extension, right and left lateral flexion and rotation. Prior to the adjustive procedure, the patient had marked restriction of range of motion and noted exquisite pain when limits of range of motion were reached in all directions.

Case #2 involved a 43 year old male presenting with chronic (6 months) neck and low back pain with limited cervical range of motion. Cervical range of motion evaluated flexion, extension, right and left lateral flexion and rotation. Prior to the adjustive procedure, the patient had marked restriction and noted exquisite pain in the upper thoracic spine on right lateral flexion and left rotation restrictions which produced significant pain generalized to the cervical spine.

Methods/Intervention:

This novel intervention utilizes sacro occipital technique (SOT) protocols for analysis and treatment, temporal sphenoidal (TS) reflexes, cervical manipulation, and foot reflexology to treat chronic cervical pain associated with limited range of motion.

A general assessment of lumbar range of motion is assessed initially. SOT Category II protocols are performed, as appropriate, including a rib cage assessment by stretching the patients arms over their heads. If there is reduced motion on one or both sides, this is treated by releasing the ipsilateral psoas or sometimes also the quadratus lumborum muscles. Then the patient's pelvis is assessed for torsion and any sacroiliac joint instability (category two). If a category two imbalance is found then that is treated before proceeding to the cervical spine.

The cervical spine is analyzed with the patient supine. Sidebending the head right and left is performed. The side that has no side bend or shows restriction (lateral flexion only not rotation) is chosen as the posterior cervical side. The posterior cervical side is then rotated to the opposite side and the doctor palpates for intersegmental muscular congestion, swollen facets or painful articular facets.

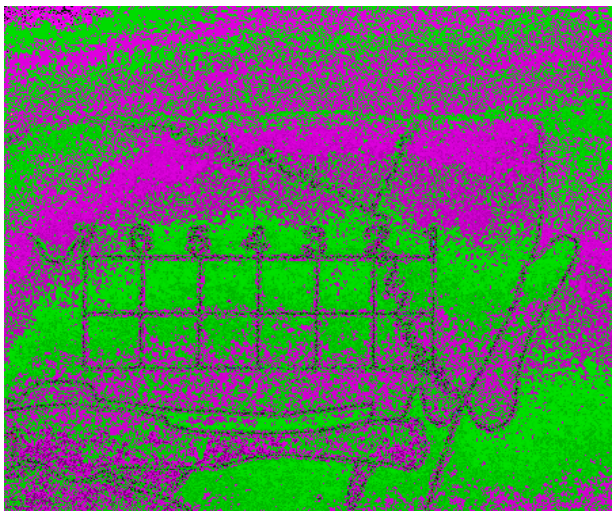
Once the most painful cervical articular facet is identified, the head is turned toward the opposite side. TS reflex points are palpated searching for the most sensitive point (e.g., Cervical 3 would relate to either Thoracic 4 or 5, or Lumbar 1) as determined by patient sensitivity to palpation.
The region of cervical vertebra congestion is held in the downward position with the head turned so the TS reflex region is placed upwards. The doctor manipulates the tender TS reflex approximately 15 seconds and then has the patient give a deep cough. This is repeated until sensitivity at the TS reflex point is relieved, which usually takes less than a minute.

With the head turned away from the posterior cervical side, have the patient look down towards their feet as the head is moved slightly into flexion while exhaling. A cervical adjustment is made as the patient moves their head upward and looks at the doctor's eyes while inhaling.

Utilizing the occipital fiber CMRT relationship and TS reflex point relationship, a specific organ will be determined to be used with the foot reflexology aspect of the treatment protocol. Generally these point(s) will be very painful. They are manipulated with pressure for about 15 seconds followed by having the patient cough. The manipulation and coughing are repeated until the pain is gone, approximately 1-2 minutes, at which time the other foot is evaluated and treated in the same manner.

Chiropractic Manipulative Reflex Technique

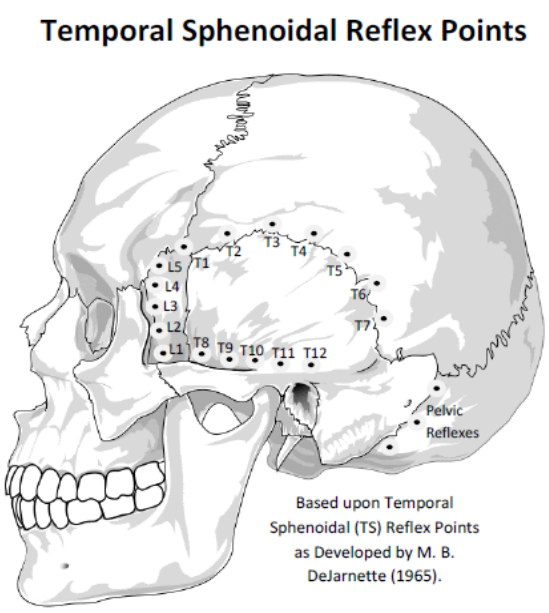
Cervical Vertebra - Occipital Fiber – Line Two - Fiber Association

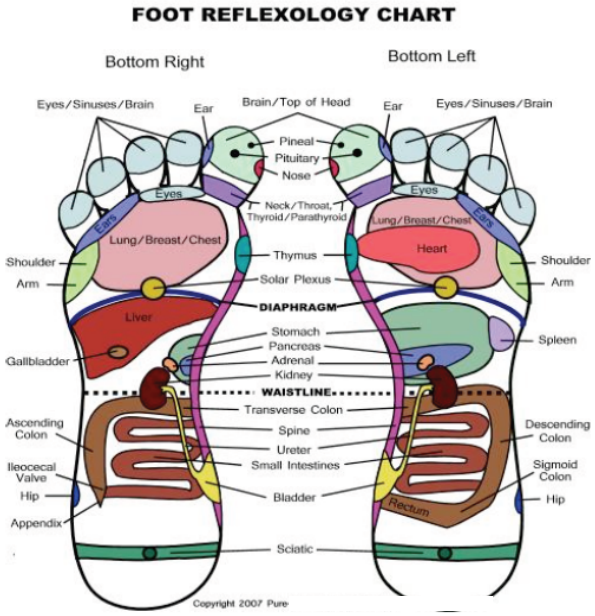


Fiber 1: T1 (cardiac), T2 (myocardial), and T10 (intestinal) = **C1**
Fiber 2: T3 (respiratory), T11-12 (kidney) = **C2**
Fiber 3: T4 (gall bladder), T5 (gastric), and L1 (ileocecal) = **C3**
Fiber 4: T6 (pancreas) and L2 (cecal) = **C4**
Fiber 5: T7 (spleen) and L3 (glandular) = **C5**
Fiber 6: T8 (liver) and L4 (colon) = **C6**
Fiber 7: T9 (adrenal) and L5 (prostate/uterus) = **C7**

Maintaining the same position as when manipulating the TS reflex the head is maintained in this same position and the cervical spine is then adjusted in the following manner. Initially the patient is instructed to look footward, tilting chin downward, and exhale and then have the patient look upward, tilting chin upward, and inhale. At the instant the patient inhales and both tilts head and looks upward the doctor makes the cervical adjustment. If the patient prefers the doctor can also adjust the cervical spine using SOT's cervical stairstep procedure.

Once completed, the patient's lumbar and cervical ranges of motion are re-assessed and compared to their initial presentation.





Specific care for case #1 involved releasing any imbalance in the psoas and supine pelvis (category two). Cervical congestion was found at C4 bilaterally, with a TS reflex point on the contralateral side at the T6 region also bilaterally and the TS reflex points were manipulated until no longer sensitive. C4 was adjusted on the right and left side and associated T6 reflex. Per DeJarnette's protocol, CMRT procedures for the pancreas were performed along with related foot reflexology points related to the pancreas.

Specific care for case #2 involved releasing any imbalance in the psoas and supine pelvis (category two). Cervical congestion was found at C7 on the right, with a TS reflex point on the contralateral side at the T9 region on the left which was manipulated for 15 seconds and having the patient cough until TS reflex sensitivity was eliminated. In retesting right lateral flexion, the patient still reported upper thoracic pain. Therefore, occipital fibers were assessed and an area one, fiber 7 was noted on the left without sensitivity. Occipital fiber technique adjustment was used to T2 on the right and CMRT myocardial reflex work was utilized. Foot reflexology for the heart reflex (area below the little toe) on the right was very sensitive. After 15 seconds of stimulation, the foot reflex became non-painful. Cervical reflex area lateral side of "big toe" was also very painful. After 1 ½ to 2 minutes of manipulation this reflex point also became non-painful.

Results:

The patient in case #1, following the first treatment, had her cervical range of motion reassessed. Full range of motion was noted in all directions and the presenting pain (8 on a pain scale of 1-10) was reduced to "soreness" (3 on a pain scale of 1-10). The patient in case #2 received 11 treatments over a 3-4 week period of time. By the 11th office visit right lateral flexion was full, but instead of pain in the upper thoracic (7 on a pain scale of

1-10) the discomfort was reduced to "soreness" (2-3 on a pain scale of 1-10). Left rotation was full without any discomfort. All other motions were full and pain free.

Discussion:

In both cases the patients presented with long term cervical spine discomfort and limited range of motion that improved following treatment. Clinically attempts have been made to add or eliminate one or other aspect to the presented method, but what has been presented appears to be consistently effective for the treatment of chronic cervical spine pain with associated limited range of motion. This improvement in pain and increase in range of motion has been found to be an effective tool to assess patient progress and response to care in the long term [34].

There have been studies that have demonstrated a relationship between cervical spine manipulations and improved cervical range of motion [31-3]. A relationship between the cervical spine and sacroiliac joint and a relationship between a category two (sacroiliac instability) and cervical spine extensor isometric strength [36] and lumbar range of motion [37] have been discussed in the literature [35].

Temporal-sphenoidal (TS) lines or reflexes was first introduced by M. B. DeJarnette in 1965 [38] and later further investigated and developed by M. L. Rees. DeJarnette had already investigated and developed reflex methods of analyzing patterns of vertebral imbalance using trapezius [39] and occipital fiber palpation [40] and treatment methods. The TS reflex was an additional tool using patient's report of pain to palpation at a region surrounding the temporal and greater wing of the sphenoid, essentially the region of temporalis muscle insertion. He postulated that sensitivity at specific points superior portion of the temporalis muscle insertion near the squamous portion related to thoracic 1 through 7 (anterior to posterior) whereas thoracic 8 through 12 (anterior to posterior related to regions near the temporal eminence towards the mastoid process. The anterior portion of the greater wing of the sphenoid related to lumbar vertebra 1 through 5 (inferior to superior) and sensitivity at the occipitomastoid suture to the parietomastoid suture regions was related to the pelvis [38].

The thoracic and lumbar points of sensitivity along the TS lines were determined by DeJarnette and Rees to have a relationship to DeJarnette's occipital fiber vertebral relationships as described in chiropractic manipulative reflex technique (CMRT) [41]. CMRT methods have been gaining evidence in recent years as evidenced by studies on animals [42, 43], a patient with situs inversus [44], a controlled clinical pilot study [45], and a small randomized controlled study [46].

As chiropractors have been exploring the treatment of nonmusculoskeletal conditions with manipulative procedures [47], incorporating foot reflexology into a patient clinical encounter seemed reasonable. Foot reflexology treatments apply pressure to specific points or areas of the feet. According to the principles of reflexology, areas of the feet correspond to different parts of the body, and applying pressure to these areas can affect

the corresponding parts of the body. In some cases, pressure may also be applied to the hands or ears [48].

For thousands of years, techniques similar to reflexology have been used in Egypt and China. A technique called "zone therapy" was developed in the early 20th century by an American physician named William Fitzgerald. Dr. Fitzgerald suggested that maps of the foot could be used to diagnose and treat medical conditions. He divided the body into 10 zones and labeled what he believed to be the corresponding parts of the foot. He proposed that gentle pressure on the foot could bring relief to the corresponding zone [48].

In the 1930s, Eunice Ingham, a nurse and physiotherapist, further developed these maps to include specific reflex points. Zone therapy was renamed reflexology. Reflexology charts have diagrams of the feet with corresponding parts of the body. The right foot corresponds to the right side of the body, and the left foot corresponds to the left side [48].

Evidence for this method of care is limited but studies suggesting its effectiveness are slowly emerging. Recent research has found foot reflexology helpful in treating specific female conditions [49-51], respiratory disorders [59-61], various other disorders [62-69], and as a part of oncology treatment [52-58].

As with any case report or series, without a control group or comparison intervention, it is difficult to rule out regression to the mean, ideomotor, or placebo effects. However, the chronicity of the patient's presentation, the previous unsuccessful methods attempted to resolve their condition, and the successful response to the specific intervention makes compelling evidence for further study.

Conclusion:

These case reports illustrate one patient who had chronic cervical spine pain and limited range of motion for 17 years (case #1) and another for 6 months (case #2) who both responded favorably to SOT category two treatment, TS reflex and cervical manipulation as well as foot reflexology. Further research is indicated for a larger sample with control group, and comparison interventions. Greater outcome assessment tools involving pre and post neck disability index forms and a reliable range of motion assessment tool would be useful.

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