2024

Proceedings of the

15th Sacro Occipital Technique

Research Conference

Nashville, Tennessee

April 26, 2024

Sacro Occipital Technique Research Conference

Nashville, Tennessee
April 26, 2024

Hosted by:

Sacro Occipital Technique Organization – USA

CONFERENCE PROCEEDINGS

Conference Chair
Charles L. Blum, DC
Research Director: Sacro Occipital Technique Organization – USA

Acknowledgements:

It is with the utmost gratitude I wish to thank all the various authors of these submitted abstracts and papers. Only with their selfless efforts can we share what we are finding in clinical practice and help build our evidence base of literature. I also wish to thank those who have donated to the Sacro Occipital Technique Organization – USA Research Fund which has helped pay for the printing of this conference's proceedings. Thanks to the SOT Research Committee who participated with editing of SOT® Research and this SOT Research Conference's Proceedings. A special thanks goes to NCMIC for supporting this research conference as well as helping to advance chiropractic and allied healthcare evidence based research.

Copyright 2024

Publisher

Sacro Occipital Technique Organization – USA

PO Box 1357, Sparta, NC 28675 Telephone: 335-793-6524
Fax: 336-372-1541 Web: www.soto-usa.org E-mail: drcblum@aol.com

Notice: The papers and abstracts published in these proceedings were reproduced from originals furnished by the authors. The opinions and the security of the information are the responsibility of the authors and not the Sacro Occipital Technique Organization – USA.

All rights reserved. No part of the papers or abstracts published in these proceedings may be reproduced, used, stored in a retrieval system or transcribed, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

Copies of these proceedings may be ordered from the Sacro Occipital Technique Organization – USA at the above address. Cost is US $29.50 plus US $10 (for shipping and handling). Payment may be made by VISA, MasterCard or check payable to the Sacro Occipital Technique Organization – USA drawn on a US bank account.

The "Sacro Occipital Technique®" mark is owned by SOTO-USA.
The "SOT®" mark is owned by SORSI and SOTO-USA is licensed to use the trademark.

Proceedings of the 2024 Sacro Occipital Technique Research Conference

Nashville, Tennessee • April 26, 2024

Table of Contents

TITLE	PAGE
Blum CL, Ebrall PS. Sacro Occipital Technique Research Conference 2023: Notes from Louisiana. Asia-Pac Chiropr J. 2023;4.1	**1-9**
David Graber, DC, DABCSP. A Brief Clinician's Guide to Using Research Evidence in Practice. April 28, 2023	**10-13**
Evidence Based Practice: The Hierarchy of Evidence	**14-24**
2024 SOT Research Conference Proceeding Contributing Author's Biographies	**25-28**

2024 CONFERENCE PROCEEDINGS
Paper Title, Author(s) *(Listed Alphabetically by Lead Author)*

Sacro occipital technique for foot hyperpronation pain in a 55-year-old female: a case report Bridget Abbott, DC	**29**
Chiropractic and dental integrative care for 52-year-old male stroke victim suffering from chronic temporomandibular joint (TMJ) dysfunction (TMJD) Thomas Bloink, DC, Charles L. Blum, DC	**29-30**
Chiropractic care of a 65 year old male patient presenting with benign prostate hypertrophy (BPH) affecting urinary flow: A case report Charles Blum, DC	**30**
Self-reported nonmusculoskeletal responses to chiropractic care: A review of the literature Charles Blum, DC	**30-31**
Blum CL. Care of a 72-year-old female patient with small intestinal bacterial overgrowth (SIBO) incorporating Chiropractic Manipulative Reflex Techniques (CMRT) Charles Blum, DC	**31**

Severe sacroiliac and low back pain possibly associated with post ablation tubal sterilization syndrome, treated with chiropractic manipulative reflex technique (CMRT) uterine reflex techniques and allopathic gynecological management 32
Charles Blum, DC

Inter- and intra-disciplinary chiropractic collaborative care of a patient presenting with temporomandibular joint disorder (TMD), head and neck pain, and right-sided cormiosis 32-33
Charles Blum, DC

Sacro occipital technique (SOT) and cranial techniques for treatment of post-brain surgery secondary effects, two years post-surgery: A case report 33
Charles Blum, DC

The chiropractor's role in the treatment of sleep disordered breathing 33-34
Kathryn Cantwell DC, Sharon Vallone, DC

Treatment of a 40-year-old female with a history of sleep apnea, insomnia, and airway compromise symptoms: A case report 34-35
John Erickson, DC

Evidence based chiropractic education: A student's perspective 35-37
Jesse Graham Nichols, DC

Chiropractic manipulative reflex technique (CMRT) treatment of a non-compliant 59 year old female presenting with a hiatal hernia, gastritis, and other co-morbidities: A case report 37-38
Michelle Greene, DC

Chiropractic Management of a 71-Year-Old Veteran with Chronic Low Back Pain Grade 1 Spondylolisthesis Utilizing Low-Force Sacral-Occipital-Technique (SOT): A Case Report 38
Angel K. Hong, DC, Dipl. Acu.

Sacro occipital technique (SOT) treatment of a 6 year old female patient presenting with chronic bed-wetting (nocturnal enuresis): A case report 38-39
David Simmons, DC

Treatment of a 36-year-old female with chiropractic manipulative reflex technique (CMRT) for gallbladder related referred pain: A case report 39-40
David Simmons, DC

Cranial Stenosis and Unilateral in-toeing in a 6-year-old male: A case **report** **40**
Lisa Stowell, DC

Invited Articles for the 2024 SOT Research Conference Proceedings

Buddingh CC, Galinis MR. **A Brief Overview of The Stubborn Low Back & Category II.** Dig Chiro Econ. 1980 Jul/Aug; 27(1): 72-3. **41-43**

Buddingh CC. **The Spheno-Maxilla Distortion.** *Today's Chiropractic.* Jul/Aug 1988; 17(4): 31,36. **41, 44**

Dr. Robert Coté's Clinical Research **45-54**
Caroline Vitez, DC

Denton DG, **Vector Point Cranial Therapy**, *Dig Chiro Econ*, Nov/Dec 1988; 31(3): 30-35. **55-61**

Cantwell K, Vallone S. **The chiropractor's role in the treatment of sleep disordered breathing**. Journal of Clinical Chiropractic Pediatrics. 2022 Nov; 21(2): 1931-1935. **62-66**

Sacro Occipital Technique Research Update **67-75**

The DeJarnette Biography: "The Making of a Chiropractor" **75**

Many Thanks to NCMIC Foundation for their Support of the Sacro Occipital Technique Research Conferences **76**

Sacro Occipital Technique Research Conference 2023: Notes from Louisiana

Charles L Blum and Phillip Ebrall

Narrative abstract: The annual research conference of the Sacro Occipital Technique Organization (USA) was held in Louisiana, New Orleans, 28 April 2023.

These brief notes are extracted from the Conference Proceedings and address the importance of chiropractors documenting their clinical practice in the form of case reports.

The founder of SOT, Major Bertrand DeJarnette. presented his initial research findings in 1935. Since then the specialty field of Sacro-occipital Technique (SOT) has grown and now presents an annual conference in North America.

A core theme of this year's meeting was the role that Case Reports play in the documentation of different aspects of clinical experience, different patient experiences and outcomes, and the importance of these to inform further research and scholarly inquiry.

Indexing terms: Chiropractic; case report; publication

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)

> ... we call on all chiropractors to document their clinical approach in the form of a Case Report at least once every 2 years ...'

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 a long pencil.

He emphasised 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. He could not believe how much he had forgotten about the details. The lesson he learned was '*write the unusual down now*'. (2)

When DeJarnette began to study the treatment he had rendered he realised that if any meaningful information were to evolve from his experience, he would have to resolve it himself. He suggested that research has to be a free agency. Basically he saw a need and worked to fulfil that need. He realised 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 annual *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, like all prior conferences, 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; how to make it better is the final research step. SOT 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)

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.

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 recognises that care is individualised and ever changing and involves uncertainties and probabilities. (5)

EBP develops individualised guidelines of best practices to inform the improvement of whatever professional task is at hand. It 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. (5)

> 'It's about integrating individual clinical expertise and the best external evidence' (6)

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). (5)

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 randomised 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 decision but also utilises 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 the effectiveness of their care so that they do not inadvertently make false or exaggerated 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. The annual conference delivered by SOT 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 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 utilise his methods, to be informed of the evidence and evolving research and utilise 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 usual 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. 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*?'

He wrote '*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*'. (7)

There are *now ample papers* in the Chiropractic literature promoting *the value of the case report* with suggestions on *how best to prepare them*. We call for every chiropractor to prepare a case report of something unique to their practice at least once over the next 2 years. When this occurs, the indexed case reports in Chiropractic will increase ten-fold, from about 5,000 to about 50,000.

This *Journal* welcomes and promotes Case Reports and in association with the *Australian Spinal Research Foundation* and their *Case Report Project* are making a significant contribution to the Chiropractic case report literature. Each of us are more than happy to guide and support to as you write for first case report, and the ASRF can assign you a writing team to produce your paper.

Phillip Ebrall
BAppSc(Chiropr), GC Tert Learn Teach, MPhotog, PhD, DC (Hon), FACCS, FICCS
Research Scientist: History and Philosophy - Chiropractic [Field 220299]
pebrall@me.com

Charles L Blum
DC, CSP, CSCP
Director of Research
Sacro Occipital Technique Organization - USA
Private practice of Chiropractic
Santa Monica, CA

Cite: Blum CL, Ebrall PS. Sacro Occipital Technique Research Conference 2023: Notes from Louisiana. URL Asia-Pac Chiropr J. 2023;4.1 URL apcj.net/Papers-Issue-4-1/#BlumEbrallSOTResearchNotes

References:

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.
3. DeJarnette MB. The Sacro Occipital Technique Bulletin. Mar 1978: 2-3.
4. DeJarnette MB. The History of Sacro Occipital Technic. Private Practice: Nebraska City, NB. 1958:27.
5. 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.
6. 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.
7. Ward RW. Why it is Important to Write a Case Report. Dural Connection Internet Edition. 2006;3(3). http://soto-usa.com/writing-a-case-report/ Last accessed April 30, 2018.

Resources to assist you yo prepare your Case Report

We provide two resources to assist you prepare your case report:

- Patient Consent for Publication and Presentation
- Case Report Check List

Consent is a requirement only when there is a reasonable probability that the patient can be identified. They may be prominent in the entertainment industry, (1) or politics, (2) or, as is increasingly common, sports. (3) There may be other cases where its characteristics could result in identification of the patient, especially in small communities. This is not to say that the public in such a community could read the report, but more to suggest that privacy must be maintained if the practitioner chose to reproduce the report and distribute in their waiting room to demonstrate the types of patients they are helping. Given that most chiropractic conferences require case report consent forms and some journals also, it is best to always get a consent form signed.

The requirements of some journals may mandate that patient consent is required for any use of patient data. There are two clear matters to consider in this case:

- all patient-intake forms should carry a generic clause to the effect the patient consents to their anonymised data being used in a way which does not identify them for the purposes of education and research;
- some journals, and this masthead is one, do not require specific, overt consent for the use of anonymised data in a case report.

One of us (PSE) has elsewhere (4) addressed more completely the ethics of publication.

Some research meetings may require evidence of patient consent and to assist you with this we provide a form appropriate for recording *Patient Consent for Publication and Presentation*. (5)

One of us (CLB) has also created a handy '*check list*' to guide you through the process of preparing your first draft. (6)

Over the past decade medicine has tried to impose a format called the CARE guidelines for case reports. (7) The application of this format to chiropractic has been considered for this journal (8) however it is reasonable to now propose that the CARE approach could be seen as paradoxically both overly prescriptive and incomplete for optimally informed the advanced of chiropractic approaches to patient care.

Whilst there are papers specifically outlining what a Case Report should contain (9, 10) we both feel the attached guidance from Blum is both practical and complete. We recommend its use.

---

1. Rome PL. Chiropractic patients prominent in the entertainment industry. Chiropr Hist. 2020;39(1):7-11.
2. Rome PL. Prominent Chiropractic patients in Royalty, Politics, Medicine and Industry. 1997;36(1):87-98.
3. Rome PL. Chiropractic patients prominent in sports. Chiropr Hist. 2020;39(2):48-55.
4. Ebrall PS. Commentary: The ethics of publication. J Chiropr Ed 1993 Sept:43-51.
5. Blum CL. Patient consent for publication and research. SOT-USA. https://soto-usa.com/wp-content/uploads/2016/02/Patient-Consent-for-Publication-and-Presentation.pdf.
6. Blum CL. Case Report check list. SOT-USA. https://soto-usa.com/wp-content/uploads/2016/02/case-report-checklist.pdf.
7. Riley DS, Barber MS, Kienle GS, et al. CARE guidelines for case reports: explanation and elaboration document. J Clin Epidemiol. 2017;89:218-235. DOI 10.1016/j.jclinepi.2017.04.026.
8. Doyle M, Ebrall P. Points to consider when writing to the CARE Guidelines for case reports. Asia-Pac Chiropr J. 2021;1(3):1-4. URL https://www.apcj.net/site_files/4725/upload_files/DoyleCAREchecklistforcasereports(1)(1).pdf?dl=1
9. Ebrall PS, Murakami Y. How to write a well constructed, credible Case Report for Integrative Medicine. Jap J Int Med 2018;11(3):285-91.
10. Ebrall PS, Murakami Y. Constructing a credible case report: Assembling your evidence. J Contemp Chiropr 2018;1:40-53 https://journal.parker.edu/index.php/jcc/article/download/29/11.

Patient 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, 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 in products derived from the journal. 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 the 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 should be signed in addition to the first section:

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

Sign and date: _______________________________ _______________________

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

Case Report Check List

Charles L. Blum, DC

Based on the article by Green BN, Johnson CD. Writing A Better Case Report, J Sports Chiropr & Rehabil. 2000 Jun;14(2):46-47. (Was adapted from: Keating JC. Towards a Philosophy of the Science of Chiropractic: A Primer for Clinicians. Stockton, CA: Stockton Foundation for Chiropractic Research; 1992:419-20.) Permission was given to Dr. Blum by Drs. Green and Johnson to share their information in this format.

See case report patient consent form (after check list) and have patient sign consent form before submitting this case report for publication.

INTRODUCTION

1. What specific health problem is associated with this case report and its significance (e.g., prevalence, incidence, morbidity, financial and social costs)?

2. What literature has been reviewed on this problem in relation to any diagnosis and treatment? We recommend you cite only the Top Five most recent papers on the topic, and any seminal paper.

3. How is this case report important and contribute to further understanding in health care?

4. Please state your paper's purpose or thesis clearly.

CASE REPORT

The Assessment:

1. Describe the patient's characteristics.

2. Define and describe the patient's health history clearly.

3. Clearly describe the patient's examination in terms of positive results and significant negative results.

4. What outcome assessment measures were utilized for clinical measurements?

5. Fully describe any novel diagnostic or assessment strategies that were utilized.

6. What does the literature say about the validity or reliability of the procedure used?

7. What is the patient's diagnosis?

Treatment/Intervention:

1. In a clear manner describe the treatment or intervention.

2. Clearly describe the treatment so it could be replicated by anyone reading this paper.

RESULTS

1. Any outcome assessment measures mentioned in the case report should have its data reported here.

2. What may be any possible side effects or risks associated with the treatment rendered?

3. Attempt to distinguish between short versus long-term outcomes associated with the treatment rendered?

DISCUSSION

1. Clearly describe your interpretation of the results.

2. Can you propose a mechanism for the observed changes?

3. What flaws might there be with your study and how could it be improved in the future?

4. Is there any differential diagnosis associated with this case report?

5. Why might some question your conclusion that the treatment was responsible for the observed changes?

6. What are the limitations associated with applying this study to other patients?

CONCLUSION

1. Clearly address the purpose of this case report as presented in the introduction.

2. Suggest what future research could be performed based on the findings of this case report.

Here, try to be specific and instead of a motherhood statement such as 'more research is needed', give your view on what specific questions should be answered based on the case you have presented.

REFERENCES

Each journal commonly has their own recommended format for references but one of the most common is the Vancouver Style, while it would be good to check the journal directly, Scribbr give all styles at *https://www.scribbr.com/citing-sources/citation-styles/*

This journal accepts all citation formats including footnotes, endnotes, (Name, Year) in text. We place the reference within parentheses ( ) outside punctuation. When numbers are used they are set to the baseline as are in-text (Name, Year). We give every citation number and do not hyphenate a range.

Most chiropractic journals and conference formats accept the Vancouver style which takes this format:

> 1. Bute M. A backstage sociologist: Autoethnography and a populist vision. Am Soc. 2016 Mar 23; 47(4):499–515. Available from: https://link.springer.com/article/10.1007/s12108-016-9307-z DOI 10.1007/s12108-016-9307-z

Please note the current format for the doi: is to capitalise without the colon, thus DOI .

STRUCTURED ABSTRACT

The case report should have a structured abstract, a summary of the article usually around 150 - 250 words. There are specific formats for an abstract and each journal has their particular preference. Information for what is needed to write "Structured Abstracts for Case Reports" is located at: [http://www.soto- usa.org/Newsletter/DCInternetEdition/dc_internet_ed_vol_3_no3Abstrak/StructuredAbst racts.htm (last accessed 11-01-07)]

INDEXING TERMS or KEYWORDS

Keywords are usually key words or phrases that an indexer can use to cross-index your paper. It is best to use *Index Medicus Medical Subject Headings* (MeSH). To find the MeSH terms you may want to contact a chiropractic librarian or explore on-line at http://www.nlm.nih.gov/mesh/meshhome.html.

This Journal prefers the key words from the Chiropractic Subject Headings (ChiroSH) 2006 edition: http://www.chiroindex.org/htmls/ChiroSH2006.pdf. This is specifically to allow the indexing of techniques.

PATIENT CONSENT FORM

While historically patient consent forms were not needed for case reports, in the effort to protect patient's confidential information and prevent unwanted information from being released, journals will likely be requesting' patient consent forms'. We have addressed this matter.

With credit to: Case Report Checklist© SOTO-USA 2010

A Brief Clinician's Guide to Using Research Evidence in Practice

April 28, 2023 • David Graber, DC, DABCSP

Published originally in the ANJC Journal: NJ Chiropractor, Spring 2023

In the past chiropractors relied almost exclusively on their experience, intuitions, theories, systemized rules, or the findings of a celebrated teacher to guide their clinical decisions. With the explosion of information and communication in the 21st century, research evidence now figures in a larger portion of the decision process.

While research evidence is necessary, by itself it is not sufficient to make good health decisions. Expertise can be defined as the ability to interpret and integrate research evidence, clinical experience, patient preferences and values, and the situational context to formulate recommendations and good courses of action.

How to start using research evidence?

It all starts with asking a clinical question. To ask a well-informed question the PICO framework is commonly used. The PICO model is as follows:

P = Patient, Population, or Problem: What are the most important characteristics of the patient; include the primary problem, disease, or co-existing conditions.

I = Intervention: What do you want to do for the patient?

C = Comparison: Are you trying to decide between two or more treatments or diagnostic tests? You do not always have to have a specific comparison.

O = Outcome: What do you hope to accomplish, measure, improve for the patient? What are you trying to do to affect the patient positively?

What studies are more reliable?

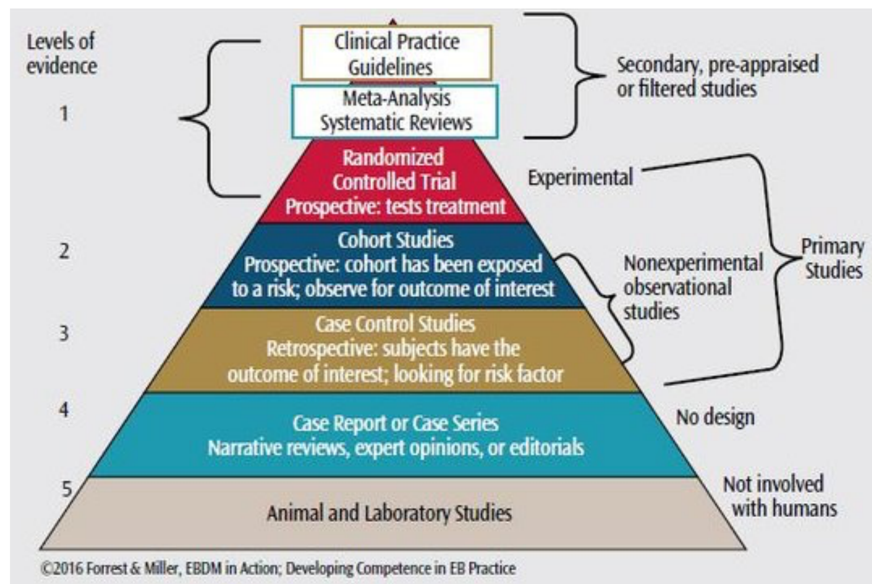
Not all studies are equal in validity. Internal validity is the degree that the study has a low risk of bias. External validity is how well the study's findings are generalizable to the public at large and to your patient specifically. Therefore, not all "best" studies are best for the individual patient under your care.

In Evidence-Based Practice (EBP), research evidence is ranked from the most internally valid to the least. Here are the 3 broad categories of study designs and reviews of the evidence. From the highest to the lowest quality:

1. **Critically Reviewed or Filtered Sources:** Practice Guidelines, Meta-Analysis, and Systematic Reviews.

2. **Experimental Studies:** Randomized controlled trials and non-randomized controlled trials.

3. **Observational Studies:** Cohort Studies, Case-control Studies, Cross-sectional studies, Case Series, and finally Case reports.



How to find the best available evidence?

There are several sources to find research evidence relevant to your clinical question. The main ones are Journals, Presentations, Guidelines, and Point-of-Care Tools.

Journals: A time-honored way of vetting and disseminating research findings. With thousands of medical journals published, it's important to choose quality journals and avoid those which are considered questionable, pseudo-journals, or predatory. While there is no specific procedure to determine the quality of a journal, you can ask the following questions to find the quality of a journal:

- Does the Journal have a dedicated website and have transparent editorial, publication and review policies available?

- Who are the Editorial board members? Are they known as established experts in the field related to the aim and scope of the journal?

- Is it peer reviewed and do they have a transparent peer review process?

- Are they selective or do they accept and publish almost all submissions, or charge article processing (or publication) fees?

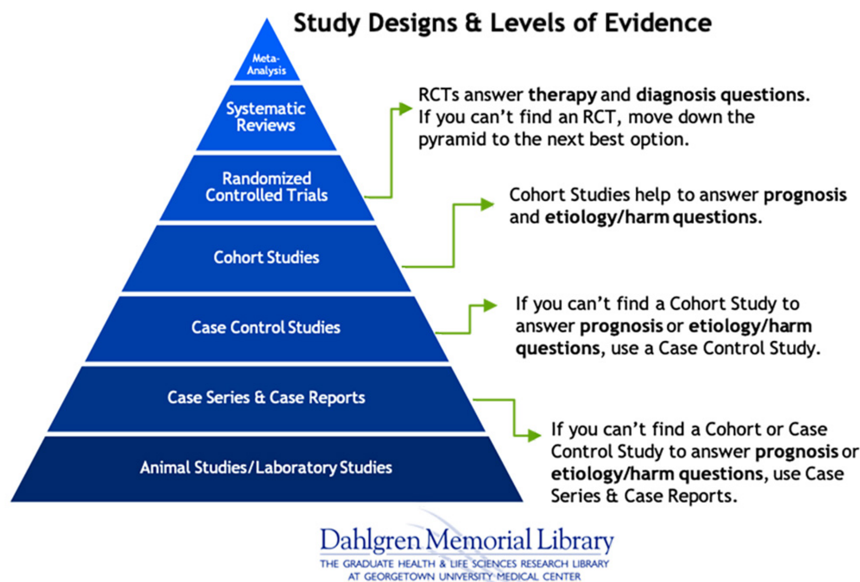
- Are they indexed in major journal indexing agencies, such as Google Scholar, Scopus, PubMed, and DOAJ?

- What is the journal's Impact factor and other rankings?

- Do they have membership in and endorse guidelines and best practices with COPE (Committee on Publication Ethics) or another recognized organization?

- Is the journal, the publisher of the journal, and the societal organization that sponsors the journal highly regarded from your colleagues and colleges?

- What is the business model of the journal?



More thorough resources and checklists can be found at: http://thinkchecksubmit.org, and Beall's list of predatory publishers & journals. https://beallslist.net

Presentations: These are continuing education seminars, webinars, and poster presentations. High quality presentations usually have been selected and screened by an accredited educational institution, professional association, and approved by licensing boards.

Guidelines and Best Practices: Clinical practice guidelines (CPG) are recommendations intended to optimize patient care. They are formed by expert reviewers who perform a systematic review of evidence, and an assessment of the benefits and harms of alternative care options.

"**Best Practices**" are clinical decisions informed by the best evidence available, and balanced by patient complexity and provider experience.

Point-of-care tools: are those research and reference resources that a clinician can utilize immediately at the point-of-care with a patient. They are often easy to use and contain filtered information. These tools should include the best and most recent evidence-based research, provide summaries, link to relevant articles and guidelines, are updated regularly, and are easy to search

Should clinicians read individual research studies?

In general, probably not. A practitioner's focus and training are on applying research findings to their patient care. They often do not have the skills or time to critically evaluate individual studies. Most should start by utilizing filtered sources of information, namely practice guidelines, systematic reviews, and meta-analyses. Since these sources give recommendations that are generalizations, clinicians can further research unfiltered information for findings that may help their individual patient.

In the end, all research data are tools, not rules to make better clinical decisions for better patient care.

About the Author: David Graber, DC, DABCSP is a nationally known presenter on chiropractic technique and is a member of the ANJC board of directors. He maintains a private practice in Parsippany, NJ. He blogs on chiropractic and clinical topics at: drgraber.wordpress.com. He can be reached at: DrDavidGraber@gmail.com.

A more inclusive evidence hierarchy for chiropractic

Abstract: The familiar evidence pyramid based on Sackett's seminal work published in 1996 favours the reductionistic medical and pharmacological paradigms to the exclusion of the holistic chiropractic paradigm and patient-centred care.

Twenty-five years on, weaknesses and omissions are identified in the EBM approach and two disciplines (Nursing, Occupational Therapy) have re-defined a hierarchy of evidence and its understanding in their clinical environment.

This paper presents a fresh interpretation of Sackett's premise, describing and depicting with argument that there is a more relevant way to assess evidence in the fields of chiropractic in general and subluxation in particular and that this approach reflects the clinical validity of Palmer's major premise on which the profession is built.

The bottom line is that given the patient-centred nature of chiropractic which is mostly if not always an *'N of 1'* encounter, the chiropractor is obliged to treat the patient and not a guideline. This new hierarchy (pyramid) allows the evidence to be gathered to better support the chiropractic encounter.

Indexing Terms: chiropractic; subluxation; evidence hierarchy; pyramid; spinal adjustment.

Preface

'Health care is a basic human right. I want to ensure our health systems leave no one behind'
Obijiofor Aginam M.Law, PhD; Deputy Director, International Institute for Global Health
United Nations University, Shibuya-ku: 2018

'Life is intelligent action'
Daniel Palmer, chiropractor, academic
The Chiropractor, Los Angeles: 1914 (22, 57)

> *... Sackett's evidence hierarchy is biased against the chiropractic discipline. A new hierarchy is presented which applies the philosophical tools of phronēsis and noetics to reach "practice wisdom" as the apex'*

Introduction

In 1996 Sackett formalised Evidence Based Medicine (EBM) (1) from which an instrument, the Evidence Pyramid or Hierarchy, was built to weigh and categorise evidence. A current iteration of the Sackett Pyramid is given here as Figure 1.

This paper will demonstrate the weaknesses now evident in that instrument to the extent it is no longer useable in chiropractic.

1. Sackett, David L, Rosenberg, William MC, Muir Gray, JA, Haynes R. Brian and Richardson W. Scott. Evidence based medicine: what it is and what it isn't [Editorial]. BMJ. 1996:312):71-2. DOI https://doi.org/10.1136/bmj.312.7023.71.

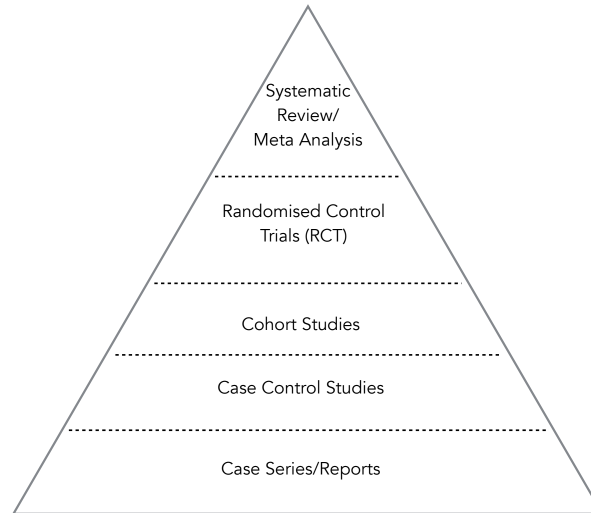


Fig 1: The evidence pyramid derived from Sackett

My research includes the study of instrumentation. (2, 3, 4) Simply put, an instrument designed to measure one thing is not suited to measure another. It is a truism of science that error is compounded when there is bias built into any instrument. There are two biases built into the '*Sackett Pyramid*' or '*hierarchy*' instrument: inclusion bias, and selection bias. (Table 1)

Table 1: Weaknesses with the Sackett Pyramid of direct relevance to chiropractic

Weakness	Description
Inclusion bias	Inclusion limited to only one discipline, biomedicine, to the neglect of all clinical health care practices
Selection bias	Inclusion of one aspect of the triad with exclusion of two identified by Sackett: the 'patient preferences' and their self-knowledge, and the immense pool of knowledge embedded in 'practitioner experience'

Regrettably the 'quantitative lobby' of chiropractors dominates the discipline's conversations and excludes qualitative knowledge; it adheres to the Sackett Pyramid. It is reasonable for regular or conventional doctors of chiropractic to seek an instrument that is more inclusive of their clinical practice. Indeed, in 2005 chiropractors Miller and Jones-Harris (5) asked the question, '*Is it time for change?*' Their paper may have seemed impertinent coming within the first decade that EBM and its hierarchy was adopted across medicine, and they failed to get traction for their ideas. Perhaps this was more due to their idea actually maintaining a hierarchy but rather labelling evidence as '*gold, silver, or bronze*'. (5, Fig. 3)

2. Ebrall PS. Moore N, Poole RT. An investigation of the suitability of Infrared Telethermography to determine skin temperature changes in the human ankle during cryotherapy. J Chiropr Sports Med. 1989;3:4-11.

3. Ebrall PS. A determination of the applied laboratory error of the Metrecom computer assisted goniometer. J Chiropr Tech. 1992;22:46-51.

4. Ebrall PS. An estimation of the clinical error for the Metrecom computer-assisted goniometer. J Chiropr Tech. 1993;5:1-4

5. Miller PJ, Jones-Harris AR. The evidence-based hierarchy: It is time for change? A suggested alternative. J Manipulative Physiol Ther. 2005;28(6):453-7.

Sackett mentored Gordon Guyatt who was developing a novel method of teaching medicine at the bedside. His work reflected the implication that clinical decisions at the time were less than scientific, although probably true. He packaged his work that described the core curriculum of the McMaster Residency Program as '*Evidence-Based Medicine*' (EBM). (6) It was realised that a '*deficit existed in medicine: biomedical science often had no translational application to clinical medicine*.'

Guyatt stated '*Evidence based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients … integrating individual clinical expertise with the best available external clinical evidence … we mean the proficiency and judgment that individual clinicians acquire through clinical experience and clinical practice … (and) the more thoughtful identification and compassionate use of individual patients' predicaments, rights, and preferences in making clinical decisions about their care*'.

Tonelli and Callahan make the point '*the knowledge gained from population based studies may not be the best way to assess certain CAM practices, which view illness and healing within the context of a particular individual only.*' (7) An examination of Figure 1 shows no overt consideration of the patient or practitioner.

There has been a suggestion the chiropractic profession should become more evidence based. (8) A '*soft-resistance*' to the concept of EBM is given by Walker as being a change in terminology to '*evidence influenced practice*,' and a hard resistance as being a claim that the best evidence is that based on practice experience and not research.

In this paper I present a '*harder resistance*' to Walker stating that his views are opinions not based on evidence, are not warranted, and would perpetuate impediments to chiropractic.

Weaknesses of the current hierarchy

The over-riding weakness of the evidence hierarchy today is that it is driven by quantitative biomedical reporting which by default excludes the burgeoning qualitative literature and the vast amount of literature prepared in the traditions of Eastern philosophies. It is only now that the distinctions have been explored, (9) the most basic rationale being to '*broaden the diversity of voices and cultural perspectives admitted*' (10) into conversations about '*health for all*'.

For chiropractors the classic loss of information arising from the belief there is only one 'evidence pyramid' and that it is flawless is seen with the *General Council on Chiropractic* (GCC), a British regulatory body. This group, through a fatally flawed process, expressed their opinion that '*there is no evidence*' for subluxation. I have previously addressed this travesty (11) but to little avail as their damaged stream of thought continues in some parts of the profession today.

6. Sur RL, Dahm P. History of Evidence-based Medicine. Indian Journal of Urology 2011;27(4):487-9 available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3263217/.

7. Tonelli MR, Callahan TC. Why alternative medicine cannot be evidence-based. Academic Med. 2001;76:1213-20.

8. Walker BF. The new chiropractic. Chiropr Man Ther. 1026;24. DOI 10.1186/s12998-016-0108-9.

9. Emmanuel SM, Ed. Philosophy's big questions. Comparing Buddhist and Western Approaches. Columbia University Press, New York. 2021.

10. Kalmason L. Foreword. In, Emmanuel SM, Ed. Philosophy's big questions. Comparing Buddhist and Western Approaches. Columbia University Press, New York. 2021.

11. Ebrall P. Murakami Y. A Critical analysis of the Reality Distortion of chiropractic among scientists with constructive criticism of the current debate. J. Phil Princ Prac Chirop 2019;July 11:1-11. https://www.vertebralsubluxationresearch.com/2019/07/10/a-critical-analysis-of-the-reality-distortion-of-chiropractic-among-scientists-with-constructive-criticism-of-the-current-debate/

A second and significant weakness is the increasing distance of the *Pyramid of Evidence* from the patient. The most extreme example is the reduction of 'evidence' into bland statements gathered under the banner of '*Choosing Wisely*', a movement sweeping the globe akin to that of 'climate change'.

An example may be taken from *Choosing Wisely Australia*, (12) the mantra for which is '*More is not always better when it comes to healthcare*'. While the intent to reduce unnecessary tests may be laudable, the result is that panels of experts remote from the patient generate an 'evidence-based' guideline without any patient in front of them. In effect, the patient and their individual needs are removed from the process of guideline-making, replaced with a reliance on chance and likelihood as we see with the imaging recommendation for people with low back pain.

It states '*1. Don't request imaging for patients with non-specific low back pain and no indicators of a serious cause for low back pain.*' (13) The reliance on chance is given as '*In people who present to primary care with low back pain, medically serious disease is uncommon*.' The exclusion of even a possibility there may be a functional disorder appropriate for chiropractic identification and management is ignored, with the advice '*Patients with a higher likelihood of medically serious disease as the cause of their low back pain can be identified by red flags*'.

The clinical decision making process is reduced to a directive. Worse, the directive lacks granularity; it refers to 'imaging' with no distinction of an X-ray called the 'AP Lumbar' view from a 'Lateral', no mention of the role of 'Lumbar Oblique' views, no mention of 'spot' views, and no consideration of 'Pelvic', 'symphysis pubis', or 'SIJ' views. These views may mean little to the therapists who developed the guideline (10) but are immediately recognised by doctors of chiropractic to each carry specific clinical meaning.

The process of patient assessment has been turned inside-out. The patient is excluded by an evidence-based guideline until a box is checked that may allow their inclusion. The diagnostic acumen of the clinician is demeaned to the level of a therapist, and the very idea of the clinician reading the literature to inform themselves is removed. But never mind, the American guidelines require the therapist to *classify* LBP (14) which is arguably not possible in the absence of imaging, and to refer any case that is *complex*, (15) whatever 'complex' may mean.

The value of the evidence hierarchy has shifted from the patient to remote panels of experts, considered to be an advancement in patient care. A reason is likely to be the simplification of payment categories for compensated patients, for which the downstream effect is the additional time required by a conscientious practitioner explaining basic matters such as '*what is a spinal x-ray*' with the inference being '*why should we pay for it?*' Never mind, the reimbursement company also pays for that practitioner's time to explain the obvious.

These matters combine with what seems to be a laissez-faire attitude to the evidence that does exist. Regardless of its nature, quantitative-based researchers in chiropractic (16) revert to the

---

12. Choosing Wisely Australia. Home page. Accessed 19 October 2021. URL https://www.choosingwisely.org.au.

13. Choosing Wisely Australia. Recommendations. The Australian Physiotherapy Association. Accessed 19 October 2021. URL https://www.choosingwisely.org.au/recommendations/apa1.

14. Delitto A, George SZ, Van Dillen L, et al. Low back pain. J Orthop Sports Phys Ther. 2012;42(4):A1-A57. DOI 10.2519/jospt.2012.42.4.A1

15. Oliveira CB, Maher CG, Pinto RZ, Traeger AC, Lin CC, Chenot JF, van Tulder M, Koes BW. Clinical practice guidelines for the management of non-specific low back pain in primary care: an updated overview. Eur Spine J. 2018 Nov;27(11):2791-2803. DOI 10.1007/s00586-018-5673-2. Epub 2018 Jul 3. PMID: 29971708.

16. Jenkins HJ, Downie AS, Moore CS, French SD. Current evidence for spinal X-ray use in the chiropractic profession: A narrative review. Chiropr & Manual Ther. 2018 ;26(48):1-11. https://chiromt.biomedcentral.com/articles/10.1186/s12998-018-0217-8.

biomedical Sackett pyramid and its associated hierarchy as their tool for judging the merit of certain findings. Chiropractic researchers believe they can only weigh evidence in the one language of Sackett and can not see beyond the established biomedical hierarchy.

The defining weakness of the existing pyramid is that its use is now always supplanted by the meta-analysis, (17) an encompassing approach that over-rides all lower levels of the hierarchy and reinforces the exclusion of the practitioner and the patient. Worse, the 'language of evidence' now prefers Systematic Reviews or Meta-Analyses, and any reference to 'considering the patient' is offered as a platitude. All other evidence is ranked too low to be admitted.

It is now 25 years on and there has been sufficient time to identify the weaknesses (Table 1) and for chiropractic and related disciplines to propose new models or offer refinements to the original model. I propose that chiropractic flips the emphasis from the 'outside-in' perspective driven by categorised quantitative literature, to an 'inside-out' model driven by philosophical thinking that completely integrates the patient with the practitioner and considers all literature including qualitative reports.

The key feature is that the weighting given to the literature is at the practitioner's discretion to allow the most relevant match between an individual patient and previous encounters, shifting clinical practice back to the mode of 'specific to general' instead of the current 'general to the specific' as one has to do with large cohort studies.

This new model also addresses the two significant weaknesses (Table 1) in the Sackett model as it has evolved over a quarter of a century.

Correcting the error

The Sackett Evidence Pyramid has come to limit scholarly inquiry to one class of methodologies, quantitative. This means, in rough terms, at least half of the world's science-derived evidence for subluxation, obtained and interpreted in the qualitative manner, is excluded. The new Pyramid addresses this by forcing the outcomes from the methodology presumed strongest, the RCT, to be filtered in the same manner as all evidence, through the lens of the patient and the practitioner. This removes the artificial tiers within the flawed Evidence Pyramid and respects all science as science.

A very basic example lies in the effectiveness of triage and treatment in the Emergency Department informed by the *practice wisdom* of nurses; a patient presents with a condition that passes through the filters of practice based knowledge (*phronēsis*) about the condition, and that indefinable clinical gem, common sense or nous (*noetics*). Clinicians do not have time to undertake their own mini-meta-analyses of the literature between the time of presentation and the imperative for intervention.

It could be argued that a clinician should be on-top of all literature and then adapt downwards as they deem reasonable. This argument is fallacious as it contradicts the very process it is meant to serve, a guide to best treatment. It actually requires the presenting patient to be matched downwards on multiple criteria from a large cohort and there are long odds at achieving this, especially when there are so many cohort trials now, each with a subtle difference (and sponsor).

Application of an RCT, the supposed pinnacle of clinical judgment drawn from large cohorts, is flawed by the need to modify and adopt its findings downwards to the immediate individual patient presentation. It seems more logical to start with the individual patient and search upwards across all literature to identify a reasonable match or precedent. The popularity of a particular study should not imply a rubber-stamping of patients to fit it.

17. Berlin JA, Golub RM. Meta-analysis as Evidence: Building a Better Pyramid. JAMA. 2014;312(6):603–6. DOI 10.1001/jama.2014.8167.

Selection bias as exclusion

The second flaw of the outdated pyramid lies with it excluding the two elements identified by Sackett:

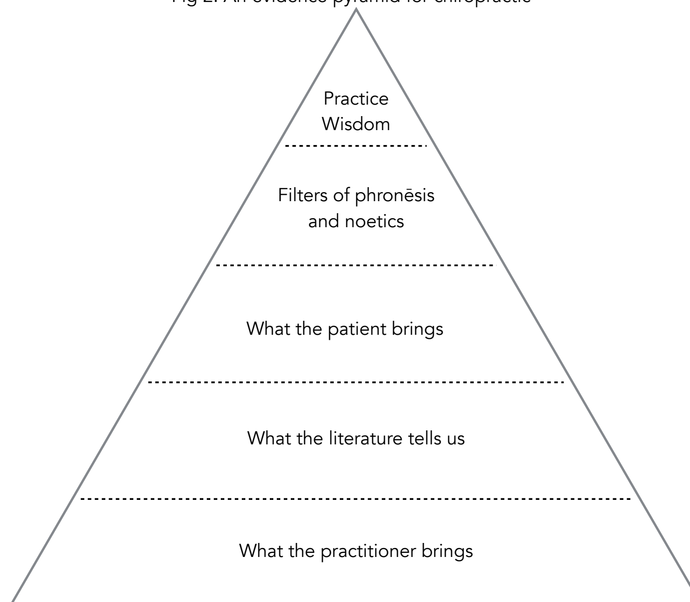
- the patient preferences, and
- their 'self-knowledge' with the immense pool of wisdom embedded in practitioner experience.

These qualitative matters are suited for appropriate investigation and documentation by methodologies outside the quantitative lens. This may explain the reason for the biomedicine industry and its commercial giants, the drug cartels, to strongly advocate the pyramid as the instrument against which projects are assessed for funding. Were the sums of money involved not so big this would be laughable, however given the billions involved there is no option than to confront it.

A new Evidence Pyramid for Chiropractic

I present a new instrument (Figure 2) that avoids the ranking of evidence and admits the literature in all its forms at the practitioner's discretion. I collectively describe this information input as '*the literature*', a position that allows the most appropriate literature to be chosen to best match the individual patient being addressed. It is in this respect that I consider my approach to be '*more inclusive*', an invitation to broadly consider the literature across its gambit from case reports to meta-analyses.

Fig 2: An evidence pyramid for chiropractic



Core concepts underpinning the Evidence Pyramid for Chiropractic

The new hierarchy given in this paper meets the test of suitability for use by all clinical practitioners regardless of their sect, from clinical medicine to Indigenous healing; it has two foundations.

The first is an understanding of a healing concept embedded in all traditional and Indigenous medicines and identified by Palmer as the founding basis of chiropractic, tone. (18) From McDowall (19) I understand 'tone' as critical to Palmer's origination of chiropractic and subluxation. Tone enters the new hierarchy at the levels of phronēsis and noetics and is the driving consideration of Practice Wisdom.

Tone is the expression of life and according to Palmer, '*Life is intelligent action*'. (20) This concept is applicable across all clinical disciplines and more so in those which build on the wisdom of the ancients and traditional learnings. The inclusion of the patient is mandatory for effective clinical decision-making in this paradigm.

The second is equally universal and while osteopathy tried to capture it with their recent work it points to a desired common destination, that of correctly identifying, interpreting and weighting evidence in the clinical environment. This is the evidence extant in the experienced practice of chiropractic, of which about a third may be seen in the chiropractic and broader medical literature in all fields, with the remaining two-thirds are found in the patient's self-identification and the clinician's practice wisdom.

A consideration of 'evidence'

Just as evidence is weighted in law depending on the classification of the trial, evidence in biomedical sciences is weighted to reflect a scale of grading from weak or poor to stronger and strongest.

It is no coincidence that the evidence readily generated at little or no cost by conventional chiropractors is weighted poor or low; there is no 'business' for third parties because the detection and adjustment of subluxation is not a product which can be manufactured and sold for profit. The biomedical market is demand-driven by cabals which create a commercial need through advertising, an area in which regulatory bodies severely curtail chiropractors by creating an uneven playing field and constraining the provision of optimal health care to all people.

Sackett's founding principles deserve to be heeded, after all he is kindly considered the '*Father of EBM*' (21) notwithstanding that fact that EBM was first conceptualised in mid-19th century Paris. (22) Since Sackett's seminal paper in 1996 EBM has been adopted and included in most

18. Palmer DD. 'Founded on tone', frontispiece. Textbook of the science, art and philosophy of chiropractic. Oregon, Portland Printing Company. 1910.

19. McDowall DA. Daniel David Palmer's heritage and his legacy of tone to chiropractic [Doctoral thesis]. Southern Cross University. 2021. DOI https://doi.org/10.25918/thesis.121.

20. Palmer DD. The Chiropractor. Press of Beacon Light Printing Company, Los Angeles. 1914:22, 57.

21. Anderson JD. David Sackett D. 1934-2015: the father of evidence-based medicine [Obit]. Int J Prosthodontics. 2015;28(4):343-4.

22. Kwon SO. [Philosophical background of evidence-based medicine]. Uisahak. 2004 Dec;13(2):335-46. Korean. PMID: 15726761.

developed medical and health care curricula around the world (23, 24) but is critically seen by some as '*eminence based medicine*.' (25)

The Case Report as evidence

I argue that the Case Report is the triangulation of the literature in all its forms, the patient in all their vagaries of presentations, and the practitioner in all their levels of experience within the context of a particular individual and their self-socio-cultural understanding.

It is from this step that the practitioner filters the collective evidence of patient, literature, and own experience, and reaches a clinical decision at the apex which is *Practice Wisdom*. (Figure 3)

I argue for the use of this new pyramid in the discipline of chiropractic.

My training is as a conventional chiropractor and I give the Case Report as the example of literature I consider strongly relevant to conventional practice. The quantitative lobby not only shuns case reports, they also abuse Sackett's Evidence Pyramid which is best suited to lab-based biomedicine, ignore its inclusion bias, and distort it further by excluding two vital elements of the evidence matrix first identified by Sackett; the patient and the practitioner, which is of course '*selection bias*'.

Yet the yearning for 'big science' places the Case Report at the lowest evidential level. This act covertly denigrates any documentation of chiropractic practice given as a Case Report. It also excludes the importance of Indigenous knowledge of healing. Australia's national broadcaster, the ABC reports '*Ngangkari healers were considered the treasure of Aboriginal communities, and now their 60,000-year-old tradition has made its way to South Australia's Royal Adelaide Hospital and rural clinics.*' (26)

Not only does the outdated pyramid exclude Indigenous healing it places the RCT at its Apex and it is now known that RCTs are generally bad science, (27) being open to fraudulent behaviour at many levels. Evidence of this is found in the number of once accepted papers that have been retracted due to misconduct (28) which is now more visible. (29)

These fundamental and fatal flaws affect chiropractic science in two ways:

- they exclude two-thirds of the available evidence relating to any clinical presentation, and
- they peak with a methodology appropriate to a reductionistic style of health care which by default excludes all practitioners of manual therapies and natural medicine.

---

23. Ghosh AK. Clinical applications and update on evidence-based medicine. J Assoc Physicians India. 2007;55:787-94.

24. Crowther H, Lippworth W, Kerridge I. EBM and Epistemological Imperialism: Narrowing the divide between evidence and illness. Blackwell Publishing 2011. https://ses.library.usyd.edu.au/handle/2123/11578.

25. Isaacs D, Fitzgerald D. Seven alternatives to evidence-based medicine. BM. 1999;319. DOI https://doi.org/10.1136/bmj.319.7225.1618

26. Sowaibah Hanifie. ABC News 'Ngangkari healers: 60,000 years of traditional Aboriginal methods make headway in medical clinics' accessed 7 Apr 2018 at http://www.abc.net.au/news/2018-03-28/aboriginal-healers-complementary-medicine-finds-its-place/9586972?pfmredir=sm&sf185680920=1

27. Labos C. It ain't necessarily so: Why so much of the medical literature is wrong. Medscape Sep 09 (2014).

28. Ferric C Fang, R Grant Steen, and Arturo Casadevall. Misconduct accounts for the majority of retracted scientific publications. proceedings of the National Academic of Sciences of the United States. 2012;109(42):17028-33 retrieved on 7 Apr 2018 from http://www.pnas.org/content/109/42/17028.short.

29. Hesselmann F, Graf V, Schmidt M, Reinhart M. The visibility of scientific misconduct: A review of the literature on retracted journal articles. Curr Sociol. 2017;65(6):814-45. DOI 10.1177/0011392116663807. Epub 2016 Oct 13. PMID: 28943647; PMCID: PMC5600261.

Those who blindly worship this older pyramid have missed these points and thus have a weak ground for their beliefs. Their position urges a rethink by every regulatory body basing sanctions against practitioners by using a process that is flawed by an inappropriate instrument.

It is not just chiropractic

Chiropractic is not the only clinical discipline with an appreciation the original pyramid is flawed. Clinical medicine (Mayo Clinic) propose a new evidence pyramid (30) but the best they are able to do is propose the boundaries between levels of evidence be depicted as 'wavy' and that a new lens be used to view the resultant. This is akin to changing the packaging on a junk-food item and viewing it at different counters such as an airport kiosk and a shopping mall outlet; it may look nicer in the latter but the junk remains the same.

This has not deterred osteopathy. Figg-Latham and Rajendran (31) argued the '*Levels of Evidence Pyramid*' simply needs a lens they termed the '*Precedence of Osteopathy*' which does nothing but turn the pyramid upside down and weight '*expert opinion*' as the highest level of evidence in the '*Osteopathic Evidence Pyramid*.' Intellectual rigour is lacking in this view which reports the results of a small study of English osteopaths who believed their opinion was the most important evidence.

This is akin to chiropractors placing credence where it does not exist on the opinions of Breen, Byfield and Cunliffe. (6) Innes (32) perpetuated this naivety by what he self-describes as a '*rambling*', (9, p. 12) ineptly positing a likeness between osteopathy and chiropractic. I am unable to identify any logic or reasoning in that argument of Innes.

Nursing has come the closest to replacing the biomedical pyramid with their *'6SPyramid-7levelsCategories*' (33) in which the onus is placed on the practitioner to 'filter' and appraise the sources of evidence. This idea of 'filtering' is reinforced by Ingham-Broomfield, (34) citing Glover at al, (35) where critical appraisal and evidence synthesis produce the most reliable clinical evidence. I would argue that this is roughly equivalent to the apex of the new pyramid proposed in this paper (Figure 2), being '*Practice Wisdom*', with appreciation that the 'filtering' may not be formal nor published in many cases in daily practice.

Occupational Therapy proposed a new evidence-based practice model a decade ago. (36) Borgetto found the current single-hierarchy model of levels of evidence failed to incorporate at parity all types of research evidence that are valuable in the practice of occupational therapy. He and Tomlin developed a model which accounted for the basic modes of clinical reasoning in

---

30 Murad MH, Asi N, Alsawas M, Alahdab F. New evidence pyramid. ebm BMJ accessed 06 Apr 2018 at http://ebm.bmj.com/content/ebmed/early/2016/06/23/ebmed-2016-110401.full.pdf

31 Figg-Latham J, van Rajendran D. Quiet dissent: The attitudes, beliefs and behaviours of UK osteopaths who reject low back pain guidance e A qualitative study. Musculoskeletal Science and Practice 27 (2017): 95-105

32. Innes S. Occasionally something catches my eye. Newsletter of the Chiropractic and Osteopathic College of Australia 24 no. 1 (2018): 11, 2

33. Thompson CJ. 6SPyramid-7levelsCategories, Nursing Education Expert blog May 9 (2017) adapted from (C) DiCenso, Bayley, & Haynes, 2009, accessed 7 Apr 2018 at https://nursingeducationexpert.com/pre-appraised-evidence/6spyramid-7levelscategories/

34. Ingham-Broomfield JP R. A nurses' guide to the hierarchy of research designs and evidence. Aust J Adv Nurs. 2016;33(3):38-43. https://www.ajan.com.au/archive/Vol33/Issue3/5Broomfield.pdf

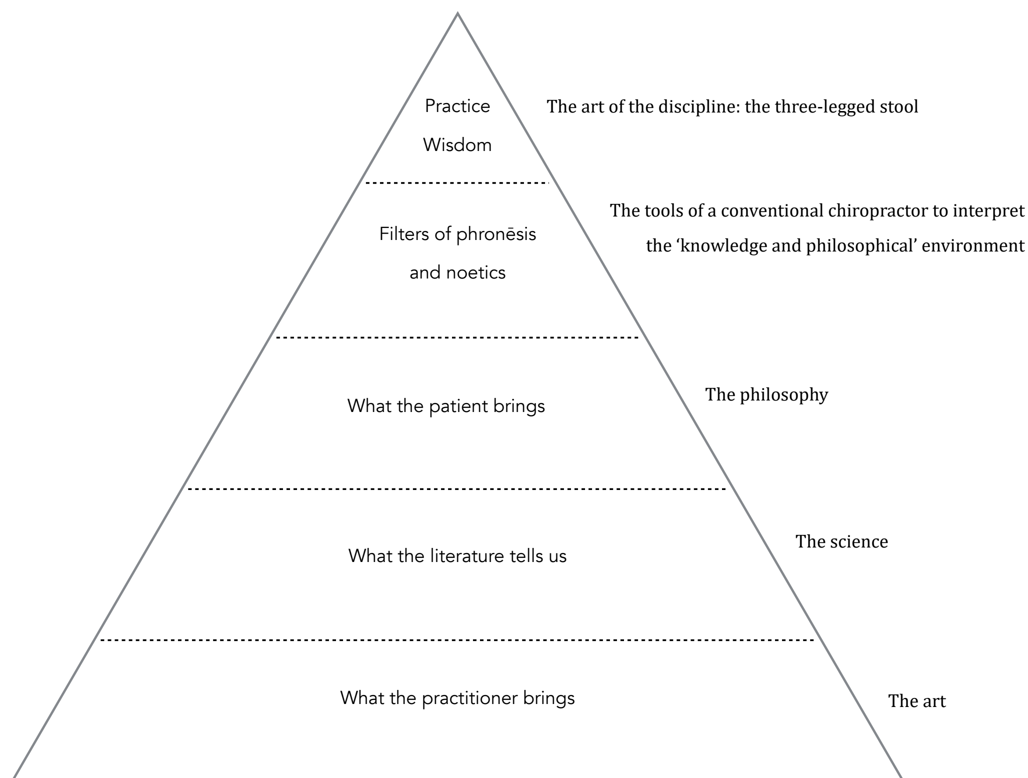
35. Glover, J., Izzo, D., Odato, K. and Wang, L. 2006. EBM Pyramid. Retrieved from http://www.ebmpyramid.org/images/pyramid.gif (accessed 11.12.15).

36. Tomlin G, Borgetto B. Research Pyramid: a new evidence-based practice model for occupational therapy. Am J Occup Ther. 2011 Mar-Apr;65(2):189-96. doi: 10.5014/ajot.2011.000828. PMID: 21476366.

occupational therapy. (13) In this proposed pyramid, the apex '*Practice Wisdom*' is roughly analogous to their range of modes of clinical thinking.

I present the new Evidence Pyramid for Chiropractic with notations (Figure 3) meant to resolve these conflicts:

Fig 3: An evidence pyramid for chiropractic with notations



Lack of bias in the new Evidence Pyramid

There is no inclusion or exclusion bias found in the new pyramid. All clinical disciplines enter at the same common level of '*what the practitioner brings*.' This places a value on the knowledge held in the mind of each practitioner and is also the entry point for one's philosophical stance. It is at this level that clinical learning begins for students of the discipline.

All *literature* enters at a common level with no artificial distinction between a well-written case report and, for example, an RCT. Opinions, so evident among chiropractic's Academic Elites are excluded unless they are opinions based on evidence and the evidence is available for individual assessment. The literature is considered through both discipline- and topic-related filters of relevance to the practitioner.

Next, consideration is given to '*what the patient brings*.' This is built on the practitioner's experience which may or may not encompass past management of a similar presenting complaint, and an information base built from literature appropriate to the patient.

The understanding gained from these three significant elements is filtered by the practitioner using the philosophical tools of *phronēsis* (in the Aristotelian sense of practical wisdom, an

intuition based on knowledge to determine good courses of action) and *noetics* (in the original Greek sense of inner wisdom and subjective understanding).

The apex of the pyramid is the philosophical concept of ‘*practice wisdom*’ applicable to clinicians and reached through the philosophical filters of *phronēsis* and *noetics*. Thus the highest level of ‘evidence’ in 21st Century chiropractic practice is a reversion to the wisdom of the ancients, the cumulative tribal knowledge of healing contemporised by on-line utilisation of immense data-bases of evidence in every shape and form.

Conclusion

A new Evidence Pyramid for Chiropractic is presented and shown to be applicable in the broad sense to all clinical practitioners regardless of discipline. With specific regard to chiropractic I contend it forms a foundation on which a 21st Century philosophy can be built. An early attempt is given by illustrating the interpretation of the classic chiropractic concept of the three-legged stool of the profession; its science, art and philosophy.

I argue that:

- the chiropractor brings the essential *art* as a capable base of clinical chiropractic skills including the ability to adjust as determined by meeting known technical parameters;
- the literature brings a broad scope of evidence allowing the practitioner to filter from Case Studies toMeta-Analyses as the *science*, and
- it is the patient who brings the *philosophy*, their innate understanding of their own health and the role that chiropractic allows for it to be optimally expressed (Figure 3).

This is the embodiment of Jamison’s ‘*locus of care*’. (37)

Of particular interest is to discover a means of advancing the Evidence Pyramid for Chiropractic by demonstrating how it could be applied to greatly enhance the actual practice of chiropractic. Work must now be done by many to test this pyramid to identify its weaknesses and propose ways to strengthen it.

Phillip Ebrall

BAppSc(Chiropr), GC Tert Learn Teach, MPhotog, PhD, DC (Hon)

Research Scientist: History and Philosophy - Chiropractic [Field 220299]

pebrall@me.com

Cite: Ebrall P. A more inclusive evidence hierarchy for chiropractic. Asia-Pac Chiropr J. 2021;2.2. URL www.apcj.net/papers-issue-2-3/#EbrallEvidencehierarcy

Disclaimer

This paper was critically reviewed by two separate members of the *Editorial Board* and amended to reflect their advice.

37. Jamison, J.R. Locus of control: A tool for tailoring self-care in clinical practice. Chiropr J Aust. 1999;29(3):82-6.

SOT Research Conference Proceeding Author Biographies
(Listed in alphabetical order)

Bridget Abbott, DC, graduated from Life Chiropractic College West, Hayward, California in December 2023. She is interested in researching the impact of combining Sacro Occipital Technique and the Activator Method on patient outcomes. Dr. Abbott works at The Modern Doc Chiropractic in San Ramon, California.

Thomas Bloink, DC specializes in cranial-dental integration in Silicon Valley at the California Cranial Institute, which was founded in 1992. Dr. Bloink was on the board of advisors to help create SOTO-USA and is actively presenting at research conferences throughout the world, and developing novel treatment approaches for functional neurological conditions. He works closely with many different specialists including dentists, orthodontists, and oral-maxilla surgeons. ENT's and others to ensure the best possible outcome for his patients.

Charles L. Blum, DC is in private practice Santa Monica, California and past president of SOTO – USA, now their research chair. Adjunct research faculty at Cleveland Chiropractic College, associate faculty at Southern California University of Health Sciences and Palmer College of Chiropractic West teaching the SOT Elective. Dr. Blum is a Certified SOT Cranial Practitioner, on the peer review board of various journals, lecturing nationally and internationally, has written various SOT related texts, and has extensively published in multiple peer reviewed indexed journals and research conferences from 1984 to the present.

C. Curtis Buddingh, DC had been a practicing chiropractor for over 50 years and was a world-renowned lecturer, teacher, author, and inventor of the "Chiropractic Belt." Dr. Buddingh personally studied under Dr. M. B. DeJarnette from 1969 to 1991 and was one of the first twelve chiropractors ever to become certified in SOT and Craniopathy by Dr. DeJarnette. He has taught on four continents, authored several articles, awarded Chiropractor of the Year 1973 and received a Diplomate in Craniopathy in 1982. He continued to develop innovative methods of treatment until his passing in 2023.

Kathryn Cantwell, DC is a 1991 graduate from Western States Chiropractic College (University of Western States). She earned her pediatric Diplomate (DICCP) in 1996 and had been in practice in the Chicago suburbs for 24 years. Dr. Cantwell is currently practicing in Beaverton, Oregon since 2015. She also is a Certified SOT and Cranial Practitioner (CSP, CSCP) and more than half of her practice is pediatrics and pregnancy. She also co-treats with many dentists treating TMJ and sleep disordered breathing issues.

Robert Coté, DC was first introduced to Sacro Occipital Technique (SOT) in 1943 when his father returned from a seminar given by Dr. DeJarnette. He graduated in 1959 from the Los Angeles College of Chiropractic and began studying and attending SOT seminars since 1961, every year for 25 years. Dr. Coté was certified in craniopathy and had his Fellow and Diplomate from the International Craniopathic Society. He practiced in Canada for over 50 years and was a primary SOT instructor in the United States for over 20 years under Dr. DeJarnette. He has presented at the 2003 SOTO-USA clinical symposium and was awarded the 2003 SOTO-USA Lifetime Achievement Award.

David G. Denton, DC graduated from Lincoln Chiropractic College in 1958, and had been in private practice in Michigan, California, Washington, and Colorado. He had been an international lecturer of Sacro Occipital Technique and Craniopathy for decades teaching in the United States, Asia, Europe, and Australia. He was the developer of Vector Point Cranial and Neuro-Energetic Organic Technique and in 2001 was awarded the SOTO-USA Lifetime Achievement Award.

Phillip Ebrall is a Professor of Chiropractic in the non-Western world actively assisting a number of universities to introduce the Transnational Chiropractic Curriculum where his main role is as Curator of Chiropractic Education with the Chiropractic Diplomatic Corps. As an academic (1990-2016) he managed 8 chiropractic curricula in 5 countries across 4 universities including one with 3 campuses. All attained full compliance with CCEA accreditation standards. In addition to the now closed Tokyo College of Chiropractic, universities he has worked with include Central Queensland University, RMIT University, International Medical University, and Hanseo University. His prime activity in his supposed retirement is to edit the Asia-Pacific Chiropractic Journal, now in its 5th year, and to write on the Philosophy of Chiropractic, as distinct from Chiropractic Philosophy.

John Erickson, DC is a 1997 graduate of Palmer Chiropractic College - Davenport. He is married to his lovely wife Michelle and has six children. He has a chiropractic practice in Loveland, Colorado and incorporates a multidisciplinary approach, currently incorporating sacro occipital technique (SOT) and SOT cranial techniques. He will be having his first research presentation at this year's 2024 SOT Research Conference.

Michelle Greene, DC graduated from Cleveland Chiropractic College – Los Angeles in December 1992. She has been practicing in the Los Angeles area since that time. She was introduced to chiropractic as a teenager while running with the Santa Monica Track Club. She continues to compete in the aqua-bike division of Triathlons and focuses her practice on combining soft tissue work with chiropractic adjustments.

Angel K. Hong, DC graduated from Palmer College of Chiropractic located in Davenport Iowa. She was in private practice for 11 years and is currently employed as a staff chiropractor and acupuncturist with the Veterans Health Administration for the past five years. She primary practices with sacro occipital technique, applied kinesiology, and activator chiropractic techniques.

David Simmons, DC took his first seminar from Dr. DeJarnette in 1978. He has been teaching sacro occipital technique (SOT) at the SOT clubs at Cleveland Chiropractic College – Los Angeles and Southern California University of Health Sciences, as well as SOT Regional Certification Series in Los Angeles, California for over 28 years. He is passionate about practicing chiropractic and loves to go to his office six days a week working to help patient improve their health through natural means.

Jesse Nichols, DC is a second generation Chiropractor and is a recent graduate from Parker University. His chiropractic college studies are focused on post-partum sacropelvic recovery, organizing SOT mini-seminars, and supporting the SOT club and SOT elective class. He is currently taking a deep dive into studying sacro occipital technique (SOT) being mentored by his mother Keila Nichols, DC who has been a long time teacher and practitioner of this method of care.

Lisa M. Stowell, DC focuses on the safest and most natural approach to chiropractic care utilizing cutting edge techniques such as SOT (sacro-occipital technique). She incorporates “Food First” as part of her approach to customize personal dietary needs. Besides head, neck and low back pain Dr. Stowell addresses conditions such as diabetes, fibromyalgia and even depression and fatigue. Dr. Stowell has been published in an international, peer reviewed chiropractic journal as well as accepted for presentation at 2024 ACC-RAC Conferences.

Caroline Vitez, DC is a board certified (DACNB) chiropractic neurology Diplomate. She has graduated from Palmer College of Chiropractic in Davenport almost 30 years ago and has been in practice since, both in Canada and in the United States, incorporating SOT, Atlas Orthogonal upper cervical work and functional neurology. In the recent years, she has published and lectured on the neurovascular ramifications of a craniocervical junction misalignment.

Sacro-occipital technique for foot hyperpronation pain in a 55-year-old female: a case report
Bridget Abbott, DC

Objective: Investigate the effects of Sacro-Occipital Technique (SOT) chiropractic care, extremity adjustments, low-level laser therapy (LLLT), and at-home recommendations on a 55-year-old female patient with foot hyperpronation pain.

Methods: SOT was provided nearly weekly over 19 visits in 5 months. Lower extremity adjusting and LLLT was incorporated, while at-home recommendations included exercise, stretching, and supportive shoes and orthotics.

Results: The patient's Visual Analog Scale (VAS) score decreased from 2/10 to 1/10. Pain frequency decreased from 2 hours to 30 minutes per day and timing from 4-5 days per week to 2-3 days per week. At re-evaluation, the patient self-reported some pain reduction, the Lower Extremity Functional Scale (LEFS) increased from 70/80 to 77/80, and the RAND-36 questionnaire indicated improvements in physical functioning and a decrease in pain severity. While the VAS and LEFS showed only relatively slight improvement the patient expressed that this slight improvement had a significant improvement on the quality of her life and activities of daily living.

Conclusion: The analysis of SOT and lower extremity adjustments appeared to show an association between chiropractic care, a decrease in pain, and an increase in function. Adjunctive therapy and at-home recommendations were also beneficial. The care plan provided remediation of foot hyperpronation pain and increased function for this patient.

Chiropractic and dental integrative care for 52-year-old male stroke victim suffering from chronic temporomandibular joint (TMJ) dysfunction (TMJD)
Thomas Bloink, DC, Charles L. Blum, DC

Objective: The value of integrative care for a stroke victim suffering from chronic TMJ dysfunction (TMJD).

Clinical Features: 52-year-old male was referred to this clinic three-year post-stroke from a local stroke-rehabilitative center. He had suffered a right-sided stroke affecting the left-side of his body, with left hypertonicity/contraction of left-calf, shoulder, arm and TMJD. Significant improvement following extensive rehabilitation was found except for his TMJD. He continued to experience left-TMJ crepitus with pain radiating to his left-ear and frontal bone regions. He had difficulty chewing and his pain was 9/10.

Intervention and Outcome: Sacro-occipital technique diagnosis revealed left-pelvic torsion with SIJ restriction (category-one) and spheno-maxillary and left-temporal bone cranial distortions.

SOT Research Conference

Patient was treated for 10-visits over 3-month period. Cranial-dental co-treatment with a lower occlusal splint and was also treated with red-light therapy. By the 10th-visit he reported his pain reduced to 3/10. His left-sided frontal bone and ear pains were eliminated and he was able to chew and eat normally. There was still some residual contraction of his masseter muscle however significantly less than before.

Conclusion: Chiropractic and dental integrative care can play an important part of care for patients suffering from post-stroke related residual TMJD.

Chiropractic care of a 65 year old male patient presenting with benign prostate hypertrophy (BPH) affecting urinary flow: A case report
Charles Blum, DC

Objective: To describe a chiropractic-intervention for a patient presenting with BPH affecting urinary flow treated with chiropractic manipulative reflex technique (CMRT).

Clinical Features: A 65-year-old male presented with a 6-month history of BPH adversely affecting urinary flow until 3-weeks prior to being seen at this office needing to be cauterized to urinate. The patient was seeing an urologist who suggested surgery but the patient was fearful of surgery.

Intervention and Outcome: The patient was assessed/treated with sacro-occipital technique CMRT care for an occipital-fiber-7/L5 interrelationship, specific CMRT reflexes for the prostate, and manually lifting the prostate off of the transverse urethral bar. After the first-treatment he had an urge to urinate, removed the catheter, but was unable to pass urine. Two-days later after his second-office visit he was able to remove the catheter and could freely urinate. He was treated periodically following the second-office-visit and found that as long as he was treated every 2-3 months he was able to urinate without a catheter. However after 5-years (last three years without treatment) the patient decided to have the surgery.

Conclusion: For a subset of patients with BPH, CMRT care might offer an option to surgery when there is patient resistance or contraindications.

Self-reported nonmusculoskeletal responses to chiropractic care: A review of the literature
Charles Blum, DC

Objective: Chiropractic care for nonmusculoskeletal is a controversial subject leading to disagreements within the chiropractic profession (academics and clinicians treating patients). It is possible that the self-reporting patient may yield important information for this conversation.

Methods: A search of the literature (e.g., PubMed, ChiroIndex, GoogleScholar) for "chiropractic, nonmusculoskeletal, and self-reported" yielded only three-articles specifically related to this topic and three others that had features relating to the search items.

Results: Research into chiropractic care of nonmusculoskeletal conditions is a complex consideration. Filtering out placebo effects, patient/doctor misperceptions, regression to the mean, and other confounders is presumed to be helped with studies investigating a patient's unsuspected nonmusculoskeletal response to chiropractic care. Due to the complexity of viscerosomatic/somatovisceral interactions and autonomic nervous system response to chiropractic care this has made the study of specific nonmusculoskeletal responses to a chiropractic intervention a challenging endeavor.

Conclusion: Greater study into a patient's self-reported nonmusculoskeletal improvement subsequent to chiropractic care warrants greater study. Ideally it is crucial for academic/clinician collaborative investigations into the phenomena of chiropractic care of nonmusculoskeletal presentations because this may represent a subset of the patient population not responsive to other forms of low-risk conservative interventions.

Blum CL. Care of a 72-year-old female patient with small intestinal bacterial overgrowth (SIBO) incorporating Chiropractic Manipulative Reflex Techniques (CMRT)

Charles Blum, DC

Objective: Care of a patient with small intestinal bacterial overgrowth (SIBO) with Chiropractic Manipulative Reflex Techniques (CMRT).

Clinical Findings: A 72-year-old female patient presented with a diagnosis of SIBO which was causing her profound upper and mid-gastrointestinal pain and discomfort as well as affecting her food intake and assimilation. She had significant pain and tension in the epigastric region as well as a region surrounding her umbilicus. She was under care with an allopathic gastrointestinal specialist but the progress was slow and her discomfort unremitting.

Intervention and Outcome: Patient was treated with T5-Gastric CMRT procedures for hiatal hernia and diaphragm epigastric tension and pain. T10-Intestinal CMRT was employed to reduce tension and pain in the region surround the umbilicus. Following treatment the patient would have relief that could last one-two weeks though would begin to return by the three-week mark. After three months of treatment the allopathic SIBO care and CMRT treatment at this office appeared to control her discomfort and no longer required regular care for any related intestinal type syndrome.

Conclusion: Further research is needed to determine if other patients suffering from SIBO may have some relief of any related viscerosomatic abdominal tensions and pain.

Severe sacroiliac and low back pain possibly associated with post ablation tubal sterilization syndrome, treated with chiropractic manipulative reflex technique (CMRT) uterine reflex techniques and allopathic gynecological management
Charles Blum, DC

Objective: To present interdisciplinary care of a female patient diagnosed with post-ablation tubal sterilization syndrome (PATSS) treated with CMRT protocols to help control her viscerosomatic reflex syndrome.

Clinical Features: A 48-year-old female successfully treated over three-years with sacro-occipital technique (SOT) care for hip/low-back and cervical spine pain and limitations had a severe flare-up of sacroiliac joint pain which was unresponsive to care. Since her SOT indicators weren't congruent with her presentation she was referred for allopathic consultation, and her gynecologist gave her the PATSS diagnosis.

Intervention and Outcome: The patient was treated for five-office visits over three-months with CMRT care for L5-uterine reflex syndrome. She was also treated with SOT care to balance her lumbopelvic region and cervical spine. The treatment allowed her to function without medication and since her gynecologist was concerned about her response to surgery asked her to continue with care at this office. Since her pain may be related to her menstrual cycle we are trying to determine if the chiropractic care might mitigate her need for surgery or if surgery is a necessary option.

Conclusion: Collaborative chiropractic and gynecological care for uterine related viscerosomatic referred pain patterns warrants greater study.

Inter- and intra-disciplinary chiropractic collaborative care of a patient presenting with temporomandibular joint disorder (TMD), head and neck pain, and right-sided cormiosis
Charles Blum, DC

Objective: To describe a inter/intra-disciplinary chiropractic collaborative care of a TMD patient presenting with head and neck pain, and right-sided cormiosis.

Clinical Features: A 35-year-old female was referred by her dentist treating her TMD for complementary sacro occipital technique (SOT) and cranial technique care.

Intervention and Outcome: The patient was treated at this office with SOT protocols to treat kinematic postural imbalances affecting her cranium and dental occlusion. Craniofacial techniques were utilized to facilitate any palatal expansion occurring from wearing her dental appliance. She was also given specific exercises to improve her dental vertical occlusal dimension and nasal strips to improve nasal airflow. She was reporting consistent improvement but a relationship was noted between her right TMJ, upper cervical region, and ipsilateral pupillary constriction. Since it was postulated that this might be contributory to her presentation

she was referred to a chiropractic neurologist who assessed/treated her and gave her exercises. She reported that the conjoint dental, chiropractic, and chiropractic-neurology interventions have vastly improved her quality of life and ability to function.

Conclusion: While it is ideal for chiropractors to seek interdisciplinary care, as more chiropractors develop advanced specific training intradisciplinary referrals should be considered.

Sacro occipital technique (SOT) and cranial techniques for treatment of post-brain surgery secondary effects, two years post-surgery: A case report

Charles Blum, DC

Objective: Sharing treatment and outcome of a patient, two-years post brain surgery that received chiropractic care for her secondary symptoms following surgery.

Clinical Features: A 57-year-old female presented with unremitting pain, weakness, lower-extremity neuropathies, reduced lower-extremity circulation, and lack of mental clarity following brain surgery. Over the two-years post-surgery she had made good progress but her presenting symptoms had not changed since the surgery.

Intervention and Outcome: She was treated with SOT and cranial protocols to help balance meningeal membrane tensions and improve cranial CSF pulsations. She reported on her way home in the car that “for the first time since her surgery she had improved circulation and no numbness in her left leg/foot.” The following morning she noted that she “felt more centered on her feet and her brain was clear.” While this outcome was remarkable and she will continue with care at this office, she was refereed for collaborative care to a chiropractic neurologist to facilitate adding some specific exercises to help her continue to improve.

Conclusion: When patients reach a plateau or possibly even before hand a trial of chiropractic care including SOT and cranial techniques to facilitate rehabilitation may be indicated.

The chiropractor’s role in the treatment of sleep disordered breathing

Kathryn Cantwell DC, Sharon Vallone, DC

As sleep problems are a common issue for infants, all professionals work with these children with short- and long- term benefits in mind. The purpose of this clinically oriented article is to acknowledge, investigate and provide a professional commentary on some of the key parameters that should be a priority for chiropractors working with children with sleep disorders. Chiropractors may play a key role in the field of sleep disordered breathing and are often a part of a team to help with nursing issues such as latching, constipation, colic or gastroesophageal reflux disorder. The collaborative network often includes neuro-muscular dentists, orthodontists,

pediatric dentists, oromyofunctional therapists, speech and language pathologists, occupational therapists, ear, nose, and throat allopaths, behavior specialists, lactation consultants, midwives, doulas, and naturopaths. A chiropractic examination can complement most pediatric examinations, evaluating for infant reflexes, evaluation of the suck and cranial-sacral assessment to determine the presence of tension in the dural sheath.

The treatment may include chiropractic adjusting, cranial and sacral work, teaching use of maxillary stimulation devices (Myo Munchees) and educating families about environmental and nutritional correlations for quality sleep. This team approach can often be an optimal way to assist our pediatric patients in fully functional feeding and improved sleeping mechanics. Chiropractors can be an important part of this collaborative team treating pediatric sleep disordered breathing to lead to optimal outcomes.

Treatment of a 40-year-old female with a history of sleep apnea, insomnia, and airway compromise symptoms: A case report

John Erickson, DC

Introduction: 40-year-old female presented to this clinic with a history of sleep apnea, insomnia, decreased nighttime oxygen saturation rates, and subsequent exhaustion. Her complaints began in 2017 after premolar extractions with the goal of "opening her bite." Comorbidities included frequent illnesses, allergies, asthma, Lyme disease, headaches, neck pain, upper back tightness, hip, low back, rib tightness. She described other injuries such as a motor vehicle accident in 2007 associated with a C5-6 compression fracture as well as a crush injury to her thighs bilaterally.

Prior to being seen for care at this office she had received traditional (diversified methods) chiropractic care, continuous positive airway pressure device (CPAP) which made symptoms worse, and surgical maxillofacial surgery for expansion of craniofacial airway. She was being treated pharmacologically with hydroxazine (sleep), Ritalin – as needed (ADHD), and Diazepam (anxiety).

Initial examination at this clinic revealed asymmetry in shoulder position with left shoulder being higher than the right as well as anteriorly displaced with sensitivity at the left anterior/medial scalenus muscle. Lower extremity asymmetry was also noted with the left hip appearing higher than the right, left physiological short leg, left inguinal ligament sensitivity greater than the right, and right side weak prone straight leg lift. Cervicocranial assessment revealed forward head posture with imbalances at the left sphenoid, right occiput, and right temporal bones.

Methods/Intervention: Treatment included sacro occipital technique (SOT) category two (pelvic torsion with sacroiliac joint hypermobility) supine blocking, intra-oral cranial work, frontozygomatic rotational adjusting, muscle "stripping" of her cervical paravertebral and trapezius muscles, low-level laser therapy to her head and neck, and hyoid bone mobilization. The patient traveled 2.5 hours one way for her visit. She experienced such relief with her first

visit that she scheduled a follow-up the next day before returning home. This began a pattern of care where she would treat one evening and the next morning before returning home.

Visit frequency was determined by the patient due the amount of time she had to allocate to travel. She would make the trip approximately twice per month. Initial visit was November 2023. Improvements began with the first treatment and progressed until January 2024.

In January she received a biofeedback treatment and felt her anxiety levels escalate. In consultation with and at the recommendation of the healthcare provider who administered the treatment, she did a follow up biofeedback session which further aggravated her anxiety levels. Along with the increased anxiety, the patient experienced a resurgence of her prior complaints in intensity and frequency. Dropping oxygen saturation levels, poor sleep, tongue/jaw discomfort, body pain, low energy, and emotional agitation and unease.

Results: Following the biofeedback related set back the patient returned to seek care as described above and by February 2024 slowly began to feel her symptoms were lessening in intensity and frequency. As treatment continued the patient reported better sleep, a drop in anxiety levels, improved movement of tongue (can connect better with roof of mouth), and TMJ function. She also reported feeling generally more grounded/balanced, less tension in spine and hips, with decreased frequency of headaches. Palpation noted improved symmetrical movement associated with the sphenobasilar region, sphenoid and temporal bones, as well as with improved TMJ translational movement. She recovered strength in her prone straight leg lift with improved muscle coordination in the upper and lower extremities.

Conclusion: This patient presented with multiple comorbidities but was primarily concerned with her sleep disordered breathing and constant fatigue that was refractory to most other interventions. It is unusual for a patient to have a contraindicated response to biofeedback and this may indicate a psychosomatic/somatopsychic component to her presentation. It is encouraging that with care at this office she was able to return to a level of improvement even though there was a periodic set back in January 2024.

Evidence based chiropractic education: A student's perspective

Jesse Graham Nichols, DC

Since childhood I was immersed and intrigued with expanding my knowledge of human anatomical and physiological processes. My mother Keila Nichols, DC, who has been practicing chiropractic for the past 35 years, was able to both maintain a functioning chiropractic practice out of our home and find time to also homeschool her 4 children. I was able to watch many patients crawl in the front door and then walk back out to their cars 30 minutes later. From a young age, I wanted to learn this "magic" that could heal so effectively and clearly.

As I continued through high school, I was fascinating to learn more and more about what my mother was doing to help her patients heal as well as the philosophy that flows beneath and throughout the art of chiropractic. So I launched into the necessary undergraduate chiropractic college prerequisite classes with zeal and finally was able to enroll in a chiropractic college. You can imagine my building confusion and dismay early in college to hear professors say:

> *"Don't even get me started on leg-length analysis. There are so many things wrong with that and it should never be trusted"*
>
> *"When we adjust, we are never moving bones. We are simply just stretching golgi tendon organs"*
>
> *"The chiropractic adjustment does not impart neurological influence into the system and cannot affect organs let alone hormonal function"*
>
> *"Chiropractic adjustments are not the treatments that will heal your patients, it is the physical therapy exercises".*

Throughout my education, a single strand has been woven throughout just about every class I have taken: "Evidence Based Practice." I learned that the chiropractic techniques I had seen produce such potent results in my childhood were not necessarily valid in the eyes of "Evidence Based Practice" due simply to the "lack of being tested through a randomized control trial (RCT)." I found myself in a learning institution where the modern developing philosophy of chiropractic is based in a world of exclusively RCT, systematic analysis, and meta-analysis, with the exclusion of all "untested" techniques.

It was confusing and disturbing based on my upbringing and exposure to chiropractic when it appeared that there seemed to be a concerted effort by the faculty to debase traditional chiropractic philosophy and replace it with what appeared to be an attempt to absorb the profession of Chiropractic into the medical field. I saw colleagues receive failing grades for using the term "subluxation" in papers. I personally received failing grades for asserting that chiropractic care can produce effects (intended or otherwise) outside the exclusively musculoskeletal system.

Clearly chiropractic and particularly chiropractic education is at a crossroads where there are desires to bring the field of chiropractic into the "Evidence Based Practice" arena and yet the "magic" of chiropractic; its techniques, unchartered territory, philosophy and history appear to be relegated to the "junk drawer."   I graduate in April 2024 I have found during my education that there has been not only discouragement toward differing philosophies, but outright hostility.

As I have I found out through several chiropractic doctors and students I have since met from other universities, this pervasive philosophy of a reductionistic approach to chiropractic is almost ubiquitous in our chiropractic learning establishments. From my limited perspective it seems as though the solution is not to continue to bend chiropractic medicine to the tenets of the medical field and their research strategies, but to develop a more effective method to test and document the effects and abilities of chiropractors in clinical practice that have been helping patients for

years. We should not deny patients the techniques and skills that we have that can help them simply because we have not had 3 double-blinded RCTs of a specific quality as well as a meta-analysis with conclusive evidence.

I am bursting with excitement to enter the clinical realm of chiropractic practice and am eager to begin helping the patients that crawl in my door to walk out 30 minutes later. I feel we can temper Evidence Based Practice with chiropractic along with maintaining the methods used for decades that have not yet been adequately studied in the research arena. For me my life has been a form of a research study and watching patients reliably coming to see my mother and be helped gives me hope I might be able to do some of her chiropractic "magic" in the near future.

Chiropractic manipulative reflex technique (CMRT) treatment of a non-compliant 59 year old female presenting with a hiatal hernia, gastritis, and other co-morbidities: A case report

Michelle Greene, DC

Introduction: A 59-year-old female long-term patient at this office developed symptoms of pain for over a year in her left side. She described the pain as being "shooting in nature and difficult to predict its onset. The patient does not have a kidney on the left side. Two months after the onset of pain, a renal carcinoma was discovered on the right during an ultrasound for a fatty liver and the neoplasm was successfully surgically removed. The patient is not a heavy drinker and it is believed that her fatty liver was due to her being significantly overweight. During this time the patient was on multiple medications for psoriasis, type two diabetes, high cholesterol, and depression.

Methods and Outcome: A few months after the development of her pain, the patient was seen at this office and treated with a hiatal hernia technique (gently pulling stomach away from diaphragm on exhalation) was performed and the patient experienced 75-80% left sided pain reduction. The shooting pain was also less frequent, less intense and lasted a significantly shorter amount of time.

During a birthday trip to Mexico a few weeks following the treatment she noticed a return of the symptoms. Hiatal hernia technique was performed again with the same improvement in her symptoms. Patient was told to avoid spicy foods and eating to the point of being overly full. She did her best but was not particularly compliant.

For a second opinion and to be thorough she went to a pain management allopath who told her chiropractic care would not help her and subsequently prescribed Gabapentin. Since she suffers from low energy and was not interested in taking additional medication she chose to continue with chiropractic care. Hiatal hernia technique was again performed along with full chiropractic manipulative reflex techniques (CMRT) for the gastric/stomach was performed and a food diary was requested. Her condition would consistently improve following care however she would not

follow food recommendations as well as quantities. She no longer has left shoulder pain if she receives periodic treatments when there is a flare-up.

Conclusion: Healthcare is clearly becoming a collaborative effort between the doctor and the patient. While CMRT for the stomach and hiatal hernia significantly and consistently reduced her symptoms her lack of follow through with dietary modifications inhibited the stability of a positive outcome. It is often a challenging dealing with a non-compliant patient and figuring out how to communicate and reach patients that are acting counter to their own welfare. In some instances incorporating family and others in their social network to support these patients along with psychotherapeutic referrals may be necessary.

Chiropractic Management of a 71-Year-Old Veteran with Chronic Low Back Pain Grade 1 Spondylolisthesis Utilizing Low-Force Sacral-Occipital-Technique (SOT): A Case Report
Angel K. Hong, DC, Dipl. Acu.

Objective: The purpose of this case report was to present the treatment of a geriatric patient with chronic lower back pain due to grade 1 spondylolisthesis, utilizing SOT as a primary intervention for pain management.

Clinical Features: A 71-year-old veteran was in a research study for lower back pain that was coordinated between Palmer college of Chiropractic, NIH, and VA. He presented to the clinic for consultation. He stated the lower back pain was constant and it began after an injury from being a paratrooper decades ago and was discharged due to medical reason. Patient's imaging demonstrated with grade 1 spondylolisthesis. Patient had no prior chiropractic intervention for this condition.

Intervention and Outcome: A trial of conservative care with SOT utilizing anterior dorsal block was applied as a primary intervention for pain management. Outcome assessment at the initial consultation was 9/10 with VAS scale at the worst; following the phase I of ten treatments with outcome assessment at 0/10 with VAS scale. Veteran reported after ten sessions over a 6-week period, the pain has subsided.

Conclusion: SOT was a beneficial chiropractic approach to the management of a geriatric veteran with chronic low back pain with grade 1 spondylolisthesis.

Sacro occipital technique (SOT) treatment of a 6-year-old female patient presenting with chronic bed-wetting (nocturnal enuresis): A case report
David Simmons, DC

Introduction: A 6-year-old female presented to this office with a history of routine bed-wetting. She seldom would go one night without bed wetting and it was causing her and her parents

significant distress both due to the inconvenience and social reasons limiting her ability to sleep over at a friend's house.

Treatment and Intervention: She was treated with SOT protocols with an emphasis on treating sacral obliquity, iliopsoas balancing, and category two (pelvic torsion and sacroiliac joint hypermobility) therapies.

Results and Outcome: After her first office visit she wet the bed seven out of ten days, with a two day period where she didn't wet the bed which represented a positive trend. After the second visit the same pattern persisted. However, ten days later, after the third office visit she went 6 days in a row without wetting the bed, which is the longest amount of time prior to chiropractic treatment. She was seen two more times and by the fifth office visit was no longer wetting the bed. Three years later her condition has stabilized and there has been no reoccurrence of any bed-wetting.

Conclusion: While in some cases a child will outgrow bed wetting the child and parents are usually not comfortable "watching and waiting" since the condition often carries a stigma affecting the child's self esteem. Chiropractic care, which is a low risk intervention, may represent a treatment option for children suffering from this chronic condition.

Treatment of a 36-year-old female with chiropractic manipulative reflex technique (CMRT) for gallbladder related referred pain: A case report
David Simmons, DC

Introduction: A 36-year old female presented to this with upper right thoracic spine and epigastric pain, indigestion, and difficulty digesting food. Sacro occipital technique (SOT) occipital fiber analysis revealed line two area three sensitivity with an associated right T4 transverse process nodulation. The following day she was able to see her allopathic physician who performed laboratory tests that showed unusually high liver enzymes and subsequently diagnosed her with gallbladder gallstones. She was treated at this office a few times within a two-week period of time and returned to her allopathic physician for follow up laboratory testing.

Methods/Intervention: She was treated with SOT and CMRT procedures for gallbladder (occipital fiber area three and T4 right transverse process sensitivity).

Results: After first office visit her condition subsided (>85%) and was seen by her allopathic physician who had laboratory testing performed (AST of 187 and ALT at 726). Following the assessment and laboratory test finding the physician recommend gallbladder removal surgery. After approximately three weeks of care (three office visits) she returned to her allopathic physician and when follow up laboratory testing revealed AST of 10 and ALT of 34 presumed she had had the surgery. When she informed her physician that she had chiropractic treatment instead of gallbladder removal the doctor informed her that her condition will likely return in the

near future. However at a thirteen-year follow-up the patient still has not had a gallbladder flare-up.

Conclusion: This study presented a patient suffering from what appeared to be gallbladder referred pain syndromes and associated non-musculoskeletal presentations that responded well to CMRT chiropractic care. Due to CMRT's low risk conservative approach it may warrant greater study ideally in collaborative gastrointestinal allopathic healthcare settings.

Cranial stenosis and unilateral in-toeing in a 6-year-old male: A case report

Lisa Stowell, DC

Objective: Pigeon-toe/in-toeing is a relatively common condition in childhood causing the toes to point inward or feet to excessively internally rotate when standing or walking. This condition usually resolves as the child ages.

Clinical Features: A 5-year-old male child presenting for chiropractic care with unresponsive unilateral in-toeing and associated self-injurious behavior due to gait disturbances at an interdisciplinary clinic.

Intervention and Outcome: Treatment consisted of "low force techniques," sacro-occipital technique, and cranial techniques to address spinal, lower extremity, and postural imbalances, as well as abnormal cranial bone imbalance, possibly contributing to the patient's in-toeing and difficulty walking. After 2-months of regular chiropractic treatments of between once and twice-a-week the patient has diminished or virtually eliminated self-injuries (e.g., falling down). His gait is mostly normal but due to a developmental anatomical left foot caused by in-toeing he is being treated also with short/moderate-term orthotics to enhance his recovery.

Conclusion: This case may demonstrate a conservative, effective treatment for a subset of children presenting with in-toeing and/or self injury particularly when watching and waiting is not preferred and the child's gait, repetitive falls, other abnormal or injurious behavior and self-esteem are being adversely affected by these conditions.

Buddingh CC, Galinis MR. **A Brief Overview of The Stubborn Low Back & Category II.** *Dig Chiro Econ.*1980 Jul/Aug; 27(1): 72-3.

It has been the experience of the authors that often patients that have failed to respond to general low back manipulation, yet fall clearly out of the realm of the medical scope of practice, have responded very favorably to the Sacro Occipital Technique (SOT) Category II procedures. Therefore, it was the intent of the authors to present a brief report to widen the scope of success of interested chiropractic doctors. Far too often chiropractors report of patients that "just don't seem to come around", yet know that the aforementioned people are not candidates for medicine or surgery.

Buddingh CC. **The Spheno-Maxilla Distortion.** *Today's Chiropractic.* Jul/Aug 1988; 17(4): 31,36.

The author proposes that the sphenoid is the "key" bone of the cranium. The posterior sphenobasilar articulation is influenced by the occiput and controls the posterior attachments of the falx cerebelli and cerebri. The anterior aspect of the sphenoid is influenced by the pterygoid process at the maxilla suture. This spheno-maxillary articulation controls the anterior attachments of the falx cerebri and tentorium cerebelli. The posterior attachments control one-third of the cerebrum and the whole cerebellum while the anterior attachments control the anterior two-thirds of the cerebrum. It is postulated that by balancing the spheno-maxillary suture it would help balance the anterior dural attachments. This in turn, would then help stabilize the regular neurological function of he corpus callosum, which is the area of the brain that "promotes" the integration of right brain to left and left-brain to right.

From Dr. Thomas Bloink: "Spheno Maxillary cranial technique was developed by Dr. Curtis Buddingh DC after many years of research studying the interactions of the Maxillary Palatine complex in relationship with the pterygoid processes of the sphenoid. His early influences included dentists he studied with in Los Angeles, most notably Willie May, DDS. Dr. May was aware of maxillary distortions and the effects on dental occlusion.

"Dr. Buddingh observed, as many others, that the sphenoid was the key bone of the cranium. The sphenobasilar junction controls the posterior attachments of the falx cerebri and falx cerebelli. Dr. Buddingh found that the spheno-palatine complex with the pterygoid processes influence and control the anterior attachments of the tentorium and falx cerebri. He stated that " The posterior pole controls the posterior one third of the cerebrum and cerebellum. The anterior pole controls the anterior two thirds of the cerebrum". Correction of the spheno-maxilla dysrelationship and the reestablishment of normal reciprocal function of the anterior poles resulted in remarkable improvement of cranial balance and neurological function.

Dr. Buddingh also appreciated the influence of dental malocclusion and its influence on the spheno-maxillary distortion. Although Dr. Buddingh stopped teaching many years ago, he continued to develop his technique further."

A Brief Overview of
THE STUBBORN LOW BACK & CATEGORY II

by C. Curtis Buddingh, D.C. Certified SOTO Instructor
and Michael R. Galinis, D.C.
2024 Lansing Road • Charlotte, MI 48813

The purpose of this article is to present an alternative view of management of spinal and pelvic problems most commonly encountered in most Chiropractic practices. It has become apparent that generally used spinal manipulative procedures are occasionally found lacking in effectiveness with some of the more difficult low back cases. It is the hope of the authors of this article that here is a useful, systematic approach to the understanding of frequently misunderstood spinal and pelvic problems. The material presented can hopefully be applied immediately to the "trouble" patients without drastically altering existing office procedures.

Category II is a designation created by Dr. M. B. DeJarnette, founder and developer of Sacro-Occipital Technique, for a complex of anatomical, physiological and symptomatic findings associated with ligament sprain and laxity, with resultant hypermobility of the Sacro-Iliac joint.

CATEGORY II — A BRIEF OVERVIEW

Category II, as previously mentioned, is Dr. DeJarnette's designation for the configuration of findings and symptoms resulting from the sprain or distention of the Sacro-iliac ligaments. Usually a Category II is a unilateral condition, but there is an occasional finding of bilateral sacro-iliac involvement. Generally, this is characterized by hypermobility of the affected joint, adversely affecting sacral-cranial cerebrospinal fluid transfer, a loss of weight bearing pelvic stability, and often activating compensatory mechanisms aimed at protecting the afflicted joint by reducing weight bearing stress. Thus, Category II can be a Key factor in effective management of patients suffering problems ranging from those of the upper cervical and shoulder to the knee, ankle, and foot.

CAUSES OF CATEGORY II

Causes of the Category II complex can be compared with those, of most ligamentus joint separations. The result is the loss of functional integrity and stability in the involved SI joint. Most such cases of SI joint distress begin with trauma, in the form of impact, usually from falls and blows to regions supportive of the body's center of gravity.

A very common form of trauma is that which may be termed "micro trauma", or the cumulative effect of multiple minor insults in the form of daily physical and emotional stress. Such stress is often occupational in nature, building into a Category II configuration insidiously, finally manifesting as symptoms that have no single, memorable cause in the recollection of the patient. Category II is also thought to find its etiology in chronic, nutritional abuse, yielding a loss of ligamentus integrity for lack of sufficient, biochemical components. Experience has shown, however, that most patients suffer a combination of the previously mentioned causes.

DETECTION OF THE CATEGORY II

Observation of the Category II patient from the posterior usually reveals a tendency for lateral sway in excess of ¼", particularly toward the hypermobile side. A posterior plumb line is useful for accurate analysis. Also noticeable is an exaggerated lateral sway of the pelvis upon walking towards the side of SI involvement. In cases of bilateral joint hypermobility, exaggerated pelvic sway may be seen bilaterally.

Category II patients will always have an imbalance in leg lengths. Static palpatory findings often reveal swelling and tenderness over one of the upper rib heads, tenderness and muscle spasm over the lamina pedicle of the 4th cervical vertebrae, and an increase in sensitivity over the left mastoid. Common findings also include swelling and tenderness over the superior aspect of Poupart's ligament (slightly lateral and inferior to the ASIS on the anterior aspect of the pelvis) and medial knee tension on the short leg side. Present frequently also is swelling and tenderness over the inferior aspect of Poupart's ligament (slightly lateral and superior to the symphysis pubus on the anterior aspect of the pelvis) with lateral knee tension on the long leg side.

Motion palpation will reveal increased SI mobility with unilateral leg lifting (Trendelenburg's test) and a tendency to lean away from the lesion side. In case of bilateral joint sprain, the patient will favor one side and still lean in compensation. Doctors that use therapy localization as an analytical procedure in their practices will notice a weakening of a strong indicator muscle upon digital monitoring of the SI joint above the PSIS on the lesion side. Therapy localization also discloses the weakening of a strong indicator muscle with digital monitoring of the involved aspect of Poupart's ligament with the patient in a supine position.

RADIOLOGICAL FINDINGS

The most common radiological findings associated with Category II are a widening of one SI joint line on the A-P pelvic view associated with posterior or anterior iliac rotation on the side of either the short or long leg. Occasionally the A-P lumbar view shows a compensatory lateral lumbar curvature away from the SI joint lesion side in an attempt to reduce weight bearing stress on the unstable joint.

CORRECTION OF THE CATEGORY II

Correction of the category II complex directs towards four main objectives: I. Re-approximation of the separated articular surfaces of the Sacrum and Ilium. II. Support of the SI joint causing atrophy and retraction of lax and intact ligaments. III. Correction where possible of underlying causes of the individual category II. IV. Infliction of no further damage to the lumbo-sacral and sacro-iliac regions as lumbar and pelvic manipulation may actually cause greater ligamentus damage to the Category II patient.

Re-approximation of the Sacral and Iliac joint surfaces is accomplished with the patient supine. Equipment optimum for the job consists of a small padded platform (called a Steffensmeier board) and two 45° angled wedges (DeJarnette blocks). The pelvis rests on the Steffensmeier board and the blocks are placed beneath the pelvis to allow a gradual, gravitational shift of the pelvis to normal positioning. One block is placed beneath the upper aspect of the iliac crest at 90° to the patient's vertical plane on the short leg side. The other block is

placed at a 45° angle, pointing superiorly, beneath the greater trochanter on the long leg side.

This blocking procedure should not occupy too much time and should be terminated when the swelling and tenderness of the Poupart's ligament and the other aforementioned physical findings begin to diminish. The joint is then supported by a thin (2" thick) elastic belt that horizontally encircles the patient's pelvis just beneath the ASIS. This light weight support should be worn as often as possible for 4 to 6 weeks; the average healing time determined by Dr. DeJarnette when he developed Sacro-Occipital Technique.

It is appropriate, then, to attend to other causes of the Category II complex. Removal of the patient from recurrent damaging stress where possible should be considered. Nutritional counseling and support may be employed where applicable to the context of the individual office procedure. Counseling the patient regarding exercise, recreation, lifting procedure, etc. is also useful.

WHEN NOT TO MANIPULATE

Often a series of lumbar adjustments fails to bring about any significant change in the patient. A poor degree of response should make clear the fact that the care received may have been inadequate, and continuation of such will usually result in greater damage to the patient. Ligamentus laxity and separation as in Category II, can only be worsened by persistent torquing manipulation. Furthermore, persistent manipulation where contraindicated will only increase the degree of hypermobility of the SI joint, creating a greater need for compensatory spinal distortion and a wider range of symptoms.

It has been the experience of the authors that often patients that have failed to respond to general low back manipulation, yet fall clearly out of the realm of the medical scope of practice, have responded very favorably to the SOT Category II procedures. Therefore, it was the intent of the authors to present this brief report to widen the scope of success of interested Chiropractic doctors as it has us. Far too often Chiropractors report of patients that "just don't seem to come around", yet know that the aforementioned people are not candidates for medicine or surgery.

Further information regarding SOT, Category II, and the work of Dr. M. B. DeJarnette can be obtained through his publications, available through writing: Dr. M. B. DeJarnette, Box 338, Nebraska City, Nebraska 68410.

C. Curtis Buddingh, DC – Had been practicing chiropractic for over 50 years and was a world-renowned lecturer, teacher, author, and inventor of the "Chiropractic Belt." Dr. Buddingh personally studied under Dr. M. B. DeJarnette from 1969 to 1991 and was one of the first twelve chiropractors ever to become certified in SOT and Craniopathy by Dr. DeJarnette. He has taught on four continents, authored several articles, awarded Chiropractor of the Year in 1973 and received a Diplomate in Craniopathy in 1982.

The Spheno-Maxilla Distortion

By C. Curtis Buddingh, D.C., D.I.C.S.

After performing extensive clinical research into the relationship of the sphenoid ptygeroid process to the maxilla, my preliminary data suggests that this sutural relationship is one of the keys to obtaining normal cranial function.

The sphenoid is the “key” bone of the cranium. It is influenced by the occiput to the posterior at the sphenobasilar articulation. The sphenobasilar controls the posterior poles (attachments) of the falx cerebelli and the cerebrum.

The sphenoid is influenced to the anterior by the pterygoid process at the maxilla suture. This spheno-maxilla articulation controls the anterior poles of the falx cerebelli and the cerebrum. The posterior pole controls the posterior one-third of the cerebrum and the cerebellum. The anterior pole controls the anterior two-thirds of the cerebrum.

Following correction of the spheno-maxilla disrelationship and the reestablishment of normal reciprocal function of the anterior poles, remarkable improvement has been observed in children and adults.

The most noticeable improvements have been noted in children with learning disabilities.

Apparently, the removal of distress on the anterior poles stabilizes the regular neurological function of the corpus collosum, which is the area of the brain that “promotes” the integration of right brain to left and left brain to right. Any disruption of such integration may result in a learning disability.

I have observed improvement in patients exhibiting learning disabilities associated with Down’s syndrome and autism. Mild to severe reading comprehension problems have been resolved. Patients with temporomandibular joint (TMJ) dysfunction have also responded well to correction of the spheno-maxillar disrelationship.

The ptygeroid muscles attach to the lower and back part of the medial surface of the ramus, the angle of the mandible, the front of the neck of the mandibular condyle, and the capsule of the mandibular joint. Hypertonicity of the ptygeroid muscle occurs when the patient’s body requires the ptygeroid muscle to balance the reciprocation of the anterior falx to the dural torque. The hypertonic ptygeroid and the concomitant tension into the TMJ will be reduced via the spheno-maxillary adjustment.

After balancing of the spheno-maxillary suture and reduction of the hypertonicity of the muscles, the occlusal relationship of the teeth change. This change will have an effect on the dental cone, the curve of Wilson, and the curve of Spee.

Subluxation of the ptygeroid maxilla suture can be induced by birth trauma, head injuries, malnutrition, dental orthoses, or restriction of normal growth patterns as well as other factors.

Subluxation of the ptygeroid maxilla suture can be induced by birth trauma, head injuries, malnutrition, dental orthoses, or restriction of normal growth patterns, as well as other factors.

Dr. Robert Coté's Clinical Research

Caroline Vitez DC DACNB BCAO

BIOGRAPHY:

The late Dr. Coté was first introduced to Sacro Occipital Technique (SOT) in 1943 when his father returned from a seminar given by Dr. DeJarnette; He said that he remembered himself standing in front of the distortion analyzer to demonstrate the new technique, SOT. Dr. Coté graduated in 1959 from the Los Angeles College of Chiropractic and began studying and attending SOT seminars since 1961, every year for 25 years. He was active with the Sacro Occipital Research Society supporting Dr. DeJarnette's work and from 1964 onward and was a member of the board of directors for 25 consecutive years. This includes a presidency in 1973-74 and a chairman position in 1975-76.

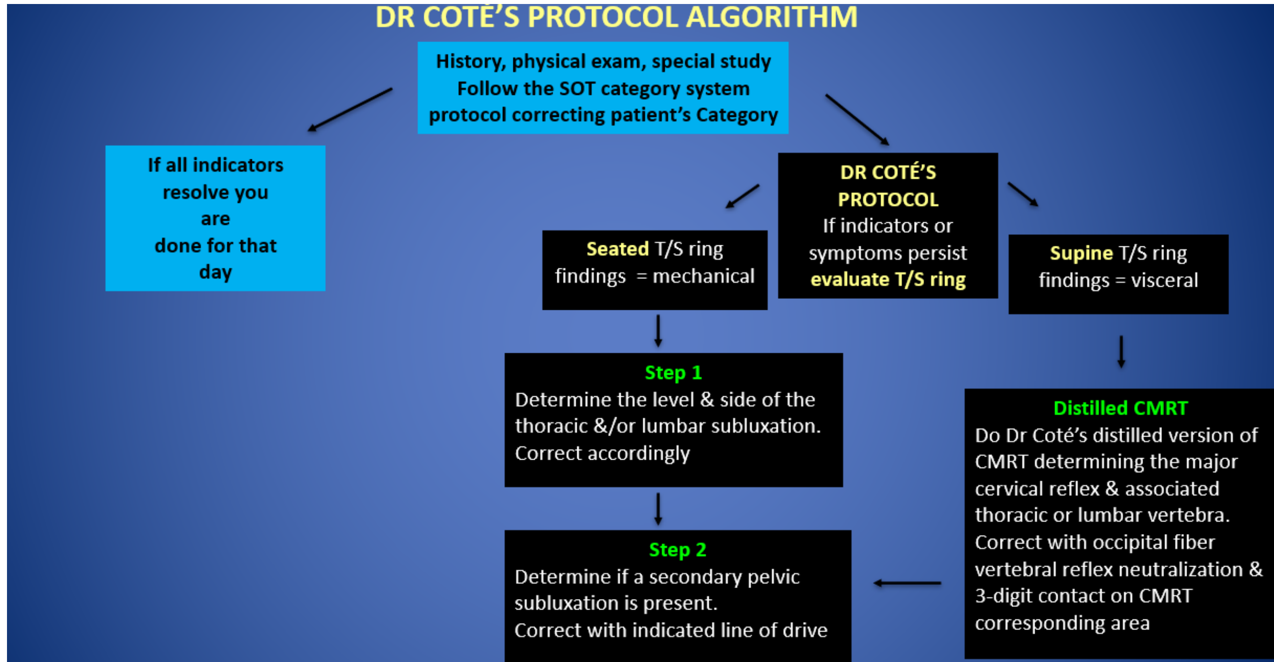
Dr. Coté was certified in craniopathy and had his Fellow and Diplomate with the International Craniopathic Society throughout his life. He held practice in Canada for over 50 years. He was a primary SOT instructor in the United States for over 20 years under Dr. DeJarnette. He has presented his innovative techniques and methods of care at the 2000, 2001, and 2003 SOTO-USA clinical symposiums and was awarded the 2003 SOTO-USA Lifetime Achievement Award.

Dr. Coté was all about doing as little as possible to get the most results in order to avoid disrupting the natural process of the body (getting the most bang for your buck). He always said with his usual laughter: ''Work WITH the body, it is telling you what you need to know. YOU just have to figure out what its saying!'' A true master of his art. He taught us that nature has left a map on the body in the form of indicators for you to follow. He showed us that they are everywhere: on the arms, forearms, calves, gluteals, Temporosphenoidal (TS) ring, trapezius, occipital bone and many others not covered in the following presentation.

DR COTÉ'S PROTOCOL

First and Foremost:

Dr. Coté would consistently remind us to always begin by following the entire procedure as covered by the SOT manual which is complete and should be followed as given, establishing and correcting the Category that the patient presents along with all rotatory pelvic subluxation. If all of the patient's indicators resolve, you are **done** treating the patient for that visit. If there are indicators that still persist or some of the patient's symptoms do not resolve after a few treatments with the SOT procedure, start Dr. Coté's protocol (in black in the algorithm).



Evaluate the patient's Temporo-Sphenoidal (T/S) ring in two positions:

Determine in which of the 2 positions the T/S ring findings are more predominant:

1st - seated, more indicative of musculoskeletal component involvement
2nd - supine, more indicative of organ malfunction component involvement.
When a patient is in a horizontal position, the righting reflexes are deactivated, but this does not change the biofeedback from a malfunction at the organ level. If the T/S ring indicators seem to be equally present in both positions, the patient's history becomes an important source of information. When multiple T/S ring indicators are present in one of the 2 positions NEUTRAL POSITION BLOCKING is done on ''non acute'' patients to sort out the **major** T/S ring indicator reflexes.

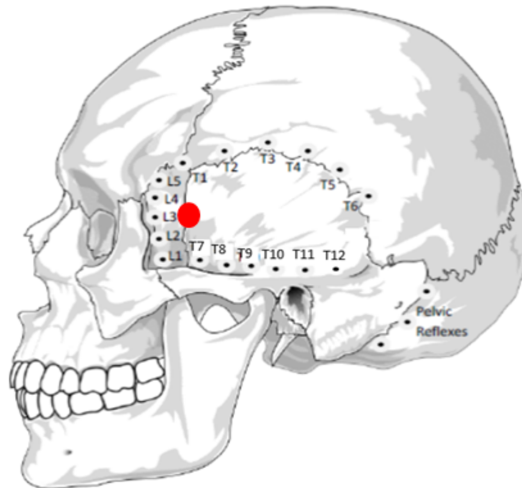
Blocks are put half way between the PSS and the ischium on the supine patient. For example: a patient with a right short leg supine, practitioner puts the blocks in the neutral position. Standing on the patient's right side contact his right 1st rib with your left hand. If it is painful, bring the right block cephalad 1/8'' at a time until his 1st rib is pain-free. Then palpate the left 1st rib, if painful, bring the left block caudal 1/8'' at a time until the 1st rib pain is gone.

Monitor with the reflex (meningeal reflex) located on the greater wing of the sphenoid, in the center of the T/S ring, approximately at the L3 reflex area going towards the center (see circle on T/S ring drawing). Leave the blocks in until this reflex becomes tension-free/pain-free bilaterally. Reassess the T/S ring indicators; only the major reflex should remain.

*T1-T6: Located on the temporo-parietal suture (squamous suture)
T7-T12: Rest on the zygomatic arch (temporal and zygomatic bone)
L1-L5: Located on the anterior border of the sphenoid bone close to the zygomatic bone running vertically

A. T/S RING INDICATOR FINDINGS SEATED - Musculoskeletal

If the T/S ring findings are predominantly found in the sitting position, these are musculoskeletal in nature, perform step 1



STEP 1:
Determine the level and side of the lumbar and/or thoracic subluxation based on T/S ring indicator findings (that give a general sense of the potential lumbar and thoracic vertebras involved) and confirmed with palpatory findings of at least 2 of the following reflexes:

I. **Trapezius fibers** to confirm the cervical level involved and associated thoracic or lumbar vertebra, for example: left trap fiber 4→C4-T6-L2. The palpation of the trapezius muscle begins at the acromioclavicular (A/C) joint (trapezius fiber 1) and moves in medially in 7 equally spaced steps to finish at the lateral border of T1 (trapezius fiber 7).

II. **Superior iliac crest reflexes** are palpated to confirm if there is T11-L5 vertebra involvement directly (ex: left L2 reflex). The palpation begins just superior to the most medial part of the iliac crest, lateral and a little superior to the L5 transverse process (TP) and ends on the most lateral portion of the iliac crest (T11), separating that distance in 7 equally spaced steps.

III. **Occipital fibers** are used to confirm the cervical level involved and associated thoracic or lumbar vertebra (reflex arc), for example: left occipital fiber 4→C4-T6-L2. The palpation of the occipital fibers begins at the most lateral portion of the occiput (occipital fiber 1) and moves inward medially in 7 equally spaced steps to finish right before midline occiput (below the external occipital protuberance).

IV. **Calf or posterior arm reflexes** (vertebral subluxation) to confirm the cervical level involved (identifies the cervical overload), for example left C4 calf reflex→C4-T6-L2. The palpation of the calf begins just below the popliteal fossa (C7) and moves caudally in 7 equally spaced steps to finish on the Achilles tendon

above the heel (C1). Note that the palpation of C1, C2 and C3 reflexes is more difficult because we are on the Achilles tendon. The palpation of the posterior arm begins just above the elbow (C7) and moves cephalad in 7 equally spaced steps to finish below and posterior to the A/C joint (C1).

If a lumbar vertebra is involved, determine the specific subluxation pattern based on cervical Indicators through the R + C palpation (Lovett brother relationship) and correct it:
Cervical spinous process tender indicates lumbar inferior transverse process (TP) ipsilateral (ex: left C4-L2). Cervical TP tender indicates lumbar anterior rotation ipsilateral (ex: left C4-L2). The correction can be made with any method you would like to use as long as it clears the indicators

If the indicators reveal that a thoracic vertebra is involved, adjust at the corresponding thoracic level

The correction (ex: left C4-T6) can be made with any method you would like to use as long as it clears the indicators. Once the indicated lumbar or thoracic adjustment has been done, recheck your T/S ring indicators seated, they should be clear

STEP 2:
Determine if the patient has a secondary Pelvic subluxation utilizing indicators:
The entire pelvic adjusting procedure as covered by the SOT manual is complete and should be followed as given. But it only covers the ilium subluxated in **rotation**: UMS (posterior) and LLL (anterior). Once this is corrected following the SOT procedure and your indicators are negative, your indicator system is void and no longer informative.

Does this mean that the pelvic is clear? Not always.

Have you ever seen a patient that had the classical symptoms of a category II (bursitis, tennis elbow, trapezius pain, pain at C5, low back discomfort with mild leg pain) but all of the indicators were negative? Clinically this does happen although not too often since Dr. Coté found that most patient's primary ilium involvements are rotations.

For example: If you treated your patient with a category II, you corrected the rotation of the ilium which does remove much of the pain and discomfort. But the ilium can also subluxate ''in block'': superior, inferior, lateral, medial (or anywhere in between) with the legs being **even**. In our category II protocol, you would not have any way of knowing if your patient has a secondary subluxation of the ilium because our system of indicators is specifically for ilium subluxating in rotation (UMS, LLL). Clinically, if symptoms persist after correcting the category II, there may be a secondary ilium subluxation. The same can be said of a category I.

Once you have made your indicated corrections according to the SOT protocol, and all indicators are negative, make a careful examination of the occipito-mastoid sutures bilaterally. If the occipito-mastoid sutures are painless, your correction is complete. But if you palpate pain or swelling, Dr. Coté determined that the ipsilateral SI joint is still under stress and further corrections are needed to correct a **secondary pelvic subluxation**:

ILIUM subluxation **‘’in block’’** (C1)
ILIUM indicators ipsilaterally swollen or painful upon palpation:

- Lateral occipito-mastoid suture (temporal bone)
- 3rd rib (scapula moved laterally)

SACRUM subluxation (C2)
SACRUM indicators ipsilaterally swollen or painful upon palpation:

- Medial occipito-mastoid suture (occipital bone)
- 4th rib (scapula moved laterally)
- C2 spinous rotated ipsilaterally

COCCYX subluxation
COCCYX indicator ipsilaterally swollen or painful upon palpation:

- Apex of occipital bone, just below the parietal bone (if take coccyx and turn it upside down and superimpose it on the occipital bone, the coccyx would be at the apex)

Determine the line of drive required to correct the secondary subluxation of the ilium ‘’in block’’ or of the sacrum:

The patient is prone and the practitioner stands on the side of involvement. The practitioner contacts the corresponding occipito-mastoid suture (ex: occ-mast lateral suture left) or rib (ex: 3rd rib left) with one hand and the ipsilateral ilium PSIS or sacral 2-3 with the other.

- Ilium: lateral occipito-mastoid suture or 3rd rib → Ilium PSIS
- Sacrum: medial occipito-mastoid suture or 4th rib → Sacral 2-3

For a left side ilium or sacrum, the practitioner stands on the left side (stands on the right side for a right side involvement). The doctor’s left hand makes a finger contact on the painful occipito-mastoid suture (ex: lateral for left ilium) or rib (3rd rib left) while his right-hand contacts the ilium PSIS or sacrum (ex: left Ilium). The doctor then applies mild pressure with his right hand cephalad, caudal, lateral and medial. The direction that removes the corresponding occipito-mastoid or rib pain is the line of drive to be used to correct the ilium or sacrum subluxation.

If the vectored pressure at the PSIS or sacrum does not completely control the indicator pain, you will vector your contact at a slightly different angle (you can vector anywhere between these 4 directions) until the suture or rib indicator is pain-free.

NOTE (L3): If vectoring on the subluxated ilium or sacrum in all 4 directions does not decrease the corresponding occipito-mastoid or rib indicator pain, it is most likely because the body has shifted its area of compensation upward to lumbar 3 from sacral 3. Lumbar 3 will probably be subluxated in rotation or inferiority which you will identify using C3 in the way we just described in step 1 with the R + C palpation and Lovett brother relationship.

NOTE (Sacral): Sacral adjusting is performed with the thought in mind that you are attempting to close the minute separation (joint space) between the sacrum and ilium. Sacrum can subluxate anterior (under the ilium, still opening up the joint space) or posterior (away from the ilium). Trauma to any part of the body that is beyond the ability of the local structures or tissues to handle will be transmitted to the center of gravity, the sacrum.

Correction of the ilium and sacrum secondary subluxation:

The ilium or sacrum correction can be made with a side posture, drop, Logan Basic, sustained contact or any other method you would like to use as long as it allows the correction to be in the determined line of drive and clears the indicators. Recheck your occipito-mastoid suture or rib indicator: If it is not pain-free, go back and recheck your line of drive (if for example it was lateral, go back and vector still lateral but with a slight caudal or cephalad orientation). If the indicator is negative, you are done treating this patient for that visit.

Determine the line of drive required to correct the coccyx subluxation:

The determination of the line of drive required to correct the coccyx subluxation is done utilizing the apex of the occipital bone ipsilaterally as an indicator in the same fashion as described for the ilium and sacrum except that we are only looking at the coccyx subluxating either to the right or the left (ex: occipital bone apex left). If the coccyx would be subluxated anteriorly, this would require another type of adjustment that is not covered by this protocol.

Correction of the coccyx subluxation:

The coccyx adjustment can also be done with a side posture adjustment, with the activator, with a sustained contact or any other method, using vectoring as indicated that clears the pain indicators. Recheck your coccyx indicator (apex of occipital bone): If it is not pain-free, go back and recheck the side of the coccyx subluxation. If the indicator is negative, you are done treating this patient for that visit.

B. T/S RING INDICATOR FINDINGS SUPINE - Visceral

If the T/S ring findings are predominantly found in the supine position, these indicate more of a visceral component:

- Corresponding line 2 occipital fiber and visceral complaints from the patient
- Perform the DISTILLED Chiropractic Manipulative Reflex Technique (CMRT) (and then you will go on to do STEP 2 described previously).
- Dr. Coté developed a distilled CMRT, giving us the essence of CMRT in an easy to follow, well-structured and concise procedure.

DISTILLED CMRT:

This version of CMRT utilized to correct visceral malfunction consists of the following procedure (5 parts):

1. Determine the major cervical reflex and associated thoracic or lumbar vertebra: Reflex arc
2. Correct with occipital fiber-vertebral reflex neutralization (reflex manipulation)
3. Adjust associated thoracic or lumbar vertebra
4. Perform the 3-digit contact on CMRT corresponding area and recheck the patient's T/S ring indicators, if clear; you are done with CMRT (go do step 2)
5. If the T/S ring indicators persist correct the anterior misalignment of the associated cervical vertebra then recheck the patient's T/S ring indicators that should be clear

1. **Determine the major cervical reflex and associated thoracic or lumbar: Reflex arc**

This is accomplished by correlating T/S ring indicator findings (that give you a general sense of the potential thoracic or lumbar vertebra involved) with palpatory findings of at least 2 of the following reflexes.

a. **Trapezius fibers** also to confirm the cervical level involved and associated thoracic or lumbar vertebra, for example: right trap fiber 3→C3-T4-S1. The palpation of the trapezius muscle begins at the A/C joint (fiber 1) and moves in medially in 7 equally spaced steps to finish at the lateral border of T1 (fiber 7).

b. **Occipital fibers line 2** revealing the cervical level involved and associated thoracic or of the occipital fibers begins at the most lateral portion of the occiput (occipital fiber 1) and moves in medially in 7 equally spaced steps to finish right before midline occiput (EOP).

c. **Calf or anterior arm reflexes** (visceral) to determine the cervical level involved (identifies the cervical overload), for example right C3 calf reflex→C3-T4-S1. The palpation of the calf begins just below the popliteal fossa (C7) and moves caudally in 7 equally spaced steps to finish on the Achilles tendon above the heel (C1). Note that the palpation of C1 and C2 reflexes is more difficult because we are on the Achilles tendon. The anterior arm reflex palpation begins above the cubital fossa (C7) and moves cephalad in 7 equally spaced steps to finish below the anterior A/C joint (C1).

d. **History/symptomatology/posture observation**: to confirm the reflex arc and associated organ involved (ex: right C3-T4-S1).

2

. **Correct with occipital fiber-vertebral reflex neutralization (reflex manipulation):**

Once the main cervical and associated thoracic or lumbar vertebra has been determined along with the side of involvement, the doctor can begin occipital fiber vertebral reflex neutralization.

Clinical theory of an organ malfunction according to Dr. Coté:

The organ begins to malfunction with a loss of energy that occurs 1st on the **right** side. These impulses go up to the cervical area and down into the sacrum. The right side cervical overload creates the T/S ring indicators, occipital fibers, trapezius fibers and reflexes sent into the arm, forearm, calf and lateral to the sacrum. Abnormal impulses are returned into the posterior horn and paraspinous area of the vertebrae supplying the respective organ and a stress tension is created at the transverse and paraspinous tissues starting on the right (energy loss). If the body cannot sustain the loss of energy (from the organ malfunction), there will be a transfer of these impulses to the left paraspinous area which activates all the same reflexes on the left. This is how the body defends itself against the energy loss; it goes into a stress pattern (left side).

Remember that thoracic and upper lumbar vertebrae paraspinous area controls sympathetic nervous system (SNS) output. In neurology, the rule is that the neural tissue that is located above inhibits the neural tissue located below. Inhibition of the SNS at T1 to L1-2 can lead to a decrease of its inhibition on the **sacral** parasympathetic nervous system (ParaSNS) located below. This then facilitates increased parasympathetic (ParaSNS) output. This is important because, if the ParaSNS remains too inhibited by the SNS, the patients lose their ability to relax and the recuperative power of their sleep is lost, bringing on the ‘’chronic fatigue syndrome’’.

Bilateral occipital-thoracic or lumbar contact

Practitioner at the left of the prone patient, a bilateral contact is held by his left hand at the occipital fibers involved (ex: occipital fiber #3 line 2) and by his right hand on the corresponding paraspinous thoracic or lumbar area bilaterally (ex: T4) lightly putting a headward pressure until occipital pulsation is felt.

Cervical paraspinous-thoracic or lumbar 2 inches lateral contact

Doctor then moves his left hand to contact the corresponding paraspinous cervical area (ex: C3 right) while his right hand contacts 2 inches lateral to the corresponding thoracic or lumbar paraspinal area (ex: T4 right) torquing into the area of ease (clockwise or counterclockwise). Both contacts make a soft tissue relaxing motion to release tissue stress until pain is absent in the thoracic or lumbar contact (ex: right T4).

Cervical paraspinous-sacral contact

Once the thoracic or lumbar area is pain-free, move your right hand to the corresponding sacral segment (sacral 1). Palpate from medial to lateral at that level (S1), ¼ inch at a time, making 4 pressure contacts, identifying the most painful one. Hold that contact making a soft tissue relaxing motion until the cervical paraspinal area (C3) is pain-free.

Sacral-occipital fiber contact

If pain persists at the sacral area (while the cervical contact has become pain-free), maintain that contact with your right hand and contact the corresponding occipital fiber (#3 line 2) with your left hand until the sacral contact is pain-free.

3. **Adjust the thoracic or lumbar vertebra involved**

At this point if the indicators initially revealed a **thoracic** involvement (ex: T4), make a bilateral thenar contact at the corresponding thoracic area, making a very light head ward adjustment (this is repeated to the next 2 vertebrae above that thoracic segment because many times the locking mechanism is 2 segments above the subluxation). If that does not release the indicated thoracic segment (ex: T4), do a light anterior dorsal correction at that level (ex: T4).
If the indicators had initially revealed a **lumbar** involvement, determine the specific subluxation pattern based on cervical Indicators through the R + C palpation (Lovett brother relationship) and correct it.

4. **Perform the 3-digit contact on CMRT corresponding area**

The patient then moves into a supine position, while the doctor is standing on the right side of the patient, and makes a 3-digit contact at the CMRT area for the organ corresponding to the previously determined indicators and side (ex: gallbladder, right C3-T4-S1):

▪ clockwise if done on the right side (energizes the organ)

▪ counterclockwise on the left (destresses the stressed organ).

When an organ begins to malfunction it loses its energy, this occurs on the right side (clockwise motion to energize the organ). When the body cannot compensate for this loss at the sacral area, there occurs a switching of the energy field to the left side of the segment (ex: T4). The indicators and symptoms of pain/discomfort will then be on the left side (Counterclockwise motion to destress the organ).

Recheck the patient’s T/S ring indicators, if clear; you are done with CMRT (go to step 2 and check to determine if the patient has a secondary pelvic subluxation)

5. If the T/S ring indicators persist correct the anterior misalignment of the associated cervical vertebra: ''Pain-free and effortless adjusting''

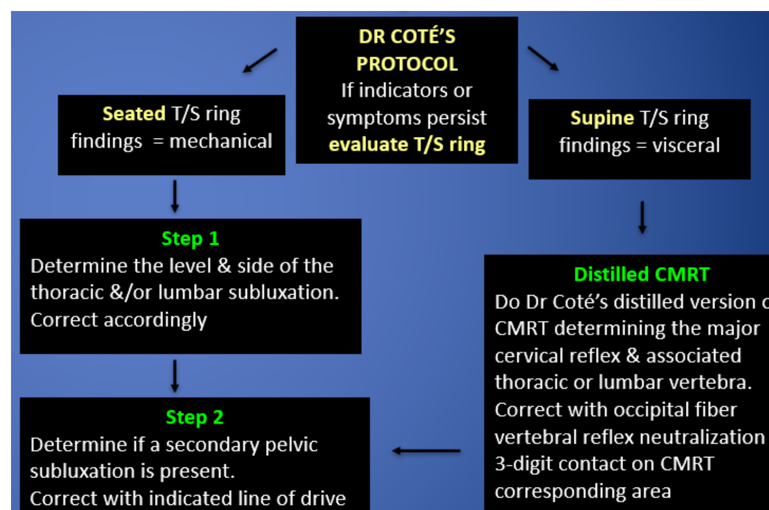
The patient supine, palpate the tissue on the anterior body of the cervical vertebra with your thumb at the indicated level and side looking for pain (ex: C3-gallbladder right): the abnormal reflex coming from an organ malfunction is located on the anterior portion of the cervical vertebra.

The painful contact is held with the doctor's thumb on the anterior cervical vertebral body (ex: C3 right), then slowly **passively** rotates and laterally flexes the patient's head **away** towards a position where no more palpatory pain is noted by the patient under your thumb contact. Hold that head position, pumping the painless anterior cervical vertebra tissue cephalad, for approximately 1 minute, releasing all tensions at that level: this is anterior cervical vertebra adjusting. You may feel the release of the ''grasp'' of the tissues, and sometimes, the simple positioning of the head in the painless position is enough to release the vertebra.

After about 1 minute, **passively** bring the head back to neutral and recheck your cervical reflex indicator that should be pain-free. If not, redo the procedure until it is. Then recheck the T/S ring indicators that should be clear. Dr. Coté used to call this cervical vertebral treatment **''pain free and effortless adjusting''.**

Following the Coté 5-Step Distilled CMRT Procedures

Once the CMRT procedures are completed then it is appropriate to determine if the patient has any secondary pelvic subluxation and, if so, correct it as described previously in Step 2: when T/S Ring indicators were not predominant in the seated position, but were in the supine position then CMRT was performed, the treatment being focused on CMRT but followed by step 2.
If the indicators were more predominant in the seated position then Step 1 would be performed prior to step 2.



Denton DG, Vector **Point Cranial Therapy**, *Dig Chiro Econ*, Nov/Dec 1988; 31(3): 30-35.

Vector Point Cranial Therapy is a “new” cranial therapeutic technique, with methods of diagnosis and treatment as they relate to articular subluxations and their neurological symptomatology. Vector points are pathognomonic stress points on or adjacent to the cranial sutures that externally reflex to internal dural stress. These vector points relate to specific vertebral levels. Predetermined vectoring of these sutural points releases muscular contractions around the related vertebral segments, and restores normal physiological function of the articulations and their neurologically related structures.

Vector Point Cranial Therapy asserts that the primary cause of the clinically predominant nontraumatic spinal subluxation is cranial-sacral dural stress. When stress is released from the dura there is no longer a necessity for compensative subluxations to remain or reappear. The dural mechanism has a self – preserving memory that acts like a “homing device” which, when reactivated, maintains the body’s structure in optimum functional balance.

VECTOR POINT CRANIAL THERAPY

by DAVID G. DENTON, DC, DICS

ABSTRACT

This paper will present a new cranial therapeutic technique, with methods of diagnosis and treatment as they relate to articular subluxations and their neurological symptomatology. Vector points are pathognomonic stress points on or adjacent to the cranial sutures that externally reflect internal dural stress. These vector points relate to specific vertebral levels. Predetermined vectoring of these sutural points releases muscular contractions around the related vertebral segments, and restores normal physiological function of the articulations and their neurologically related structures.

Vector Point Cranial Therapy asserts that the primary cause of the clinically predominant nontraumatic spinal subluxation is cranial-sacral dural stress. When stress is released from the dura there is no longer a necessity for compensative subluxations to remain or reappear. The dural mechanism has a self-preserving memory that acts like a "homing device" which, when reactivated, maintains the body's structure in optimum functional balance.

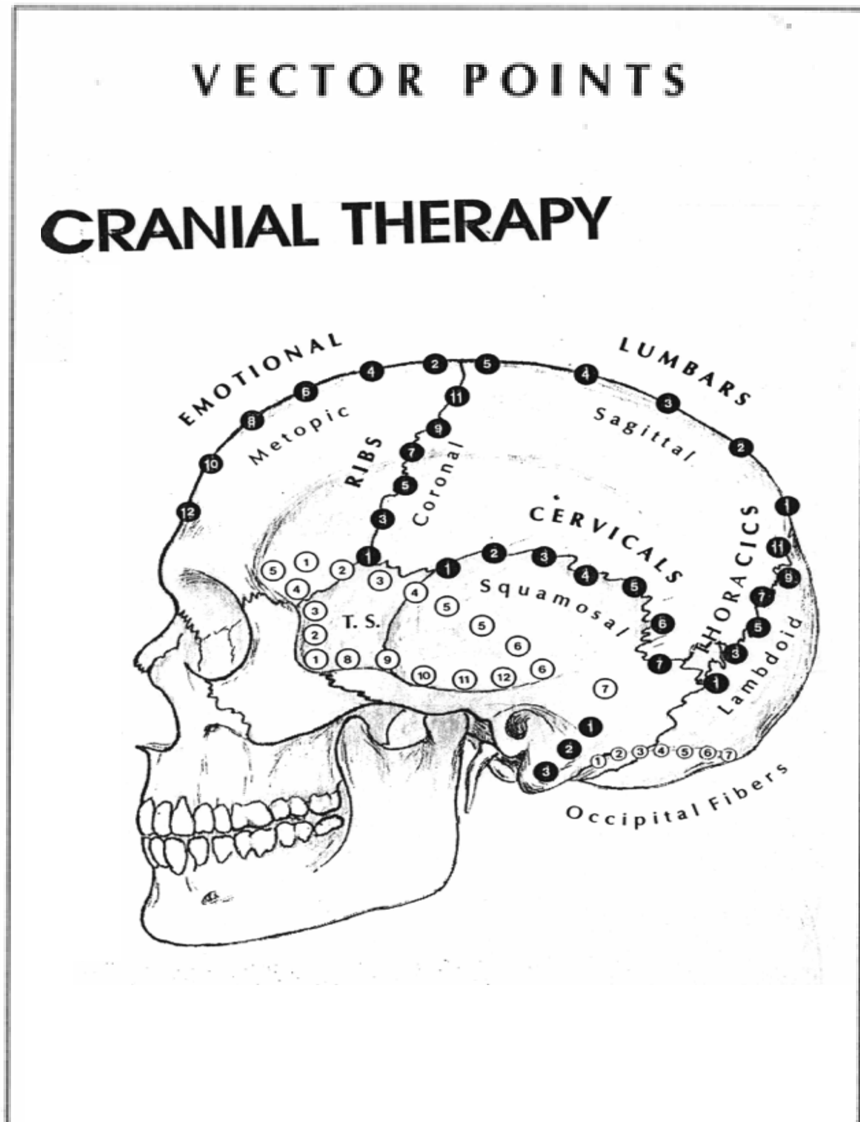
INTRODUCTION

The primary cause of disease has been an important research objective for many years. Each chiropractic specialty has its own distinctive area of emphasis, such as the sacrum, the atlas, the full spine, the muscular system, the cranial-sacral respiratory system, etc. All of these techniques have contributed to the advancement of chiropractic and are of tremendous value, yet we continuously strive to find new techniques which will more fully affect the body's command centers in the central nervous system.

Health practitioners in all fields seek to improve the efficacy of their therapeutic methods. To the chiropractor this means a less forceful, more easily administered technique which would direct its efforts at the primary cause in order to relieve the greatest number of symptoms and help patients return to and maintain optimum health. This technique would also have simply monitored indicators for pre and post evaluation of results.

Vector Point Cranial Therapy is a technique that achieves these goals. My years of cranial experience have instilled in me a feeling that there are hidden keys in the cranium, keys that could bring us closer to the ultimate goal of reaching the primary cause of health and dis-ease. I believe that a major door has been opened in that search.

I have discovered that all of the musculoskeletal structures of the body are systematically represented on the cranium. Distinct areas of the skull are directly analogous to the vertebrae, the ribs, the pelvis and the extremities. These are not merely reflex areas, but are mechanically functional units that, when corrected with this new approach, result in specific and instantaneous changes in their related counterparts. For instance, it has long been taught in craniopathy that several analogies exist between the cranium and the pelvis, e.g. the occiput and the sacrum, the temporal bones and the ilia, and the sacroiliac articulation and the oc-



ABOUT THE AUTHOR

Dr. David G. Denton graduated from Lincoln Chiropractic College in 1958, and has since maintained private practice in Michigan and California. He is an international lecturer and authority on Sacro-Occipital Technic and Craniopathy and in the past 23 years he has presented over 320 12-hour educational seminars in the U.S., Europe, Asia and Australia. He has authored "Craniopathy & Dentistry," and the "Biomechanics Of The Pelvis," and has been the Chiropractor of the Year for Parker and the Sacro-Occipital Research Society International. He is Board Certified and holds Diplomate status in Craniopathy.

cipitomastoid suture.

In addition to these known areas, I have discovered that the Cervical Vertebrae are represented at specific points on the Squamosal Suture, the Thoracic Vertebrae are represented on the Lambdoid Suture, the Lumbar Vertebrae on the Sagittal Suture, and the Ribs on the Coronal Suture.

Following the discovery of these parallels (and others not mentioned here) on the skull, I have found that by simultaneously compressing two or more specific vector points on or around the cranial sutures and/or on the cervical spine, I could effect a release of stress on the dural proprioceptors and the neuromuscular ***proprio-adaptors***[1] in and around the articulations of the body, thereby relieving the tension on the sutures and mitigating in a predictable manner the corresponding muscular distortions in the body. I have called this procedure "vectoring." The exciting aspect of this discovery is that Vector Point Cranial Therapy has enabled me to correct approximately 85% of the abnormal structural patterns that I have seen in my practice.

METHODS

To use Vector Point Cranial Therapy, the first step is to find the subluxation by the diagnostic procedure of choice. The practitioner would then find the Vector Point counterparts on the cranium, and vector these points in the prescribed manner. If the vectoring has been properly performed, the subluxation and the postural pattern produced by it should now be eliminated or definably reduced. This can be substantiated by visual, palpable or instrumental indicator analysis.

There is a normal reciprocal tension between the attachments of the dura to the sacrum, atlas, foramen magnum, the intercranial poles (osseous ridges and protrusions), and cranial sutures. A strain at any of these attachments produces a tugging at one or more of the other attachments and creates stress on the dura. This inhibits the cranial-sacral respiratory mechanism, which is responsible for the circulation of the cerebral spinal fluid within the cranial vault and spinal canal.[2] It is my theory that when the central nervous system is threatened in this way, a proprioceptive response is elicited at the point of stress in the dural stretch receptors, which triggers an altered musculoskeletal response (subluxation) in order to compensate for dural torque and maintain normal functioning of the cranial-sacral respiratory mechanism. I believe the reason for the success of Vector Point Cranial Therapy is that its employment specifically reduces stress on the proprioceptors in the dura mater and evokes an intrinsic "homing instinct" (i.e., engram) of normal coordinated structural function.

Upledger states that: "The dura mater is the external layer of the three membranes, named the meninges, which envelop the brain and spinal cord. It is a tough, relatively inelastic connective tissue which is fused with the internal aspect of the skull. . . . This boundary of the craniosacral semi-closed hydraulic system has various bony (osseous) attachments. These attachments act as anchors by which dural membrane tensions are transmitted to connective tissues outside of the system. It is by virtue of these common bony moorings between the dura and the connective tissues that abnormal tension patterns cross the dural boundary. Conversely, and more easily discerned, is the fact that via these common anchorings the extracraniosacral system connective tissues transmit tensions into the dural membrane system. By way of dural continuity, these tensions are transmitted to distant and very *hard-to-predict* (emphasis added) regions of the meningeal membrane system."[3]

Continued on Page 32

DENTON

From Page 31

I have found with the Vector Point procedures that these distant tensions are exactly predictable and are indicative of structural subluxations. For example, this therapy can clear the objective and subjective findings of the very common pseudo-hiatal hernia complex, which is often a companion of sacroiliac problems. With the patient in the supine position, the doctor contacts area 4 on the left lambdoidal suture (see the illustration of cranial vector points) and area 4 on the left coronal suture with the left hand. The right hand contacts the posterior aspect of the right transverse process of the third cervical.

These points are vectored towards each other while the patient dorsiflexes both feet on inhalation and extends the feet on exhalation. This procedure is repeated for a minimum of three respiratory cycles. Upon re-evaluation of the patient by therapy localization, for example, the indicators of the hiatal hernia complex will be clear.

This is only one example of over 300 possible vector combinations that have outstanding instant results.

RESULTS

:t dramatic aspect of Vector Point Cranial Therapy is its ability — frequently with only one therapeutic application — to effect immediate and long-lasting physical and organic changes in patients who previously presented with chronic recurring symptoms. For example, in cases of long-standing low back pain complicated by sciatic neuritis, I have seen as many as 80% of the symptoms resolve instantly. Category 2 (S.O.T.) patients with on-going sacroiliac subluxations become Category 1 within one to three office visits, something which used to take considerably longer. The pain associated with thoracic rotations, anteriorities, rib subluxations, etc., have also cleared immediately. A significant number of disc herniations previously thought to be surgical have retracted, with remission of symptoms in just a few therapeutic applications. Chronic suboccipital headaches and their causative upper cervical fixations and subluxations are consistently eliminated. It is exciting to correct upper and lower extremity problems from the cranium alone. With special altered forms of vectoring, organic symptoms, such as the aforementioned hiatal hernia, can be relieved. Perhaps of equal import, a large number of patients have expressed that they have felt a great sense of "well-being."

DISCUSSION

Throughout the years of practice and teaching I have become proficient at relieving spinal, joint and radicular pain using an eclectic approach to chiropractic. In chronic cases, although pain was usually controlled or relieved, major spinal distortions and vertebral malpositions tended to recur. It has been gratifying to find a technique that more thoroughly influences the cause of structural dysfunction and removes the stimuli that cause its recurrence.

One specific case which I would like to cite is that of a male in his mid-30s, presenting with classic disc symptoms, including severe pain in the low back which radiated through the left buttock and down the left leg to the heel. He also complained of numbness in the big toe. He had a severe antalgic lean to the left and required assistance to move around. The results of examination, X ray, and MRI confirmed severe herniation of L5 and moderate herniation of L4 on the left, in association with a positive right sacroiliac slip-separation (R-UMS). As his con-

David G. Denton, D.C., D.I.C.S.
January 13, 1936 - April 25, 2021

Dr. Denton is the founder and developer of Holographic Physiology, Vector Point Therapy, and Impulse IQ Adjusting Methodologies. He graduated from Lincoln Chiropractic College in 1958 and interned at Spears Chiropractic Hospital in Denver, Colorado. He has been in practice for many years retiring only recently, beginning his chiropractic career in Ludington, Michigan, then in Los Angeles, San Luis Obispo, Bellevue, Washington, and Fort Collins, Colorado. Dr. Denton was married to Serene Murray-Denton, who has co-researched and helped him develop his various techniques and seminars.

Starting in the 1960s Dr. Denton began studying Sacro Occipital Technique with Dr. DeJarnette and became one of his leading instructors during that time through the mid 1980s when began developing his own chiropractic methods, such as Vector Point Therapy. During his time with DeJarnette he was an ambassador and international lecturer and authority on Sacro Occipital Technique and Cranial Therapy.

In 1995, he was awarded the Lifetime Achievement Award from the Pacific Asian Association of Chiropractic for establishing Sacro Occipital Technique and Craniopathy in Japan. In 2001, he was also awarded a Lifetime Achievement Award for his contribution to the field of Chiropractic by the Sacro-Occipital Technique Organization (SOTO) - USA.

dition was too fragile for manipulative procedures, I determined that this patient would be best served by referral to a neurosurgeon. It was the opinion of the neurosurgeon that immediate surgery was indicated.

A year later the patient returned to my office. He required physical assistance to get out of the car and into the office. He related that he had, in fact, elected not to have the surgery, and had been disabled for the entire year. Because of the recent sudden worsening of his symptoms he hoped that there might be something that I could do to give him some relief.

Re-examination revealed essentially the same findings as before, with the addition of a loss of two inches in the circumference of the left leg. Because of the obvious deterioration of his condition, manipulation was still contraindicated. I explained that I had developed a new cranial technique which could possibly afford him some relief.

The patient chose to be treated with Vector Point Cranial Therapy. I applied specific cranial vectors to relieve left lateral flexion subluxations of L4 on L5 and L5 on the sacrum, and to stabilize the right sacroiliac.

When he got up unaided from the treatment table, he was delighted to find that approximately 60% of his pain had been relieved. In addition, the palpable objective findings were greatly reduced.

After three subsequent office visits, his pain and numbness were completely gone. Two weeks from the commencement of treatment all subjective symptoms and objective palpable indicators were clear and the sacroiliac was stabilized. Since that time, the patient has remained mobile and active without the return of symptoms. I have also treated other proposed surgical disc cases with similar results.

Another type of problem I have addressed more beneficially with Vector Point Cranial Therapy than with previous technique is extremity subluxation. For example, certain knee and hip subluxations, which usually relate to L3 (and occasionally L2) lateral flexion subluxations, recur with strenuous exercise. Applying the appropriate vector points for these lumbar subluxations, and certain additional extremity points, I now find that a holding correction of these extremity subluxations can be accomplished, usually without manipulation of the articulation.

Another example is that of an elderly female patient who for the past several years had been suffering with pain which radiated to her left buttock and half-way down her left lateral thigh. She had a grade 2 spondylolisthesis of L4 on L5 and advanced osteoporosis. There was also a rotational subluxation of L4 on L5. With the usual procedures, I wouldn't have been able to move the fourth lumbar and give her the desired relief.

This lady had refrained from chiropractic treatment because of fear of manipulation instilled in her by her medical doctor. When told by one of her friends that I could make corrections without manipulation, she sought my help. With the cranial treatment, corrections in the rotational components and anterior stress created by the spondylolisthesis were reduced and the patient received immediate lasting relief.

In addition, I treated a middle-aged woman with developmental scoliosis of the lumbar spine complicated by advanced degenerative arthritis. She stood laterally flexed approximately 30 degrees to the right and was in moderate distress. This patient had tried numerous types of chiropractic treatment with minimal results. One of those corrective approaches had been my own previous manipulative treatments. Within three visits after initiating Vector Point Cranial Therapy, approximately 75% of the patient's discomfort was relieved and the lateral flexion was reduced by two-thirds.

With creati [illegible]
and cervical vectors, organic malfunctions also can be specifically treated. At the present state of my research I have been able to correct circulatory, respiratory, digestive, and urinary and reproductive systems.

These examples are only some of the corrections that have been made with Vector Point Cranial Therapy. Almost any articular subluxation and its myriad manifestations at the spinal level and elsewhere can be corrected from the cranium. The implications of this are exciting because we are now able to effect correction where direct manipulation would previously have been impossible or contraindicated. By using this new therapy, we not only alleviate symptoms, but correct the cause.

Chiropractic philosophy asserts that the subluxation is the cause of dis-ease. What constitutes a subluxation? I believe that a subluxation is a displacement or misalignment of an articulation, caused by the contraction of muscles which pull and

Continued on Page 34

DENTON

From Page 33

hold a motor unit out of place, altering its ability to move within what is considered to be its normal range of motion.

As chiropractors, we have been trained to adjust the articular segment into its normal position. Osteopaths were trained similarly and, at times, to adjust further into the direction of deviation. This results in a recruitment of the paraspinal muscles, creating an adaptive reaction in the muscles which returns the motor unit to a compensated functional capacity.

While there is merit in both of these approaches, it is my belief that since, in fact, it is the muscles that move articular segments and hold them out of their normal position, neither of the above can be optimally corrective by their very nature. On the other hand, if the muscle is pulling the bone to the right and we adjust it to the left, won't the muscle pull it back again to the right? Alternately, if a muscle pulls a bone to the right and we aid it in going further to the right, what have we really accomplished other than to stimulate a compensative response? I suggest that there is something more to the subluxation than simply muscles and bones.

What actually seems to be taking place is that the proprioceptors at the point of dural attachment are stimulated to produce a response at the skeletal level in the proprio-adaptors, triggering a muscular response and creating a subluxation of an articular segment. Vector Point Cranial Therapy, apparently, removes the causative dural stress. The implications are that by using Vector Point Cranial Therapy, we are removing the mechanical stress at the suture and simultaneously reprogramming and reactivating the "biocomputer" (the intrinsic instructional engrams) with updated instructions. This supercedes the previous neurological stimulus-response and replaces it with one which corrects the subluxation and allows the body to heal itself naturally.

CONCLUSION

In conclusion, it has become clear by the clinical results and the enthusiastic response of the patients that Vector Point Cranial Therapy offers an unprecedented approach to diagnosis and treatment. Vector Point is easily applied, is gentle, provides a viable alternative to more forceful adjusting, is compatible and can be used in conjunction with other techniques, and patients are returned to their level of optimum function in a much shorter period of time. The minimal directional pressure required makes the use of this technique easier on the doctor and on the patient. Not only does Vector Point address the root of the problem — dural stress and its various manifestations, such as subluxation, muscular distortion, and many concomitant disorders — but we are able to easily verify the results.

In 30 years of clinical practice and research, I have not found a single technique that accomplishes so much structural change in such a short time. Not only are the symptoms alleviated with this new approach, but the biocomputer is being directly accessed and reinstructed with updated maintenance information.

It may be a new concept to many doctors that stress within dural membranes is the primary reason for the occurrence of most nontraumatic subluxations. However, by applying this theory to my practice, I have, in fact, been able to stabilize the sacroiliac, specifically correct vertebral and extremity malpositions, clear upper cervical fixations, and effectively balance and control organic malfunctions in the majority of cases from the vector points on the cranium.

Although more research and clinical trials are needed, the implications of what has been presented in this paper can have far-reaching effects. For example, we may want to question the foundation upon which we base our current understanding of functional pathology. It apears to me that the true significance of the dural defense system will be of much more interest and priority and will determine the predominant therapies of the future. ■

Editor's note: Dr. Denton will be presenting seminars on Vector Point Cranial Therapy. For those interested, you may obtain further information by calling (213) 454-0034 (Pacific Time) or writing to the author.

ACKNOWLEDGEMENTS

I want to thank my wife Serene for her contributions and assistance while developing Vector Point Cranial Therapy. I also wish to thank Dr. Meredith Ann Rudof for her assistance in editing this paper.

FOOTNOTE

1. Proprio-adaptors: specialized nerve tissue located in the tendons and ligaments around the articulations of the body which receive input from the proprioceptors and transmit defensive signals to their associated muscle structures.

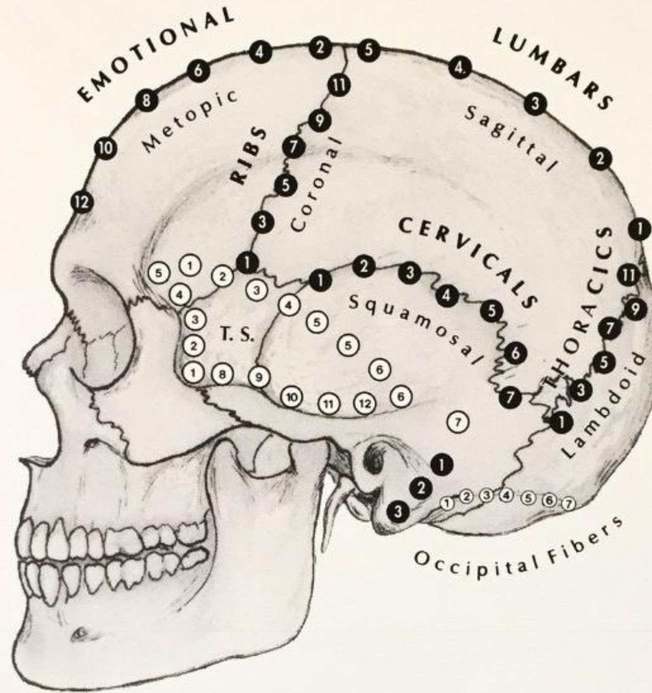
REFERENCES

2. Denton, D.G., **Craniopathy and Dentistry**, California, (privately published), 1979, pp. 6-8.

3. Upledger, J.E., Vredevoogd, J.D., **Craniosacral Therapy**, Illinois, Eastland Press, 1983, pp. 15-16.

VECTOR POINT CRANIAL THERAPY

STRUCTURAL SUBLUXATIONS [Lovett-Brother] [R + C]	
C1 - L5	O1
C2 - L4	O2
C3 - L3	O3
C4 - L2	O4
C5 - L1	O5
C6 - T12	O6
C7 - T11	O7
T1 - T10	O1
T2 - T9	O7 O1
T3 - T8	O6 O2
T4 - T7	O5 O3
T5 - T6	O4 O3



ORGANS	
C6	Thyroid
C7	Thymus
T1	Coronary
T2	Myocardial
T3	Respiratory
T4	Gall Bladder
T5	Stomach
T6	Pancreas
T7	Spleen
T8	Liver
T9	Adrenal
T10	Sm. Intestine
T11	Kidney
T12	Kidney
L1	Ileocecal
L2	Cecal
L3	Glandular
L4	Colon
L5	Prostate-Uterus

PRONE ORGANIC			
	Primary Contact		Secondary Contact
Constant	Thoracic + Cervical or Lumbar + Cervical [All same side active T.P.]	4 Stages	1] Occ - Opposite side 2] Occ - Same side 3] Sp. Cerv. - Opposite 4] Active Vertebral - T.P.

RIB CORRECTION	SUPINE ORGANIC	
Secondary Contact	Primary Contact	Secondary Contact
Sp. Cerv. - T.P. [same side]	Thoracic + Rib	Sp. Cerv. - T.P. [opposite side]

ORGANIC RELATIONSHIPS		
Lumbars Sacral	Cervicals Occipitals Trapezius	Thoracics Ribs
	1	1/2/9/10
	2	3/11/12
1	3	4/5
2	4	6
3	5	7
4	6	8
5	7	9

SACRO-ILIAC LESION [4 Point Vector]	
M2	[Lesion side]
O4	[Opposite side]
C1	[Posterior T.P. side]
C2	[Posterior T.P. side]

Subluxation Rotations:
(Patient Supine)
Primary Contact: The two cranial vertebral equivalents on side of spinous rotation.
Secondary contact: Opposite side related occipital fiber.

Inferiorities:
(Patient Supine)
Primary Contact: The two cranial vertebral equivalents on side of inferior transverse.
Secondary contact: Same side related occipital fiber.

© David G. Denton, D.C., D.I.C.S. – 1994

The chiropractor's role in the treatment of sleep disordered breathing

Kathryn Cantwell DC DICCP CSP CSCP, Private practice, Beaverton, OR, USA
Sharon Vallone, DC, FICCP, Private practice, South Windsor, CT, USA

Corresponding Author: Kathryn Cantwell, DC, DICCP CSP CSCP
Email: Kathydc63@aol.com

ABSTRACT

As sleep problems are a common issue for infants, all professionals work with these children with short- and long-term benefits in mind. The purpose of this clinically oriented article is to acknowledge, investigate and provide a professional commentary on some of the key parameters that should be a priority for chiropractors working with children with sleep disorders.

Key terms: Disordered sleep, chiropractic, infants, children, respiratory cycle.

Introduction

Childhood sleep disordered breathing has become an epidemic problem throughout the world, with 95% of the children with obstructive sleep apnea failing to be diagnosed. "700,000 Aussie kids under 10 have sleep problems which goes up to 1.9 million in the UK, 11 million in the USA and half a billion in Asia."[1] As the quality of children's sleep deteriorates, the rates of childhood obesity, anxiety and behavioral disorders have been on the rise.

Which healthcare specialty is best suited to diagnose and treat childhood sleep disorders? An infant's first healthcare providers may be a midwife, doula, lactation consultant and/or a pediatrician. As they get older, they may be referred to an ear, nose and throat (ENT) specialist, pediatric dentist, speech language pathologist, occupational therapist, oral myofunctional therapist, or a behavior therapist. Another healthcare provider whose care spans children of all ages and has the appropriate training to identify this problem is the pediatric chiropractor. The pediatric chiropractor is in a unique position to not only identify the problem, but to make the appropriate referrals while rendering care to the child in a collaborative relationship to resolve the condition. According to a study by Moore, et al., that although snoring and sleep apnea may be the most common indication of a respiratory sleep disorder in a child, one quarter of children presenting to a sleep clinic for evaluation will have a second sleep diagnosis, which is often non-respiratory in nature. They recommend that clinicians working in this arena must be prepared to recognize, evaluate, and manage sleep disorders across the lifespan of the patient.[2]

Defining the Issue

Sleep disordered breathing is defined as a blockage of all or part of the airway. There is a spectrum of sleep disorders, ranging from open mouth breathing to upper airway resistance syndrome, to snoring and to obstructive sleep apnea. When open mouth breathing is observed in a newborn baby, it is often accompanied by a recessed mandible and possible tongue, lip and/or buccal ties. Snoring can be heard and may be indicative of obstruction. It is the author's opinion that snoring should not be considered normal in an infant (or at any age). Upper airway resistance will sometimes present as noisy breathing. Other types of sleep disordered breathing are respiratory effort-related arousals (RERAs) and parasomnias. RERAs are defined as changes in upper airway pressure which limit the flow of air during each breath in the later sleep stages and rapid eye movement (REM) sleep. Parasomnias include sleepwalking, night terrors, unusual movements, teeth grinding, nightmares and sleep-related eating disorders.

There are many signs and symptoms of sleep disordered breathing, starting with infancy, moving through childhood and into adulthood. Many of these symptoms are either overlooked, or the symptoms are treated but the cause is never addressed. At birth, an inability to latch or breastfeed successfully (meaning transfer sufficient milk to sustain themselves) can be a red flag to assess an infant for sleep disordered breathing. One cause of either or both aforementioned issues could be tethered oral tissue syndrome, aka "tongue-tie."[3,4] Cranial distortions can also cause latching issues.[5] A recessed mandible can be observed in either one of these conditions. The child may also have a heightened gag reflex which would be an intact neurologic mechanism to prevent aspiration of liquids when the integrity of the suck, swallow, breath synchrony is impaired.[6] As the child grows, an open mouth posture and venous pooling under the eyes may be observed, as well as an architecturally narrow face or poor midface development.[7]

Parental description

The parents may report that the child has many bedtime antics to avoid going to sleep. Once asleep, the child may be very restless, awaken through the night, have enuresis,

nightmares, or night terrors. Sometimes they will sleep for long periods of time but never seem well rested.[8] Speech issues with or without tongue thrust (pressing the tongue up against the teeth or between them while swallowing) are very common. These children are often picky eaters and prefer to consume juice or some other type of sugary drink to "keep them going" since they are exhausted. Behaviors can be very challenging with these children.[9]

Sleep disordered breathing in infants can be difficult to diagnose due to the varied signs and symptoms. These babies often do not like to lie on their backs nor their stomachs, preferring to be held. The caregiver will often report that the baby will only lie on their stomach if they are on someone's lap, thus not in a completely flat position. When nursing, they will often pull on or pull off the nipple, fatigue quickly and either fuss or fall asleep, exhausted from their efforts, before transferring an adequate amount of milk to satiate themselves. They may have a narrow gape and/or shallow latch and dribbling while nursing is also common. The mother will often report that she must supplement nursing, and the provider needs to help her discern whether her milk supply is insufficient or whether the infant is unable to transfer milk therefore failing to stimulate her milk supply. The mother may also report that breastfeeding is painful and that the infant cannot open their mouth wide enough to get a deep, secure latch. This baby will often have a difficult time taking a pacifier as they cannot hold onto it, due to a tongue thrust and/or shallow suck.

Sleep disordered breathing can also present itself as noisy breathing or a light snore–a cause for alarm in an infant. Infants with sleep disordered breathing are also often diagnosed with gastroesophageal reflux (GER).[10] These conditions–inadequate milk transfer, a tongue thrust, a shallow latch or weak suckle, and gastroesophageal reflux disease are often accompanied by aerophagia. This is when the baby is taking in air while feeding, whether it be by breast or bottle, which can be correlated with sleep disordered breathing.[11]

Long-term problems

If sleep disordered breathing is not diagnosed and treated in infancy, it may progress to more serious problems as a toddler, school age child or adolescent. This child will often be observed with open mouth breathing while awake or sleeping. This child may wake frequently through the night. One example would be a toddler who is waking frequently (8-10x at night) to breast or bottle feed. While sleeping, these children may have nightmares, night terrors, restlessness, sleepwalking and persistent enuresis (despite demonstrating bladder control while awake). This child can be very hard to put to bed because they are in a constantly elevated sympathetic state ("fight or flight"). While eating, they will often refuse anything other than soft processed foods such as macaroni and cheese, crackers, or processed chicken nuggets. They are often a slow eater, have an aversion to chunky or chewy textures, and may have a heightened gag reflex (in some cases, causing them to vomit their food). They will constantly crave simple carbohydrates which will perpetuate the sympathetic state. They will often have a nasal voice because of swollen adenoids and/or tonsils. They will be prone to colds and allergies, venous pooling under the eyes and a narrow chin. Behavior issues may start to emerge: they will often be emotional and predisposed to outbursts or anger. When they are of school age, they will frequently be diagnosed with attention deficit hyperactivity disorder (ADHD), attention deficit disorder (ADD) or oppositional defiant disorder (ODD), with poor focus, inability to concentrate and distractibility as primary symptoms complicated by defiant and impulsive behaviors.[12] Speech can continue to be an issue.[13]

Respiration cycle

The suck, swallow, breath synchrony evolves in utero, with swallowing beginning at 11 weeks. The organized suck/swallow pattern emerges by 32 weeks in utero. The tongue raised at rest and resting on the palate creates the shape of the palate. The palate is the bottom of the maxillary sinuses and the shape of the palate helps determine the size of the airway. Cranial-sacral therapy as taught by sacro-occipital technique (SOT) provides training on evaluation and treatment.[14] Lips closed and a closed mouth posture function as future braces for the teeth, allowing them to come in naturally. A correct suck/swallow position is lips closed with tongue resting on palate while nasal breathing.[15]

All twelve cranial nerves are involved with breastfeeding, but there are seven of the twelve which are critical for successful breastfeeding. As a baby turns their head towards the nipple, they engage accessory cranial nerve (XI). Facial nerve (VII) and trigeminal nerve (V) are used to open the mouth to latch onto the nipple. Hypoglossal nerve (XII) is needed to push the tongue up on the nipple to stimulate milk production. Finally, the milk needs to be delivered to the back of the throat to swallow and the nerves utilized for this are the glossopharyngeal nerve (IX), vagus nerve (X) and trigeminal nerve (V). Craniocervical dysfunctions can impair the correct processing of the cranial nerves.[16] SOT practitioners with cranial training can be effective for helping to resolve cranial nerve issues. The correct pattern for nursing is suck, swallow, breathe, suck swallow, breathe, over and over.[17]

Bottle feeding can cause many issues that may not show up until the baby is a bit older. When a baby bottle feeds, the milk flows into the mouth more easily. The baby does not need to open their mouth as wide as they would

breastfeeding. The tongue will often thrust forward to control the flow of milk. All of these patterns may lead to cranial-facial developmental changes that they could carry for the rest of their life. Since the tongue does not need to push up on the palate, the same as during breastfeeding, the palate may not widen out and develop as fully as that of a breastfed baby. This can cause the palate to be high and arched which, in turn, potentiates open mouth breathing, crooked teeth and a need for braces. They could also develop a hooked nose, narrow chin and a smaller airway, causing them to be more prone to ear infections, allergies and asthma.[18]

Associated issues

One reason why breastfeeding can be difficult if not impossible is Tethered Oral Tissue Syndrome, aka TOTS or ankyloglossia. TOTS can be an anterior tie, posterior tie, lip or buccal tie. The definition of a tongue tie is restricted mobility as a result of a short lingual frenum, a condition often affecting breastfeeding, but not always. Evaluating for a tongue tie can be easily done during an examination. The doctor places the baby in a supine position. While wearing gloves, the doctor places two fingers under each side of the tongue and lifts it up towards the palate while an assistant (or parent) pulls the chin down. The tongue should be able to lift up to the palate. This is when the doctor will observe the frenulum, checking that it does not pull up the floor of the mouth or blanch too much. Not all frenum need be revised with a frenectomy. It is the author's opinion that performing cranial-sacral work on a baby will often help the baby to nurse, but a minimal to mildly restrictive frenum does not always need a revision, nor would it classify as "ankyloglossia." If a baby ultimately needs a frenectomy, manual therapy ("body work" as it is referred to colloquially) with soft tissue therapies, chiropractic adjusting and cranial-sacral work may be helpful to ready the baby for the procedure to optimize the outcome.[19] Keeping up with manual therapy after the procedure is very important to help the baby integrate the changes that have been made neurologically and reduce their compensatory motor patterns and to further reduce any dural tension as a result of the tethered oral tissues.[20] If this condition is not corrected (with or without surgery), there is a possible cascade of symptomatology that can occur. The infant or child may display open mouth breathing, develop a narrow palate/face, frequent illnesses that can lead to snoring and eventually to obstructive sleep apnea as the tongue slides back in the airway rather than remaining up on the palate.

Nasal breathing is what we are designed to do — but what are the effects of nasal versus mouth breathing? Very simply, nasal breathing warms and humidifies air, filters allergens and microbes, creates nitric oxide, increases our ability to absorb oxygen, regulates blood pressure and keeps us in a calm parasympathetic state. Mouth breathing, on the other hand, results in dry mouth, bad breath, snoring, fatigue, brain fog, dental caries and continues to elicit a sympathetic response. Craniofacial development is also affected. A nasal breather tends to develop a wide face, good cheekbones, alert eyes and a straight nose. A mouth breather is prone to develop a narrow face, crooked teeth, crooked nose, head forward posture, tired eyes, droopy eyes, and venous pooling under the eyes.[21]

Sleep stages

It is important that the chiropractor understand all the stages of sleep and the hormonal implications of getting proper or restorative sleep, versus sleep interrupted by sleep disordered breathing. Sleep is usually divided into non-rapid eye movement (NREM) and rapid eye movement (REM). Adults cycle through four to five times a night with each stage lasting 90-120 minutes. Babies and children cycle through more often with their REM sleep lasting longer depending on the number of hours that they sleep.[22]

NREM has four stages. Stage one involves falling asleep during which the heart rate will slow down but the person is still easily aroused by light and sound. Stage two is the longest phase of sleep. At this point, the muscles will relax and snoring may start. Our brains are at work consolidating all the learning from the day. Stages three and four are the deepest phases of NREM sleep. During these stages, temperature, heart rate and breath rate all decrease, and parasomnias and enuresis can occur. Long-term memory is consolidated, and tissue repair and release of growth hormone take place.[22]

During REM, procedural and spatial memory are created (often referred to as the "dream stage"). Physiologically, the body is paralyzed during this stage, and rate of breath, heart rate and blood pressure all increase, and toxins are removed from the brain while brain activity increases.[22]

Time spent in REM vs NREM sleep changes as a child grows. While a six-month-old baby spends their sleeping time equally split between REM and NREM, a five-year-old will only spend 30% of their time in REM and 70% in NREM sleep. By the later teenage years, only 20% of sleep is spent in REM and 80% in NREM which continues throughout adulthood. One reason for this is that neuronal pathways are laid down during REM sleep and synaptic pruning occurs during NREM sleep. Development of the brain starts in the back of the brain, the primal brain, and moves into the front cerebral cortex as maturity takes place. This is why getting proper sleep is important for critical thinking to develop.[23]

Hormonal activity during these stages is deeply affected by sleep disordered breathing. Secretion of antidiuretic hormone (ADH), atrial natriuretic factor, leptin, ghrelin,

somatotropin, melatonin, and cortisol are all affected. During normal sleep, ADH is released which inhibits urination while in deep sleep. Atrial natriuretic factor, a hormone secreted by the heart to regulate salt-water balance and blood pressure, is inhibited by sleep apnea which in turn inhibits the release of ADH.[24] Also, secretion of leptin, which inhibits hunger, is decreased with sleep disordered breathing, and ghrelin, a hormone stimulating the drive to eat, is increased. Somatotropin (growth hormone) and melatonin are both decreased, while cortisol is increased, with sleep disordered breathing.[25]

Irregularities in breathing during sleep can cause permanent damage to health, including brain damage with an up to 10-point loss in intelligence quotient. Neurocognitive deficits include impaired attention, focus, reasoning, and problem solving. Prolonged sleep issues reduce gray matter in the brain, and low blood oxygen impairs the immune system but also the growth of a child.[26,27]

There is also a strong link between inadequate sleep during childhood, and an increased risk of Alzheimer's disease in adulthood. The glymphatic system in our brain is the lymphatic system for the glial cells, most active during the deepest phases of NREM sleep. The glial cells shrink by 60 per cent during these phases to accommodate space around neurons to allow cerebral spinal fluid to flow more easily and flush out metabolites from the day's neuronal activity. This process during NREM sleep also cleans out amyloid proteins linked to Alzheimer's disease.[28]

Other key parameters: Several environmental factors can affect the quality of a child's sleep. It is best to provide a dark room for maximum production of melatonin. Screen time prior to sleep should be kept to a minimum, and the use of blue light glasses can improve sleep quality and duration. Children's sleep is affected by artificial sweeteners and food dyes, and these chemicals should be eliminated and replaced by whole foods and a minimum of sugars.

Pacifiers should be discouraged by six months of age. Prolonged use of a pacifier can affect formation of the jaw and contribute to open mouth breathing. A good alternative is the Myo Munchee, a medical grade silicone device invented by a dentist in the 1960's and carried on by his daughter, Mary Bourke, chiropractor. It helps train proper suck/swallow, stops thumb sucking, promotes nasal breathing, supports cranial-facial growth and healthy oral hygiene. It can be used with babies as young as six months (Bebe Munchee) and comes in many sizes to accommodate the growing child.[29]

Conclusion

Chiropractors may play a key role in the field of sleep disordered breathing and are often a part of a team to help with nursing issues such as latching, constipation, colic or GERD. The collaborative network often includes neuro-muscular dentists, orthodontists, pediatric dentists, oromyofunctional therapists, speech and language pathologists, occupational therapists, ENT's, behavior specialists, lactation consultants, midwives, doulas, and naturopaths. A chiropractic exam complements most pediatric exams, evaluating for infant reflexes, evaluation of the suck and cranial-sacral assessment to determine the presence of tension in the dural sheath. Chiropractors can also screen for tongue, lip, and buccal ties and can perform pre and post frenectomy work if needed. The treatment may include chiropractic adjusting, cranial sacral work, teaching use of Myo Munchees and educating families about environmental and nutritional correlations for quality sleep. This team approach is often the optimal way forward to assist children in fully functional feeding and sleeping mechanics.

The question always to be explored is, "Where is your tongue?" The goal should be lips sealed, with the tongue on the palate, and nasal breathing.

References:

1. Moore S. Sleep Wrecked Kids. New York: Morgan James Publishing;2020.

2. Moore M, Allison D, Rosen CL. A review of pediatric non-respiratory sleep disorder. *Chest* Oct 2007;130(4):1252-1262.

3. Alan E. Frenotomy may help resolve breastfeeding problems due to tongue-tie. *The Journal of Pediatrics* May 2015;166(5):1320-1323.

4. Tobey AH, Kozar A. Frequency of somatic dysfunction in infants with tongue-tie: a retrospective chart review. *The AAO Journal* 2018;28(4):10-14.

5. Westcott N. The use of cranial osteopathy in the treatment of infants with breastfeeding problems or sucking dysfunction. *The Australian Journal of Holistic Nursing* 2004;11(1):25-32.

6. Coryllos E, Genna CW, Salloum AC. Congenital tongue-tie and its impact on breastfeeding. *American Academy of Pediatrics*, Section on Breastfeeding 2004:1-6.

7. Pacheco MCT, Fiorott BS, Finck NS, Martins De Araujo MT. Craniofacial changes and symptoms of sleep-disordered breathing in healthy children. *Dental Press J Orthodontics* May-June 2015;20(3)80-87.

8. Chervin RD, Hedger K, Dillon JE, Pituch KJ. Pediatric sleep questionnaire (PSQ):validity and reliability of scales for sleep-disordered breathing, snoring, sleepiness, and behavioral problems. *Sleep Medicine* Feb 2000; Vol 1(1):21-32.

9. Bonuck K, Freeman K, Chervin RD, Xu L. Sleep disordered breathing in a population-based cohort: behavioral outcomes at 4 and 7 years. *Pediatrics*. 2012;129(4):e857-e865.

10. Sinha D, Guilleminault C. Sleep disordered breathing in children. *Indian J Med Res* Feb 2010; Vol 131:311-320.

11. Machedo R, Woodley FW, Skaggs B, DiLorenzo C, Splaingard M, Mousa H. Gastroesophageal reflux causing sleep interruptions in infants. *J Pediatr Gastroenterol Nutr* 2013;56(4):431-5.

12. Rosen CL, Storfer-Isser A, Taylor HG, Kirchner HL, Emancipator JL, Redline S. Increased behavioral morbidity in school-aged children with sleep-disordered breathing. *Pediatrics* Dec 2004;114(6):1640-1648.

13. Mohammed D, Park V, Bogaardt H, Docking K. The impact of obstructive sleep apnea on speech and oral language development: a systematic review. *Sleep Medicine* May 2021;81:144-153.

14. Blum CL.Chiropractic and dentistry in the 21st century. *Cranio* 2004; 22(1):1-3.

15. Campanha SMA, Martinelli R, de Castro L, Palhares DB. Position of lips and tongue in rest in newborns with and without ankyloglossia. *CoDAS* 2021;33(6):1-5.

16. Vallone S. Evaluation and Treatment of Breastfeeding Difficulties Associated with Cervicocranial Dysfunction: A Chiropractic Perspective. *JCCP* 2016 (Dec); 15(3): 1301 -1305.

17. Sakalidis VS, Geddes DT. Suck-swallow-breathe dynamics in breastfed infants. *J Human Lact* May 2016;32(2): 201-211.

18. Radzi Z, Yahya NA. Relationship between breast-feeding and bottle feeding to craniofacial and dental development. *Annals of Dentistry* University of Malaya 2005;12(1):9-17.

19. Ghaheri BA, Cole M, Fausel SC, Mace JC. Breastfeeding improvement following tongue-tie and lip-tie release: a prospective cohort study. *Laryngoscope* May 2017;127(5):1217-1223.

20. Vallone S. Chiropractic evaluation and treatment of musculoskeletal dysfunction in infants demonstrating difficulty breastfeeding. *JCCP* 2004; 6(1):349-368.

21. Sarawata S, Mali L, Sinha A, Nanda SB. Effect of naso-respiratory obstruction with mouth breathing on dentofacial and craniofacial development. *Orthodontic Journal of Nepal* 2018;8(1):22-27.

22. Boyce R, Williams S, Adamantidis A. REM sleep and memory. *Curr Opin Neurobiol* June 2016;44:167-177.

23. Esposito M, Antinolfi L, Gallai B, Parisi L, Roccella M, Marotta R, Lavano SM, Mazzotta G, Precenzano F, Carotenuto M. Executive dysfunction in children affected by obstructive sleep apnea: an observational study. *Neuropsychiatric Disease and Treatment* 2013;9:1087-1094.

24. Capdevila OS, McLaughlin Crabtree V, Kheirandish-Gozal L, Gozal D. Increased morning brain natriuretic peptide levels in children with nocturnal enuresis and sleep-disordered breathing: a community-based study. *Pediatrics* 2008;121(5):e1208-e1214.

25. Saaresranta T, Polo O. Sleep disordered breathing and hormones. *European Respiratory Journal* July 2003;22:161-172.25.

26. Kaemingk KL, Pasvogel AE, Goodwin JL, Mulvaney SA, Martinez F, Enright PL, Rosen G, Morgan WJ, Fregosi RF, Quan SF. Learning in children and sleep disordered breathing: findings of the Tucson children's assessment of sleep apnea (TuCASA) prospective cohort study. *Journal of the International Neuropsychological Society* Feb 2004;9(7):1016-1026.

27. Spooner R, Lushington K, Keage HAD, Blunden S, Kennedy JD, Schembri M, Wabnitz D, Martin JA, Kohler MJ. Cognition, temperament, and cerebral blood flow velocity in toddlers and preschool children with sleep-disordered breathing or behavioral insomnia of childhood. *Sleep Med* May 2016; 21:77-85.

28. Ju Yo-El S, Finn M, Sutphen CL, Herries EM, Jerome GM, Ladenson JH, Crimmons DL, Fagen AM, Holtzman DM. Obstructive sleep apnea decreases central nervous system-derived proteins in the cerebrospinal fluid. *Ann Neurol* July 2016;80(1):154-9.

29. Bourke M, Cole C. Why they suck. The Junction: *Munchee*.

SOTO-USA Research Update

SOTO-USA is dedicated to bringing you the most updated and comprehensive research relating to Sacro Occipital Technique (SOT). Research is the future of chiropractic and SOT. Publishing this research sets the foundation for the future of SOT and protects its future worldwide. Understanding the published research allows us to grow, learn and modify our technique and diagnostic methods to fit our discoveries and stay current in the scientific community. The research department of SOTO-USA is goal oriented and focuses on action and results. **Please consider a tax-deductible donation to SOT research so SOTO-USA can help us further SOT's prominence in chiropractic healthcare**.

SOTO-USA is an organization dedicated to the advancement of SOT and the work of Major Bertrand DeJarnette, DO, DC. One of the many ways in which we at SOTO-USA contribute to the chiropractic profession is through the publishing of articles, newsletters, compendiums, and manuals relating to the art, science and philosophy of SOT (please visit our website for a complete listing of publications: www.SOTO-USA.org).

Association of Chiropractic Colleges – Research Agenda for Chiropractic (ACC RAC) Conferences - Papers Presented at the 2023 and 2024 Conferences

Abstracts Presented at for the 2024 ACC-RAC Conferences

Olga Alvarez. A 5 ½ month old female treated for plagiocephaly/brachycephaly with Sacro-Occipital Technique cranial protocols: A case report. J Chiropr Educ 2024;38(1):71.

Thomas Bloink, Charles Blum. Chiropractic and dental integrative care for a 52-year-old male stroke victim suffering from chronic temporomandibular joint dysfunction: A case report. J Chiropr Educ 2024;38(1):72.

Charles Blum. Treatment of grade III anterolisthesis of a 28-year-old female: A case report. J Chiropr Educ 2024;38(1):73.

Lisa Stowell, Charles Blum. Correction of pigeon tow or in-toeing in a 2 ½ year old female with chiropractic treatments: A case report. J Chiropr Educ 2024;38(1):80.

Abstracts Presented at for the 2023 ACC-RAC Conferences

Thomas Bloink, Charles Blum. Treatment of a patient with cervicogenic related vertigo: A case report. J Chiropr Educ 2023;37(1):3.

Thomas Bloink, Charles Blum. Treatment of a patient with cervicogenic and craniocervical related tinnitus: A case report. J Chiropr Educ 2023;37(1):14.

Charles Blum. Successful co-management of a patient with C7/8 nerve dysfunction scheduled for surgery: A case report. J Chiropr Educ 2023;37(1):14.

Charles Blum. Asymmetrical lumbar facets complicating a diversified high-velocity, low-amplitude lumbar side posture adjustment: A case report. J Chiropr Educ 2023;37(1):14.

Abstract Presented at the 17th World Federation of Chiropractic (WFC) Biennial Congress**: Queensland, Australia. 11 October 2023.**

Thomas Bloink, Charles Blum. Treatment of a patient with cervicogenic and craniocervical related tinnitus: A case report. 17th WFC Biennial Congress. Queensland, Australia, October 11, 2023.

Abstracts Presented at the 11th International World Congress on Low Back and Pelvic Girdle Pain: Melbourne, Australia. 1-4 November 2023

Thomas Bloink, Charles Blum. Successful outcome of chiropractic care for a 53-year-old female patient previously scheduled for surgery presenting with sacroiliac joint sprain, lumbar spinal stenosis, and somatoemotional considerations.

Thomas Bloink, Charles Blum. Treatment of a 23-year-old male Rugby player suffering a traumatic fall of leading to disabling pelvic pain: A case report.

SOT or Cranial Related Papers Published in the Asia Pacific Chiropractic Journal - January 2023 – Volume 3, Number 3

Davis KY, Blum CL. A history of temporal sphenoidal (TS) diagnosis and its clinical application. Asia-Pac Chiropr J. 2023;3.3 [apcj.net/papers-issue-3-3/#DavisBlumTemporalSphenoidPaper]

Weiner G, Murzycki T. Improvement in Nasal Turbinate and Adenotonsillar Hypertrophy and its concomitant symptomatology with Paediatric Chiropractic Care: A case report. Asia-Pac Chiropr J. 2022;3.3 [www.apcj.net/papers-issue-3-3/#WeinerMurzyckiAdenotonsillarHypertrophy]

Blum C. Channeling healing energy: The power of words in the chiropractic clinical encounter, Part two. Asia-Pac Chiropr J. 2023;3.3 [apcj.net/Papers-Issue-3-3/#BlumHealingEnergy2]

SOT or Cranial Related Papers Published in the Asia Pacific Chiropractic Journal - April 2023 – Volume 3, Number 4

Getzoff H. A critical approach for learning the Operating Principles of Sacro Occipital Technique (SOT) Chiropractic. Asia-Pac Chiropr J. 2023;3.4. [apcj.net/Papers-Issue-3-4/#GetzoffSOTPrinciples]

Blum C. Channeling healing energy: The power of touch in the chiropractic clinical encounter, Part three. Asia-Pac Chiropr J. 2023;3.3 [apcj.net/Papers-Issue-3-4/#BlumHealingEnergy3]

SOT or Cranial Related Papers Published in the Asia Pacific Chiropractic Journal – July 2023 – Volume 4 Number 1

Blum CL, Blum JD. Channeling healing energy: Awareness of Transference and Countertransference in the Chiropractic Clinical Encounter, Part four. Asia-Pac Chiropr J. 2023;4.1 [apcj.net/Papers-Issue-4-1/#BlumHealingEnergy4]

Steinberg B, Gordon K, Postlethwaite R, McIvor C. Resolution of infertility concomitant with chiropractic care in a 28-year-old female: A case report. Asia-Pac Chiropr J. 2023;4.1. [apcj.net/papers-issue-4-1/#SteinbergFertility]

Shelley JR, Blum CL. Pregnancy, sacroiliac joint laxity, and the SOT category two pelvic distortion: A case series. Asia-Pac Chiropr J. 2023;4.1. [apcj.net/papers-issue-4-1/#ShelleyBlumPregnancy]

Beck C, Blum CL. Vision induced chronic low back pain: A case report. Asia-Pac Chiropr J. 2023;4.1. [apcj.net/papers-issue-4-1/#BeckVisionLBP]

Blum CL. Cranial therapeutic applications to facilitate dentofacial growth and development in a 50-year-old adult female: A case report. Asia-Pac Chiropr J. 2023;4.1. [apcj.net/papers-issue-4-1/#BlumDentofacialGrowth]

Beck C. Vision induced migraine headaches: A case report. Asia-Pac Chiropr J. 2023;4.1. [apcj.net/papers-issue-4-1/#BeckVisionMigraine]

Walker R. Sacro Occipital Technique (SOT) Chiropractic and Nocturnal Enuresis in Children: A report of three cases. Asia-Pac Chiropr J. 2023;4.1. [apcj.net/papers-issue-4-1/#WalkerEnuresisx3]

Stowell LM, Blum CL. Correction of Pigeon Toe or In-Toeing in a 2½ y female with Chiropractic treatments: A case report. Asia-Pac Chiropr J. 2023;4.1. [apcj.net/papers-issue-4-1/#StowellBlumIn-toe]

Blum CL, Ebrall PS. Sacro Occipital Technique Research Conference 2023: Notes from Louisiana. Asia-Pac Chiropr J. 2023;4.1 [apcj.net/Papers-Issue-4-1/#BlumEbrallSOTResearchNotes]

Blum CL. Building interdisciplinary relationships with chiropractic care of post-concussion syndrome patients: Incorporating salivary biomarker assessment. Asia-Pac Chiropr J. 2023;4.1 [apcj.net/Papers-Issue-4-1/#BlumSalivaryBiomarkers]

SOT or Cranial Related Papers Published in the Asia Pacific Chiropractic Journal – October 2023 – Volume 4 Number 2

Thompson JE, Bockhold H, Blum CL. Sacro Occipital Technique: Palpating occipital fibres on animals. A pilot study. Asia-Pac Chiropr J. 2023;4.2. [apcj.net/Papers-Issue-4-2/#ThompsonSOTAnimals]

Getzoff H. A primary cranial analysis and adjustment method for all three Sacro Occipital Technique (SOT) Categories: A retrospective study of 85 patients. Asia-Pac Chiropr J. 2023;4.2. [apcj.net/Papers-Issue-4-2/#GetzoffCranial]

Blum JD, Blum CL. Channeling Healing Energy: Informed Consent is an ongoing process in Chiropractic encounters, Part Five. Asia-Pac Chiropr J. 2023;4.2 [apcj.net/Papers-Issue-4-2/#BlumHealingEnergy5]

Blum CL. Nonmusculoskeletal and wellness care in chiropractic: The self referring patient. Asia-Pac Chiropr J. 2023;4.2 [apcj.net/Papers-Issue-4-2/#BlumSelfReferral]

Steinberg B, Clodgo-Gorden K, Postlethwaite R, McIvor C. Improved mental clarity, balance, and digestive function, and normalised gait in 63-year-old female under chiropractic care: A case report. Asia-Pac Chiropr J. 2023;4.2. [apcj.net/papers-issue-4-2/#SteinbergAdaptability]

Steinberg B, Clodgo-Gorden K, Postlethwaite R, McIvor C. Improved Heart Rate Variability, mood, reproductive health and gut function, and decreased eczema symptoms in a 30-year-old female under chiropractic care: A case report. Asia-Pac Chiropr J. 2023;4.2. [apcj.net/papers-issue-4-2/#SteinbergWell-Being]

Del Torto A. Endonasal ‘balloon assisted’ cranial adjusting. Asia-Pac Chiropr J. 2023;4.2. [apcj.net/Papers-Issue-4-2/#DelTortoEndonasal]

SOT Paper Published in the Asia Pacific Chiropractic Journal – January 2024 – Volume 4 Number 3

Getzoff H. Sacro Occipital Technique (SOT): Category Three: Predictability of Outcomes. Asia-Pac Chiropr J. 2024;4.3. [apcj.net/Papers-Issue-4-3/#GetzoffSOTCat3]

Cranial Related Papers Published in the 2023 Issues of the Journal of Pediatric, Maternal & Family Health, Chiropractic

Adams-Sajdak T. Resolution of otitis media and developmental delays following chiropractic care in a boy with birth trauma: A case study and review of the literature [case report; review]. J Pediatr Matern & Fam Health - Chiropr. 2023 Feb;2023():14-20. [https://vertebralsubluxationresearch.com/2022/11/28/1833-chiropractic-and-how-it-helped-a-little-boy-a-case-study/]

Rubin D, Bergo A. Improvement Following Chiropractic Care in a 7-Year-Old Diagnosed with Autistic Spectrum Disorder: A Case Report & Review of Literature. Pediatr Matern & Fam Health - Chiropr. 2023; April:27-34. [https://vertebralsubluxationresearch.com/2022/11/28/1725-improvements-of-autistic-symptoms-following-chiropractic-care-a-case-report%ef%bf%bc/]

Abstracts from the 2023 SOT Research Conference Proceedings
New Orleans, Louisiana – April 28, 2023

Alvarez O. A 5 ½ month old female successfully treated for plagiocephaly/brachycephaly with sacro occipital technique cranial protocols: A case report. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:11.

Bloink T, Blum C. Treatment of a patient with cervicogenic and craniocervical related tinnitus: A case report. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:11-12.

Bloink T, Blum C. Treatment of a patient with cervicogenic related vertigo: A case report. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:12.

Blum C. Successful comanagment of a patient with C7/8 nerve dysfunction scheduled for surgery: A case report. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:12-13.

Blum C. Asymmetrical lumbar facets complicating a diversified HVLA lumbar side posture adjustment: A case report. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:12-13.

Blum C. Grade three anterolisthesis L5/S1 of a 28-year-old female: A case report. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:13-14.

Blum J. Emotional or Mechanical: Assessing for Referral and Co-treatment of Jaw Pain as a Body Psychotherapist. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:14-15.

Boro WJ. Chiropractic care of a 6-year-old male child presenting with severe eye trauma: A case report. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:15.

Boro WJ. 2023 Annual World Congress of the Society for Brain Mapping and Therapeutics: Los Angeles, California. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:15-16.

Brayton L. Ehlers-Danlos Syndrome: Co-Treatment of SOT Chiropractic, The Tupler Technique and Microcurrent. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:16.

Gerardo RC. Sacro occipital technique (SOT) cranial techniques incorporating myofascial tongue therapy for acute neck restricted motion: A case report. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:17.

Greene M. 60 year old female presenting in acute pain wheeled into an office on a dolly: A case report. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:17-18.

Greene M. 50 year old male overweight veteran presenting with acute low back pain, discopathy, and PTSD successfully treated with sacro occipital technique and myofascial techniques: A case report. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:18-19.

Lee E. Sacro occipital technique care for a 7-year-old male patient with ADHD: A case report. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:19.

Mirell M. Sexuality in Our 55 Year Old and Older Patient Population. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:19-21.

Nichols K, Nichols J. The effect of sacro occipital technique (SOT) category one procedures on Chiari type 1 and cystic syringomyelia: A case report. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:21-22.

Stowell LM, Blum CL. Chiropractic in a integrative medical health practice Lisa Stowell, DC 22-23 Correction of Pigeon Toe or In-Toeing in a 2 ½ year old Female with Chiropractic Treatments: A case report. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:23.

Tuttle D. 40-year-old female presenting with chronic bruxism, menorrhagia and digestive issues successfully treated with sacro occipital technique methods and eye movement desensitization reprocessing: A case report. 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:23-24.

Weiner G, Murzycki T. Improvement in nasal turbinate and adenotonsillar hypertrophy and its concomitant symptomatology with pediatric chiropractic care: A case study 2023 SOT Research Conference Proceedings. New Orleans, Louisiana – April 28, 2023:24-25.

The SOT Research Conference Proceedings (Now indexed and searchable!)

Many of the SOT Research Conferences have now been or will be published in the Annals of Vertebral Subluxation Research as well as in the Asia Pacific Chiropractic Journal and are available for searching through chiroindex.org (a major chiropractic search engine).

1st Annual Sacro Occipital Technique Research Conference Proceedings. Las Vegas, Nevada October 22, 2009. Annals of Vertebral Subluxation Research ~ Sept 29, 2011 ~ Pages 104-132.

2nd Annual Sacro Occipital Technique Research Conference Proceedings. New Orleans, Louisiana 2010. Annals of Vertebral Subluxation Research ~ October 17, 2011 ~ Pages 133-164.

3rd Annual Sacro Occipital Technique Research Conference Proceedings. Nashville, Tennessee May 19, 2011. Annals of Vertebral Subluxation Research ~ Nov 10, 2011 ~ Pages 165-182.

4th Annual Sacro Occipital Technique Research Conference Proceedings. Atlanta, GA May 3, 2012. Annals of Vertebral Subluxation Research ~ May 24, 2012 ~ Pages 41-59.

5th Annual Sacro Occipital Technique Research Conference Proceedings. Atlanta, GA May 2, 2013. Annals of Vertebral Subluxation Research ~ March 27, 2014~ Pages 22-48.

6th Annual Sacro Occipital Technique Research Conference Proceedings. Redondo Beach, CA May 15, 2014. Annals of Vertebral Subluxation Research ~ July 14, 2014 ~ Pages 129-144.

7th Annual Sacro Occipital Technique Research Conference, New Orleans, LA May 7, 2015. Annals of Vertebral Subluxation Research ~ June 8, 2015 ~ Pages 135-145

8th Annual Sacro Occipital Technique Research Conference, New Orleans, LA May 13-14, 2016.

9th Annual Sacro Occipital Technique Research Conference, Marina Del Rey, California. May 12-13, 2017.

10th Annual Sacro Occipital Technique Research Conference Proceedings: Kauai, Hawaii. February 28 – March 2, 2018 . Ann Vert Sublux Res: Mar 2019(2019:): 29-33

11th Annual Sacro Occipital Technique Research Conference, Nassau, Bahamas, February 27 – March 1, 2019 Ann Vert Sublux Res: Jan 2020(2020:): 1-10

Many thanks go to the editors of the Annals of Vertebral Subluxation Research, Drs. Pamela Stone and Matthew McCoy for their continued support of chiropractic clinical research and SOT are greatly appreciated.

13th Annual Sacro Occipital Technique Research Conference, New Orleans, LA April 27, 2022. Asia Pacific Chiropractic Journal. Third Quarter July 2022; Issue 3.1. [https://www.apcj.net/sot-abstracts-2022/]

14th Annual Sacro Occipital Technique Research Conference, New Orleans, LA April 28, 2023. Asia Pacific Chiropractic Journal. [https://view.publitas.com/asia-pacific-chiropractic-journal/2023-sot-conference-proceedings/]

15th Annual Sacro Occipital Technique Research Conference, Nashville, Tennessee. April 26, 2024. Asia Pacific Chiropractic Journal. [In print]

******

At the inaugural 2009 Sacro Occipital Research Conference, Las Vegas, Nevada we had 28 abstracts accepted. At subsequent Sacro Occipital Research Conferences many of the submissions have led to paper submissions to various other research conferences and peer review journals. All SOT practitioners and allied healthcare partners are encouraged to be a part of our future research conferences. Check the SOTO-USA website [www.SOTO-USA.org] or be aware for the call for papers.

Our ongoing commitment continues into the future with papers submitted to chiropractic and allied healthcare conferences and journals. One of the easiest ways research can be facilitated by a doctor in clinical practice is through the publishing of individual research papers and case histories. These lay the groundwork for future research directions and projects. If the need arises, we will be happy to assist the doctor in writing the paper or case history in order to get it submitted for publishing.

Please take a moment to review our landmark SOT and cranial research conference proceedings and texts, which will eternally preserve SOT and related published research. These can all be purchased online at www.soto-usa.org or by calling (336) 793-6524.

1st Sacro Occipital Technique Research Conference Proceedings: 2009.

2nd Sacro Occipital Technique Research Conference Proceedings: 2010.

3rd Sacro Occipital Technique Research Conference Proceedings: 2011.

4th Sacro Occipital Technique Research Conference Proceedings: 2012.

5th Sacro Occipital Technique Research Conference Proceedings: 2013.

6th Sacro Occipital Technique Research Conference Proceedings: 2014.

7th Sacro Occipital Technique Research Conference Proceedings: 2015.

8th Sacro Occipital Technique Research Conference Proceedings: 2016.

9th Sacro Occipital Technique Research Conference Proceedings: 2017.

10th Sacro Occipital Technique Research Conference Proceedings: 2018.

11th Sacro Occipital Technique Research Conference Proceedings: 2019.

12th Sacro Occipital Technique Research Conference Proceedings: 2019.

13th Sacro Occipital Technique Research Conference Proceedings: 2022.

14th Sacro Occipital Technique Research Conference Proceedings: 2023.

15th Sacro Occipital Technique Research Conference Proceedings: 2024.

In Print:

The Compendium of Sacro Occipital Technique**: *Peer-Reviewed Literature 2000-2005.***

The Compendium of Sacro Occipital Technique**: *Peer-Reviewed Literature 1984-2000.***

The SOT Collection: *To the Year 2000.*

The SOT Collection: Supplement: *To the Year 2000.*

Coming Soon

More than forty years ago, Major Bertrand DeJarnette encouraged Nebraska City newspaperman Ivan Beaumont to write a biography of his life. The doctor shared stories and documents with his hometown friend, and a rough draft was written. Each of the busy men added a few notes, but as time and interest slipped away, the stalled project was shelved.

Although information from the unfinished manuscript found its way into articles and time-lines over the decades, this fascinating investigation of Dr. DeJarnette's formative years and early influences has been gathering dust until now.

Complete with sign, Dr. DeJarnette's office at 722 Central Avenue in 1936

The title of the biography was and will remain “The Making of a Chiropractor,” because its focus is on the people, places and events that put “the Major” onto the road to his destiny. For those elements of the book that were sketched out too vaguely, our editor's thousands of hours of sleuthing has uncovered details that clarify many misunderstandings and fill in details that have been missing in the history of Dr. DeJarnette.

Be a Champion for Chiropractic Education and Research

I extend a large thank you to the NCMIC Foundation for its support. I am both humbled and excited to continue to work hard within my role and am so grateful for these wonderful opportunities.”

— Wren Burton, DC and Research Fellow, Osher Center for Integrative Medicine, Brigham and Women’s Hospital and Harvard Medical School

The NCMIC Foundation’s mission hasn’t changed since its inception in 2003. We continue to invest in the advanced education of chiropractic research experts and fund ongoing research projects that demonstrate the effectiveness, safety and cost efficiency of chiropractic and alternative health care.

Life-changing fellowships like Dr. Burton’s are only possible because of the generosity of donors like you.

Learn how you can make a direct impact on the future of chiropractic education and research at ncmicfoundation.org.