

THE AAO

FORUM FOR OSTEOPATHIC THOUGHT

JOURNAL

Official Publication of the American Academy of Osteopathy®

TRADITION SHAPES THE FUTURE

VOLUME 17 NUMBER 1 MARCH 2007



Mark. S. Cantieri, DO, FAAO Receives
2006 Thomas L. Northup Award

Instructions to Authors

The American Academy of Osteopathy® (AAO) Journal is a peer-reviewed publication for disseminating information on the science and art of osteopathic manipulative medicine. It is directed toward osteopathic physicians, students, interns and residents and particularly toward those physicians with a special interest in osteopathic manipulative treatment.

The AAO Journal welcomes contributions in the following categories:

Original Contributions

Clinical or applied research, or basic science research related to clinical practice.

Case Reports

Unusual clinical presentations, newly recognized situations or rarely reported features.

Clinical Practice

Articles about practical applications for general practitioners or specialists.

Special Communications

Items related to the art of practice, such as poems, essays and stories.

Letters to the Editor

Comments on articles published in *The AAO Journal* or new information on clinical topics. Letters must be signed by the author(s). No letters will be published anonymously, or under pseudonyms or pen names.

Book Reviews

Reviews of publications related to osteopathic manipulative medicine and to manipulative medicine in general.

Note

Contributions are accepted from members of the AOA, faculty members in osteopathic medical colleges, osteopathic residents and interns and students of osteopathic colleges. Contributions by others are accepted on an individual basis.

Submission

Submit all papers to Anthony G. Chila, DO, FAAO, Editor-in-Chief, Ohio University, College of Osteopathic Medicine (OUCOM), Grosvenor Hall, Athens, OH 45701.

Editorial Review

Papers submitted to *The AAO Journal* may be submitted for review by the Editorial Board. Notification of acceptance or rejection usually is given within three months after receipt of the paper; publication follows as soon as possible thereafter, depending upon the backlog of papers. Some papers may be rejected because of duplication of subject matter or the need to establish priorities on the use of limited space.

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1. Type all text, references and tabular material using upper and lower case, double-spaced with one-inch margins. Number all pages consecutively.
2. Submit original plus three copies. Retain one copy for your files.
3. Check that all references, tables and figures are cited in the text and in numerical order.
4. Include a cover letter that gives the author's full name and address, telephone number, institution from which work initiated and academic title or position.
5. Manuscripts must be published with the correct name(s) of the author(s). No manuscripts will be published anonymously, or under pseudonyms or pen names.
6. For human or animal experimental investigations, include proof that the project was approved by an appropriate institutional review board, or when no such board is in place, that the manner in which informed consent was obtained from human subjects.
7. Describe the basic study design; define all statistical methods used; list measurement instruments, methods, and tools used for independent and dependent variables.
8. In the "Materials and Methods" section, identify all interventions that are used which do not comply with approved or standard usage.

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We encourage and welcome a CD-ROM containing the material submitted in hard copy form. Though we prefer receiving materials saved in rich text format on a CD-ROM, materials submitted in paper format are acceptable.

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Provide a 150-word abstract that summarizes the main points of the paper and its conclusions.

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1. Be sure that illustrations submitted are clearly labeled.
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References

1. References are required for all material derived from the work of others. Cite all references in numerical order in the text. If there are references used as general source material, but from which no specific information was taken, list them in alphabetical order following the numbered journals.
2. For journals, include the names of all authors, complete title of the article, name of the journal, volume number, date and inclusive page numbers. For books, include the name(s) of the editor(s), name and location of publisher and year of publication. Give page numbers for exact quotations.

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THE AAO JOURNAL

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The AAO Journal is the official publication of the American Academy of Osteopathy[®]. Issues are published in March, June, September, and December each year.

Third-class postage paid at Carmel, IN. Postmaster: Send address changes to: American Academy of Osteopathy[®], 3500 DePauw Blvd., Suite 1080, Indianapolis, IN., 46268. Phone: 317-879-1881; FAX: (317) 879-0563; e-mail snoone@academyofosteopathy.org; AAO Website: http://www.academyofosteopathy.org

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A PEER-REVIEWED JOURNAL

The Mission of the American Academy of Osteopathy[®] is to teach, advocate, and research the science, art and philosophy of osteopathic medicine, emphasizing the integration of osteopathic principles, practices and manipulative treatment in patient care.

IN THIS ISSUE:

AAO Calendar of Courses4
Contributors6
Component Societies' CME Calendar11

EDITORIAL

View from the Pyramids: *Anthony G. Chila, DO, FAAO*5

REGULAR FEATURES

Dig On7
From the Archives10
Book Review30
Elsewhere in Print31

2006 THOMAS L. NORTHUP LECTURE

*Teaching Osteopathic Principles in an Allopathic Environment:
Osteopathic Guerrilla Warfare*12
Mark S. Cantieri, DO, FAAO

SCIENTIFIC PAPER/THESIS (FAAO)

*Counterstrain Tender Points as Indicators of Sustained Abnormal Metabolism:
Advancing the Counterstrain Mechanism of Action Theory*16
Paul R. Rennie, DO, FAAO

INTERNATIONAL COMMUNICATION

A tribute to John Wernham, DO, FICO, FCO25
Anthony G. Chila, DO, FAAO

STUDENT PHYSICIAN

Management of Peptic Ulcer Disease Using Osteopathic Manipulation 26
Heather Danielle Morris, OMS IV and Jerry L. Dickey, DO, FAAO

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Thoracic & Ribs
May 19-20, 2007

Part III:
Lumbar, Sacrum/Pelvis
October 6-7, 2007

Part IV:
Extremities
November 10-11, 2007

Location:

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Course Objectives:

- To define and introduce foundational concepts and mechanisms of MET.
- To understand the scope in practice of the MET paradigm and how it relates to other manual therapy modalities.
- To review the anatomy and biomechanics of multiple body regions with special emphasis on those elements as they pertain to the application of MET.
- To describe how the tonic and phasic muscles of the body are organized anatomically and physiologically.
- To define somatic dysfunction relative to the specific body regions, and to elucidate the dynamic relationship between those somatic dysfunctions and other regions of the body.
- To describe at least two ways to test and two ways to treat each somatic dysfunction.
- To demonstrate new applications of Muscle Energy Technique.

*For more information
contact the course coordinator:
Dr. Jay Sandweiss at (734) 995-1880*

American Academy of Osteopathy® Calendar of Events

- March 19-21
Visceral/Manual-Thermal in Colorado Springs
Kenneth E. Lossing, DO, Program Chair
- March 21
Facilitated Positional Release in Colorado Springs
Stanley Schiowitz, DO, FAAO, Program Chair
NEW 6-Hour Course
- March 21-25
AAO Convocation in Colorado Springs
George Pasquarello, DO, FAAO, Program Chair
- April 27-29
Osteopathic Treatment of Headache at PCOM
Dennis J. Dowling, DO, FAAO, Program Chair
- June (days TBD)
Muscle Energy-Counterstrain at PCOM/Georgia Campus
Walter C. Ehrenfeuchter, DO, FAAO and Edward K. Goering, DO
- July 13-15
*The Golden Opportunity: Three Masters of Osteopathy
in the Cranial Field* at CCOM
Stephanie Waecker, DO
- August/September (exact date to be determined)
Still Technique: A Rediscovered Technique of A.T. Still, MD
(place to be determined)
Richard L. VanBuskirk, DO, FAAO
- September 29
One-day course: *OMT without an OMT Table* in San Diego
Ann L. Habenicht, DO, FAAO
- September 30 – October 4
*AOA Convention: AAO program: Adjuncts to OMT in the Treatment
of Chronic Pain* in San Diego
John E. Balmer, DO, Program Chair
- November (dates to be determined)
Prolotherapy Weekend for ALL Levels and Experience at UNECOM
Mark S. Cantieri, DO, FAAO
- December 1-3
Visceral Manipulation: Colon in San Francisco
Kenneth Lossing, DO



View from the Pyramids

Anthony G. Chila

Turning the Page

As readers of this journal are by now aware, change in editorial leadership is forthcoming. On December 20, 2006, I submitted my letter of resignation as Editor-in-Chief, the *American Academy of Osteopathy JOURNAL (AAOJ)* to President Kenneth H. Johnson, DO, FAAO. The resignation followed my acceptance of the position of Executive Editor, *Foundations for Osteopathic Medicine, 3rd Edition*. In other communication and publications, interested individuals have been encouraged to submit application for consideration to continue service to the *AAOJ*.

My service began in the year 2000 (Volume 10, Number 1, Spring 2000). Consecutive years of service in this capacity will conclude with Volume 17, Number 2, June 2007. As has been negotiated with the American Academy of Osteopathy Board of Trustees, service in this position is defined as a term of 3 years, reappointment subject to approval of the Board of Trustees. My tenure, then, represents two completed terms (2000-2002, 2003-2005) and one-half of a third term (January 2006-June 2007). According to previous action of the Board of Trustees, my successor, after selection and appointment, would initially serve the balance of my incomplete third term.

During my terms of service, the following requirements have been fulfilled:

- Service without compensation
- Acceptance of three-year terms of office
- Publication of a quarterly journal within the annual budget appropriation
- Solicitation of contributions
- Peer review of submissions
- Selecting and editing final material for publication
- Working with AAO staff regarding columns, proofing and publication deadlines

Through my initiatives, the following have been accomplished:

- Reorganization of the *AAOJ* Masthead
- Implementation of an Editorial Advisory Board
- Implementation of CME Credit (1 Hour II-B)
- Implementation of categories of publication:
 - Scientific Paper/Thesis (FAAO)
 - Original Contribution
 - Clinical Practice
 - The Student Physician
 - International Communication

Implementation of editorial columns:

- View from the Pyramids
- Contributors
- Dig On
- Book Review
- Elsewhere in Print

Retention of editorial columns:

- From the Archives

Assignment of copyright for materials published in the *AAOJ*

During my years of service, support from the staff of the American Academy of Osteopathy has been generous and unlimited. I am certain the next Editor-in-Chief will find this to be true. As the page turns, all of us who are involved in the functions of the American Academy of Osteopathy will, hopefully, continue to be supportive of this vehicle of communication. In a time when publications are experiencing great competitive and financial demands, defining and sustaining a publication becomes a matter of great organizational priority.

It has been a privilege to serve.

Contributors

Mark S. Cantieri. Teaching Osteopathic Principles in an Allopathic Environment: Osteopathic Guerrilla Warfare. The 34th Thomas L. Northup Lecture (2006) addresses a major change in contemporary osteopathic education. The problem analyzed by the author is the increasingly frequent conduct of osteopathic education in institutions having little or no experience with such. Following the admonitions of Sun Tzu (*The Art of War*), a strategy is proposed for the changing educational environment which confronts the osteopathic profession. (p. 12).

Paul R. Rennie. Counterstrain Tender Points as Indicators of Sustained Abnormal Metabolism: Advancing the Counterstrain Mechanism of Action Theory. This Scientific Paper/Thesis was submitted in partial fulfillment of requirements for Fellowship in the American Academy of Osteopathy. The author was conferred status as Fellow in 2006. The traditional theory of the Counterstrain Model asserts that abnormal tone is maintained by the muscle spindle. The author enlarges considerations to review effects on muscle metabolism from injury, and the resultant forces placed on all structures associated with muscle. The anatomical consistency of tender points and motor point locations are also explored. (p. 16).

International Communication: John Wernham, DO, FICO, FCO (1907-2007). This iconic individual was characterized by his adherence to “Classical Osteopathy”. The touchstone for his lifelong commitment was grounded in the teaching of John Martin Littlejohn. Wernham’s life, teaching and practice provided a continuity of thought referable to nearly a century of osteopathic existence. (p. 25).

Heather Danielle Morris and Jerry L. Dickey. Management of Peptic Ulcer Disease Using Osteopathic Manipulation. Case Report. The authors present an overview of peptic ulcer disease with consideration given to general medical and osteopathic medical views. Detailed consideration of structural influences and dietary influences guided the use of Osteopathic Manipulative Treatment. (p. 26).

Regular Features

DIG ON. Criticism of the lack of osteopathic research in support of its premises seems not confined only to the profession in the United States. In the United Kingdom, “A systematic review of systematic reviews of spinal manipulation” has been published in *J R Soc Med* 2006; **99**; 192-6. The authors, Ernst and Canter, concluded that spinal manipulation is not effective for any condition, and that “*spinal manipulation is not a recommendable treatment*”. Wide publicity was given in the UK. The response given by Nicholas P. Lucas and Robert W. Moran (*Editorial/International Journal of Osteopathic Medicine* 9 (2006) 75-76) merits the attention of the American audience. (p. 7)

FROM THE ARCHIVES. A *Personal Note* was written by John Wernham. For the American audience, this is a rare portrait of one of the osteopathic profession’s very significant early figures, John Martin Littlejohn. For the European and American audiences, this note serves as a reminder of the Wernham legacy in perpetuating the memory of his mentor. Wernham’s dedication in doing so, until his passing on February 9, 2007, has given us all the opportunity to be reminded of the earliest efforts of Still and Littlejohn in evolving the philosophy and teaching of the osteopathic curriculum. (p. 10).

CME CREDIT. In response to reader requests, *AAOJ* will offer CME Credit to readers completing the enclosed quiz. At this time, 1 Hour II-B Credit will be offered, with request for upgrade as *AAOJ* qualifications are reviewed by the *American Osteopathic Association*. (p. 23).

BOOK REVIEW. Two recent texts have bearing on the treatment of somatic dysfunction. *Neural Therapy: Applied Neurophysiology and Other Topics* (RF Kidd) elaborates an approach to addressing foci of electrophysiological instability. *Somatic Dysfunction in Osteopathic Family Medicine* (KE Nelson, T Glonek) offers a contemporary understanding of osteopathic philosophy, applied diagnosis and treatment. (p. 30).

ELSEWHERE IN PRINT. In this survey, readers can: Explore *The Cutting Edge (Where Practice, Science and Consciousness Merge)*; Appreciate the notion that antisense RNA or DNA could block mRNA translation into protein; Become aware of potential contemporary uses for a substance having a medicinal history at least 5,000 years old. (p. 31).

Dig On



Is Osteopathy research relevant? A challenge has been made

Nicholas P. Lucas and Robert W. Moran

“International Journal of Osteopathic Medicine” 9 (2006) 75-76

As a profession working in an environment where health-care policy is determined by a curious blend of science and politics, we can't escape numbers rapped up in statistics. Many individual practitioners might be able to avoid statistics entirely, however, this is a luxury not afforded to those who represent the profession to third parties such as researchers, university, health insurance companies, government agencies, and importantly, the media. One of the reasons we can't escape numbers is because they help summarise the effectiveness of our interventions. Effectiveness is important because, with few exceptions, consumers don't enjoy paying for healthcare services that fail to 'work as advertised'.

A recent and prominent example of the importance of effectiveness data was the publication in April by Ernst and Canter of a systematic review of systematic reviews for spinal manipulation in the *Journal of the Royal Society of Medicine*,¹ and the ensuing flurry of media attention the article attracted. The conclusion of the paper was that spinal manipulation is not effective for any condition, and that “spinal manipulation is not a recommendable treatment”. The main message of the media release was similarly blunt, and was widely publicised in UK press.

Various critiques of Ernst and Canter's article, have been forthcoming and essentially highlight problems related to the methodology they employed to conduct their study; the limited operational definitions of manipulation; and sources of bias.²⁻⁵ One of the specific criticisms levelled at the paper is that the review was focussed solely on studies of spinal manipulation, and that trials incorporating complex treatment packages were excluded.² The argument is therefore developed that osteopaths rarely ever use spinal manipulation in isolation and so this review is not representative of osteopathic treatment and therefore does not represent a challenge to the relevance of osteopathy. Regardless of whether this point is true, some damage may have already been done. The review has already been published, and its conclusions have been widely publicized.

While there are problems with using systematic reviews to summarise treatment effectiveness, it may be prudent to

consider the following: where are the research data from the osteopathic profession that demonstrates the effectiveness of the interventions commonly administered, some of which have been in use for more than a century? If the evidence was there in a format consistent with current standards in research reporting and biomedical publishing, then that evidence would be included in systematic reviews. If the research is there, but suffers from methodological weaknesses (such as poor operational definitions of the manipulative protocol), or flaws in reporting the data (such as failing to report drop outs) then we must resolve to improve research protocol design and reporting in order to ensure that it is not excluded from systematic reviews. If we don't enjoy being in the firing line, then we may also need to examine the unwitting contribution we have collectively made to the ammunition of critics (such as Ernst and Canter) by failing to adequately investigate and document the effectiveness of our treatment.

This call for clinical research may be downplayed on the basis that osteopathy “can't be summed up in a test tube or in a laboratory”, or “that a reductionist research paradigm cannot investigate a holistic patient centred treatment approach”. However, clinical research is capable of measuring many different facets of health via the numerous outcomes of the clinical encounter: from patient satisfaction, mood state, mental health, quality-of-life, and positive outlook, to physical function, disability, pain intensity, and recurrence. It is unlikely that this wide range of outcomes is assessed during the normal course of daily practice, and if patients are only asked how they feel, or “is their pain better?”, then perhaps this is a more reductionist approach to measure the impact of osteopathic treatment on an individual than the approach well designed clinical research employs.

This is where the numbers come into play, because changes that may follow osteopathic treatment in this wide range of patient domains are summarised by numbers in terms of statistical significance, confidence intervals, and importantly, the effect size (a measure of clinical relevance) of the treatment over and above other treatment approaches or natural history. It is also

from these numbers that systematic reviewers, like Ernst and Canter, obtain the data from which systematic reviews and meta-analysis are prepared. Due to their position at the top of the evidence hierarchy, such systematic reviews have the potential to heavily influence healthcare policy and may therefore be considered one of the determinants or the future shape of the healthcare environment in which we all practice. Regardless of the methodological criticisms that can be aimed at the Ernst and Canter study, the overwhelming lesson is that we really must provide better numbers for systematic reviewers to work with.

The review by Ernst and Canter raises many issues, but perhaps the most important of these is that in order to answer such challenges, the profession will need to continue taking steps towards demonstrating the clinical effectiveness of osteopathic treatment using good quality clinical studies. Almost 10 years ago, Gibbons and Tehan⁶ wrote that the responsibility for the scientific credibility of osteopathic medicine rests solely with the osteopathic profession. They stated that:

“It is imperative that the osteopathic profession undertake research to validate clinical practice. A priority in research should be outcome studies to measure the impact of osteopathic treatment upon pain and disability.”

It is widely acknowledged that conducting studies to investigate clinical effectiveness is no simple undertaking. Organising the resources and expertise to undertake such studies usually requires the assembly of multidisciplinary teams. A decent clinical trial will require experienced and competent investigators who can prepare robust experimental designs, orchestrate grant writing to secure funding, gain ethical approvals, secure suitable clinical facilities, recruit, and brief practitioners, and liaise with administrators, in addition to the actual recruitment, enrollment and ongoing management of patients. Then of course, there is data analysis, manuscript preparation and publication.

It's easy to reflect on Gibbons and Tehan's call and wonder what progress there has been towards satisfying the goal of having our own 'osteopathic' data to support the anecdotal success we collectively claim. One of the major difficulties is that there aren't enough experienced and available personnel within the profession to undertake high quality effectiveness studies. There have been very few major clinical outcome studies investigating osteopathy published over the last 10 years, and readers may skim through this journal wondering how many of the studies published in *IJOM* are relevant to clinical practice. It's easy to be nonchalant about the importance of research, and it's easy to dismiss as irrelevant the small-scale investigations into "how x technique changes y range of movement", or "the number of consultations for x condition in y clinical practice". In addition to the published results, a less obvious but important outcome from these studies is the hard won experience gained through wrangling with an ethics committee, or grappling with a funding proposal, or gaining more sophisticated data analysis skills through deter-

mination and strong espresso. These are among the skills that are needed to even draw near to the starting line for conducting a good quality effectiveness trial. Funding bodies won't grant money to researchers who lack a "track record" – and there is only one way to develop a track record – we have to start with small steps.

So, for now the profession will struggle to respond to calls for effectiveness data, and for the interim it may be the apparently less important studies that will populate these pages. However, the profession is incrementally building expertise and experience in planning and conducting good science – exactly the skills needed to move into the clinical effectiveness arena.

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From the Archives

A Personal Note (written by John Wernham)

A LITTLEJOHN COMPANION (compiled by T. Norminton, DO, MRO; copyright IPR 1998).
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I was introduced to John Martin Littlejohn (J.M.L.) in the garden of his home at Badger Hall in the summer of 1915. I must have been very small because he was short of stature and I remember studying his waistcoat buttons at some length to cover my confusion. There was tea on the lawn and a cricket match in which the Dean took his stand at the wicket and I, being a demon bowler, took a silent vow to get his wicket at all costs. It must be said that I failed in my objective and the Dean retired unhurt. I was eight years old.

There were many such visits for tea and cricket during the war years and many a tough match was played on the 'back meadow' at the rear of the house. Badger Hall was a commodious late Victorian structure attached to a late eighteenth century farmhouse in about forty-five acres of a rather unproductive soil, scrub and woodland, overlooking the marshes and the Thames estuary. It was an attractive setting and a splendid playground for his family, now growing up. Built in 1895, the foundations were found to be poor, and the old house is no more after a relatively short life.

J.M.L. was a softly spoken, gentle, kindly man, much given to his own company and want to withdraw, into himself. He did not engage in argument, he did not relish debate, raise his voice in anger, or quarrel with his neighbour. Yet underneath that calm exterior there was a mind that never ceased in the quest for knowledge with a breadth of scholarship that was almost unbelievable in so frail a body. His health was never good but the indomitable spirit overcame every obstacle of the flesh from the beginning to the end of his life.

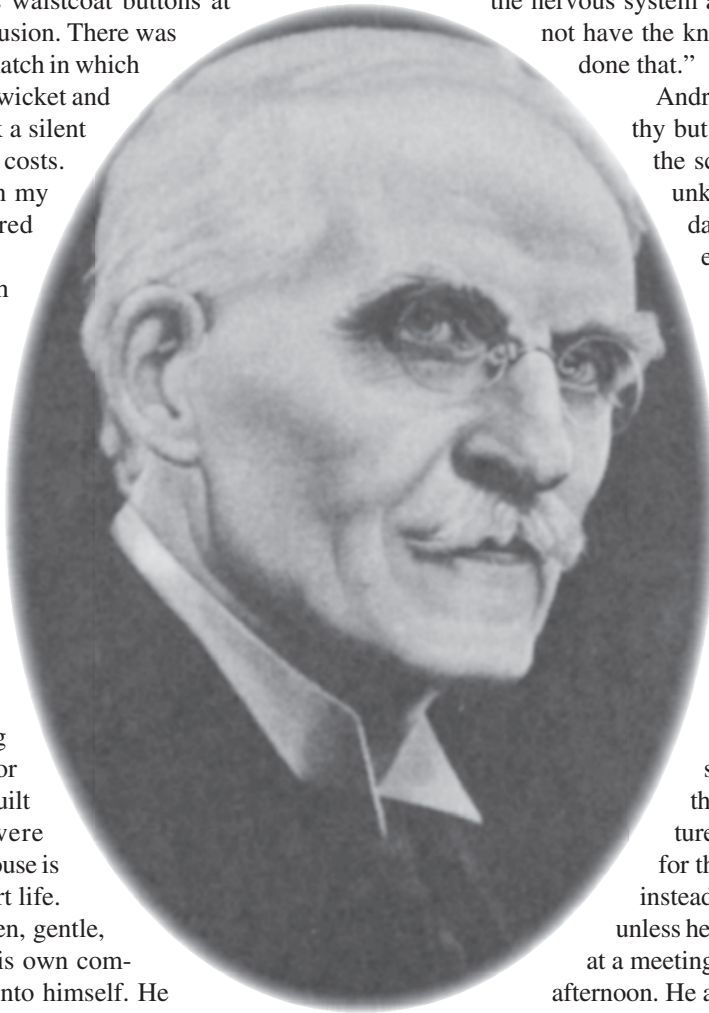
I remember talking with him in his study one Sunday afternoon and I noted a Greek Testament lying on his desk; apparently he was preparing a sermon for the evening service. He said "I translate for myself". This was typical of him. He went into the

study of osteopathy with an almost furious intensity that must have startled his contemporaries and has certainly puzzled their descendants. In the early days he made his own dissection of the nervous system and he once said to me "I would not have the knowledge that I have, if I had not done that."

Andrew Taylor Still gave us osteopathy but it was Littlejohn who unraveled the science that was then hidden, and unknown to the practitioners of his day and which remains so, to a large extent, up to the present time. Few men have studied so deeply, or worked so hard as this dour Scot. Traveling 40 miles each day, he took his first patient at 9 in the morning and the last patient at 2.30 in the afternoon, then walked across Green Park to take his lecture for 3 o'clock, arriving a regular 10 minutes late. At 6 o'clock the lectures were over for the day but the Dean was busy in his office until the final clinic session was closed at 8 o'clock. Another 40 miles, a light meal at 10 and a sleep until midnight followed by the preparation of tomorrow's lectures until 2 a. m. On Saturday work for the day was complete by 6 o'clock instead of 8. Sunday was a day of rest, unless he was preaching or taking the Chair at a meeting of the Men's Brotherhood in the afternoon. He also served on the Parish Council.

His physical and mental output was enormous.

He was a man of immense courage and to his students a tough but kindly teacher. He once wrote a letter to me when he thought I was not working hard enough, the contents of which I have forgotten, except that it was pretty forthright. At a later time when difficulties arose, as was sometimes the case in those early days, I remember that he gripped me by the hand, looked me straight in the eye and said nothing. The grip and the look remain to this day. Still later, he came to my consulting rooms much concerned regarding the well being of a student and clinic assistant so lately discharged and with a view to future practice



in association with myself. Yes, he was a caring and far-seeing man. In my salad days he fixed me with a more penetrating look than usual and reminded me that "In osteopathy we need spade workers - there is time later on for the brilliant - ". "Whether he meant that I should begin as a spade worker and finish up brilliant, or begin as a spade worker and stay that way, leaving the brilliance to somebody else, are problems as yet unresolved.

A number of anecdotes come to mind: a student who had spent some time in India was talking in Hindustani to a patient and was overheard by the Dean who promptly entered the cubicle and joined in the conversation, in that language! The same student made several attempts to persuade J.M.L. to demonstrate specific technique, a request that was granted only three times, and then under protest. He would not employ and never taught specific technique, as it is understood today. J.M.L. did not mix with his peers; he lived in a plebeian part of Essex, an area without history, or development at that time. He practised in the West End of London but not in the accepted areas where doctors commonly are to be found. He once remarked, having evidently been in contact with medical doctors, "If you leave me alone, I'll leave you alone." He was a 'loner' by choice and inclination and he pioneered his own interpretation of A.T. Still's great discovery without let, or hindrance, from any man.

In fact, the life of Littlejohn exemplifies the real value of the solitary worker in human activity. A.T. Still laboured in America and Littlejohn in the United Kingdom, neither of who were popular with the medical opinion of their time. J.M.L. used to say that osteopathy is incompatible with medicine, not in a critical sense, but that osteopathy has its own voice, its own philosophy, and its own destiny. He possessed every text on physiology published for over half a century and published two volumes on that subject. "When students complained that his lectures were difficult to understand, he merely reminded them that they did not know the physiology. It has been remarked, more recently, "You do not read Littlejohn, you study him." I have been doing just that for half a lifetime and he is still "way ahead", as he would say. □

Component Societies' CME Calendar and other Osteopathic Affiliated Organizations

March 24-25, 2007

*Weekend Midyear Conference
Breast Imaging Update 2007*
American Osteopathic College
of Radiology
Chicago, IL
Register online at: www.aocr.org

April 12-15, 2007

Functional Methods in Osteopathic Palpatory Diagnosis and Treatment, Part 1
Harry Friedman, DO, FAAO
Vail Marriott, CO
To register go to www.Biodo.com or
www.sfimms.com

May 3-6, 2007

*Where Excellence and Elegance Meet
110th Annual Convention*
Indiana Osteopathic Association
Merrville, IN
Contact: IOA
317/926-3009 or
800/942-0501

May 18-20, 2007

Functional Methods in Osteopathic Palpatory Diagnosis and Treatment, Part 2
Harry Friedman, DO, FAAO
Western University (COMP)
Pomona, CA
Regiser online at: www.Biodo.com or
www.sfimms.com

May 19-20, 2007

*The Brentwood OMT Skills Series
Muscle Energy Technique-Part II
Thoracic & Ribs*
Fred L. Mitchell, Jr., DO, FAAO
South Pointe Hosital
Warrensville Heights, OH
Contact: Jay Sandweiss, DO
734/995-1880

June 16-20, 2007

June Basic Course
The Cranial Academy
Tucson, AZ
CME: 40 Hours Category 1A
Contact: The Cranial Academy
317/594-0411
www.cranialacademy.org

June 21-24, 2007

*Annual Conference
"And, I Do Mean All"*
The Cranial Academy
Tucson, AZ
CME: 40 Hours Category 1A
Contact: The Cranial Academy
317/594-0411
www.cranialacademy.org

June 27-30, 2007

*AACOM's Annual Meeting
Collaboration: The Keystone to Success*
Baltimore, MD
Register on line: www.aacom.org

September 24-28, 2007

*Annual Convention
Emergency and Trauma Radiology*
Roca Raton, FL
American Osteopathic College
of Radiology
Chicago, IL
Contact: AOCR
660/265-4011 or
800/258-AOCR

October 6-7, 2007

*The Brentwood OMT Skills Series
Muscle Energy Technique-Part III
Lumbar, Sacrum/Pelvis*
Fred L. Mitchell, Jr., DO, FAAO
South Pointe Hosital
Warrensville Heights, OH
Contact: Jay Sandweiss, DO
734/995-1880

November 10-11, 2007

*The Brentwood OMT Skills Series
Muscle Energy Technique-Part IV
Extremities*
Fred L. Mitchell, Jr., DO, FAAO
South Pointe Hosital
Warrensville Heights, OH
Contact: Jay Sandweiss, DO
734/995-1880

December 7-9, 2007

26th Annual Winter Update
Indiana Osteopathic Association
Indianapolis, IN
Contact: IOA
317/926-3009 or
800/942-0501

Teaching Osteopathic Principles in an Allopathic Environment: Osteopathic Guerrilla Warfare

Mark S. Cantieri

Sun Tzu was a philosopher who wrote *The Art of War* 2500 years ago.¹ He outlined the fundamental principles of strategy. He described strategy as doing the right thing and tactics as doing things right. What follows are my thoughts for a strategy for our profession in a changing educational environment.

Osteopathic education in the third and fourth years of medical school is more frequently occurring in institutions with little or no experience in osteopathic education. As class sizes increase and more new schools open, the need for new teaching sites has grown. This has resulted in our deans at established colleges of osteopathic medicines (COMs) having to find rotations at allopathic institutions in the communities where DOs have trained for years and those at new schools having to find clinical rotations at hospitals with no experience in clinical education or only having experience in allopathic training. Many have regarded this scenario as a major reason for the profession losing our graduates to American College Graduate Medical Education (ACGME) residencies.

There has been a major shift in osteopathic postgraduate education. Over 50% of DO graduates now choose ACGME residencies. Mark Cummings, PhD noted that they are being, by and large, only accepted into primary care programs and not into specialty programs, particularly surgical residencies.² This has resulted in a marked loss of DOs in the American Osteopathic Association (AOA) approved primary care programs while specialists are largely coming out of our AOA approved

programs. Osteopathic medicine, long known as emphasizing primary care training, is now seeing that training is being largely performed in ACGME programs where there is no mandate for the inclusion of osteopathic principles.

As a clinical inspector for osteopathic college accreditation, I have had the opportunity to see how our colleges are addressing (and not addressing) the teaching of osteopathic principles in the third and fourth years. A very lasting impression was made on me at one long-standing college. I first went to a hospital that had been involved in teaching DOs for many years. The Director of Medical Education (DME), an osteopathic physician, had been at this institution for 32 years. When I inquired about the utilization of OMM in the inpatient setting, he responded that they did not do it and there was not enough time for it, but they did do some at near-by ambulatory clinics.

The next hospital I went to was a small older inner city hospital that had just recently become a teaching site for the COM. The COM's faculty was responsible for teaching and patient care. When I inquired about the utilization of OMM there, the students enthusiastically spoke about patients they were treating and research they hoped to conduct after experiencing positive patient outcomes. They spoke highly of the role models that their clinical professors were.

The final hospital we visited was a relatively new site for training. The very large and state-of-the-art hospital had an excellent reputation for training in the allopathic community. There was a DO

DME for the AOA programs and a MD DME for the ACGME programs. Both were in attendance for the inspection. The DO DME was in his second year of practice. He indicated that he did not really know how to incorporate OMM into the curriculum and that chart review relative to the utilization of OMM was performed every three to four months, long after the students were gone or the cases long forgotten. The COM had not provided him with any teaching tools for OMM. The elderly and experienced MD DME responded that if given a program by the COM, they would see that it was implemented and properly operated. He was enthused about having DO students and residents in the institution and wanted to see them fully trained as DOs.

Within the profession we appear to have perceived that osteopathic concepts will be viewed as backward or archaic by the allopathic world and tend to operate defensively. As an accreditation inspector, I have not found this to be true. I have asked MD program directors at large university allopathic programs if they have any concern about the utilization of osteopathic manipulation by third- and fourth-year medical students. Their reply is that they would welcome it especially with appropriate supervision.

I see the expansion of our training programs into these non-traditional sites as an opportunity, although one not without risks. By the whim of allopathic programs not selecting DOs and taking their own, we will find ourselves at their mercy and control. Allopathic programs

have opened a few new schools and there has been a general call for them to increase class size.³ With the majority of our postgraduate training occurring outside of AOA programs, we place ourselves in a vulnerable position. How do we continue in this fashion and yet grow the osteopathic profession, not just in total numbers but produce distinctly osteopathic physicians? How do we produce DOs who are proud of their heritage and want to support its organizations and future?

Sun Tzu stated: "Your aim must be to take All-under-Heaven intact. Thus, your troops are not worn out and your gains will be complete."⁴ For our profession, this translates into capturing our marketplace. We have by reason of simple numbers and an ill-defined mission remained fairly unknown in the medical market place. In order to capture marketplace, we must have numbers. We need to have numbers that are comparable to the MD numbers. Do you think that is impossible? I am sure Ford and General Motors thought that the small Japanese auto makers of the 1970s would never compete with them. But the Japanese with a committed long-range plan to produce a quality product have gradually come to domination in the industry. We can as well, if we make this same commitment to quality. If the quality exists, there is no reason not to grow more schools.

We need to have more schools in order to have more graduates. We need more graduates in order to capture marketplace. More numbers means more attending physicians, more patients and greater influence at hospital sites. This creates greater leverage in postgraduate education.

So how do we produce quality osteopathic graduates? Our profession and in particular our COMs need to clearly project to the students the mission of the profession, reflecting a moral influence or spirit of that mission. They need to rally a fire storm of commitment and a fighting spirit in the belief that being a DO means one has been educated to provide a superior form of patient care. With this attitude instilled in our graduates, their commitment to the profession is cemented. As Sun Tzu said, "He whose ranks are united in purpose will

be victorious."⁴

The profession needs to stop being defensive with its students and take the attitude Dale Dodson, DO did with me. I was a first-year student when he was president of the AOA and came to visit Des Moines University College of Osteopathic Medicine. I asked him the typical student question: "What was the AOA doing to make the public know what a DO is"? He challenged me by responding, "What are you doing to promote the profession"? His response helped propel me to become active in the profession. No longer was it just the AOA that was accountable. I was accountable as well.

Our schools must adequately arm our students for this battle. That means first marshaling adequate resources. Norman Gevitz, PhD pointed out that our school's administrators must financially devote adequate portions of their budgets to distinct osteopathic medical training, meaning adequate well-paid full-time faculty for all four years, first class facilities, in depth and continuous faculty development, coordination of instruction with the basic science departments and ongoing research in osteopathic principles that includes students.⁵

I would add to that, that students need to learn physical examination skills, utilize osteopathic manipulative treatment (OMT) and follow patients longitudinally beginning early in their first year of medical school. Currently the *Accreditation of Colleges of Osteopathic Medicine: COM Accreditation and Standards and Procedures*, standard 1.5 requires that each COM have on or near campus a facility where osteopathic medicine is practiced.⁶ This standard needs to be broadened to require a facility of adequate space so that students could see, treat, and longitudinally follow patients during their first two years on campus. Evaluating and treating fellow students in the OMM laboratory is no comparison to putting one's hands on patients with real pathology. In doing this, we arm our students with the physical skills and confidence to undertake the next step in our mission.

Our students need to see the science behind osteopathic concepts. As a student, I had OMM professors who

each had particularly strengths. Dr. Bernard TePoorten had the ability to teach me technique and anatomy, while Dr. Gordon Zink showed me the anatomy and physiological rationale for osteopathic manipulation. I gravitated toward Dr. Zink and teach residents today in a similar manner. Our students need to know that the basic sciences they learn have practical application in the OMM they utilize for it to have credibility. We need to teach that Dr. Still utilized OMT to optimize physiology, not to just treat mechanical dysfunction and pain.

The science of osteopathy that we teach in the first two years needs to expand so that when our students enter their clinical years, they can explain their rationale for utilizing OMM, not only to patients but to colleagues and attending physicians. A sound tactic is to arm them with a better depth of understanding of the science of osteopathy. New areas of science need to be added to our curriculums to further show the depth of the science of osteopathy. Osteopathic education and research should look deeper into how an alteration of normal structure and function affects us at the cellular level. Donald Ingber, MD, PhD wrote:

In biology and medicine, we tend to focus on the importance of genes and chemical factors for control of tissue physiology and the development of disease, whereas we commonly ignore physical factors. This is interesting because it was common knowledge at the turn of the last century that mechanical forces are critical regulators in biology.⁷ Wolff's law describing that bone remodels along lines of stress was published in 1892.⁸ However, the advent of more reductionist approaches in the basic sciences, and the demonstration of their power to advance understanding of the molecular basis of disease, led to a loss of interest in mechanics.⁹

The concept of cellular mechanotransduction is a perfect fit: the molecular mechanism by which cells sense and respond to mechanical stress. This is the osteopathic concept of structure and function at the cellular level.

Edward Stiles, DO, FAAO has been touting tensegrity for a number of years. It was received enthusiastically by the

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profession when he presented it as part of his A. T. Still Memorial Lecture at the AOA House of Delegates. Tensegrity theory can predict complex mechanical behaviors at both the cellular and biomechanical levels.¹⁰ This should be a standard part of our osteopathic education and is an area of research perfectly suited to our profession.

If our students are properly armed, they are ready to go into their third and fourth years. But, they need the help of mentors at that point, who can properly utilize and speak intelligently about osteopathic principles and practice. This is where we must have practicing DMEs and clinical faculty who will serve as role models and instructors who will hold the students accountable for the utilization of OMM. This on-site team would be responsible for conducting regular chart reviews on current inpatients and seeing that OMM was being properly utilized. Students would also be required to perform and document 120 osteopathic treatments per year. The DME and clinical adjunct faculty would sign off on the student once proficiency had been proven. This is a requirement for any procedural skill in the hospital and OMM should be no different.

Each core site should be required to have a designated DO clinical adjunct faculty member and its DME involved with continuous faculty development. This faculty development would include the affiliated COM's OMM department or division. Its responsibility would be to train these two faculty members in assessing the utilization of OMM and teaching OMM to students and residents. Semi-annually, the two core faculty members would go to the COM

for CME. The OMM department could then video stream to these distant clinical sites an OMM training module for the residents and students. The on-site team would be responsible for the clinical training.

American Association of Colleges of Osteopathic Medicine (AACOM) and Executive Council of Osteopathic Postdoctoral Training (ECOP) need to collaborate in the development and implementation of OMM teaching modules. These need to have a three-year format. They also need to include modules on clinical research. These research modules would need to be coordinated with the Bureau of Clinical Education and Research (BOCER). The research department at the COM would be responsible for coordinating research at these core sites.

Each of us has a responsibility to this process. "And, therefore, the general who in advancing does not seek personal fame, and in withdrawing is not concerned with avoiding punishment, but whose only purpose is to protect the people and promote the best interests of his sovereign, is the precious jewel of the state."¹⁴ This is the attitude we need to exhibit as leaders in our profession. Each of us is a general relative to our patients and the students we mentor. We must be willing to serve humbly and for the greater good of the profession. We each need to be willing to take students and to teach them. We need to keep current with the research and be life-long learners. We need to support our local, state, and national organizations and promote the profession by serving as educators and ambassadors to our patients for the profession. In war, victory comes by

holding the higher ground. That is how we, too, shall be victorious.

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Accepted for Publication:
November 2006

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Counterstrain Tender Points as Indicators of Sustained Abnormal Metabolism:

Advancing the Counterstrain Mechanism of Action Theory

Paul R. Rennie

Proposed Theory

Previous explanations for the mechanism of action in counterstrain theory have centered prominently on the role of the muscle spindle apparatus triggered from a sudden “panic lengthening” of the muscle fibers during injury.^{8,25} This theory asserts that the muscle spindle maintains the abnormal tone.

This article will review the various effects on muscle metabolism that result from injury and the resultant forces placed on all structures associated with the muscle. Key to this process is the critical balance of oxygen delivery, blood flow, sympathetic tone, and intramuscular pressure on metabolic recovery after muscle effort.^{5,10} The resultant alteration in muscle effort may exert a traction/compression effect on the nerve fibers, blood vessels, and lymphatic channels as they course through the myofascial tissues.^{38,41,43,46}

Anatomical consistency of many of the tender point and motor point locations throughout the body will also be explored. Viewed in relation to the metabolic alterations found within injured muscles, the following discussion will provide additional insight into the tremendous overlap in physiological and anatomical processes leading toward a possible explanation for the shared phenomenon of tenderness and treatment approaches.

Therefore, sustained altered metabolism is at the center of the establishment of tender point manifestations. Proper positioning of the tissues during counterstrain treatment reduces the tender point manifestation while enhancing circulatory movement and, therefore, normalization within these tissues.

Postural Integrity

Postural integrity is a vital function of the musculoskeletal system. Ideally, the body is not overly challenged, and the system is kept at equilibrium. However, when tissues become injured or deconditioned, an adaptation must take place in order to attempt to maintain postural orientation. Alteration in muscle coordination with resultant reorchestration of the muscle efforts becomes evident, and these findings offer a roadmap to the rehabilitation needs of the patient.^{4,36,40,46}

An exploration of what underlies postural integrity requires an understanding of how the systems of the body functionally relate. The osteopathic philosophy stresses the concept of unity of the living organism’s structure (anatomy) and function (physiology).⁷² Osteopathic principles are founded on the principles that the human body is a dynamic unit of function, possesses

self-regulatory mechanisms that are self-healing in nature, that structure and function are interrelated at all levels, and that rational treatment is based on these principles.

Somatic dysfunction is defined as the impaired or altered function of related components of the somatic (body framework) system: skeletal, arthrodiagonal, and myofascial structures, and related vascular, lymphatic, and neural elements.⁷² Therefore, the diagnosis of somatic dysfunction confirms that osteopathic neuromusculoskeletal treatment is indicated and appropriate as part of the treatment plan. A better understanding of the anatomical and physiological matrix of the body reveals how these systems can be influenced in a manner that will contribute to the postural integrity of the body.

Effect of Reduced Blood Flow and Increased Nociceptive Activity

Proper balance in blood flow is required for normal metabolic activity for all tissues, including the musculoskeletal system. Reduced blood flow leads to reduced oxygen and metabolic support, along with reduced waste by-product removal and reduced overall force generation from the muscles.

Capillaries course between the muscle fibers through spaces so small that the red blood cell discs must travel in a horizontal orientation to traverse these channels.¹³ Any further compression or reduction in muscle pumping effort reduces the movement of these cells. Ischemia is a local anemia due to mechanical obstruction (mainly arterial narrowing) of the blood supply.¹⁴ The ischemia that results from this reduction in blood flow can stimulate the nociceptive receptors and trigger a pain response, especially with the release of acidic hydrogen ions and bradykinin.^{29,44} Altered blood flow therefore triggers a neural response signaling that a problem exists within the tissues and that there is a state of low-energy formation in the muscles.

Blood flow is one necessary component for muscle contraction. The other is a coordinated and effective neural stimulus. Therefore, muscle contraction requires both a chemical and an electrical reaction. The neural (electrical) process involves sensory and motor activity conducted between the central nervous system and the periphery. Blood flow is mediated through the arterial, capillary, and venous conduits connected with various organ systems, particularly the heart, lungs, gastrointestinal, and genitourinary systems.

Sufficient blood flow must be maintained in order to regenerate the ATP necessary to break the actin-myosin cross-links so that muscle fiber movement may be continued.^{2,71} Therefore, even without considering the electrical effects, reduced blood flow will alter the metabolic support necessary for normal muscle movement. This process demonstrates the observation of Andrew Taylor Still, MD, DO that “the rule of the artery is supreme”. Without appropriate blood flow, suboptimal functional activity remains and likely maintains the somatic dysfunction.

The neural tissues also depend on proper balance within the circulatory system. Nociceptors are found in close proximity to the arterioles and provide for early warning of dysfunction within the tissues. Once activated, the nociceptive input triggers an axon reflex that activates adaptive mechanisms in order to protect the body from further injury and to generate the reparative response needed in tissues that become damaged. This response can augment the vascular response and requires adequate blood flow. Nociceptors are active in releasing the chemical environment by which tissue edema is generated from increased tissue permeability and vasodilation. If maintained, this leads to congestion and reduced blood flow.¹²

Nociceptive input is also transmitted to the spinal cord and brainstem. Normally, nociceptive threshold response, and therefore neural signal propagation, should be able to discriminate an event that is tissue threatening and therefore, not activate in the presence of weak local applied pressures, normal physiologic contractions, and normal joint ranges of motion. However, some input through the spinal cord and brainstem may induce long-term changes in synaptic processes in dorsal horn neurons.

This afferent input is maintained in the central nervous system and remains despite apparent resolution at the original tissue injury site.⁸ Experiments have shown that a morphological change occurs in the CNS that produces a fixed functional change.⁴⁸ It is thought that this process may be the mechanism behind hyperalgesia (increased sensitivity to nociceptive stimuli). Therefore, central sensitization increases the tenderness of the peripheral structures due to spinal rewiring with non-nociceptive inputs stimulating nociceptive pathways.¹² This central fixation may be one reason why it takes more time for pain to diminish in chronic pain patients.

Intramuscular Pressure

Muscle tone is the degree of muscle tautness at rest. It is measured by the degree of stiffness or resistance to passive movement.⁹ This tone is established by the viscoelastic properties within the muscle fibers and fascia and by the degree of activation of the contractile elements.¹⁷

Intramuscular pressure (IMP) is that pressure contained within the muscle. IMP becomes elevated if increased external or internal compression is applied to the muscle tissues. Causes of this include internal tissue damage (compartment syndrome as an extreme example), sustained muscle contraction and overuse syndromes, and pressure placed on the muscle tissues via taut fascial compartments and bony elements that surround the muscle tissues.³⁹

Each muscle, due to its morphologic arrangement, may attain a different maximal intramuscular pressure during contraction effort as compared to other muscles in the body. As an

example, maximal intramuscular pressures measured in one study of shoulder abduction revealed the trapezius to average 86 mmHg, deltoid 146 mmHg, infraspinatus 439mmHg, and the supraspinatus 524 mmHg.⁶ Additionally, when the supraspinatus muscle was measured during shoulder flexion at 30 degrees, the IMP average was 58 mmHg. Therefore, morphologic and positional factors are involved in the IMP generated.

Sustained muscle contractions maintain a higher IMP. If the muscle contracts at 30% or more of its maximal contraction force (MCF), it will compress its own blood vessels.¹² If sustained, such as with overuse syndromes, repetitive strain injury, and chronic compartment syndrome, this will reduce nutrient and oxygen delivery necessary for the mitochondria to regenerate ATP via oxydative phosphorylation for the uncoupling of actin-myosin cross-bridges.^{49,50} This sets-up a vicious cycle of venous and lymphatic congestion, ischemia, further release of vasoactive and nociceptive sensitizing chemical edema and thus, a perpetuation of the dysfunction. And so the process begun as a metabolic abnormality results in a cycle in which the nociceptive afferent system elicits alterations in the motor response to either increase or decrease a particular muscle effort secondary to actual or perceived tissue damage, and the nociceptive response further alters metabolism.

Increased and sustained sympathetic tone with increased exercise or labor activities will also affect blood flow. Intracellular pH is reduced with resultant reduction in blood flow and mitochondrial respiration.⁵¹ Despite the compensatory metabolic vasodilatory effect, the sympathetic vasoconstrictive effect on the blood vessels is not overcome. Therefore, oxygen support does not adjust for the metabolic needs in the muscle tissues. Phosphocreatinine and oxydative ATP recovery is dependent primarily on the oxydative capacity in the muscle tissues. Higher levels of exercise can result in a worsening of the imbalance in oxygen delivery⁶⁴ and blood flow.⁵⁵ This, coupled with a limitation of oxygen at the onset of exercise, leads to a greater reliance on anaerobic ATP turnover.⁴⁹

Increased IMP has been found to be associated with an increased fluid content after repeated maximal isokinetic contractions. IMP is affected by the fascial compliance and fluid content in the muscle compartment.⁵³ Increased IMP may affect blood flow particularly in the low-pressure venous system, thereby reducing waste product removal from the tissues. On the other hand, increased IMP during repetitive contractions does assist in venous flow return to the heart.⁵⁴ The emphasis here is with a proper balance of muscle contractions to augment low-pressure fluid flow. Static work and inactivity aggravate the effect of sustained elevated IMP. However, with the development of fatigue, a drop in IMP toward mean arterial pressure (MAP) may allow for maintenance of muscle perfusion and oxygen delivery. Again, the metabolic environment is paramount and normally dictates a response in blood flow that signals to the individual to adjust their activity level to support recovery to the metabolic environment.

Metabolic Recovery

Metabolic recovery within the muscle requires that IMP return to proper resting levels. These levels vary within different muscles and have not been fully researched for each muscle.

Prolonged elevated IMP and static muscle positioning lead to impairment of intramuscular blood flow to the muscle and tendons. EMG studies on the biceps muscle have found that IMP had to return to below 20 mmHg before metabolic recovery was possible.¹⁰ It has also been found that IMP as low as 15 mmHg can decrease microcirculation to the margins of an injured and edematous site and to more fragile sites such as the tendons.⁵ Removal of interstitial fluid with ultrafiltration has been shown to reduce the risk of developing acute compartment syndrome in patients prone to this condition.⁵⁶ The ideal is to offer a conservative means to maintain proper resting IMP levels in all people before further metabolic compromise or ongoing degeneration becomes established.

Other influences also play a role on blood flow to the tissues. In one study involving pain to the trapezius muscle, IMP measurements indicated the muscle had no significant blood flow impairment. However, laser doppler flowmetry (LDF) revealed a lowered local blood flow due to impaired regulation of the microcirculation.⁵⁷ This effect was thought to be created through a defect in the release of vasodilatory substances that are excreted axonally.

Therefore, muscle and its blood vessels possess the capacity to “squeeze-out” their blood supply, the muscle’s metabolic support. The resultant loss of mechanical effort from these fibers must be taken-up by other healthy muscle fibers.⁴⁴ This increases the workload on these fibers, possibly increasing the IMP in these muscle groups. This process has the potential of spreading to yet other regions of the body in order to adapt to the mechanical needs of the body.³⁹ If sustained, more muscle fibers will suffer metabolic exhaustion due to sustained elevated IMP and loss of metabolic support.

Skeletal muscle fibers can be categorized into slow and fast twitch types. These types distinguish metabolic and functional differences between the muscle fibers. Slow twitch (tonic) muscle fibers are smaller than fast twitch fibers but have more mitochondria and blood capillaries than do fast twitch fibers. The sarcoplasm also has a high content of myoglobin that carries additional oxygen for use by the mitochondria. These features account for the red coloration of these fibers as opposed to the pale-colored fast twitch muscle fibers.

Fast twitch (phasic) muscle fibers are metabolically and functionally designed for more ballistic activities requiring power movement performed over a short duration of time. In order to accomplish this, the fast twitch fibers utilize the glycolytic pathway with a more extensive sarcoplasmic reticulum to allow faster movement of calcium ion transport. However, these fibers are more easily subject to fatigue than the slow twitch type. Yet, if there is a disturbance in the blood flow characteristics to these slow twitch fibers, there may be the increased use of the more fatiguing fast twitch fibers leading to potential early fatigue. Also, since the slow twitch fibers tend to have higher proprioceptive input, this may have an influence on the balance efforts from the muscles resulting in more uncoordinated movement. This leads to the condition of muscle imbalance, to be discussed as follows.

Altered Joint Function

Joint inflammation or increased joint fluid pressure will stimulate joint afferent neurons in the same way that injured muscle fibers and elevated intramuscular pressure stimulates intramuscular nociceptive afferent receptors. The common end result is inhibition of muscle and joint movement to the injured sites, with protective spasm from other healthy, non-injured muscle groups.

The differing metabolic profiles of specific muscle and the affect they have on joint arrangements are associated with a pattern of recognizable muscle inhibition and joint restriction. For instance, the gluteus maximus muscle appears to become inhibited with ipsilateral sacroiliac restriction, the gluteus medius with acetabular restriction, the multifidi with zygapophysial restriction, and the rectus femoris with knee joint restriction.^{1,3,11,15} Knowing these associations allows for focused treatment approaches.

Correlation between Motor Points and Tender Points

Counterstrain tender points are hyperalgesic areas found at consistent anatomical locations throughout the body.^{7,8,18,19,20,21,23,45,47} On further review of many of the known and reliable tender point sites, a clear correlation between these sites and motor point sites may be found. The majority of tender point sites appear to be consistent with neural tissue locations whether it be motor points^{46,61,62,63,64,65,66,67,68} or more deeply invested neural fibers into the ligamentous structures such as the collateral ligaments at the knee.⁷⁰

This provocative association suggests that the accessible neural components found at these regions reveal the facilitated status of the connected structures. These sites do not, in their entirety, indicate that the problem is exclusive to this site but may be part of a chain attached to deeper and more elaborate structural dysfunction. Maintained muscle tightness, elevated IMP, ischemia, and sustained nociceptive activation, either through an activated axonal reflex and/or sustained neuroplastic response may trigger the necessary environment to create the manifestations encountered on palpating counterstrain tender points.

Many of the neural and circulatory conduits follow similar courses through the body. The “rule of the artery” also applies to the neural system. It is no coincidence that these two vital conduits commonly wind together through various connective tissue elements to reach the tissues they serve.⁴² Functional integrity requires this intimate connection in order to provide for organized movement and responsiveness of the body systems. This view differs from the “boney” model wherein we may view that a vertebral misalignment may be the sole cause of our somatic dysfunction. The view should rather be that of a contiguous mechanism that requires all elements of the somatic framework and visceral system to maintain homeostasis.

Various methodologies also view the presence of tender areas on the body that are associated with somatic and visceral dysfunction. In addition to the current discussion regarding counterstrain tender points, there has been much debate about the nature and qualities of trigger points, fibromyalgia tender points, and acupuncture points. However, there has been less

debate over motor point sites, and this may be due to anatomical consistency and diagnostic methods largely correlated to EMG studies. Dr. Angus Cathie stated in 1960 that “many so called ‘trigger points’ correspond to the points where nerves pierce fascial investments”.⁵⁸ Others have sited the connection between neural positions in relation to the muscles and fascia and a possible role in pain and functional alterations.

In “Muscles, Testing and Function,” Henry O. Kendall suggests that nerves could be irritated from the muscles being drawn taut and firm, thus exerting a compressive or friction force on these nerves.⁴⁶ Muscles that are pierced by a peripheral nerve may become symptomatic if the muscle develops adaptive shortening moving through a shorter range of motion and becoming tight before reaching its full length. Examples include:

- Radial nerve with the supinator and lateral head of the triceps
- Median nerve with the pronator teres
- Ulnar nerve with the flexor carpi ulnaris
- Greater occipital nerve with the trapezius and semispinalis capitis
- C5 & C6 root of the plexus and the long thoracic nerve with the scalenus medius
- Musculocutaneous nerve with the coracobrachialis
- Lumbar plexus nerves with the psoas
- Iliohypogastric nerve with the transversus abdominis
- Obturator nerve with the external oblique
- Fibular nerve with the biceps femoris and gastrocnemius

In the *JAOA* article, “Nerve compression syndromes as models for research on osteopathic manipulative treatment” (Luchenbill-Edds, Bechill), a question presented by Dr. Irvin Korr asked “How many compression, angulation, or other deformations of nerves and nerve roots by surrounding structures influence neural chemistry and metabolism and the synthesis and axonal transport of macromolecules and subcellular structures?”⁵⁹ Further review indicated that the effect of compression on the nerves can produce ischemia at pressures of 30 mmHg, affecting the vessels of the subperineural region and leading to decreased venular outflow. Additionally, the effect of ischemia increases the permeability of the endothelial linings of the capillaries, which increases edema. Compression also blocks anterograde and retrograde axonal transport necessary for nutrient support. It was also suggested that neurapraxia (axonal conduction and transport compromise but no axon degeneration resulting from chronic or acute nerve compression) may be relieved with OMT with counterstrain listed as one of the possible treatment methods.

Chronic myofascial tenderness has not been found to be associated directly with ongoing inflammation.² Local tenderness is commonly found over nerve trunks at sites of entrapment or metabolic insult. This has been attributed to the sensitization of free nerve endings within neural connective tissues, the *nervi nervorum*.⁶² Additionally, it appears that unmyelinated sensory fibers are the afferent limb of trigger points.⁶⁰ Trigger points can be reduced by lidocaine infiltration or by transection of the motor nerve innervating the trigger point.⁶⁰ However, transection of the spinal cord above the level to the innervation site to the muscle has been shown to fail to abolish the twitch response of

the trigger point. This interesting study therefore demonstrated that the local twitch response is a spinal reflex and not mediated in the cortex.

Acupuncture points have not only been associated with trigger points but also with motor points.^{60,61,63,64,65,66,67,68} There has also been the suggestion that acupuncture loci be categorized into types that involve motor points, superficial nerves, and nerve plexi.⁶³ Clearly, in common is the presence of tenderness at these sites. Tenderness at motor points located in the myotomes has been correlated to segmental spinal injury.⁶⁷ Further, the degree of tenderness has been found to correlate with the severity of symptoms with greater involvement to both the anterior and posterior primary rami. Muscle tenderness is found to be maximal at the motor point location (neurovascular hilus). This tenderness has also been associated with positive EMG changes that may or may not be present in the mildest form of tenderness but become more clearly significant with greater neuropathic findings.⁶⁸ Therefore, early neuropathic changes that may not be detected by EMG could be best elicited by palpating for tender motor points.

Concept of Neurocirculatory Integration (Fascial Release)

It is evident that the aforementioned physiologic changes play a role in the associated manifestations of the counterstrain tender point. Sustained alteration within the muscle fibers that have become inhibited and taut can be expected to demonstrate poor metabolic activity and sustained nociceptive input.^{22,30,33} Tender points found long after the injury occurred demonstrates a memory effect locally within the tissues and through the central nervous system.

It is interesting to note the correlation of counterstrain treatment positions with the position of the patient’s body at the time of injury.⁸ How is it that osteopathic physicians remedy the somatic dysfunction by returning the body to the position of injury? How is it that treatment decreases the sensitivity and improves the quality of function of these tissues?

Particularly interesting is the additional manifestation of a palpable pulsation response felt at the tender point site as treatment is delivered.^{23,45,47} It is commonly the case that when the patient reports the most significant reduction in tenderness, thus when the nociceptive input is terminated, the pulsation amplitude is found to be at its greatest intensity.

Because neural and circulatory conduits tend to follow together, and tender points and motor points are often found in close proximity, the anatomical explanation why osteopathic physicians are able to perceive this pulsation phenomenon becomes more evident. This represents an objective manifestation of improved metabolic recovery within the muscle tissues. This phenomenon suggests improved intramuscular perfusion necessary for the muscle tissues to recover metabolically, thus reversing the effects from an injury process.

Muscle imbalance is defined as the existence of inequality in the strength of opposing muscle groups wherein one muscle group is weak and its opposing group is strong (tight). This imbalance leads to inefficient and potentially injurious movements, particularly to the joints.^{4,46} Both weak and tight muscles reflect

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abnormal metabolic activity. Counterstrain treatment requires a reduction in the tension (and, secondarily, a shortening) of a particular muscle or group of muscles along with the associated myofascial structures and joints in order to reduce the nociceptive afferent stimulus found at the tender point site.^{7,8,23,45,47}

Muscles that are tight (with limited range of motion) and do not possess tender points typically require therapeutic lengthening, which can be performed with various manipulative techniques such as with muscle energy technique. Muscles that contain tender points may not be as accommodating to aggressive lengthening without added discomfort. Thus, counterstrain methodology has provided a more “indirect” means of reducing discomfort and assisting in the proper lengthening of the affected myofascial tissues.

Typically, injured muscle tissues are protected from further movement through a spastic neural response generated from muscle tissues, the muscle spindles that are capable of providing this adaptation.¹² Counterstrain treatment can be applied concurrent with the application of post-isometric relaxation to the antagonist muscles to allow further unloading of tension to the myofascial group containing the tender point. This process transforms “classical” counterstrain approach that requires the patient to be totally passive to a more integrated process that incorporates group Ia inhibitory interneurons that not only function locally on the antagonist muscles but also at higher centers of control opposing muscles at the joint in reciprocal fashion.⁹

Together with the reestablishment of improved circulatory flow and reduced nociceptive input, this neurocirculatory integration fascial release approach incorporates an effective and efficient means of addressing the integrated neurocirculatory needs of the musculoskeletal system. This integration of methods provides for the correction of the structural and postural responses the body has manifested with the original injury. This allows for improved muscle balance through the action on the agonists, antagonists, and synergists.

Integrative Thinking – The Challenge

We are therefore at the point long hoped for in the osteopathic profession where the manifestations we have attempted to describe receive support from dynamic technologies that bring to life the anatomical and physiological manifestations of somatic dysfunction.

We have established the central role that altered metabolic processes contribute in the initiation and maintenance of tender points, a manifestation of the presence of somatic dysfunction. The coupled role of the neural and circulatory systems now have to be viewed as a unit in order to more completely understand the pathophysiology of somatic dysfunction and the methodologies required to treat these dysfunctions. To neglect the importance of either system leads to a suboptimal understanding of the underlying physiology.

The primary goal in the provision of medical services should be to offer, through better understanding of the body’s response to injury, a conservative means to restore and maintain proper resting IMP levels, circulatory flow, and reduce nociceptive stimulus before further metabolic compromise or ongoing degeneration and muscle imbalance becomes established. This conservative emphasis should be encouraged throughout the

health care system.

Neurocirculatory integration fascial release that utilizes counterstrain along with other osteopathic manipulative principles enhances neural and circulatory normalization within the tissues, providing a conservative approach that is both diagnostic and therapeutic. The concepts explored here offer a window into a better understanding of the complexity and yet the opportunity to evolve with a greater appreciation for what we can do to address the needs our patients. This understanding can lead to improved diagnostic assessments and treatment outcomes that impact the healthcare system and, most importantly, the treatment of our patients.

Special thanks to Claudio Carvalho, DO, MS. Additional thanks to the Fellowship Committee of the American Academy of Osteopathy and to Dennis J. Dowling, DO, FAAO, Richard L. Van Buskirk, DO, PhD, FAAO, Robert Kessler, DO, and to Gabriele Rennie for their editorial assistance.

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Accepted for publication: March 2006

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December 2006
AAOJ CME
quiz answers:
1. C
2. A
3. B
4. C
5. A
6. D

CME QUIZ

1. It is expected that weak local applied pressure will stimulate a nociceptive response.
 - A. True
 - B. False

2. From what percentage of a muscle's maximal contraction force will it compress its own blood vessels?
 - A. 10%
 - B. 20%
 - C. 30%
 - D. 50%
 - E. 80%

3. Increased intramuscular pressure (IMP):
 - A. is associated with reduced fluid content after repeated maximal isokinetic contractions
 - B. is unaffected by the fascial compliance in the muscle compartment
 - C. is aggravated by static work and inactivity
 - D. has no effect on the low-pressure venous system
 - E. increases waste product removal from the tissues

4. In contrast to fast twitch muscle fibers, slow twitch muscle fibers:
 - A. have less mitochondria and blood capillaries
 - B. are less involved with proprioceptive input
 - C. are more pale in color
 - D. are designed more for ballistic activities
 - E. are less subject to fatigue

5. Which of the following is true regarding intramuscular pressure?
 - A. All of the muscles in the body generate the same intramuscular pressures during normal activities.
 - B. Each individual muscle generates the same intramuscular pressure in all directions of motion (positions) for that particular muscle.
 - C. Pressures as low as 15 mmHg reduce microcirculatory support to fragile sites such as the tendons.
 - D. Enhances nutrient and oxygen delivery at pressures greater than 30 mmHg.
 - E. Reduces nociceptive stimulation at pressures greater than 30 mmHg.

6. Tenderness found at motor points correlates to segmental spinal injury and the degree of tenderness to the severity of symptoms
 - A. True
 - B. False

Pediatrics Course

BioBasics Module V

June 16-19, 2007 (Franconia, New Hampshire)

Lisa Pacheco D.O., Course Director

Osteopathic Medicine has a long history in the treatment of infants and children. Strains in a child's system often present as difficulty in feeding, sleeping, movement, and behavior. Topics to be addressed in this course are functional anatomy of the fetal skull, membranes and fluid dynamics, treating birth trauma, the premature infant, vaccinations and autism. Course sessions will be focused on evaluation and treatment of children using a functional and biodynamic approach.**

CME: The University of New England is accredited by the American Osteopathic Association to provide continuing medical education credits for physicians. This course has been designated for 20.25 Category 1A credits.

**To register for this course or for more information please visit our website at www.jamesjealous.com.

You may also contact Marnee Jealous Long at (813) 649-0708 or mjlong@tampabay.rr.com for more information.

Preliminary course outline

Day 1

12:00pm-1:00pm Registration

1:00pm-1:15pm Welcome and Overview –
Lisa Pacheco D.O.

1:15pm-2:15pm Observing Respiratory Physiology – Lab –
Kevin Zorski D.O.

2:15pm-3:45pm Neutral, EV4 and Rebalancing – Lab –
Keelyn Wu D.O.

3:45pm-4:00pm Discussion in Small Groups

4:00pm-5:30pm Listening to the Health in the Child –
Lecture/Lab – *Tom Shaver D.O.*

5:30pm-7:00pm Fluid Body Diagnostics – Lecture/Lab- *TBA*

Day 2

8:15am-9:00am Early Development – Lecture –
David Hoke DVM

9:00am-10:30am The Premature Child – Lecture/Lab –
Veronique Everharts D.O.

10:30am-10:45am Discussion in small groups

10:45am-11:45am Nutrition and Children – Lecture/Lab –
Judy Aldrich D.O.

11:45am-1:15pm Twins – Lecture/Lab –
Francois Desrosiers D.O.

1:15pm-1:45pm Panel - Case Presentations

1:45pm-3:15pm The Developing Eye – Lecture/Lab –
Jeff Greenfield D.O. and Jim Mancini O.D.

Day 3

8:30am-10:00am Sensory Integration – Lecture/Lab –
Karen Gajda D.O.

10:00am-10:15am Discussion in small groups

10:15am-10:30am First Bow – Lab – *Judy Green D.O.*

10:30am-11:45am Membranous Anatomy of the Fetal Skull –
Lab – *Lisa Pacheco D.O.*

11:45am-12:30pm Family as a Whole in Treatment – Lecture –
Steve Kisiel D.O.

12:30pm-2:00pm Lunch

2:00pm-3:30pm Shock – Lecture/Lab – *Orianne Evans D.O.*

3:30pm-3:45pm Discussion in small groups

3:45pm-4:15pm Braces and Rebalancing – Lecture/Lab –
Bob Bishop D.O.

4:15pm-4:45pm Considerations in Upper Respiratory Infections –
Lecture – *Craig Goldberg D.O.*

4:45pm-5:15pm Vaccines – Panel Discussion – Moderator –
Avtar Moore D.O.

5:15pm-5:30pm Discussion in small groups

5:30pm-7:00pm Autism – Lecture/Lab – *Donald Hankinson D.O.*

7:30pm Dinner, music and fun!

Day 4

9:00am-9:45am Enchantment – Lecture – *Evelyn Skinner D.O.*

9:45am-10:00am Discussion in small groups

10:00am-11:30am The Tide – Lecture/Lab – *Deb Meness D.O.*

11:30am Closing Remarks/Faculty check participants

A Tribute to John Wernham, DO, FICO, FCO

Anthony G. Chila



John Wernham, DO, FICO, FCO

John Wernham, DO, FICO, FCO, passed away on February 9, 2007. He had entered his 100th year, aged 99 years and 3 months. His life and impact on the teaching and practice of “Classical Osteopathy” in the United Kingdom was great, indeed.

From an early age, this iconic individual was profoundly dedicated to his friend and mentor, John Martin Littlejohn. Having met Littlejohn when he was a young child, time would prove his devotion to the thought of this contemporary of Andrew Taylor Still. The major source of inspiration for Wernham’s work appears to have derived from Littlejohn’s work with the British School of Osteopathy during the decades of the 1920s and 1930s.

Following Littlejohn’s death in 1947, John Wernham embarked on a number of activities which reflected his desire to preserve traditional osteopathic philosophy and principles in teaching and practice. He organized the Maidstone Osteopathic Clinic in 1949. With T.E. Hall, another influence on his professional life, he was a founder member of the Institute of Applied Technique in 1954. This organization served as a forum for many of the United Kingdom’s early osteopathic pioneers, and sought to perpetuate their teaching. Today, that organization is known as The Institute of Classical Osteopathy. Another avenue of John Wernham’s educational influence was his assistance of Thomas Dummer, DO in the establishment of the European School of Osteopathy in the early 1970s. Organizational skills in support of commitment to purpose were supplemented by abundant journalistic and photographic skills. It was through these activities that the publication of many texts and articles dealing with osteopathic principles and practice was accomplished.

Recognition of John Wernham’s teaching was extended by many countries of the world aside from the United Kingdom. A partial list includes France, Belgium, Sweden, Finland, Italy, Canada, Japan, Ireland, Spain, Australia, New Zealand. It may

be that the United States is one country where the teaching of this osteopathy is relatively unknown. If that is so, it is an unfortunate circumstance.

In February 2001, through the intercession of my friend Paul Masters, DO, I had the opportunity to meet and interview John Wernham. On the occasion of his 95th birthday, May 2, 2002, I extended best wishes to him, recognizing his stature and numerous contributions to Osteopathy.¹ His reply was:

June 5, 2002

Dear Dr. Chila:

Thank you for your kind thoughts. We must remember, however, that stature at this present time has been built on the foundations of our past and if we are to remain into the future then the foundations must remain, firm and secure.

With every good wish
John Wernham

In this same exchange, I expressed the hope that I might have the opportunity to wish him a Happy Birthday again in five more years. By a mere three months, this has proven not to be so. During this interval, and until his recent passing, John Wernham remained unyielding in his commitment to traditional osteopathic thought, teaching, and practice as understood by him.

1. *The American Academy of Osteopathy Journal*. Volume 12, Number 2, Summer 2002. p 8.



**JOHN WERNHAM
DO FICO FCO
Osteopath**

2nd May 1907 – 9th February 2007

Management of Peptic Ulcer Disease Using Osteopathic Manipulation

Heather Danielle Morris and Jerry L. Dickey

Introduction

Peptic ulcer disease (PUD) is very common, affecting approximately four million people in the United States. The lifetime risk of developing a peptic ulcer is 10% for males and 4% for females. Although it may first appear in young adulthood, it is most commonly diagnosed in middle-aged to older adults. Some patients will have complications from the disease. These complications include bleeding in 15-20% of patients, a 5% chance of perforation, and a 2% chance of obstruction from edema or scarring.⁷

Although the complications of ulcers can be life-threatening, peptic ulcer disease tends to impair quality of life rather than shorten life-expectancy. Peptic ulcer disease is commonly treated with acid anti-secretory agents, mucosal protective agents, and medications to eradicate *Helicobacter pylori*. Alternative treatments such as osteopathic manipulative treatment (OMT) can be highly advantageous and effective as an adjunct therapy in reducing patient's pain symptoms and improving their quality of life. The case presented in this paper and studies published in the literature further supports this theory.

Definition: A peptic ulcer is a break in the mucosa of the gastrointestinal (GI) tract arising when aggressive factors, such as acid production, overwhelm the mucosal defense system.¹³ Peptic ulcers are most often chronic, solitary lesions, and are most prevalent within the duodenum or stomach.

Epidemiology: Peptic ulcers are more common in patients who chronically use NSAIDs or smoke. There does not seem to be evidence indicating alcohol as a contributory force. The role of stress is also uncertain.¹³ The prevalence of ulcers tends to be higher in men. However, women are at increased risk of developing an ulcer after menopause.⁷

Etiology: Peptic ulcers arise when there is an imbalance between the damage caused by acid secretion and the protection mediated by the mucosal barrier. There are three major problems that result in this type of imbalance: chronic *H. pylori* infection, NSAIDs, and hypersecretory states. Both *H. pylori* and NSAIDs result in decreased mucosal barrier protection. *H. pylori* causes a chronic intense inflammatory reaction that overwhelms the mucosa. When *H. pylori* is eradicated, ulcer recurrence rates are dramatically reduced.¹³ NSAIDs decrease mucosal protection by suppressing the production of prostaglandins and also acting as a direct irritant. They significantly increase the risk of gastric ulcers, but only slightly increase the risk of duodenal ulcers. The risk of NSAIDs causing an ulcer is increased with higher doses, advanced age, and concomitant corticosteroid administration.¹³ Hypersecretory states cause an imbalance because of an overabundant production of acid; examples include a Zollinger-Ellison tumor, increased basal acid secretory drive, or impaired inhibition of acid production.⁷

Clinical Features: The majority of peptic ulcers cause epigastric gnawing, burning, or aching pain. The pain tends to be worse at night and is classically relieved by alkalis or food. Nausea, vomiting, bloating, belching, and significant weight loss are additional manifestations.⁷

Case Presentation

Identification: C. A. is a 43-year-old white female.

Vital Signs: BP 118/78, HR 70/ reg, Resp 14, Wt 92.5 lbs

Chief Complaint: The patient presents to the office with a complaint of neck, shoulder, and upper back pain present for many years. Patient also states she has headaches that worsen with stress.

History of Present Illness: The pain is rated a 2 on a scale of 1-10, but is sometimes a higher intensity. Patient denies radiation of pain or injury due to trauma.

Past Medical History: She has been treated with anti-inflammatory medication, muscle relaxants, and physical therapy, none of which produced long-term relief of pain. She has had a MRI that showed slight bulging at the cervical disc, but was told this was not the cause of her pain by her family practitioner.

Past Surgical/Trauma History: Positive for two rear-end and two front-end motor vehicle accidents. She has

also had two normal vaginal deliveries, 1992 and 1994.

Social History: The patient is a band director within the Dallas school district. She is negative for tobacco and drinks alcohol socially (one drink per month).

Allergies: Patient is allergic to keflex and penicillin. She denies seasonal allergies.

Medications: The patient is currently being treated with Zoloft 5 mg for depression and sleeplessness.

Family History: Patient's father died of emphysema at the age of 79. Her mother died at the age of 44 of alcoholism and suicide.

Physical Exam: The patient was examined in the walking, standing, sitting, supine, and prone positions. The gait is abnormal with slapping of the right foot. Stance appears normal. When viewed from anterior the right shoulder is lower than the left shoulder, although the patient is left-hand dominant. There is no head tilt and otherwise good symmetry. On profile, the weight-bearing line falls from shoulder to malleolus close to ideal. There is a loss of dorsal kyphosis from T4 to T8, with the vertebra directly above and below corresponding to her painful areas. There is also reduced lumbar and cervical lordosis.

Viewed from posterior, the right shoulder is lower than the left shoulder. There is no head tilt. There is no evidence of scoliosis or hip hump provoked. There is evidence of a short right leg based on trochanteric height, popliteal tension, and Achilles tendon tension.

There is a positive seated and standing flexion test on the left side. When assessed in the supine position, the patient is found to have a left anterior innominate. The patient was then placed in the prone position and the bony elements of the pelvis were assessed. No sacral somatic dysfunction is found.

There is motion restriction at L5 in a non-neutral pattern, sidebent

right and rotated right. Also, there is inhalation restriction of ribs 7-10. T1 through T4 are restricted in sidebending to the right and rotation to the left. T8 and T9 are restricted in sidebending to the left and rotation to the right. There is also a striking non-neutral at T6, restricted rotation and sidebending to the left. The cervical spine has osteoarthritic changes from C3 to C6. There was a lack of motion of the first rib bilaterally.

The abdomen was palpated. It is soft and scaphoid. Tenderness is present over the duodenal cap.

Initial Assessment: Leg lengths unequal, gastritis/duodenitis, cervical spondylosis, and somatic dysfunction of the cervical, thoracic, lumbar spine, pelvis and rib cage.

Treatment Plan: It was decided that osteopathic manipulative treatment (OMT) would be administered for an initial three visits. She would be reevaluated at one week and three weeks post initial visit.

Course of Treatment: At the initial visit, OMT was done after a complete exam of the patient. The left anterior innominate was corrected with muscle energy. However, this was actually a compensation due to the probable left short leg, which will be further assessed by a three view postural x-ray series. The non-neutral L5 was treated with a seated HVLA technique. The ribs and upper thoracics were mobilized using a prone HVLA technique. The lower thoracic spine was mobilized by a supine HVLA procedure. The cervical spine was successfully mobilized with HVLA and the first rib dysfunction was treated with muscle energy.

The non-neutral found at T6 was treated with supine HVLA. Because it is the reference zone for the GI system, the patient was questioned for and denies heartburn. However, patient does admit to suboccipital headaches with retro-orbital radiation.

Upon further questioning, the patient also stated she does not eat breakfast. Patient was instructed to eat a high-protein breakfast, consisting of

an egg or meat source. She was also told to take peanut-butter to school to help neutralize the stomach acid. Patient was given a prescription for Axid 150 mg, #60, tabs 1 bid with meals, x2 refills.

Following treatment, patient could arise comfortably from the seated position without the characteristic pain. The patient was warned that she might experience soreness, especially in the cervical spine. Patient was directed to the Medical Surgical Hospital for postural study.

At the second visit approximately one week later, patient states her neck and back pain are approximately the same intensity as last week. Patient was informed it is still too early to see marked improvement of GI symptoms. The postural x-rays were reviewed and the patient had a declination of 4 mm of right femoral head and 6 mm declination of the sacral base. Patient was given a V4 inch heel lift. Patient's cervicals, thoracics, and pelvis were also treated with HVLA.

The third visit was scheduled for approximately three weeks after the initial visit. However, the patient called and canceled this appointment. The patient was contacted at home for questioning on how she felt. She stated that her neck and back pain were intermittent, but still the same intensity. She was also still having occasional suboccipital headaches. However, she stated she was not having abdominal pain. The patient admitted that she had forgotten to use her prescribed heel lift and that she occasionally forgot to take her Axid. She also stated she was inconsistent with eating a high protein breakfast.

Review of Literature

A study by Pikalov and Kharin evaluated the effectiveness of spinal manipulative medicine in the treatment of duodenal ulcers. There were two groups compared: the control group had traditional medical treatment and the intervention group had manipulative therapy ranging from 5-22 days. The study showed there was a benefit of OMT for recurrent PUD, with the intervention group having pain relief after 1-9 days and clinical remission

an average of ten days earlier than traditional care.⁹

Several studies in the literature demonstrated the significance of thoracic lesions on the gastrointestinal tract. Tweed noted hyperchlorhydria, sometimes with erosions, in animals with upper thoracic lesions.² Magoun realized the impact of thoracic lesions writing, "Animals which have lesions of the fifth and sixth vertebrae showed ulceration areas; animals which have no lesion do not show ulcerated areas. The fifth thoracic lesion is certainly an important, if not chief, cause of gastric ulcer."⁸

Burns also demonstrated the importance of these lesions in a study using rabbits. She showed that a lesion of more than six months duration within the thoracic vertebrae, particularly the fifth and sixth, caused gastric ulcers. She also found that fifth, sixth, and seventh thoracic nerve lesions results in hyperchlorhydria.⁴ Another facet of her study was determining the effects GI lesions had on the musculature. She did this by making artificial lesions in animals and noting any changes that followed. She found that within twenty-four hours edema and muscular tension were palpated. She also noted an increase in skin temperature and moisture. Lesions over two years resulted in an increase in fibrosis due to muscle contracture. These muscles were found to be hard, tense, and hypersensitive to palpation.⁴

Throughout the literature, excessive vagal stimulation was an important aspect in peptic ulcer formation. A study by Decker found that children with vagus irritation, especially the upper cervicals, presented with pyloric spasms.⁶ Pritchard also stressed the importance of lesions in the upper cervical area and their effects on the vagus as causative factors in peptic ulcers.¹¹ Bondies stated, "Cervical and clavicular lesions, acting through the vagus caused hypermotility and hypersecretion".²

Bruer established that the diaphragm and its effect on the lymphatic system played a major role in formation and maintenance of ulcers. He stated, "...imperfect lymphatic drainage, either lymphatic or venous,

cannot help but produce pathological states... the action of the diaphragm is the greatest single factor influencing lymphatic and venous drainage."³ Also, experimental interference with the gastric circulation was shown to increase the size and depth of gastric ulcers.²

A case study by Ussher, found that a group of patients that presented with abdominal pain also had postural defects, the majority being short leg syndrome. Relief of back and GI pain was obtained by correcting this misalignment with a heel lift.¹⁵ Magoun's research supported this and he stated, "The first step is to eliminate the uneven foundation, for only this way could we hope to successfully approach those lesions more closely related to the gastroduodenal area".⁸

Discussion

There are two main sources of innervation to the upper gastrointestinal tract. The sympathetic innervation to the stomach arises from T5-T9 via the celiac ganglion and the splanchnic nerves. Stimulation of the sympathetics inhibits the activity of the parasympathetic, which results in decreased acid secretion. It also slows peristalsis and motility. The parasympathetic innervation is derived from the vagus nerve. Cholinergic stimulation increases acid secretion and peristaltic activity.¹⁶

Alexander states, "...the motor cells are in a delicate dynamic balance. This balance can be lost by excessive stimulation from any one or more numerous sources which bombard the cord."¹ When this balance is chronically lost, as in PUB, alterations of the viscera can result in dysfunction of segmentally related somatic structures.¹⁶ This concept is known as the viscerosomatic reflex. Midthoracic pain, a common complaint in patients with PUB, is an example of this reflex. The midthoracic area is the site of the sympathetic outflow. The sympathetic ganglia are located alongside the vertebrae, anterior to the rib heads. Chronic gastric disease results in irritation of the sympathetic nerves, which is then transmitted to the midthoracic area via the splanchnic

nerves causing muscle spasm and pain.¹⁴

The somato-visceral response is another osteopathic concept. This is defined as somatic input producing a reflex response in segmentally related visceral structures.¹⁶ Thoracic somatic dysfunction predisposing patients to peptic ulcer disease exemplifies this reflex. Somatic dysfunction of the midthoracic area inhibits the neurological output of the sympathetic ganglia. This could conceivably cause an imbalance between the sympathetic and parasympathetic nervous system, resulting in a predominance of parasympathetic input. As discussed earlier, the parasympathetic stimulation causes increased acid secretion and therefore could predispose patients to peptic ulcers formation. This is further backed up by Conley who states, "...peptic ulcer is the result of continued action of the gastric juice on an area of lowered resistance in the stomach wall".⁵

Although vertebral lesions are considered the key area of dysfunction, there are other problems that coexist in PUD patients. One such problem is excessive vagal stimulation. Peptic ulcer patients should be evaluated for upper cervical somatic dysfunction due to the location of the superior and inferior vagal ganglia at the occipitalatlantal and atlantal-axial joint.¹² Chronic gastric irritation causes an increased parasympathetic activity, which is then referred to these areas resulting in cervical somatic dysfunction. Also, the vagus has connections with the first two somatic nerves.¹² These provide pathways for fibers carrying pain sensation to the posterior head. This provides a possible explanation for the occipital headaches suffered in some patients.

Another coexisting problem in patients with PUD is inhalation or exhalation thoracic rib cage somatic dysfunction. This should be assessed because a rib excursion problem could result in diaphragm motion restriction since the diaphragm attaches to ribs 6-12. The diaphragm is responsible for the pressure gradient that helps to return lymph and venous blood back to the thorax.¹¹ Finally, to complete

the whole body osteopathic treatment, patients should be evaluated for an unequal posture (for example, short leg syndrome) and if present, treated with a heel lift.

Summary/ Conclusion

Osteopathic physicians can treat a host of factors that increase the patient's susceptibility of developing a peptic ulcer. However, it is important to understand that treatment of the dyspeptic symptoms alone does not result in complete cure of peptic ulcer disease. A proper diet, antacids, acid anti-secretory agents, and antibiotics (if *H. pylori* is present) are important and should be used if the physician suspects a peptic ulcer. Nevertheless, patients should be assessed to make sure all aspects of their bodies are working at optimal levels. This allows the body to have the capacity to heal itself and possibly prevent circumstances that could lead to subsequent ulcer formation.

The patient's presenting problem was slightly improved upon using osteopathic manipulation. The lack of substantial improvement was likely due to poor patient cooperation and failure to complete the required treatment protocol. However, even in the absence of full compliance, there was a decrease in the patient's abdominal pain. I think this and the preceding literature justifies the effectiveness of

manipulative treatment and shows that by treating the whole body many issues can be resolved that might lead to future medical problems and expenses. Osteopathic treatment, as an adjunctive therapy to medication, has been proven to reduce the pain and shorten the healing time in patients with peptic ulcers. OMT is therefore a therapeutic option, and it definitely serves a beneficial purpose in the treatment of this common problem.

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Accepted for publication:
September 2006

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VIOLA M. FRYMANN DO, FAAO, FCA AWARDED NEW HONORS

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Book Review

Anthony G. Chila, Reviewer

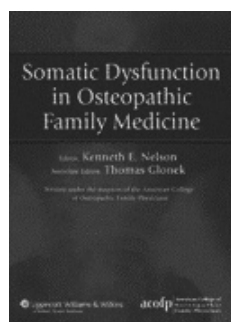


***Neural Therapy: Applied Neurophysiology and Other Topics.* Robert F. Kidd, MD, CM
pp. 203, incl. Index. Copyright © 2005. ISBN 0-9737800-0-2. \$79.95 US
Telephone: 1-800-575-1968. Fax: 613-432-7184. www.neuraltherapybook.com**

The field of neural therapy began with the realization that therapeutic effects of procaine might be expected to significantly outlast usual expectations for local anesthesia. The clinical experience of practicing neural therapy enhances respect for the autonomic nervous system's importance in regulating the body's processes. The success of this approach rests on finding and treating *interference fields*, the foci of electrophysiological instability. This text offers an introduction to neural therapy for the average general physician having no previous knowledge of the subject.

The author has practiced neural therapy since 1987, and taught in the US and Canada since 1995. His work offers the first English-language textbook on neural therapy in more than 20 years. He has given his American audience of osteopathic physicians *Osteopathic treatment by injection: a comparison of osteopathic manipulative treatment and neural therapy*. Am Acad Osteopathy J 2001; 11(3): 29-33. The three sections of the text explore: neurophysiological principles; practical application of general principles to interference fields; systemic factors inhibiting neural therapy.

The casual reader will benefit from reading the scholarly presentation of the historical development of this approach in order to consider its relevance to osteopathic theory, methods and practice. The motivated reader will benefit from exploring the potential for integration of this method into his/her practice of osteopathic medicine.



***Somatic Dysfunction in Osteopathic Family Medicine.*
Editor, Kenneth E. Nelson; Associate Editor, Thomas Glonek
pp. 532, incl. Index. Copyright © 2007 Lippincott Williams & Wilkins
Illustrations Copyright © 2007 American College of Osteopathic Family Physicians
ISBN-10: 1-4051-0475-9 and ISBN-13: 978-1-4051-0475-3 \$42.95 US
Telephone: 1-800-638-3030. www.lww.com**

A text is now available which “presents a contemporary understanding of the fundamentals of osteopathic philosophy and the applied diagnosis and treatment of somatic dysfunction throughout the practice of family medicine”. The text was initiated at the request of Andre V. Gibaldi, DO, FACOFP, former Chair, Department of Family Medicine, Chicago College of Osteopathic Medicine. From a proposed series of postdoctoral education lectures, the gradual development of a textbook of clinical practice took place.

The text is divided into areas of: Philosophy and principles of patient care; Categories of patients encountered; Categories of clinical conditions encountered; Practice issues. It is emphasized that the text is neither a review of general medical practice nor a manual of osteopathic manipulative treatment (OMT) procedures. Rather, focus is given to patient empowerment in the establishment and maintenance of health. In seeking to accomplish this goal, the diagnosis and treatment of somatic dysfunction fosters the patient-oriented, holistic approach to health care. The effect(s) of somatic dysfunction on health status is given prominent attention, as well as the logic for clinical use of OMT in patient care. Selected examples of procedural choices is provided. Although frustrating to practitioners of disease-focused medicine, this patient-focused paradigm lends itself quite naturally to the broad category of functional illnesses so frequently encountered in family practice.

The text is enhanced by the contributions of multiple authors, and the extensive list of reviewers helps to insure that the text adheres to its purposes. The result is a valuable resource for the family practitioner.



Elsewhere in Print

Philosophy, Science, Art

The Cutting Edge: Where Practice, Science & Consciousness Merge

Four internationally respected pioneers participated on a panel at the 2006 ISSSEEM Conference. The participants were: Harry Oldfield, D.Hom.(Med.); Beverly Rubik, PhD; John Veltheim, DC, BAc; Norm Shealy, MD, PhD. Some of their personal and deeply held beliefs were articulated:

Oldfield: “The intent is to do well, to bring someone back from disease into ease, which means balance.”

Shealy: “...science is the focus of consciousness. A true science can’t exist without consciousness.”

Veitheim: “I have seen top students who still can’t make a living because they had not learned how to effectively get the patient’s consciousness working with them.”

Rubik: “I think it is important that practitioners be fully present and not be under stress. I think that they must be in a place of high-level wellness.”

BRIDGES: Summer 2006 17 No 2

Schachter, B. The Explosive Silence of RNAi

A Brief History of the Basic and Applied Science of Antisense Oligonucleotides. “The notion that antisense RNA or DNA could silence genes post-transcriptionally (i.e., block mRNA translation into protein) came from 1978 reports by **Paul Zamecnik** and **Mary Stephenson** (Harvard). Their work showed that small antisense DNA, when added to a cell extract, bound specifically to its complement on mRNA in the extract and selectively inhibited translation of that mRNA. Extending that finding, researchers showed that antisense oligodeoxynucleotides (ASOs) could sometimes block mRNA function in living cells and even in intact organisms. During the 1980s, ASOs captured the imagination of many scientists: Some aimed to use the synthetic ASOs as tools for knocking down expression of their genes of choice, to study their functions. Other investigators tried to design and develop ASO drugs. Indeed, the recent RNAi “applications revolution” had its conceptual origins in ASO research. A major hurdle has been that ASOs rarely worked well. As RNAi researchers like to mention, RNAi strategies are robust and specific precisely because applied RNAi exploits an endogenous cellular mechanism, something ASOs do not do.

Update. The New York Academy of Sciences Magazine, January-February 2007: 6-9

Stix, G. Spice Healer

“Known as *Haldi* in Hindi, *jiang huang* in Chinese, *manjal* in Tamil, turmeric has a medicinal history that dates back 5,000 years. At that time it was a key medicament for wound healing, blood cleansing and stomach ailments in India’s Ayurvedic system of medicine. The first record in PubMed of research on the biological activity of curcumin dates back to 1970, when a group of Indian researchers reported the effects of the compound on cholesterol levels in rats. The pace of studies picked up in the 1990s; one of the leaders was Bharat Aggarwal, a former scientist at Genentech who, before turning to curcumin, had taken another approach to seeking cancer treatments. That work led him circuitously to the compound. In the 1980s, Aggarwal and his team at Genentech were the first to purify two important immune molecules – tumor necrosis factor (TNF) alpha and beta – that have been identified as potential anticancer compounds. These molecules can, in fact, kill cancer cells when deployed in localized areas, but when circulated widely in the bloodstream, they take on different properties, acting as potent tumor promoters. The TNFs activate an important protein, nuclear factor kappa B (NF kappa B), which can then turn on a host of genes involved in inflammation and cell proliferation.”

“Aggarwal has gone on to publish studies showing that blocking the NF kappa B pathway with curcumin inhibits the replication and spread of various types of cancer cells. This work has served as a jump-off point for early, small clinical trials at M.D. Anderson using curcumin as an adjunct therapy to treat pancreatic cancer and multiple myeloma. Trials are beginning or under way elsewhere for prevention of colon cancer and Alzheimer’s disease, among others.”



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