

THE AAO

FORUM FOR OSTEOPATHIC THOUGHT

# JOURNAL



A Publication of the American Academy of Osteopathy

TRADITION SHAPES THE FUTURE

• VOLUME 12 NUMBER 2 SUMMER 2002

## Teaching of Spirituality in an Osteopathic Medical Curriculum

see page 15 . . .

# 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.

**Professional News** of promotions, awards, appointments and other similar professional activities.

## 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 (OUKOM), 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.

## Requirements for manuscript submission:

### Manuscript

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.

### Computer Disks

We encourage and welcome computer disks containing the material submitted in hard copy form. Though we prefer Macintosh 3-

1/2" disks, MS-DOS formats using either 3-1/2" or 5-1/4" discs are equally acceptable.

### Abstract

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

### Illustrations

1. Be sure that illustrations submitted are clearly labeled.

2. Photos should be submitted as 5" x 7" glossy black and white prints with high contrast. On the back of each, clearly indicate the top of the photo. Use a photocopy to indicate the placement of arrows and other markers on the photos. If color is necessary, submit clearly labeled 35 mm slides with the tops marked on the frames. All illustrations will be returned to the authors of published manuscripts.

3. Include a caption for each figure.

### Permissions

Obtain written permission from the publisher and author to use previously published illustrations and submit these letters with the manuscript. You also must obtain written permission from patients to use their photos if there is a possibility that they might be identified. In the case of children, permission must be obtained from a parent or guardian.

### 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.

### Editorial Processing

All accepted articles are subject to copy editing. Authors are responsible for all statements, including changes made by the manuscript editor. No material may be reprinted from *The AAO Journal* without the written permission of the editor and the author(s).



3500 DePauw Boulevard  
Suite 1080  
Indianapolis, IN 46268  
(317) 879-1881  
FAX (317) 879-0563

**2002-2003  
BOARD OF TRUSTEES**

- President  
Hollis H. King, DO, PhD, FAAO
- President Elect  
Dennis J. Dowling, DO, FAAO
- Immediate Past President  
John C. Glover, DO
- Secretary-Treasurer  
Boyd R. Buser, DO
- Trustee  
Stephen D. Blood, DO, FAAO
- Trustee  
Guy A. DeFeo, DO
- Trustee  
Hugh M. Ettlinger, DO, FAAO
- Trustee  
Kenneth H. Johnson, DO
- Trustee  
Sandra L. Sleszynski, DO
- Trustee  
Melicien A. Tettambel, DO, FAAO
- Executive Director  
Stephen J. Noone, CAE

**Editorial Staff**

- Editor-in-Chief ..... Anthony G. Chila, DO, FAAO
- Supervising Editor     Stephen J. Noone, CAE
- Editorial Board ..... Barbara J. Briner, DO  
   Raymond J. Hruby, DO, FAAO  
   James M. Norton, PhD  
   Frank H. Willard, PhD
- Managing Editor ..... Diana L. Finley

*The AAO Journal* is the official quarterly publication of the American Academy of Osteopathy, 3500 DePauw Blvd., Suite 1080, Indianapolis, Indiana, 46268. Phone: 317-879-1881; FAX: (317) 879-0563; e-mail [snoone@academyofosteopathy.org](mailto:snoone@academyofosteopathy.org); AAO Website: <http://www.academyofosteopathy.org>

Third-class postage paid at Carmel, IN. Postmaster: Send address changes to American Academy of Osteopathy 3500 DePauw Blvd., Suite 1080, Indianapolis, IN., 46268

*The AAO Journal* is not itself responsible for statements made by any contributor. Although all advertising is expected to conform to ethical medical standards, acceptance does not imply endorsement by this journal.

Opinions expressed in *The AAO Journal* are those of authors or speakers and do not necessarily reflect viewpoints of the editors or official policy of the American Academy of Osteopathy or the institutions with which the authors are affiliated, unless specified.

THE AAO FORUM FOR OSTEOPATHIC THOUGHT  
**JOURNAL**  
A Publication of the American Academy of Osteopathy

TRADITION SHAPES THE FUTURE • VOLUME 12 NUMBER 2 SUMMER 2002

**The mission of the American Academy of Osteopathy is to teach, advocate, advance, explore, and research the science and art of osteopathic medicine, emphasizing osteopathic principles, philosophy, palpatory diagnosis and osteopathic manipulative treatment in total health care.**

**Editorial Section**

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

Contributors ..... 6

Dig On ..... 8

AAO Calendar of Courses ..... 8

Registration Information for:

- 12th Annual OMT Update at Walt Disney World® in Buena Vista, FL ..... 4
- Myofascial Release: A New Osteopathic Model ..... 9
- Osteopathic Management of Patients with Respiratory / ENT Problems in Las Vegas, NV ..... 10

From the Archives ..... 11

Componet Societies' CME Calendar ..... 14

**Peer-Reviewed Section**

A Discussion of Spirituality and the Teaching of Spirituality in an Osteopathic Medical Curriculum ..... 15  
*William W. Lemley, DO, FAAO*

Facilitated Oscillatory Release ..... 24  
*Zachary J. Comeaux, DO, FAAO*

**Advertising Rates for the AAO Journal**  
*An Official Publication*  
*of The American Academy of Osteopathy*  
The AOA and AOA affiliate organizations and members of the Academy are entitled to a 20% discount on advertising in this Journal.

Call: The American Academy of Osteopathy  
(317) 879-1881 for more information.

Subscriptions: \$60.00 per year (USA)  
\$78.00 per year (foreign)

Advertising Rates:	Size of AD:
Full page \$600 placed (1) time	7 1/2 x 9 1/2
\$575 placed (2) times	
\$550 placed (4) times	
1/2 page \$400 placed (1) time	7 1/2 x 4 3/4
\$375 placed (2) times	
\$350 placed (4) times	
1/3 page \$300 placed (1) time	2 1/4 x 4 3/4
\$275 placed (1) times	
\$250 placed (4) times	
1/4 page \$200 placed (1) time	3 1/3 x 4 3/4
\$180 placed (2) times	
\$150 placed (4) times	
Professional Card: \$60	3 1/2 x 2
Classified: \$1.00 per word	

# TWELFTH ANNUAL OMT UPDATE

## “APPLICATION OF OSTEOPATHIC CONCEPTS IN CLINICAL MEDICINE

### PLUS PREPARATION FOR CERTIFYING BOARDS

#### THE CONTEMPORARY HOTEL

#### WALT DISNEY WORLD®

ANN L. HABENICHT, DO, FAAO  
PROGRAM CHAIRPERSON



CME Hours: 23 Category 1A

#### COURSE OBJECTIVES:

*This Academy program was designed to meet the needs of the physician desiring the following:*

- OMT Review - hands-on experience and troubleshooting
- Integration of OMT in treatment of various cases
- Preparation for OMT practical portions of certifying boards
- Preparation for AOBNMM (American Osteopathic Board of Neuromusculoskeletal Medicine) certifying boards
- Information on CODING for manipulative procedures
- Good review with relaxation and family time

#### PROGRAM TIME TABLE:

Thursday, August 22 ..... 5:00 pm - 10:00 pm  
Friday, August 23 ..... 7:00 am - 1:30 pm  
Saturday, August 24 ..... 7:00 am - 1:30 pm  
Sunday, August 25 ..... 7:00 am - 1:30 pm

#### HOTEL INFORMATION:

##### Disney's Contemporary Resort

Lake Buena Vista, FL

1-407-824-3869 (Reservation line)

Reservation Deadline: July 22, 2002

**Room Rate: \$149.00 single/double**

**\$25.00 per person each additional**

(Identify yourself as attending

American Academy of Osteopathy's Conference)

#### REGISTRATION FORM

#### 12th Annual OMT Update

August 22-25, 2002

Full Name \_\_\_\_\_  
Nickname for Badge \_\_\_\_\_  
Street Address \_\_\_\_\_  
\_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
Office phone # \_\_\_\_\_ Fax #: \_\_\_\_\_  
AOA # \_\_\_\_\_  
College/Yr Graduated \_\_\_\_\_

I need AAFP credit

I require a vegetarian meal

(AAO makes every attempt to provide meals that will meet participant's needs. However, we cannot guarantee to satisfy all requests.)

#### REGISTRATION RATE

	Prior to 7/22/02	After 7/22/02
AAO Member	\$630	\$730
Intern/Resident	\$530	\$630
AAO Non-Member	\$1,000	\$1,100

AAO accepts Visa or Mastercard

Credit Card # \_\_\_\_\_

Cardholder's Name \_\_\_\_\_

Date of Expiration \_\_\_\_\_

Signature \_\_\_\_\_



For registration information, contact:  
**American Academy of Osteopathy**  
3500 DePauw Blvd., Suite 1080  
Indianapolis, IN 46268  
Phone: (317) 879-1881  
Fax: (317) 879-0563



# FORUM

The noun **forum** has been defined as “the center of judicial and business affairs and a place of assembly for the people; the forum of public opinion; an assembly or meeting place for the discussion of questions of public interest” (*The Random House Dictionary of the English Language*).

The philosophy, principles, and practice of Osteopathy put forth by Andrew Taylor Still met all of the criteria of the above definition throughout Still’s professional life and in the years since his death (1917). The attainment of full licensure for the practice of osteopathic medicine through the forum of public opinion successfully capped a unique experience in medical education: The United States is the only country in the world, at this time, where the pursuit of a medical degree expresses itself in two outcomes: MD or DO. The full licensure value of each degree is accepted by the public.

The American Academy of Osteopathy has, since 1937, served as a forum “Dedicated to the principles and practices founded by Andrew Taylor Still”.

Its mission statement emphasizes teaching, advocacy, advancement, exploration and contribution to research in the science and art of osteopathic medicine. Osteopathic principles, philosophy, palpatory diagnosis, and osteopathic manipulative treatment are presented in total health care.

The lengthening shadow of osteopathic thought began before the death of Andrew Taylor Still. In the United States, numerous examples exist of MD physicians acquiring DO degrees and DO physicians acquiring MD degrees.

Early faculty members of osteopathic colleges often held both degrees. William Smith, the first lecturer in anatomy at the American School of Osteopathy, returned to Scotland, practicing there from 1901 until his death. In London, the establishment of osteopathy in Great Britain began in 1903. There is much history yet to be reviewed regarding the development and progression of osteopathic practice abroad throughout the years of the 20th Century. It is planned to do so in forthcoming issues of this journal.

The International Federation of Manual Medicine (FIMM) is an international medical organization repre-

senting 26 national associations. The 13th International Congress of this organization was hosted at Chicago, IL in July 2001 by FIMM and the Kirksville College of Osteopathic Medicine (KCOM).

The American Academy of Osteopathy (AAO) and the American Association of Orthopaedic Medicine (AAOM) cooperated in the presentation of that program.

Thirty-six international MDs and DOs registered to attend the 2002 Convocation Program of the AAO at Norfolk, VA. The 6th Annual International Forum was held on March 23, 2002. Attendees addressed two major issues: (1) An international glossary of osteopathic terminology and (2) An international forum to be scheduled periodically and hosted on a rotating basis by participating countries or osteopathic registries. Countries represented included Australia, Belgium, France, Germany, Japan, Norway, and Portugal.

It is clear that linkages have been and are being forged for expanded teaching of osteopathic philosophy, principles and practice. The paragraphs above indicate that the world continues to become smaller as the impact of osteopathic thought continues to grow larger. It is certainly appropriate, then, to define the major purpose of *The AAO JOURNAL* as a **Forum for Osteopathic Thought**. This is consistent with, and expands the meaning of the byline **Tradition Shapes the Future**.

*ANTHONY G. CHILDS, D.O., F.A.A.O.*

<p><b>JILL SANDERS, DO</b>  <b>Announces the opening of her NEW office</b>  for the  <b>PRACTICE OF APPLIED OSTEOPATHY</b>  North Village Green  20 Technology Drive, Brattleboro, VT 05301  Telephone: (802) 257-8989</p>
--

# Contributors

## Regular Features:

*Dig On* offers a birthday tribute to a giant figure in osteopathic teaching in Great Britain. John Wernham celebrated 95 years on May 2, 2002. Your Editor had the privilege of meeting and interviewing Mr. Wernham in February 2001.

*From the Archives* reviews osteopathic organizations. The structure of the American Osteopathic Association is viewed during the years 1904-1924. The growth of subsidiary organizations during this period of time offers interesting insights about the profession's activities. The British Osteopathic Association was born on July 1, 1911. An amendment providing for the affiliation of State and local osteopathic societies was passed in 1913. The Woman's Bureau of Public Health was organized at Philadelphia, PA in 1914 and reorganized at Chicago, IL in 1920, changing the name to Osteopathic Women's National Association. The National League for the Prevention of Spinal Curvature was established in 1916. In that same year, The American Osteopathic Association of Ophthalmology and Oto-Laryngology was established at the Kansas City, MO meeting of the AOA. The adoption of a new Constitution and By-Laws in 1919 provided for a House of Delegates.

The Western Canada Osteopathic Association was organized in 1923. Also in that year, The American Association of Osteopathic Internists was organized at the New York City convention of the AOA.

## Peer-Reviewed Section:

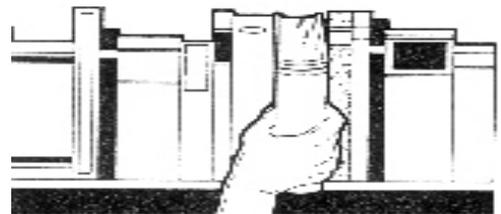
Zachary J. Comeaux, DO, FAAO discusses *Facilitated Oscillatory Release*.

Submitted in partial fulfillment of requirements for Fellowship in the American Academy of Osteopathy, this Scientific Paper/Thesis explores vibrational medicine in the osteopathic context. This is a very complex and difficult area of medicine. The author reviews applicable contemporary progress of research in medicine and physics to explain his development of thought. This paper is primarily a tribute to the influence of the late Dr. Robert C. Fulford on the theory and practice of osteopathic medicine. Dr. Comeaux was conferred status as Fellow in 2002.

William W. Lemley, DO, FAAO offers *A Discussion Of Spirituality And The Teaching Of Spirituality In An Osteopathic Medical Curriculum*. Submitted in partial fulfillment of requirements for Fellowship in the American Academy of Osteopathy, this Scientific Paper/Thesis explores Andrew Taylor Still's view that "God manifests Himself in matter, motion and mind. Study well His manifestations."<sup>1</sup> The relationship of spirituality to contemporary osteopathic medicine and suggestions for integration of spiritual concepts into curricula of osteopathic colleges are offered. Dr. Lemley was conferred status as Fellow in 2001.

1. Still, A. *Autobiography of Andrew Taylor Still*. rev. ed. Kirksville, MO. Published by the author. 1908; 88.

## Update YOUR Osteopathic Library at the AAO's Book Store



For a current catalog, contact:  
Kelli Bowersox, Receptionist  
American Academy of Osteopathy  
Telephone: 317/879-1881 or E-mail: [kbowersox@academyofosteopathy.org](mailto:kbowersox@academyofosteopathy.org)  
or Visit the AAO's Website: [www.academyofosteopathy.org](http://www.academyofosteopathy.org)

# Site for AAO Convocation

## Education and Research: The Backbone of Osteopathy

Eileen DiGiovanna, DO, FAAO  
Program Chairperson



## March 20-23, 2003

Dr. DiGiovanna has invited three nationally renowned speakers as guests of the 2003 Convocation: Norman Gevitz, PhD, Barbara Ross-Lee, DO and Thomas Motyka, DO. She has brought back a number of highly rated AAO member presenters from prior years and will feature several members speaking for the first time at an AAO Convocation. Please watch future publications for more information.

Ottawa is the national capital of Canada. After Colonel John By built the Rideau Canal system to Kingston in 1826, Canada's capital thrived. The stately Parliament Buildings remain a Canadian institution rich in history and tradition.

The AAO Convocation will take place at The Westin Ho-

tel, directly across from the Rideau Canal and connected to a 180 store shopping mall to include food and entertainment. Within two blocks of the Westin, the ByWard Market is known for its trendy bistros, boutiques and nightclubs.

With 12 national institutions alone, the capital is a mecca for museum buffs.

For those who delight in winter sports, within minutes of downtown Ottawa there are venues for skiing, ice skating, dogsledding, and horse-drawn sleighrides.

Contact the AAO office for more information: Telephone 317/879-1881.

## Sutherland Cranial Teaching Foundation

### COURSES:

#### *Continuing Studies: Pathways to Diagnosis*

Melicien Tettambel, DO, FAAO and Edgar Miller, DO, FAAO, *Course Directors*

**October 11-13, 2002**

University of New England College of Osteopathic Medicine in Biddeford, Maine

Contact Judy Staser – phone and fax: 817/926-7705

Intermediate Face Course, Doug Vick, DO, *Course Director*

**May 2-4, 2003**

16 hours 1-A CME anticipated

Philadelphia College of Osteopathic Medicine in Philadelphia, PA

Contact Judy Staser – phone and fax: 817/926-7705

Visit our website at: [www.sctf.com](http://www.sctf.com)

# Dig On

Anthony G. Chila, DO, FAAO



## 95 YEARS

John Wernham celebrated his 95th birthday on May 2, 2002. Perhaps a name not readily known to the contemporary generation of osteopathic students and practitioners in the United States, this imposing gentleman has a very significant historical tie to the early history of Osteopathy.

Through the intercession of my friend Paul Masters, DO, I was able to secure an interview with Mr. Wernham in February 2001. Our introduction has left an indelible impression on my memory: Mr. Wernham rose from his desk, extended his hand, looked at me and said "A pleasure to meet you, Dr. Chila. Mr. Masters has assured me that you are a competent American Osteopath. And how is Osteopathy in America these days; is it yet alive?"

The privilege to ask about the vitality of Osteopathy in America is certainly to be accorded to an individual who was a student of John Martin Littlejohn, in turn a patient and student of Andrew Taylor Still. After serving the American School of Osteopathy as Dean of the Faculty and Professor of Physiology, J.M. Littlejohn and his brothers went on to establish The American College of Osteopathic Medicine and Surgery at Chicago, IL. J.M. Littlejohn served as Chief Executive Officer of this institution, 1900-1913. Following his return to England in 1913, he established the British School of Osteopathy in 1917, continuing his teaching and osteopathic activities until his death on December 8, 1947.

John Wernham's acquaintance with the Littlejohn family began at about 8 years of age, playing with the Littlejohn children.

Over the years, Mr. Wernham has developed from Littlejohn student to Guardian of Littlejohn's contribution to the Philosophy of Osteopathy. His talent as printer and publisher has facilitated reprinting of long out-of-print valuable and historical works on Osteopathy. He founded the Maidstone Osteopathic Clinic. Numerous other contributions to the osteopathic profession can be cited. I extended my personal best wishes to Mr. Wernham on the occasion of his 95th birthday, recognizing his stature and numerous contributions to Osteopathy. I received this reply:

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

Yes, Mr. Wernham, Osteopathy is yet alive. In American and around the world, at this time, I think that the pursuit of Andrew Taylor Still's vision is vitally active on many levels. Thank you for the interview, and I hope that I may have the opportunity to wish you a Happy Birthday 5 years from now. □

## 2002 Calendar of Events

### August 2002

22-25

*Twelfth Annual OMT Update at WDW®*  
Ann L. Habenicht, DO, FAAO,  
Program Chairperson  
Walt Disney World®

### September 2002

20-22

*Myofascial Release:  
A New Osteopathic Model*  
Judith A. O'Connell, DO, FAAO  
Program Chairperson  
Indianapolis, IN

### October 2002

6

*Osteopathic Management of Patients  
with Respiratory/ENT Problems*  
Ann L. Habenicht, DO, FAAO, Chair  
Las Vegas, NV

7-11

AOA Convention/AAO Program  
*Economic Benefits of OMT  
in Osteopathic Medicine*  
George J. Pasquarello, DO, FAAO  
Program Chairperson  
Las Vegas, NV

### November 2002

8-10

*Prolotherapy/Below the Diaphragm*  
Mark Cantieri, DO, FAAO,  
Program Chairperson  
UNECOM

### December 2002

6-8

*Basic Concepts in Muscle Energy*  
Walter Ehrenfeuchter, DO, FAAO,  
Program Chairperson  
Mesa, AZ

# MYOFASCIAL RELEASE: A NEW OSTEOPATHIC MODEL SEPTEMBER 20-22, 2002

JUDITH A. O'CONNELL, DO, FAAO  
PROGRAM CHAIRPERSON

**CME HOURS: 20 Category 1A**  
**Course Location: Indianapolis, IN**

**REGISTRATION FORM**  
**Myofascial Release Workshop**  
**September 20-22, 2002**

### **Course Description:**

The approach utilizes combined procedures to release tightness and patterned restriction in soft tissues and joints. Both direct and indirect methods are used. Myofascial techniques may be used in a variety of joint and soft tissue dysfunctions. They are especially useful in chronic problems, and in patients who do not tolerate forceful maneuvers.

### **Learning Objectives:**

- To be able to diagnosis dysfunction in the fascial system
- To be able to apply the principles of the bio-electric model
- To be able to identify and follow patterns of dysfunction

### **Program Time Table:**

Friday, September 20 ..... 8:00 am – 5:00 pm  
Saturday, September 21 ..... 8:00 am – 5:00 pm  
Sunday, September 22 ..... 8:00 am –12:00 noon

### **Hotel Information:**

Radisson Hotel City Centre  
31 W. Ohio Street,  
Indianapolis, IN 46204

**AAO Room Rate: \$119.00 Call: 317/635-2000**

### **Reservation Deadline: August 19, 2002**

*(Reservations received after August 19, 2002 will be provided on a space available basis at prevailing rates.)*

### **Transportation from the airport:**

*Call in advance:*

**Carey Indiana Airport Limousine Service**

Phone: (317) 241-7100 or out-of-state: (800) 888-INDY



For registration information, contact:  
**American Academy of Osteopathy**  
3500 DePauw Blvd., Suite 1080  
Indianapolis, IN 46268  
Phone: (317) 879-1881  
Fax: (317) 879-0563

Full Name \_\_\_\_\_

Nickname for Badge \_\_\_\_\_

Street Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Office phone # \_\_\_\_\_ Fax #: \_\_\_\_\_

E-mail: \_\_\_\_\_

AOA # \_\_\_\_\_ College/Yr Graduated \_\_\_\_\_

I need AAFP credit

I require a vegetarian meal

**(AAO makes every attempt to provide meals that will meet participant's needs. However, we cannot guarantee to satisfy all requests.)**

### **REGISTRATION RATE**

**Prior to 8/20/02 After 8/20/02**

AAO Member	\$550	\$650
Intern/Resident	\$450	\$550
AAO Non-Member	\$1,000	\$1,100

AAO accepts Visa or Mastercard

Credit Card # \_\_\_\_\_

Cardholder's Name \_\_\_\_\_

Date of Expiration \_\_\_\_\_

Signature \_\_\_\_\_

---

**Dr. O'Connell is the author of**  
***Bioelectric Fascial***  
***Activation and Release:***  
***The physician's guide***  
***to hunting with Dr. Still***  
**(Book included in registration fee)**

**ONE-DAY**  
**PRE-AOA CONVENTION WORKSHOP**

**OSTEOPATHIC MANAGEMENT**  
**OF PATIENTS WITH RESPIRATORY / ENT PROBLEMS**  
**OCTOBER 6 IN LAS VEGAS, NV**

**ANN L. HABENICHT, DO, FAAO**  
**PROGRAM CHAIRPERSON**

Course Description: This is a course designed for residents, interns, and externs. It is designed to provide an osteopathic review of the upper and lower respiratory tract including the anatomical and pathophysiological considerations of the disease processes along with the osteopathic treatment of the diseases. The osteopathic treatment will include pharmacologic and manipulative means.

**Learning Objectives:**

At the end of this session, participants should:

- Be knowledgeable of the anatomy and physiology of the respiratory tract.
- Understand the pathophysiology of various diseases of the respiratory tract.
- Be able to discuss the treatment goals for the various diseases of the respiratory tract.
- Be able to treat the various diseases using osteopathic manipulative medicine.

**PROGRAM TIME TABLE:**

Sunday, October 6 ..... 8:00 am - 5:00 pm

**HOTEL INFORMATION:**

Registration materials will be published by the American Osteopathic Association in the *Journal of the American Osteopathic Association (JAOA)* and *The DO* magazine early Summer 2001



For registration information, contact:  
**American Academy of Osteopathy**  
3500 DePauw Blvd., Suite 1080  
Indianapolis, IN 46268  
Phone: (317) 879-1881  
Fax: (317) 879-0563

**REGISTRATION FORM**

**One-Day Workshop on ENT**  
**October 6, 2002**

Full Name \_\_\_\_\_

Nickname for Badge \_\_\_\_\_

Street Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Office phone # \_\_\_\_\_ Fax #: \_\_\_\_\_

AOA # \_\_\_\_\_ College/Yr Graduated \_\_\_\_\_

E-Mail: \_\_\_\_\_

**REGISTRATION RATE**

**Prior to 9/25/02 After 9/25/02**

AAO Member                      \$250.00              350.00

(Lunch on your own)

AAO accepts Visa or Mastercard

Credit Card # \_\_\_\_\_

Cardholder's Name \_\_\_\_\_

Date of Expiration \_\_\_\_\_

Signature \_\_\_\_\_

**Planning to Attend**  
**AOA Convention?**  
**Chance to receive (8) additional**  
**Category 1-A CME Credits**

# From the Archives

*History of Osteopathy and Twentieth-Century Medical Practice*; E. R. Booth  
(Copyright 1924, pgs. 647-654)

## Chapter VIII - Continued

# Osteopathic Organizations

(See Pages 250-280.)

*“We should so live and labor in our time that what came to us as seed may go to the next generation as blossom, that what came to us as blossom may go to them as fruit.”*-HENRY WARD BEECHER.

## The American Osteopathic Association

(See Pages 251-271)

The history of the American Osteopathic Association in the former edition of the History of Osteopathy ended with the meeting at the World's Fair in St. Louis, in July 1904. The profession had passed through its period of organization and development to a place where its machinery was adequate to carry into effect its purposes. The Code of Ethics as adopted still stands (1924) practically unaltered, and a constitution adequate for all purposes at that time was in force. The growth in membership had been increasing gradually and osteopathic physicians generally had become more professional and recognized the necessity for and the benefits of the organization.

But the progress of Osteopathy was such as to make it necessary to change the Constitution and By-Laws from time to time, but no general revision was made till 1909. The principal changes had in view the establishing of a closer relation between the profession and the colleges, the State societies, and the Research Institute. To the old standing committees on publication, education, and legislation was added the Board of

Regents, to have charge of all matters arising, from the relations between the association and the A. T. Still Post-Graduate College of Osteopathy. Provision was made for a conference on education and another on legislation, at the annual meetings, for the purpose of giving the membership an opportunity to keep in closer touch with the work of those committees. The Educational Conference was made up of the Committee on Education and one delegate from each of the cooperating colleges; the Legislative Conference was made up of the Committee on Legislation and one delegate from each cooperating State society. The doors were thrown open freely to all osteopathic physicians and a free expression of opinions was encouraged; but the actions taken were advisory, not mandatory.

Like most organizations, there were differences of opinion in its ranks. There were often some who were dissatisfied with the way the interests of the profession were looked after. But at no time had anyone been deprived of any privileges of a member of a deliberative body. The conference made the organiza-

tion apparently more democratic and gave more time for the “airing of opinions,” which invariably resulted in a better understanding and more intelligent action.

The membership fee was raised to five dollars, and the procedure in the nomination and election of officers was changed.

In 1913 an amendment was passed providing for affiliation of State and local osteopathic societies with the American Osteopathic Association.

In 1919 a new Constitution and By-Laws was adopted, the most important addition being the provision for a House of Delegates, to which is entrusted the legislative functions of the organization, the election of most of the officers, and such other duties as would leave the convention free to devote more time to strictly professional questions. After five years' trial, with occasionally a minor change, the present Constitution is giving quite general satisfaction.

The American Osteopathic Association as now organized is managed by an executive committee of five, with supervision over the following departments and bureaus: Depart-

ment of Public Affairs with the Bureaus of Public Health and Public Education; Industrial and Institutional Service and Free Clinics; Department of Professional Affairs with Bureaus of Professional Education; Program; Hospitals; Censorship; Publication and Statistics, and a department of paid advertising

## Subsidiary Organizations

(See Pages 250-280.)

Another class of organizations interested for the most part in specialties gradually sprang up and the demand for them grew. At first they were not considered integral parts of the American Osteopathic Association. The profession in convention assembled was more than busy fighting the 'battles of Osteopathy as distinguished from the old school of practice, and in general gave little attention to anything else. But all osteopaths recognized the necessity for surgery, etc., and many demanded that Osteopathy should prepare its practitioners for the field of specialties hitherto occupied only by MDs. Thanks to the latter for their frequent unfair and discourteous treatment of osteopathic physicians over the shoulders of their patients no doubt hastened the determination to recognize the good work the outside organizations were doing and finally incorporate them as sections of the American Osteopathic Association.

They have been doing a wonderful work, and have not only made a reputation for themselves but have helped to establish their work and lay greater stress upon it in all the colleges. They have also taught the profession the advantages of sending their patients to osteopathic specialists where they could be under the influence of a proper environment and receive the necessary osteopathic treatment to secure the best result.

The National League for the Pre-

## Officials of the American Osteopathic Association

The record of Chapter VIII, pages 250-280, ends with the election for 1904-5. Below is a list of the principal officials from the beginning:

Year	President	First-Vice Pres.	Secretary	Place of Meeting
1. 1897-8	D.B. Macaulay	Jennette H. Bowles	Irene Harwood	Kirksville
2. 1898-9	S.C. Mathews	S.H. Morgan	Irene Harwood	Indianapolis
3. 1899-00	A.G. Hildreth*	F.W. Hannah	Irene Harwood	Chattanooga
4. 1900-01	C.M.T. Hulett	Alice Paterson	Irene Harwood	Kirksville
5. 1901-02	E.R. Booth	J.H. Sullivan	Irene Harwood	Milwaukee
6. 1902-03	C.C. Teal	C.V. Kerr	Irene Harwood	Cleveland
7. 1903-04	Chas. Hazzard	Ellen L.B. Ligon	Irene H. Ellis†	St. Louis
8. 1904-05	C.P. McConnell	J.M. McGee	H.L. Chiles	Denver
9. 1905-06	A.L. Evans	John F. Bass	H.L. Chiles	Put-in-Bay
10. 1906-07	S.A. Ellis	Edythe F. Ashmore	H.L. Chiles	Jamestown Exp
11. 1907-08	F.E. Moore	E.H. Shackelford	H.L. Chiles	Kirksville
12. 1908-09	T.L. Ray	F. I. Furry	H.L. Chiles	Minneapolis
13. 1909-10	E.C. Pickler	Ella D. Still	H.L. Chiles	San Francisco
14. 1910-11	A.G. Hildreth	Otis T. Akin	H.L. Chiles	Chicago
15. 1911-12	J.L. Holloway	Edythe F. Ashmore	H.L. Chiles	Detroit
16. 1912-13	C.B. Atzen	Della B. Caldwell	H.L. Chiles	Kirksville
17. 1913-14	P.H. Woodall	F.M. Vaughn	H.L. Chiles	Philadelphia
18. 1914-15	C.A. Upton	Roberta Wimer Ford	J.F. Craig‡	Portland
19. 1915-16	O.J. Snyder	Roberta Wimer Ford	H.L. Chiles	Kansas City
20. 1916-17	W.B. Meacham	C.W. Young	H.L. Chiles	Columbus
21. 1917-18	G.W. Riley	J.E. Collier	H.L. Chiles	Boston
22. 1918-19	H.H. Fryette	Alice P. Shibley	H.L. Chiles	Chicago
23. 1919-20	H.W. Conklin	J.W. Elliott	W.A. Gravett	Chicago
24. 1920-21	W.E. Waldo	Eliza Edwards	W.A. Gravett	Cleveland
25. 1921-22	S.L. Scothorn	O.S. Miller	W.A. Gravett	Los Angeles
26. 1922-23	G.W. Goode	O.S. Miller	C.J. Gaddis	New York
27. 1923-24	W.A. Gravett	C.D. Swope	C.J. Gaddis	Kirksville

\*Dr. Hildreth resumed his connection with the American school of Osteopathy and Dr. Hannah became president.

†Dr. Harwood had become the wife of Dr. S. A. Ellis.

‡Dr. Craig resigned at the end of six months and Dr. Chiles resumed his duties as secretary.

vention of Spinal Curvature was established in 1916. The purpose of the league is to promote research work and educational publicity and to advance a nationwide system of prophylaxis to prevent the present and future generations from developing spinal curvature; also to establish additional clinics to correct existing curvatures. F. P. Millard, DO, and George W. Reid, DO, were prime movers in the organization. The former was made managing director and the latter, secretary. It has done efficient work in nearly every large city in the United States. It set aside days for the examination of backs, which exami-

nations were conducted in a dignified way and received great publicity through newspapers. It publishes *The Journal of the National League for the Prevention of Spinal Curvature*.

The American Osteopathic Association of Ophthalmology and Oto-Laryngology was launched at the Kansas City meeting of the American Osteopathic Association in 1916, with Charles C. Reid, DO, president; T. J. Ruddy, DO, vice-president; C. L. Draper, DO, secretary, and a membership of nearly fifty. Those interested in that work had been holding regular meetings for ten or more years at the annual sessions of the American Osteopathic Association, and

had done much to develop a class of osteopathic specialists. It publishes *The Journal of Osteopathic Ophthalmology, Rhynology, and Oto-Laryngology*.

The Western Canada Osteopathic Association was organized in 1923 with M. E. Church, president; J. T. Atkinson, vice-president; R. C. Ghostley, secretary, and G. G. Murphy, treasurer.

The British Osteopathic Association is more nearly an ally with than a subordinate to the American Osteopathic Association. E. T. Pheils, DO, Birmingham, England, writes as follows on "Osteopathic Propaganda in England" for *The Journal of the American Osteopathic Association* for December, 1923:

"The British Osteopathic Association was born on July 1, 1911. Its first meeting was held at the Midland Hotel, Manchester, under the auspices of the late Dr. Franklyn Hudson, of Edinburgh. Dr. Hudson, conscious of strenuous medical opposition, felt that it was high time for the osteopaths in the British Isles to form themselves into a collective and distinct organization. At that time there were but a very few practitioners in a big way in Great Britain. . . .

"The success of Osteopathy in Great Britain is now assured. Osteopathy has become a recognized science and restriction of its practice from any source is practically impossible. . . .

"During the War we made repeated attempts to treat soldiers, but again medical jealousy, under the cloak of protecting the common interest, prevented successful treatment of thousands of unfortunate soldiers. It is only fair to state, however, that, in the later days of the War this opposition was broken down, although red tape was so much in evidence that but comparatively few soldiers could take advantage of the valuable offer of our profession. In spite of this, many of our practitioners became closely identified with certain institutions

and rendered public service, which was much appreciated.

"Probably the gravest censure that the osteopathic profession must register against the medical world is the fact that they are continually adopting osteopathic truths and purposely attaching their own labels. This is not honorable, and is today too frequently practised by orthopaedists particularly. Admittedly there are honorable exceptions, and I am proud to know several prominent medical practitioners who today are practicing unadulterated Osteopathy here in Britain. All of these have gone to the trouble of visiting the United States to study in the reputable colleges of Osteopathy. Let us hope that the medical world in general will follow their example."

## Osteopathic Women's Activities

It was Dr. A. T. Still's belief that women were just as desirable prospects for practitioners of the healing art as men. Many of them had learned something of the merits of Osteopathy before any way had been opened for learning the new science, and when the first school was opened three of them entered the first class and graduated in March 1893. (See page 81.) Dr. Jennette H. Bolles, who has always been one of the most willing and efficient workers in the profession, was one of the class. Since then the women have been well represented among osteopathic officials by choice of the electorate and have made their influences felt by force of their ability and willingness to serve.

Osteopathic women have been active in many public interests as well as professional. In 1923, The National Federation of Business and Professional Women's Clubs instituted a committee on health whose duty it should be "to make recommendations to improve and conserve the health of business and professional women." The field is broad and care has been

taken not to duplicate the work of other organizations dealing with public-health problems. Eliza Edwards, DO, of Cincinnati, is chairman of that important committee.

## Osteopathic Women's National Association

The Woman's Bureau of Public Health was organized in Philadelphia in 1914, reorganized in Chicago in 1920, and the name changed to The Osteopathic Women's National Association.

Its objects were declared to be: (1) The promotion of the welfare of women and children; (2) the cooperation with other women's organizations; (3) the stimulation of State and local organizations, and (4) the securing of combined action by our women. "Team work to the finish" is its slogan.

It became federated with the National Council of Women in 1922, and with the General Federation of Women's Clubs in 1923. Conventions were held in Cleveland in 1921; Los Angeles, 1922; New York, 1923; and Kirksville, 1924, at the times of the meetings of the American Osteopathic Association.

State units have been organized in twenty States, many of which are affiliated with other State federations; five large cities are also organized.

In Albuquerque New Mexico, the osteopathic women have maintained a Mexican clinic six years, and a constant campaign for better health, better living quarters, etc., wherever units exist, have been carried on.

The Osteopathic Women's National Association has aided legislature to secure effective child-labor law, to stop traffic in narcotics, to secure the prohibition of liquor, to stamp out all traffic in vice. It has also worked diligently to secure a single high standard of morality for both sexes and provide for frequent thorough examinations for the better preservation of health.

Free clinics have been established by the organization in fifty localities with one week for specializing the examination of the spine and ribs; stressing the prevention and correction of spinal curvature; education as to diet and nutrition; improvement of playgrounds; better baby conferences, and lectures to expectant mothers.

The American Association of Osteopathic Internists was organized at the American Osteopathic Association convention in New York City, July 1923. It is the outgrowth of the

postgraduate courses in diagnosis conducted by Dr. Robert H. Nichols in different parts of the United States for several years past. Its object is to bring to the osteopathic physician the most valuable achievements of the medical profession, and to bring about a better understanding between the two schools. Many differences of opinions exist because of prejudice and ignorance, which would disappear if each knew the other better.

The National Foot League is an-

nounced as the "History of Osteopathy" goes to press. Its purpose is to carry on a campaign of education on the proper care of the feet and the prevention of foot troubles, and to establish clinics and provide facilities for efficient correction. Also, to cooperate with shoe manufacturers so as to encourage the production of proper shoes. R. H. Bynum, DO, is president. It proposes to publish *The National Foot League Journal* monthly. □

## Component Societies' CME Calendar and other Osteopathic Affiliated Organizations

### July 29- August 2

*J. Scott Heatherington, DO Memorial  
Basic Cranial Course with Viola  
Frymann, DO, FAAO*  
OMM Dept. Eastmoreland Hospital  
Portland, OR  
Hours: 40 Category 1A  
Contact: Al Turner, DO  
(503) 230-2501  
OMMDOC@imagina.com

### August 1-4

*2002 Annual Meeting*  
Manor Vail Lodge  
Vail, CO  
Hours: 20 Category 1A  
Contact: CSOM  
(303) 322-1752  
(800) 527-4578

### August 16-18

*The Still Technique, featuring  
Richard Van Buskirk, DO, FAAO*  
Indiana Academy of Osteopathy  
Mishawaka, IN  
Hours: 20 Category 1A  
Contact: IAO  
317/926-3009

### August 17-18

*Ligamentous Articular  
Strain Technique*  
Dallas Osteopathic Study Group  
Dallas, TX  
Hours: 16 Category 1A  
Contact: Conrad Speece, DO  
(214) 321-2673

### September 9-12

*Biodynamics Phase VI*  
James Jealous, DO  
Sugar Hill, NH  
Hours: 24 Category 1A  
Contact: James Jealous, DO  
(602) 823-7733

### September 28

*Back to the Future with Osteopathy*  
Arizona Academy of Osteopathy  
Sedona, AZ  
Hours: 13 Category 1A  
Contact: William Devine, DO  
623/572-3350

### November 1-4

*Biodynamics Phase I*  
James Jealous, DO  
Sugar Hill, NH  
Hours: 26 Category 1A  
Contact: James Jealous, DO  
(602) 823-7733

### November 8-10

*Neurofascial Release Conference*  
Stephen Davidson, DO, CSPOMM  
see note in website Healthabounds2.com  
Arizona Academy of Osteopathy  
West Hartford, CT  
Hours: 24 Category 1A  
Contact: Stephen Shifreen, MD  
(860) 570-3400 or  
Stephen Davidson, DO  
(800) 359-7772

### November 16-19

*Biodynamics Phase II*  
James Jealous, DO  
Sugar Hill, NH  
Hours: 24.5 Category 1A  
Contact: James Jealous, DO  
(602) 823-7733

### December 6-8

*21st Annual Winter Update*  
Indiana Osteopathic Association  
Indianapolis, IN  
Hours: 20 Category 1A  
Contact: IAO  
317/926-3009

# A Discussion of Spirituality and the Teaching of Spirituality in an Osteopathic Medical Curriculum

William W. Lemley, DO, FAAO

*“All His [God’s] works, spiritual and material are harmonious. His law of animal life is absolute. So wise a God had certainly placed the remedy within the material house in which the spirit of life dwells. With this thought I trimmed my sails and launched my craft as an explorer.”<sup>1</sup>*

## Abstract

Spirituality has been woven into the tapestry of osteopathic philosophy since its inception. Andrew Taylor Still, founder of the osteopathic profession, viewed spirituality not as a hypothetical abstraction, but as an inseparable, palpable part of body unity, which he described as mind, matter, and motion. Dr. Still said, “God manifests Himself in matter, motion, and mind. Study well His manifestations.”<sup>2</sup> By experience, physicians are well aware of the inseparable nature of spirituality and health. As osteopathic educators, we discuss with our students the importance of evaluating the patient’s mind, body, and spirit, yet the question arises, do we provide them with specific information on just how this is accomplished? Giving only superficial references to spirituality in the curriculum deprives students of the essence of osteopathy. It is our obligation to provide them with the vision of the osteopathic profession including its spiritual heritage. This would be in keeping with Dr. Still’s original concepts.

This paper will review the role of spirituality in osteopathic medicine. The author will first attempt to define, in its broad nonsectarian form, the mysterious word “spirit” as de-

scribed in many forms of healing arts. Second, he will explore Dr. Still’s osteopathic philosophy with emphasis on his frequent references to spiritual concepts. From that vantage point the writings of Dr. William Garner Sutherland and his students in osteopathy in the cranial field can be viewed as a natural outgrowth of osteopathic philosophy. Finally, the reader will look at spirituality as it relates to contemporary osteopathic medicine and provide suggestions for further integration of spiritual concepts into the curricula of our osteopathic colleges.

## A Discussion of Spirituality

The word “spirit” means the breath of life, the animating principle giving life to physical organisms.<sup>3</sup> Spirit has been described as that aspect or essence of a person (soul) that gives one power and energy and motivates the pursuit of virtues such as love, truth and wisdom.<sup>4</sup> Spirituality may be viewed as an internally focused belief and relationship with the transcendent/higher power/God.<sup>4,5</sup> It contributes to a person’s sense of wholeness and wellness. Spirituality is described by some as the ability to find

peace and happiness in an imperfect world.<sup>6,7</sup> Spirituality has to do with one’s search for the meaning of life and is central to personal identity.<sup>8</sup> It refers to the inner core or essence of human beings.<sup>9</sup>

Elements of spirituality include a sense of coherence offering meaning to human existence, a feeling of transcendence, a sense of connectedness, and a conception of spiritual energy. This spiritual energy has many names in various cultures such as prana, ch’i, ruach, spiritus, breath of life, and the life force and has been measured with instrumentation by Dr. Harold Saxton Burr and Dr. Valerie Hunt.<sup>10,11</sup> It is believed by many that all diseases are caused by a break in the flow or disturbance in the human energy field. This disturbance is transferred to organ systems causing functional and ultimately destructive changes.<sup>12</sup>

The terms “spirituality” and “religion” have been used interchangeably and there is no consensus about boundaries between them. They are not, however, synonymous terms. Religion implies a specific set of beliefs about a higher power often associated with particular language to describe the spiritual experience and a community sharing beliefs, rituals

→

and teachings.<sup>13</sup> Religion may be an expression of spirituality but not all spiritual people are religious.<sup>14</sup> Spiritual development is analogous to a jigsaw puzzle in which no one puzzle piece is more important than any other and the purpose is for them to be joined into a unified whole.<sup>15</sup> Religion may be likened to the edge and corner pieces of the puzzle; if they are joined first they provide a framework and focus for spirituality allowing each puzzle piece to join more efficiently. This framework may also allow one to visualize the unified whole before all pieces are in place. Spirituality may or may not be expressed in religion. The extrinsically religious person may use religion as personal security, self-justification or sociability while the intrinsically religious person internalizes religious beliefs and lives by them regardless of social pressure or possible consequences.<sup>16</sup> "Religion is the bridge to the spiritual, but the spiritual lies beyond religion."<sup>17</sup>

## Ancient Healing Traditions

Before reviewing the spiritual aspects of Dr. Still's osteopathic philosophy, it would be helpful to consider some of the ancient healing traditions in order to better understand how nineteenth century western medicine evolved. A broad survey of anthropological and medical literature shows that for centuries, cultures worldwide have made the cure of the body and soul a fundamental, central expression of their religious beliefs and attitudes towards the powers of the universe.<sup>18</sup>

Look first at shamanism, from whose personage the modern doctor descends. The shaman distinguished themselves through altered states of consciousness, the shamanic journey, in which they would obtain power or knowledge in order to help the community, or to provide healing. Disease

was considered to arise from the spirit world and the purpose of shamanic healing was to nurture and preserve the soul. Shamanic methods of diagnosis and healing are similar from culture to culture, i.e. the shaman enters the patient, becomes the patient and restores the sense of connectedness with the universe. The shaman viewed health as an intuitive perception of the universe and all its inhabitants as being one fabric. Any distinction between body, mind, and spirit was illusory. Body was mind and mind was spirit.<sup>19</sup>

Greek thinking, as propagated by Plato, recognized the need for curing the soul in order that its body might heal. He viewed healing as a way in which divine creative energy seized and possessed human beings. He stressed healing disease by treating the whole person. By the fifth century B.C.E. Greek medicine as articulated by Hippocrates was taking the form of science as well as craft. Disease was explained in terms of natural causes rather than being based on mythology. The concepts of mind and body became distinct entities. In the fourth century B.C.E. a cult was formed to worship Asclepius, the Greek god of healing. The Temple of Asclepius, became an institution of refuge and healing. The sick person came to sleep in a bed within the temple called a "clinic" and asked for a vision or dream from the gods to show them the way to healing. Various symbolic acts contributed to the healings, such as animal sacrifice and ritual bathing. One ritual involving harmless snakes is still symbolized in the medical profession today by the caduceus. Around 300 B.C.E. Roman medicine was heavily influenced by the cult of Asclepius, and as a result, astrology, magic, herbs, divination, and purification all became commonly used healing techniques.<sup>20,21</sup>

Judaic religion stressed the importance of wholeness of human beings and emphasized health and healing.

In fact, healing miracles were expected of all true prophets.<sup>22</sup> Jewish ideas on healing as expressed in the Torah and later in the Talmud, shared with Egypt and Mesopotamia the association of disease with the wrath of God. Suffering could be a godsend and a trial.<sup>23</sup> If one turned away from God, for example, in such behavior as gluttony or sexual promiscuity, He would bring curses which would adversely affect the health of mind and body.<sup>24</sup> While blood was probably seen as the vehicle of the soul, life lay in the breath.<sup>25</sup> According to the Kabbalah of Jewish mysticism, the true nature of divinity was seen as unity. This esoteric discipline of ancient origins saw God manifest symbolically as ten sefiroths, or "numerations," depicted as a tree with roots in the depths of the Creator and branches in the created world. The Divine essence of God, the En Sof, was likened to sap running through the branches of a tree giving it life.<sup>26</sup> It was also described symbolically as Absolute or Divine light taking on different qualities or colors within the sefiroths and the created world.<sup>27</sup>

From 313 C.E. when emperor Constantine established Christianity as the official imperial faith of the Roman Empire, the naturalistic basis of Hippocratic medicine was transforming into the idea of healing being associated with religion. Religion had always shared common ground with medicine. Etymologically the words "holiness" and "healing" stem from a single root; the idea of wholeness. In early Christianity, more demarcation between body and soul, subordination of medicine to religion, doctor to priest was seen. Christian views of sickness drew from various traditions absorbing aspects of eastern asceticism, which honored soul or spirit above flesh as well as Jewish traditions.<sup>28</sup> Healing was often associated with a sacramental approach where some word, laying on of hands or material elements such as oil or wa-

ter were believed to convey the power of spirit through the healer. Words or touch were seen as outward manifestations of spiritual energy.<sup>29</sup> By the fifth century C.E., asceticism and monasticism were prevalent Christian practices and these communities were becoming the predominant providers of medicine in Europe and virtually all physicians were from the ranks of clergy.<sup>21</sup>

Secular European medicine began in the late Middle Ages but under strict control of the Roman Catholic Church. What followed was five hundred years of tension between the church's authority and efforts of secular medicine to break free. After the Protestant Reformation in 1517 and the French Revolution in 1789, the church was losing authority over the population at large, marked by a breakdown of the power of religious orders over health care systems. By the nineteenth century, scientific method was the foundation of the medical model. What began as the shamanic worldview was challenged by Newtonian-Cartesian dualism that divided the individual into body, mind, and spirit.<sup>21</sup>

## Spiritual Writings of A. T. Still and W. G. Sutherland

Andrew Taylor Still formulated his philosophy of osteopathy when the Spiritualism movement was enormously popular in America. Spiritualism joined transcendentalism with the teachings of Emmanuel Swedenborg, a Swedish scientist and mystic. Spiritualist philosophy included a reverence for nature, belief in the divinity of human beings, and emphasis on the intuitive powers of the mind. Dr. Still turned to Spiritualism around 1867, and it was to constitute a prominent and lasting place in his thinking. In response to what he considered hypocritical behavior of preachers of his time he became

outspoken in his disbelief in a personal God as well as his distaste for organized religion.<sup>30</sup> He claimed to see an aura around his patients or vibrations emanating from them, which assisted him in diagnosis.<sup>31</sup> He once told an early osteopath, "You do not need a medium to get into communication with the Infinite. You have this Infinity in yourself... recognize [it] and cultivate it."<sup>32</sup>

It is likely that Dr. Still was influenced as well by Native American spirituality while working with his father at the Wakarusa Mission in Kansas. It is known that he assisted his father in doctoring the Shawnee for a variety of infectious diseases and studied closely the Shawnee's own medical treatments, later writing that they were no more ridiculous than that of contemporary physicians.<sup>33</sup> It has also been theorized that he may have adopted Native American bone setting techniques to develop osteopathic manipulative treatment.<sup>34</sup> Although the parallels of Native American spirituality and Dr. Still's osteopathic philosophy are apparent, the actual extent of its influence upon his own spirituality is uncertain.

Dr. Still stated that he did not invent osteopathy in 1874. Instead, he discovered a universal truth; the law of matter, mind, and motion. This triune nature of mankind was also described as a physical body, a mental body, and a spiritual body. He likened the human body to a machine run by an invisible, calm force called life and considered this life force as an animating principle responsible for uniting the terrestrial or material body with spiritual energy. The union of these forms creates a human being. Once joined, the material body is empowered with motion while the celestial body receives knowledge (mind) and wisdom (spirit). The connecting thread in this union of physical, mental, and spiritual bodies is the life force. The synergism of this relationship cannot be over emphasized.

There is a transmutation of physical matter into a life substance.<sup>35</sup> Dr. Still called the body a second placenta, which was made for creation of a greater being. He believed that death is only birth from that second placenta so that one may enter a higher school and continue spiritual development.<sup>36</sup> Speaking of these bodies as separate entities is artificial. Dr. Still clearly stated that the physical, mental, and spiritual bodies were an inseparable whole inclusive of the rays of God's wisdom. He considered human form to reflect divine form when it is exhibiting free, unimpeded motion, and motion as the physical manifestation of the life force.<sup>37</sup>

Dr. Still saw human beings as a miniature universe and understood the interconnectedness from worlds to atom. He introduced the concept of consciousness at the cellular level in his description of blood corpuscles being endowed with the mind of God, each one knowing just what is expected of it.<sup>38</sup> This concept of the universe as a complicated web of relationships between various parts of a unified whole bears a striking resemblance to the beliefs of Eastern mysticism as well as to the modern theories of quantum physics.<sup>39</sup> Dr. Still believed that sickness was an effect caused by obstruction of flow of the life force.<sup>40</sup> In osteopathic treatment the physician was restoring the unity of life and matter so that life-giving currents could have free play. He encouraged the physician to look for life to appear when proper connections were made and in so doing to find health in the patient.<sup>41</sup>

Dr. Still's osteopathic philosophy is remarkably similar to the vitalistic philosophy described by Dr. Domenick Masiello:

"Vitalism maintains that there is in living things the presence of an entity or organizing principle that imparts powers not possessed by inanimate objects and which is not reducible to

→

the mere sum of its parts of the parts of the living system. The vital entity or principle that animates an organism is called Life. Life is not made up of nonliving substance and Life is capable of an existence apart from the organism."<sup>42</sup>

From Dr. Still's spiritual concepts, one enters into the evolution of his philosophy through the writings of Dr. William Garner Sutherland and his students of osteopathy in the cranial field. As osteopathy grew, it became apparent to Dr. Sutherland that it had lost the spiritual essence of Dr. Still's teachings. Through metaphors such as the Tide, the Breath of Life, and liquid light, inherent cranial motion was seen as a materialization of what Dr. Still called life, or the life force. This Intelligent potency was thought to be found in cerebrospinal fluid and considered as unerring with a tendency towards normality.<sup>43,44</sup> Dr. Rollin Becker taught that life may be experienced as the "primary physician within" which was always expressing health.<sup>45</sup> He felt that when palpating the primary respiratory mechanism the physician was in direct contact with a physical manifestation of the life force. Palpable change in physical form came from this spiritual body. Dr. Sutherland described a process of transmutation which is a rhythmic balanced interchange between the Breath of Life and physical matter. He offered no explanation of the nature of this interchange.<sup>46,47</sup> It calls to mind Dr. Still's description of cerebrospinal fluid as a river of life for maintenance of health and that by taking matter down to the point where it is no longer divisible it becomes a fluid of life which easily unites with atoms.<sup>48</sup> This fluid may be considered as that which flows through the electromagnetic field of the body.<sup>42</sup>

Quantum physics has shown that at the subatomic level matter is actually energy in wave-like patterns of probabilities of interconnection.<sup>15,49,50</sup>

Matter disappears into nothing but oscillating fields and waves of rhythm.<sup>9</sup> The universe is a continuous field of energy in which matter is constantly being created, transmuted, and destroyed, and where all parts are interconnected.<sup>15</sup> In reviewing Dr. Still's and Dr. Sutherland's spiritual philosophies attention has been focused on the element of spiritual energy. While this is not the only element of spirituality, it is certainly the foundation upon which all other elements are built.

## Spirituality in Contemporary Medicine

Although western medicine originated in spiritual institutions, ironically, the spiritual dimension of the individual has received the least attention in contemporary western medical thinking.<sup>15</sup> At the same time, in our highly technological culture, public opinion is showing a heightened interest in spirituality over the last decade. A 1996 poll of 1,000 U.S. adults showed 79% believed that spiritual faith can help people recover from disease and 63% believed that physicians should talk about spiritual faith with their patients.<sup>51</sup> In a survey of 203 hospital patients in Pennsylvania and North Carolina, 93% believed in God and 94% thought that spiritual health was as important as physical health. Seventy percent said that physicians should consider their patient's spiritual needs.<sup>52</sup>

Like the general public, medical communities are becoming more interested in spirituality. Of 290 family physicians surveyed in 1996, 99% were convinced that religious belief can heal and 75% believed that prayer promotes patient recovery.<sup>51</sup> The literature shows consistently positive relationships between measures of religious commitment and health, such as lower blood pressure, lower rates of depression, stronger immune systems, longevity, better health outcomes after physical

illness, healthier life styles, and a stronger sense of well being.<sup>53,54,55,56</sup>

The medical community is extensively studying prayer and meditation. There is considerable overlap in their definitions. For example, prayer may be viewed as a matter of the heart or a person's attempt to communicate with the Absolute and, in this regard, prayer and meditation show more similarities than differences.<sup>57</sup> Two of the most common forms of prayer are intercession – asking something for someone else; and petition - asking for oneself. The effects of intercessory prayer were studied in a random double blind study of 393 coronary care unit patients. One hundred ninety-two patients received prayer from participating intercessors praying outside the hospital and 201 patient controls received no prayer. The prayer group had a significantly lower severity score and required less ventilatory assistance, antibiotics and diuretics than the control group.<sup>58</sup>

Myriads of forms of prayer exist including confession, forgiveness, adoration, thanksgiving, invocation and lamentation. Prayer has been called the most fundamental and primordial language humans speak. "Prayer starts without words and often ends without words."<sup>59</sup> Dossey describes prayer as "empathetic, loving, compassionate, intentionality."<sup>60</sup> Some people may not pray in the conventional sense, but live in a deeply interior sense of the sacred or what has been called a sense of prayerfulness; simply being attuned with a Higher Power or a feeling of "unity with the All." Prayerfulness is a willingness to stand in mystery and, in so doing, tolerate the ambiguity of the unknown.<sup>61</sup> Many experiments in prayer over the past three decades have involved people of various religious persuasions. There appears to be no correlation in private religious affiliation and the effects of prayer. Although people attempt to separate prayer and meditation, the human body

appears to be wiser and less dogmatic.<sup>62</sup>

Meditation produces a state of deep relaxation and, at the same time, a wakeful and highly alert state. Basic types of meditation are as diverse as their cultural origins. In ancient Buddhist practice, meditation is described as mindfulness. From the Buddhist perspective, the day-to-day waking state of consciousness is seen as being limited and resembling an extended dream rather than wakefulness. Mindfulness implies paying attention to the present moment and nurturing an intimate relationship with it. This form of meditation is fundamental in Buddhism, Taoism and yoga and permeates the works of people such as Emerson, Thoreau and Whitman and Native American wisdom.<sup>63</sup> LeShan has described several paths of meditation including a path through the emotions which involves ceaseless striving on the ability to love and an understanding of the importance of love in approaching God. This is seen in the paths of Hasidic mysticism and in that of Christian monastics. Meditation through routes of the body involves learning to be aware of one's body and bodily movements to reach a heightened awareness, as represented by Hatha Yoga, T'ai Chi, Qigong, Dervish dances of Sufi mystical tradition and western traditions such as the Alexander technique. Meditation may also involve the path of action in which one learns how to perceive and relate to the world during the performance of a particular skill; examples being aikido and karate in Zen tradition, rug weaving of Sufi tradition and singing and praying of Judeo-Christian tradition.<sup>64</sup> Meditation has been said to open the mind to energy of the Higher Self. A mantra, or sacred word, is the repetition of a word or phrase to clear the mind of conscious thought lifting consciousness to a higher spiritual level of being.<sup>65,66</sup>

Mantra repetition, as in transcendental meditation, has been described

as passive meditation whereas active forms of meditation include creative imagery and visualization.<sup>67</sup>

Meditation may be considered a serious reflection involving not only the mind but also the heart and indeed one's whole being. Meditative thought leads to internal prayer and in so doing culminates in contemplation and communion with God.<sup>68</sup> The mechanism of action of these varied disciplines of prayer and meditation may be similar producing the "relaxation response."<sup>69,70,71</sup>

Studies of transcendental meditation show significant declines in heart and respiration rates, renal and hepatic blood flow and reduced oxygen consumption.<sup>69</sup> Benson documented that, during meditation, Tibetan monks could dry wet icy sheets on their naked bodies in temperatures of 40 degrees Fahrenheit.<sup>72</sup> A study has shown that nursing home residents who had learned transcendental meditation performed better on many measures of learning and mental health than did a control group.<sup>73</sup> Kabat-Zinn has studied mindfulness meditation on generalized anxiety disorder and of 22 subjects, 20 reported decreased anxiety/depression scores.<sup>69,74</sup>

## Spirituality in Osteopathic Medical Education

From its beginning, osteopathic medicine has been a patient-centered rather than a disease-centered model. Allopathic medical education has been shifting its focus towards the patient-centered model in the last few years. Courses in spirituality and medicine which have recently been developed in many medical schools help students to learn to compassionately listen to their patients, and to care about their suffering, beliefs, fears, hopes, and those things giving meaning to life.<sup>53</sup> A recent pilot program of 66 pharmacy students showed 94% of students felt a knowl-

edge of spiritual belief is important in caring for patients.<sup>75</sup> Drs. Wallace and Morris of the University of Health Sciences College of Osteopathic Medicine have developed an excellent course titled "Spirituality in Patient Care" with the objective of making students more aware of the interaction of a patient's spiritual beliefs and healing, obtaining a spiritual history, and being aware of spiritual resources and support systems for patients.<sup>76</sup>

Courses on spirituality often reflect particular philosophies and curricula of individual schools, but they often share some key concepts:

- Spiritual assessment as part of the history and physical
- Review of research in spirituality
- Chaplain and other spiritual counselors as members of the health team
- Emphasis on communicating compassionately with the chronically ill
- Students exploring their own belief systems
- Major religious traditions are reviewed and how they may affect health care choices and coping skills.<sup>53</sup>

## Teaching Concepts of Spirituality in an Osteopathic Medical Curriculum

As an example of how to introduce students to the topic of spirituality in osteopathic medicine, the author offers a synopsis of his one-hour lecture at the West Virginia School of Osteopathic Medicine on this subject. In relation to the previous discussion, the lecture content will necessarily be redundant. This material may be viewed only as a starting point for further discussion and integration of spirituality into osteopathic medical curricula and it is his hope that this will

→

stimulate the interest of other osteopathic educators to incorporate such concepts into their own curricula.

The objectives of the lecture were as follows:

1. Definition of the word “spirit”
2. Discussion of the elements of spirituality
3. Review of spiritual aspects of Dr. Still’s philosophy
4. Discussion of how spirituality and religion relate to contemporary osteopathic medicine
5. Addressing spiritual issues of patients and physicians

### ***1. Definition of the word “spirit”***

Spirit has many definitions in various cultures, such as prana (Ayurvedic), ch’i (Chinese medicine), ruach/wind/spirit (Jewish mysticism), Spiritus/pneuma/breath (Galen), vital force (Hahnemann), Life (A.T. Still, MD), Breath of Life (W. G. Sutherland, DO), Life Force (Robert Fulford, DO). Spirit is defined as the breath of life, the animating principle giving life to physical organisms.<sup>3</sup> Dr. Still believed the human body consisted of the material body, the spiritual body, and the mental body which was “far superior to all vital motions and material forms, whose duty was to manage the great engine of life.”<sup>77</sup> He considered that life was capable of existing apart from the organism, as it was more than just an organizing principle. Life had purpose, could communicate with each of us and was ever present. Life was more than simply animation of nonliving substance.<sup>42</sup>

### ***2. Discussion of the elements of spirituality***

Spirituality has to do with the spirit or soul and gives power and energy, motivating people to pursue virtues such as love, truth and wisdom.<sup>4</sup> It is the ability to find peace and happiness in an imperfect world.<sup>6,7</sup> It con-

tributes to a person’s sense of wholeness and may be considered an internally focused belief and relationship with a higher power.<sup>4,5</sup> Spirituality has to do with the search for the meaning of life and is often central to personal identity. It is manifested in the experience of joy, love, forgiveness, and acceptance. Elements of spirituality include meaning and purpose to life, transcendence, connection with others, and the concept of spiritual energy. What is the effect of illness on the meaning and purpose to life? It may lead to a spiritual crisis experienced as meaninglessness and hopelessness. Illness may challenge the person’s sense of self and world by a change of body image, pain, or interpersonal relationships. It may challenge a person’s existing perspective on life and its meaning. It may prompt a spiritual journey and be an opportunity to redefine values and to seek out the person’s greater purpose. Patients with chronic pain, for example, have the choices of resistance, submission or transcendence of their suffering. They may seek a part of self that is not in pain and still function and enjoy life.<sup>8</sup>

Transcendence is another element of spirituality and involves a profound and potentially transforming experience. This is evident when patients rise above a limiting condition such as terminal disease so that they feel part of a greater whole.<sup>8</sup>

Another element of spirituality is one’s connection with others. Relationships are fundamental to human experience and contribute to personal resilience. Illness can profoundly affect one’s relationship with others and with God. It may separate the patient from other people so that they experience feelings of alienation, hopelessness and suffering. The doctor-patient relationship involves sharing in the illness experience with compassion and caring and in so doing contributes to the patient’s sense of connectedness. It is a spiritual en-

counter with great healing potential.<sup>8</sup>

The final element of spirituality to be considered is spiritual energy. This is a spectrum of energies often unrecognized by modern scientific methods. It has many names in various cultures such as prana, ch’i, etc. Wellness is considered a balance in this energy field while illness is viewed as blockage of energy flow.<sup>8</sup> Quantum physics has shown that at the subatomic level and interstellar levels time and space are not absolute. Matter is actually energy in wave-like probabilities and interconnections.<sup>15,49</sup> The universe is a continuous field of energy in constant flux. The observer and observed cannot be separated. Quantum physics in many ways parallels Eastern mysticism, that is, the worldly aspect is superficial to a more fundamental spiritual aspect.<sup>39</sup>

### ***3. Review of spiritual aspects of Dr. Still’s philosophy***

Now, consider spirituality in osteopathic philosophy as proposed by Dr. Still. He viewed spirituality not as a hypothetical abstraction but as a harmonious, resonant, inseparable part of body unity he called mind, matter (body), and motion (spirit or life).<sup>78,79</sup> He saw God manifest Himself in these elements and challenged us to study well His manifestations.<sup>1</sup> He saw man as Triune and that the spiritual, mental, and physical bodies are interwoven; not out there somewhere, but intertwined into every cell, every tissue, every organ, every system, everybody. Dr. Still saw life in motion and viewed life much more than simply an organizing principle. He considered life as the essence of wisdom in nature and viewed life and mind as immortal. He called the body the second placenta. All material bodies had terrestrial life and all space had ethereal or spiritual life. From terrestrial life came motion and power and from celestial bodies came knowl-

edge and wisdom. He called the unity of these lives in human beings biogen.<sup>35</sup> The implications of his philosophy are profound. It suggests that when a physician touches a patient, he/she is touching the patient's spirit as well as their mind and physical body. This applies to all therapeutic interventions whether it be prescribing medicine, surgery, counseling, or osteopathic manipulative treatment.

#### ***4. Discussion of how spirituality and religion relate to contemporary osteopathic medicine***

In discussing spirituality, one must also define religion and consider the relationship between the two. Religion is any specific system of belief, worship, conduct, etc. often involving a code of ethics and philosophy. It is not the same as spirituality and there is no consensus about the boundaries between them.<sup>13</sup> Organized religion is one way of expressing one's spirituality. Medical literature is showing a positive relationship between religious commitment and health. Many religions teach respect for one's physical body. It offers social support and fellowship. In general, religions discourage unhealthy behaviors, such as drug or alcohol abuse, smoking, and risky sexual behavior. Religiousness promotes low risk lifestyles and healthy diets. Finally, it enhances supportive relationships and nurtures a sense of connectedness. Dr. Harold Koenig, Director of Duke University Center For Study Of Religion/Spirituality And Health has published many studies showing the association of strong religious faith and health such as lower diastolic blood pressure, lower rates of depression, better health outcomes after physical illness, stronger immune systems, lower rates of cancer and cardiovascular disease associated with longevity, healthier lifestyles, and a stronger sense of well being.<sup>56</sup>

Now, consider the concept of heal-

ing. The words holiness and healing stem from a single root and express the idea of wholeness. All healing arises from within an individual as osteopathic physicians know the body has the inherent capacity to heal itself. Healing and cure are not the same thing. Healing is not something we can bottle and release on command, but is a process that may take weeks, months, or years. It comes from a spiritual yearning for unity or wholeness.<sup>15</sup>

There are spiritual disciplines that may have positive impact on the health of patients. The effects of intercessory prayer will be considered first. Robert Byrd, MD studied the effects of intercessory prayer on 393 coronary care unit patients. Approximately one-half of the patients received prayer from intercessors outside the hospital. The other half received no prayer. The prayer group had significantly less ventilatory assistance, antibiotics, and diuretics. The study concluded by saying that prayer had a statistically significant positive effect on patients.<sup>58</sup> Dr. Larry Dossey has said, "Love is the most crucial factor identified to account for the impact of prayer."<sup>80</sup> Meditation is another spiritual discipline shown to have favorable effects on health. The relaxation response developed by Dr. Herbert Benson involves two steps, first silently repeating a word, phrase, prayer, or phrase and secondly focusing on breathing, passively disregarding every thought. This form of meditation has shown to reduce blood pressure, relieve anxiety, control chronic pain, and to offer other health benefits.<sup>63,70,71</sup>

#### ***5. Addressing spiritual needs of patient and physician***

How does one facilitate discussions with patients about spirituality? This begins with the spiritual history of the patient being integrated into the history and physical. One can explore the patient's definitions of spirituality and religion. Do they have any

spiritual beliefs and if so are their spiritual needs being met? Determine how their belief system is affected by their illness. Carefully assess whether or not they wish to discuss the spiritual and religious implications of their health care.

One can meet the patient's spiritual needs in several ways. First, simply be trustworthy and kind, treating the patient as a person, always maintaining hope, and assisting the patient in determining what it means to live. It is not necessary for the physician to share the patient's religious or spiritual beliefs, but it is imperative that the physician understands and respects their belief system.<sup>15</sup> Be open to learning from the patients and their beliefs. It is also necessary to understand the mechanisms for identifying and mobilizing spiritual support for the patient from their families and community needs to be understood.<sup>4</sup> In addressing an American Medical Association convention, Rabbi Abraham Hershel said "To heal a person, one must first be a person."<sup>13</sup> Patients are first and foremost persons. Is it not time that one recognizes that physicians are also first and foremost persons? One of the most important aspects of spirituality is that the doctor-patient relationship is a sanctuary that can only be effectively entered with a sense of love, humility and awe.

## **Conclusions**

The positive correlation of spiritual health to mental and physical health should not be ignored. The benefits of prayer, meditation, spiritual and religious commitment are receiving significant attention in the medical literature. Are osteopathic educators giving their students adequate information about this voluminous body of research? Students will positively benefit from a broad-based introduction to the spiritual aspects of osteopathic medicine. One

→

can begin by openly discussing the profession's rich spiritual heritage with emphasis on the experiential nature of spirituality in osteopathic medicine. A study of the research relating spirituality to health is as important as looking at the latest double blind study of another nonsteroidal anti-inflammatory drug. In fact, it is vastly more important for the maturation of students. It is essential that students be taught to comfortably explore a patient's spiritual nature by learning how to obtain a spiritual history, by understanding the relationship of spirituality and health, by respecting the belief systems of their patients, and by knowing when to mobilize support of the spiritual community and support groups for their patients.<sup>81</sup> Perhaps the most important aspect of spirituality for the student and physician is to understand the relevance of their own spiritual development. The osteopathic physician needs to communicate with the students as fellow travelers. "The growth and development of a physician should be nurtured by the most loving and perceptive environment that is humanly possible."<sup>82</sup> Dr. Fulford said that love is the energy that expresses the spiritual force."<sup>83</sup> Our predecessors recognized the presence of divine love within us. As physicians, we should nurture that divine love.

"Therefore be at peace with God, whatever you conceive Him to be."<sup>84</sup>

## Bibliography

1. Still, A. *Autobiography of Andrew Taylor Still*. rev. ed. Kirksville, MO. Published by the author. 1908. Distributed, Indianapolis, IN. American Academy of Osteopathy; 1996, p.88.
2. *Ibid.*, p. 188.
3. Babcock, P., ed. *Webster's Third New International Dictionary*. Springfield, MA. Merriam Webster, Inc. 1993. p. 2198.
4. McKee, D., Chappel, J. Spirituality and medical practice. *The Journal of Family Practice*. 1992. 35(2): pp. 201-8.
5. McBride, J., Arthur, E., Brooks, R., Pilkington, L. The relationship between a patient's spirituality and health experiences. *Family Medicine*. Feb. 1998. 30(2): pp. 122-6.
6. Fulford, R. *Dr. Fulford's Touch of Life*. New York, NY. Simon and Schuster; 1996. p. 157.
7. Seigel, B. *Love, Medicine, and Miracles*. New York, NY. Harper and Row Publishers; 1986. p. 178.
8. Waldfogel, S. Spirituality in medicine. *Primary Care*. Dec. 1997. 24(4). pp. 963-77.
9. Fulford, R. Highlights from *It's Written in the Bone*. Presented at the Cranial Academy Conference. 1987.
10. Burr, H. *Blueprint for Immortality*. London, England. Neville Spearman Limited. 1972. pp. 11-25.
11. Hunt, V. *Infinite Mind: Science of the Human Vibrations of Consciousness*. Malibu, CA. Malibu Publishing Co. 1989. pp. 9-36.
12. *Ibid.*, pp.77-8.
13. Sulmasy, D. Is medicine a spiritual practice? *Academic Medicine*. Sep. 1999. Vol. 74. No. 9. pp. 1002-5.
14. Thomason, C. Inclusive spirituality. *The Journal of Family Practice*. Feb. 1999. Vol. 48. No. 2. pp. 96-7.
15. Hiatt, J. Spirituality, medicine, and healing. *Southern Medical Journal*. 1986. 79(6). pp. 736-43.
16. Hamilton, D. Believing in patient's beliefs: physician attunement to the spiritual dimension as a positive factor in patient healing and health. *The American Journal of Hospice and Palliative Care*. Sep./Oct. 1998. pp. 276-79.
17. Remen, R. On defining spirit. *Noetic Sciences Review*. Autumn 1988. p. 65.
18. Harpur, T. *The Uncommon Touch: An Investigation of Spiritual Healing*. Toronto, Canada. McClelland and Stewart Inc. 1994. pp. 39-40.
19. Acterberg, J. *Imagery in Healing: Shamanism and Modern Medicine*. Boston, MA. New Science Library. 1985. pp. 11-51.
20. Kelsey, M. *Healing and Christianity*. Minneapolis, MN. Augsburg Fortress. 1995. p. 37.
21. Kuhn, C. A spiritual inventory of the medically ill patient. *Psychiatric Medicine*. 1988. 6(2). pp. 87-100.
22. Harpur, T. *The Uncommon Touch: An Investigation of Spiritual Healing*, p. 38.
23. Porter, R. *The Greatest Benefit to Mankind: A Medical History of Humanity*. New York, NY. WW Norton & Company. 1997. p. 84-85.
24. Twersky, I. *A Maimonides Reader*. West Orange, NJ. Behman House, Inc. 1972. p. 82.
25. Porter, R. *The Greatest Benefit to Mankind: A Medical History of Humanity*. p. 85.
26. Armstrong, K. *A History of God*. New York, NY. Random House, Inc. 1993. pp. 244-50.
27. Ponce, C. *Kabbalah*. Wheaton, IL. Theosophical Publishing House; 1973, p. 103.
28. Porter, R. *The Greatest Benefit to Mankind: A Medical History of Humanity*, p. 83-84.
29. Kelsey, M. *Healing and Christianity*, p. 99.
30. Trowbridge, C. *Andrew Taylor Still 1828-1917*. Kirksville, MO. The Thomas Jefferson University Press. 1991. p. 120.
31. *Ibid.*, p. 176.
32. *Ibid.*, p. 106-111, 196.
33. *Ibid.*, p. 45.
34. Beatty, D. Searching for clues to the origins of OMT. *JAOA*. Aug. 1990. 90(8). p. 653.
35. Still, A. *The Philosophy and Mechanical Principles of Osteopathy*. Kansas City, MO. Hudson Kimberly Pub. Co. 1902. Reprinted. Kirksville, MO. Osteopathic Enterprises; 1986. p. 248-58.
36. Still, A. *Osteopathy Research and Practice*. Kirksville, MO. Published by the author, 1917. Distributed, Seattle, WA. Eastland Press. 1992. p. 11.
37. *Ibid.*, p. 279.

38. Still, A. *Autobiography of Andrew Taylor Still*, p. 185-186.
39. Capra, F. *The Tao of Physics*. Boston, MA. Shambala Publishing, Inc. 1975. pp. 17-25.
40. Still, A. *Autobiography of Andrew Taylor Still*. p. 252.
41. Still, A. *Osteopathy Research and Practice*. pp. 278-279.
42. Maseillo, D. Osteopathy - a philosophical perspective; reflections on Sutherland's experience with the tide. *The AAO Journal*. Summer 1999. pp. 21-39.
43. Sutherland, A., Wales, A., ed. *Teachings in the Science of Osteopathy*. Fort Worth, TX. Rudra Press. Sutherland Cranial Teaching Foundation. 1990. pp. 166-177.
44. Becker, R., Brooks, R., ed. *Life in Motion*. Portland OR. Rudra Press. 1997. p. 95.
45. Ibid., p. 4.
46. Ibid., p. 90.
47. Magoun, H. *Osteopathy in the Cranial Field*. Original Edition. Kirksville, MO. The Journal Printing Co. Distributed by The Sutherland Cranial Teaching Foundation; 1951, p. 15-16.
48. Still, A. *The Philosophy and Mechanical Principles of Osteopathy*, pp. 45, 254.
49. Gerber, R. *Vibrational Medicine*. Santa Fe, NM. Bear and Company. 1988. p. 59.
50. Bentov, I. *Stalking the Wild Pendulum*. New York, NY. Bantam Books, Inc. 1977. pp. 44-56.
51. Sloan, R., Bagiella, P., Powell, T. Religion, spirituality, and medicine. *Lancet*. Feb 20. 1999. (9153): pp. 664-7.
52. Ellis, M., Vinson, D., Ewigman, B. Addressing spiritual concerns of patients: family physician's attitudes and practices. *The Journal of Family Practice*. 1999. 48(2). pp. 105-9.
53. Puchalski, C., Larson, D. Developing curricula in spirituality and medicine. *Academi Medicine*. 1998. 73(9). pp. 970-4.
54. Koenig, H. Research on religion and serious mental illness. *New Directions for Mental Health Services*. Jossey-Bass Publishers. Winter 1998. No. 80. pp. 81-95.
55. Koenig, H. Use of hospital services, religious attendance, and religious affiliations. *Southern Medical Journal*. 1988. Oct. 91(10). pp. 925-932.
56. Koenig, H. *The Healing Power of Faith*. New York, NY. Simon and Schuster. 1999. pp. 22-25.
57. Dossey, L. *Prayer is Good Medicine*. San Francisco, CA. Harper-Collins Publishers. Inc. 1996. p. 91.
58. Byrd, R. Positive therapeutic effects of intercessory prayer in a coronary care unit population. *Southern Medical Journal*. 1988. 81(7). pp. 826-829.
59. Dossey, L. *Healing Words*. New York, NY. Harper Collins Publishers. 1993. pp. 7-8.
60. Caine, W., Kaufman, B. *Prayer, Faith and Healing*. Emmaus, PA. Rodale Press, Inc. 1999. p. 23.
61. Dossey, L. *Healing Words*. p. 32-33.
62. Dossey, L. *Prayer is Good Medicine*. p. 92.
63. Kabat-Zinn, J. *Wherever You Go, There You Are*. New York, NY. Hyperion. 1994. pp. 3-5.
64. LeShan, L. *How to Meditate*. Boston, MA. Little, Brown and Co. 1974. pp. 33-37.
65. Gerber, R. *Vibrational Medicine*. pp. 394-397.
66. Keating, T. *Open Mind, Open Heart*. New York, NY. The Continuum Publishing Co. 1986. pp. 43-51.
67. Gerber, R. *Vibrational Medicine*, pp. 396-397.
68. Merton, T. *Spiritual Direction and Meditation*. Collegeville, MN. The Liturgical Press. 1960. pp. 524.
69. Harmon, R., Myers, M. *Prayer and meditation as medical therapies*. Physical Medicine and Rehabilitation Clinics of North America. Aug. 1999. Vol. 10. No. 3. pp. 651-662.
70. Benson, H. *The Relaxation Response*. New York, NY. William Morrow and Company Inc. 1975.
71. Benson, H. *Timeless Healing*. New York, NY. Simon and Schuster. 1996. pp. 131-137.
72. Ibid., p. 163.
73. Watkins, A. *Mind-Body Medicine*, New York, NY. Churchill-Livingstone. 1997. p. 264.
74. Roth B., Creaser, T. Mindfulness meditation-based stress reduction: Experience with a bilingual intercultural program. *Nurse Pract* 22:150. 1997. erratum in *Nurse Pract* 22:215. 1997.
75. Jafari, M. Teaching pharmacy students the relevance of spirituality in patient care. *Journal of Pharmacy Teaching*. 1999. Vol. 7(2). pp. 7-14.
76. Wallace, E., Morris, W. *Spirituality And Patient Care*. A Syllabus From the University of Health Sciences College of Osteopathic Medicine. Kansas City, MO. Fourth term. 1999.
77. Still, A. *Philosophy of Osteopathy*. Kirksville, MO. Published by the author. 1889. Distributed, Indianapolis, IN. American Academy of Osteopathy. 1986, p. 26.
78. Becker, R., Brooks, R., ed. *Life in Motion*, p. 50.
79. Goodman, H. Forward to 1992 Edition, Still, A. *Osteopathy Research and Practice*, p. xvii.
80. Levine, S. *Answering Prayer: Investigating The Healing Power of Prayer*. A video by the Canadian Broadcasting Company. 1998.
81. Maugans, T. The Spiritual history. *Archives of Family Medicine*. 1996. (5): pp. 11-16.
82. Jealous, J. Healing and the natural world; interview by Horrigan, B. *Alternative Therapies*. 1997. 3(1). pp. 68-76.
83. Fulford, R. *Integration of Love with the Cranial Concept*. Presented at the Cranial Academy Conference. 1988.
84. Becker, R., Brooks, R. ed. *Life in Motion*. p. 31. □

Send all correspondence to:

William W. Lemley, DO, FAAO  
 West Virginia School  
 of Osteopathic Medicine  
 400 North Lee Street  
 Lewisburg, WV 24901  
 Email: wlemley@wvsom.edu

# Facilitated Oscillatory Release

Zachary J. Comeaux, DO, FAAO

## Abstract

Finding a practical approach to the osteopathic mandate to diagnose and treat the patient as body, mind, and spirit has always been a challenge. Robert Fulford, DO spent a lifetime developing a protocol for an integrated approach to somatic dysfunction, the residuum of trauma, including the percussion vibrator and manual bioelectric assessment. The author builds on this legacy introducing a treatment strategy, facilitated oscillatory release, using manually applied oscillations or vibrations to treat dysfunction. A review of scientific and traditional osteopathic literature provides a justification for considering the biomechanical, neuromuscular and bioelectric characteristics of the body as complementary aspects of one coordinative system in which rhythmic function is key.

This paper represents the author's scholarly requirement for a completed application process for AAO Fellowship. Further detail on principles of application of FOR will follow in a later issue of *The AAOJ*.

## Introduction

The challenge of osteopathic clinical practice is to use our hands, on demand, without complete understanding, to restore ease and comfort. We detect patterns of dysfunction by palpation and observation, aided by intuition, and perhaps inspiration. This was the way with Dr. Still, his students including Dr. Sutherland and

again with his students, including Dr. Robert Fulford. Each has been an inspiration to me.

Robert Fulford, DO, a student of Sutherland, explored progressively more integrative definitions of dysfunction and approaches to treatment. In his quest for synthesis he chose to explore the interrelationship of periodic motion and its relationship to matter. He began with attention to cranial rhythmic motion and respiratory rhythms, but discovered and used other aspects of the patient's energy state to work toward improvement of symptoms. In applying principles of motion to his clinical practice, he began to explore, use and teach the use of vibratory motion to release restriction of motion using a percussion vibrator as well as other means.<sup>15</sup>

In the early 1990s, after he entrusted me with the care of his wife, I watched him continually search for ways to refine his effectiveness through understanding the implications of his way of treatment on his patients. In the process of his exploration, he developed the percussion vibration approach to resolving somatic dysfunction. He insisted however, that the machine was not essential and that he could accomplish correction with other means.

In the course of working with him, I began to apply manual oscillation to dysfunctional tissues. As I explored the implications, applications and relevant literature, I identified the method for charting purposes as FOR, for facilitated oscillatory release. This

paper presents the manner of application, as well as an exploration of possible physiologic mechanisms for efficacy of facilitated oscillatory release as a form of osteopathic treatment.

As in Dr. Still's time, the populace is challenging the medical community to integrate concepts from the basic sciences which have not yet found their way into the conventional medical model. The current pressure to develop "energy medicine", and explorations of the physiology of consciousness, the physics models representing the progeny of relativity and quantum mechanics, and probability models of mathematics, including chaos models, all cry to make a contribution. The concepts of matter/energy are the legacy of a quest to understand creation which is revisited in every generation. The ancient Greeks used the language of Matter and Form; in Still's day it was phrased as Vitalism vs. Materialism. Still's insight was that understanding of the patient occurred by recognizing the integration of these aspects, not introducing a new reductionism. Any "energy" approach to medicine needs to recognize the osteopathic concept of the interrelationship of structure and function. Fulford, as Still and others before him, was trying to work toward this reconciliation of emphasis to more fully recognize the nature of the patient. I hope in some small way to encourage those working in this tradition.

## Vibrational Medicine in the Osteopathic Context

Dr. Still, the founder of Osteopathy, based his methods of treatment on the philosophy of Creationism and Natural Law. The truth had to be discovered. Early analogies were based on mechanical principles as this was the advancing front of technology in his day. Though biased to think of all human process as mechanical, he conceded that medical study included physiology, histology, chemistry and surgery as branches of anatomy. Function, as well as structure, was open to investigation and correction.<sup>51</sup> Although mechanical diagnosis and correction was the pattern of practice most often mimicked by students, Still insisted on the importance of the central nervous system as an organizing principle of motion and the importance of “nerve force”. Additionally, both Arthur Hildreth and Charles Hazzard, early graduates of the American School of Osteopathy, noted Dr. Still’s touch often directed to soften spastic muscle through inhibition, reflecting neuromuscular involvement.<sup>37</sup> They reference Charles Edouard Brown Sequard, a nineteenth century neurologist/endocrinologist, on the concept of neural inhibition versus sensitization in muscle spasm.<sup>43,24</sup> The challenge for osteopaths of each subsequent era is to be inclusive in our habits of investigation regarding the nature of the patient while remaining critical of convention and wishful thinking.

Robert Fulford, DO, graduated from the University of Health Sciences College of Osteopathic Medicine in Kansas City, MO in 1941. As a general practitioner during the WWII years, he worked for greater efficiency against exhaustion. He was impressed by the impact of cranial osteopathy and studied it in detail. He looked for further underlying mechanisms and relationships. He intuited

an electromagnetic significance to somatic dysfunction and osteopathic treatment. He referred to the works of Harold Saxton Burr, PhD,<sup>5,6</sup> Robert Becker MD,<sup>2</sup> and Valerie Hunt, PhD<sup>25</sup> who use electromagnetic field theory as an explanation of the integrative nature of the human being and the hitherto non-empiric explanation of Life. Fulford accessed and used the work with refined quartz crystals, by Marcel Vogel, PhD, a senior IBM research scientist, in trying to scientifically justify an electromagnetic conceptualization of his work. The common thread of the work of these five has been to demonstrate a clinical connection between the physics of electromagnetic field theory and human physiology in health and disease although correlations with generally accepted neurophysiology, the dominant paradigm, have yet to be clarified. This paper is part of that effort.

## Facilitated Oscillatory Release

### *Origins*

From 1992 until his death in 1997, Dr. Fulford would visit my medical practice while visiting his wife in a nursing home nearby. We would talk and work together. Dr. Fulford would often have a new hold, a new way of working with a child in relation to his/her mother, or speculate about a new philosophical consideration. He was an avid and broadly discursive reader with a thirst for synthesis and a penchant for experimentation for the good of the patient.

As indicated above, his theater of operation went far beyond use of the “percussion hammer”. All his methods depended on the concomitant use of diagnostic touch to discover restriction of subtle motion, intention including desire to heal, and subtle force. He felt as Sutherland,<sup>52</sup> the forces involved as reflected in bodily

habitus and subtle motion were reflective of Intelligent Action expressed as motion in a wave form. So, Dr. Fulford spoke of his work as in the field of energy or vibratory motion. Tissue response to vibrational motion, oscillation, was part of analysis of indigenous and pathologic motion as were articular range of motion or respiration. We discussed his reading, reflections and preliminary research in measurement of electromagnetic fields in himself and his patients and attempts to use esoteric or intercultural explanations to conceptualize these effects, due to the lack of a clear neurophysiological paradigm to explain his clinical observations and effects.

As I worked under his influence, it became clearer to me that rhythmic motion, CRI or otherwise, was part of a natural state of relaxation and well being. It had been used socially, as in dance in many cultures to induce altered consciousness or spiritual awareness, as well as to quiet babies naturally and comfort the sick. In the healing arts, oscillation has been used minimally. The percussion vibrator used such a force. How did it work?

As I would palpate and find focal sites of muscle spasm associated with somatic dysfunction, I would use a focused myofascial or ligamentous articular release technique to the involved segment. However, since much of our work was in the vibratory arena, it seemed sensible occasionally to use focused vibratory force applied manually instead of reaching for the vibrator which would disrupt the orderly progression of treatment. Over time there were more occasions on which to supply such an intervention.

When I reflected on the probable methods of effectiveness, I realized that I could also utilize longer wavelength and affect regional as well as local articular fascial relationships

→

and facilitate ease of motion. Thus I moved to call this facilitated oscillatory release, realizing some of the commonalities with facilitated positional release in gentle ease of clinical application, as well effective quickness, though not necessarily in mechanism.

As indicated above, oscillation had been mentioned as a modality in the literature of physical medicine. As one aspect of massage *percussion cadence* (rhythmic percussion) was used by Seguin in France in 1838 for acute torticollis, or in the use of manual vibrations by the Swedish physiotherapist, Kellner. The contemporary Australian physiotherapist, G. D. Maitland discriminated manipulation to be of two types: sustained stretch, and passive oscillatory movements. These would be directed with finger tip pressure at 2-3 cycles per second and may be maintained for 5 to 15 minutes for articular mobilization.<sup>32</sup> Leon Chaitow, ND DO, recently deceased British osteopath, describes friction and vibration to focal sites as part of massage with limited description of the type or reason for effect.<sup>9</sup> Susan Edwards, PT, describes manipulation generally as traction, glides and oscillation, with the latter proposed to reduce pain, increase periarticular extensibility, correct positional faults, and reduce spinal disc herniation.<sup>11</sup> However, no systematic use of oscillation in osteopathic manipulation is known to me.

### Technique

Facilitated oscillatory release (FOR) depends on recognizing a pathologic barrier to freedom of motion as part of a constellation of findings defining somatic dysfunction. If active motion testing is used, subtle restriction as assessed in functional methods of Johnston is most helpful. FOR can be used both as a direct and an indirect technique.

In direct technique, the barrier is engaged gently. Oscillation is applied

at approximately 150-200 cycles per minute and the barrier is reassessed. Force is directed in two ways depending on applications intended.

For direct focal application, such as the atlanto—occipital area or the paraspinal spasm associated with a rib head and vertebral segment, application is directed by focused finger force. The palpating finger that identifies tissue tension is gently pressed to place the associated soft tissue under additional tension. Segmental repositioning toward a barrier can be helpful. Oscillations are generated by reciprocating forearm motion with flexion at the wrist, such as would be done in a “limp” handshake. The reciprocating momentum of the forearm generates a force that is directed by the focused contacting finger tip to effect change where needed.

For regional application such as to the lower extremity, pelvis, lumbosacral areas, the lower limb is used as a lever to impart regional oscillation. The operator’s placing the longitudinal fascial planes under tension by leaning backwards helps direct the oscillatory force to target tissues. The oscillations may be applied in a rotationally neutral plane or with rotation toward the rotational barrier.

Gentle oscillation is accomplished by the reciprocal raising and lowering of the operator’s arms, using the mass to the extended upper arms and shoulders as a “flywheel” to smoothly accommodate the changes in the momentum during change of direction. Rate, again, is in the 150-200 cycles per minute depending on tissue resonance. Restrictive barriers are reassessed and treatment proceeds as needed.

The process may be used in indirect application anywhere during a scanning exam in which one finds segmental hyperemia or other sign of focal somatic dysfunction

Areas of routine application and utility include:

internal/external rotation of a lower extremity with associated pelvic imbalance (direct regional)  
thoracic outlet restriction (direct regional)  
carpal tunnel restriction (direct regional)  
thoracic dysfunction involving paraspinal muscle spasm (direct or indirect focal)  
upper cervical dysfunction, including atlanto-occipital reflected in headache or occipital neuritis (focal direct or indirect)  
medial parascapular tension (focal direct)  
  
sternal angle / costoclavicular area (focal direct)  
temporomandibular joint (focal indirect)  
bicipital groove (focal indirect)  
tendinous insertions at the knee, including iliotibial tract (regional indirect)  
base of the nasal bones with ethmoid, falx implications (regional indirect)

FOR, in my practice, is most often used as an expedient adjunctive method combined with myofascial or muscle energy techniques. The end range of treatment by these methods can be gently extended by several cycles of oscillatory enhancement much as expiratory effort, or gentle thrust might do. Yet it is gentle, quick, and readily accepted as relaxing by the patient. Alternating the techniques, or layering the cumulative release effects, makes for a more extensive effect as is required in a family practice.

### Additional Notes on Application

Touch is firm enough to direct force and have an effect, yet gentle enough to be accepted by the patient as not intrusive. In some applications a more diffuse contact, such as the hypothenar eminence, can direct the force. Forces are best conceptualized

using a point of contact directing the force, alternating muscle movement on the operator's part to generate the force, a "fly wheel effect" of the operator's treating arms to generate the rhythmicity, and a flexion of the wrist to soften the change of direction each cycle. Duration of dose is a matter of experience but rarely do I use the techniques for more than 20 seconds per site, often 3-5 seconds. Sometimes, however, I will treat a region with a sequence of brief focal treatments depending on the anatomic and physiologic organization of a problem as with other methods. Clinical experience is a useful guide.

Patient and practitioner need to be comfortably balanced and relaxed. If relaxation is a final goal, trust must be negotiated with the patient through tactile communication. If this cannot be achieved, do not proceed; patient must be ready to accept treatment. Otherwise, another method or another day may be chosen for treatment.

As with the percussion vibrator, technique is guided by resonant feedback from the tissues and continued effort is adjusted to enhance harmonic response of the patient. As in any method, palpatory sense guides the treatment; tension and release are universal in dysfunction and osteopathic manipulative treatment and applicable here. Periodic motion, as in a standing wave, involves concepts such as movement around nodes on the wave. As the fulcrum concept is used in many aspects of myofascial work, FOR is a biodynamic model which carries the idea of fulcrum to the nodes of a standing wave, the points around which the other parts of the connected fascial system oscillate. Here, in focused technique, the nodes (points that move minimally) are the wrist, and the applied finger tip. The arm and hand are the periodically displaced portions of the wave motion. In this way, the relatively immovable (dysfunctional) tissue in the patient just distal to the

point of contact will be induced to accept the introduced motion and to resume its normal mobile participation in endogenous: rhythmic motions. One indicator of this phenomenon is ease of respiration. Attention to CRI or all other criteria for ease of motion are used to reassess as concentric indicators. Dr. Fulford and others describe the root phenomenon of this concentric expression as the Breath of Life. Sutherland described it as the Tide.

I would suggest that each is a form of endogenous rhythmic motion, described differently from a different perspective. My suggestion is that FOR and percussive vibration induce entrainment of these natural rhythms if restricted. As described below, this includes manual transduction of electrical stream potentials altering the effect of a central spinal pattern generator on the propriospinal/proprioceptive tonality of muscles coordinated by patterns of oscillatory activity in neuromuscular networks. Explanation is to follow.

#### *Comments on utility and validity.*

The method is easy and device free. It provides the novice with a means of applying oscillatory and perhaps bioelectric intervention to smooth dysfunctional tissue. It is device independent, an advantage over the percussion vibrator due to issues of logistics, available AC power and portability. Can this still develop the efficacy of the percussion vibrator (PV) as taught by Fulford? Fulford was not attached to the machine. He recognized the vibrator as a magnification of the intention and energy of the operator. He would use magnets or crystals to likewise magnify the intention. He even used his finger, properly "charged" as a crystalline treatment device. He read my material and thought it of value. FOR reflects an easily learnable path to his venue of vibratory osteopathic treatment.

Both FOR and PV are compatible

with the concept of discovering restriction of motion and the concept of neural coordination beginning with Still's statements about "nerve force" and restoring these to natural freedom of motion in order to promote health and ease.

Patient comfort is an ingredient to treatment. It is both a goal and a facilitating condition. Almost universally people recognize intuitively the healing power of vibration and often associate the effect with the device, not the process. Patient comfort is enhanced by the quality of the physician's touch and what he or she communicates about their disposition and intent presented by touch. Appreciation as a treater of the nature and extent of natural respiratory motions of the patient enhances effectiveness.

The method is rapid and depends more on change of physician intention and concentration than on a change in hand position. Therefore, it fits readily into routines using eclectic or combined approaches to technique especially blending elements of cranial, myofascial, muscle energy.

It gives us more impetus and stimulus, as we will pursue below, to integrate the mechanical, neuromuscular and bioelectric aspects of health and disease; it raises further questions as to the nature of function and dysfunction, and Osteopathic diagnosis and treatment.

#### *Contraindications*

There are instances when FOR, or PV, technique is counter productive, yet I have not experienced it causing harm. Clearly it is not indicated when there is suspicion of acute fracture, or over the site of suspected nerve impingement. I have found FOR and PV technique to be counter productive in cases of paraplegia involving relative decortication after stroke, or encephalitis. I would proceed with caution if there were suspicion of deep vein thrombosis with the pos-

→

sible dislodgments of clot.

## Discussion:

### *Explanation and Verification*

In his Sutherland Memorial Lecture to the AAO, Robert Kappler, DO revisits the osteopathic task of assessing the whole patient, defends the wisdom of pursuing our osteopathic clinical observations (here referring to the validity of the cranial concept) while scientific explanation is forthcoming. He makes an admonition to our use of the scientific method. "We are obsessed in our western civilization with the scientific method, which is frequently misinterpreted to mean that if we know nothing about something, it must be false . . . Properly applied, the scientific method tells us that if evidence to support data is not present the only conclusion possible is that there is insufficient information to make a judgement."<sup>27</sup> Encouraging continued cranial clinical practice and concurrent research he closed with, "The unique osteopathic philosophy developed by Still and Sutherland has been far too vital to be fossilized into rigid orthodoxy. Our real challenge today is to continue this dynamic tradition with new contributions that must validate and expand the osteopathic approach to patient care."

Percussion vibration treatment, as introduced by Dr. Fulford, is a development in this vein. It evolved from attention to subtle motion and pulsatility as used in the cranial field. Facilitated oscillatory release is but an extension of these concepts. As with the CRI, scientific proof of the mechanism needs to be elaborated progressively. As with cranial work, acceptance begins with observation of clinical efficacy and moves through the area of scientific plausibility toward proof. Dr. Fulford's clinical success stands on its own record. This paper then is part of the effort to move beyond, through the

experience of clinical effectiveness of osteopathic vibratory methods, spend time reviewing issues of scientific plausibility, then demonstrating compatible scientific research. In so doing, I hope to continue to deepen our understanding of the nature of harmonic well being, somatic dysfunction, and osteopathic treatment.

### *Neuromuscular (Biomechanical) Explanations*

Clearly, if we think of non-osseous tissue as conglomerate "soft tissue", a direct alteration of its state may be accomplished by adding a force which causes the tissue to reorganize into a different shape. Although useful, there is a quest to understand the intricacies of somatic organization beyond this model.

Still, as recalled by Arthur Hildreth, DO, often restored physiologic normalcy by simply applying pressure to an area to "inhibit" the hyperactivity of irritated nerves.<sup>22</sup> He considered regional "nerve force" besides joint function and arterial patency in assessing dysfunction and restoring health. Still correlatively made use of frequent references to nerve function as requiring nutrition and generating nerve force. Charles Hazzard, DO references the experimental work of Brown-Sequard with the concept of neural sensitization/inhibition which suggests the later concept of competitive inhibition of nerve conduction.<sup>43</sup>

The work of Denslow, Korr, Retzlaff and Jones,<sup>26</sup> applying the concept of neuromuscular intervention suggested by interruption of the afferent-efferent proprioceptive reflex loop, has been suggested as an explanation of the effectiveness of counterstrain and muscle energy models of somatic dysfunction and treatment. Perhaps these same dynamics may be applicable in the situation of FOR. This train of thought has been discussed exhaustively and has been investigated by J. Howell,

A. Chila, et. al. The associated involvement of the H- reflex of the tendon is also considered.<sup>23</sup>

Frank Willard, PhD has pursued relentlessly the explanation of the persistence of pain and spasm in somatic dysfunction by focusing on neuronal intercommunication and has suggested a number of specific models. He suggests that the efficacy of osteopathic manipulative treatment depends on breaking this facilitated internal communication loop within the CNS of the cord, involving somatic and visceral autonomic afferents.<sup>62</sup>

Richard Van Buskirk, DO, PhD reformulates the research and literature, and proposes that the experience of pain and the nociceptive pathways associated with it determine reflex restriction of motion, or dysfunction. He uses this as a way to explain referred pain and the clinical discrepancy between physical findings and experience of pain through central processing of neural signals beginning in nociceptive unmyelinated fibers.<sup>56</sup>

Each of these three approaches propose the formation of a dysfunctional reflex communication loop which causes somatic dysfunction. One common aspect of all, much hypothesized in the literature, is the involvement of the gamma efferent regulation of muscle spindle length relative to total muscle length. By inference, the efficacy of osteopathic manipulation is to interrupt this non-homeostatically adapted loop. To date, Howell's work is the only one which begins to approach this complex problem in the human model, and clearly there are limitations on our ability to do invasive measurement of the function of individual unmyelinated fibers in the human subject who is in the interim our patient.

Any one of these three models could be used to explain the efficacy of FOR. As in counterstrain, the oscillatory intervention could induce a relaxation state, resulting in lengthening of the muscle in a pleasantly

accepted condition of the patient, and offer cyclically recurrent opportunities for gamma gain, resetting analogous to the time dependent isolated opportunity of counterstrain.<sup>26</sup>

In Willard's model, dysfunction is modulated by a degree of sympathetic activation from interneuronal communication with small unmyelinated fibers. Vibratory motion, through a mechanism yet to be explained, may induce a reorganization of this facilitated communication loop resulting in increased ease and return to functional state.<sup>62</sup>

Key to Van Buskirk's nociceptive model is the co-involvement of "nocio-autonomic reflexes" involving the sympathetic system. His model allows for significant central processing of the nociceptive signals, as well as the co-involvement of the multi-organ, pan-personal implications of sympathetic arousal. Vibratory force, a variant of endogenous periodic motion, which is found to be "pleasant" by most patients, may induce a cascade of centrally mediated neurohumoral effect besides parasympathetically mediated neural effects.

The tonic vibratory reflex (TVR), named by Eklund and Hagbarth,<sup>12</sup> an observed and discussed phenomenon from the classic neuromuscular model, may be helpful in considering cause and treatment of muscle spasm as it is encountered in somatic dysfunction or as dystonia, in the non osteopathic literature. Just as tendon tap induces contraction, steady mechanical vibration to a tendon elicits an involuntary contracture of the muscle, the tonic vibratory reflex, TVR. Various consequences of vibration have been observed and attributed to this reflex.

With muscle contraction of the TVR, concomitant relaxation of the antagonists is induced.

Stimulus vibration rates of 100 to 200 Hz at 1 to 2 mm amplitude were shown by Brown to cause optimal contractile response in the cat model.<sup>4</sup>

Various experiments show that phasic stretch reflex and H reflex are suppressed during muscle vibration.<sup>29,1</sup> The TVR persists in the decerebrate cat but is abolished with section of the spinal cord at the first cervical segment.<sup>35</sup> However, in the intact animal the TVR in the cat can be facilitated by the lateral vestibular nucleus, vestibulospinal tract, lateral medullary reticular formation and contralateral red nucleus. It can be inhibited by stimulation of the contralateral motor cortex, internal capsule and medial medullary reticular formation. Impulses ascend along the dorsal spinocerebellar tract and the dorso-lateral fasciculus, and descending in the vestibulospinal and pontine reticulospinal tracts. In nonhuman primates the co-involvement of cerebral premotor cortex is noted in response to vibratory stimulus evoking the TVR.<sup>14</sup>

In humans, the reflex can be diminished by barbiturates and benzodiazepines and is absent in the damage to the spinal cord. It can be blocked by a gamma depressant, such as tolperasone HCL.<sup>53</sup> This latter study showed a greater response of the TVR to mechanical vibration in patients with a tendency to clench the jaw. Bite force was not increased in hypertonic individuals, suggesting the difference was in threshold of excitability, not in increased muscle contraction. One may use this clench pattern and the resultant muscle hypertonus as a model of somatic dysfunction. In another study,<sup>20</sup> baseline TVR of arm flexors was the same in dystonic and normal subjects, but there was a misperception of motion in the non-spasmodic arm if asked to match the hypertonic arm in the dystonic patients. The data suggest altered processing of proprioceptive data at some level.

As with the cat model, variations of vibratory frequency show variations of muscle response. Martin and Park<sup>34</sup> show EMG harmonic and

subharmonic patterns progressing with increases in vibratory frequency. They deduce that the fall off of synchrony above 150 Hz is due to fatigue. As discussed below, this may simply relate to the congruence or dissonance of the oscillatory frequencies to other rhythmic central neural processes.

Although invasive cerebral studies in humans are no longer permitted, central effects on TVR can be deduced by the complex experiments of Garfinkle and Ivanenko<sup>16</sup> which demonstrated postural changes induced by turns of head position which could be simulated by vibration of the muscles of the neck, intimating at least the involvement of brain stem nuclei or cerebellum, or at least a regional pattern generator.

### *A New View of Neurophysiologic Coordinative Process*

These ways of modeling the mechanism of function/dysfunction build on a model of the neuromuscular system that described structural organizations around the unit of the dedicated neural circuit. Motor control from the central nervous system to the periphery occurs by depolarization along neurons with interneuronal communication through discreet synapses. Peripheral integration of movement occurs due to local interconnections of afferent and efferent neurons in the spinal cord. Modulation of (facilitation or inhibition) function occurs through interneuronal or redundant connections in the loop. The understanding of the complexity of neural and neuromuscular adaptive and coordinative function is pursued as the appreciation by finer dissection of these structural connections.

Another model of neural and neuromuscular coordination, using the temporal aspect rather than spatial distribution of signals as a means for the central and peripheral nervous system to code data, has developed

→

from the work of Donald Hebb.<sup>21,39</sup> Partly driven by the problem of explaining plasticity (or adaptation) of central nervous system after injury, Hebb, in 1949, proposed that the coordinative unit of brain function was not dedicated circuits but rather that neurons coordinated as cell assemblies. A grouping of cells, not necessarily in physical proximity, depolarized in synchrony as the substrate of a cognitive process. The cells need not be dedicated to that mental task, efferent command or particular sensory modality. Cells could be recruited to be used in a variety of activity patterns. The persistence of one thought or activity required its inhibition of competitive thoughts and activities by obligating neurons in overlapping populations similar to the effect of latency periods in classical neuronal depolarization. Temporal binding of cells then constituted meaningful signal, rather than hard wired linkages to dedicated sites. Propagation consists of coordinated dissemination of a signal through neural networks of cells depolarizing/repolarizing in a synchronous pattern. Peripheral transmission occurs as this wave of depolarization progressively expands as eligible cells depolarize. This pattern of dissemination is termed sync-fire chain depolarization.<sup>63</sup> This synchrony or temporal organization of persistent firing of neurons to maintain muscle contraction, for example, is maintained by cyclically recurrent firing of the sync-fire chain made possible by the strength and duration of the input initial signal. Cyclic persistence of the signal occurs as resonance between cells, or oscillations detectable by EMG.<sup>55</sup>

Additionally, the concept of short term modulation of synaptic signal, now familiar in the limited field of interneuronal influence, can be seen as not an isolated phenomena but a basic principle or pattern of organization or influence by which neuronal

cells function. Hence the possibility of synchronous recruitment or sync-fire chaining as a routine organizational process analogous to recruitment of an expanded field of dedicated circuits.<sup>58</sup>

This patterned way of cells influencing one another creates an alternative means for explaining a number of observed functions of the nervous system. Plasticity, or adaptability of neural tissue, is required to explain development, learning, memory and adaptation after injury, all of which are known to occur. Partial return of function is noted after natural or experimentally induced nerve damage or transection of nerves. Devor and Basbaum<sup>10</sup> explore the question of spontaneous reactivation of denervated muscle but conclude “The neural mechanisms underlying functional respecification of dorsal horn somatopy after nerve injury is not known. Experiments . . . have failed to provide positive evidence of long distance sprouting of thigh afferent terminals . . . or of the extension of dendritic arbors from the medial to the lateral part of the dorsal horn. The alternative possibility, strengthening of a preexisting synaptic channel is tenable to the extent that a pre-existing channel can be demonstrated,” but this solution “suffers from the apparent lack of an appropriate morphological substrate.” Others then have accepted that perhaps the substrate, in function and dysfunction, is temporal rather than morphological.

With these questions raised, a number of investigators have then evaluated the possibility of temporal patterns as key to meaningful signal in neural function. Windhorst reviews the use of cross correlograms, as a means of demonstrating the existence of synchronous firing on neurons. Correlograms demonstrate the temporal association of the depolarization of the neurons. One can show whether there is a direct or indirect correlation pattern. He cites the work

of Abele, Loeb and others in the demonstration of relationships in sensory brain processes, alpha motor neuron pools, Ia afferent pools, gamma motor neurons, as well as afferent – efferent correlations in the gross motor and muscle spindle systems. Each population has different frequency characteristics with short-term synchronization corresponding to close, shared presynaptic input. Long-term rhythmic synchronization represents participation in more complex sync-fire chaining input corresponding to interneuronal activity. A special type of long period synchronization was observed to be present in tremor disorders in humans.<sup>28</sup>

Correlation may be direct, representing common input or facilitation; it may be indirect, representing competitive function or inhibition. And the end result interneuronal influence is not only “*amount* of inhibition or excitation that is of importance but also the *pattern*, and in particular the *degree of synchrony* of signal transmission, whose complexity and capacity is immensely augmented by interneuronal systems.” (Windhorst p. 88.) In the central nervous system, the “Mental-cognitive states are interpretations of current neural activity, carried out in reference to a transient coherency generating process generated by that nervous system.”<sup>55</sup> Likewise, peripheral action potentials represent the temporal sum of inhibitory or activating oscillatory potentials reaching a population of muscle fibers.

Patterns of correlative function showing temporally coupled activity demonstrate that coordination occurs with diffuse modulations of inputs so as to imply the existence of a central pattern generator or burst generators. Carter and Smith<sup>8</sup> worked with the patterns of walking and paw shaking cyclic behaviors to be predictably rhythmically coordinated and postulate the central process generator as a sync-fire interneuronal network coordinating the burst durations and synchronized recruitment patterns of

muscles in adult spinal cats.

Furthermore in the human model, McAuley et al.,<sup>36</sup> find corroboration of measurements of gross muscle vibration, EMG recordings and movement (tremor) recordings, and find synchrony of the three phenomena during finger flexion in healthy human subjects.

These models of central and peripheral plasticity or adaptability, accomplished by reciprocally adaptive responses to oscillatory firing patterns, have been suggested to account for adaptive changes after neural damage and part of our ontogeny or growth process, hence the efficacy of patterned movement therapies for children with developmental delay. Later we will consider their applicability to the definition of somatic dysfunction and reasons for treatment effectiveness of osteopathic manipulation.

Schalow and Blanc reviewed the electromyographic literature and show that EMG assessment of muscle activity reveals that individual postural and intentional muscle fiber contraction are organized into synchronized oscillatory firing patterns of alpha 1 and alpha 2 motor units. In their own work they observe correlation in symmetric and alternating patterns in contralateral limbs to affirm: "Coupled changes of oscillatory firing subnetworks to generate macroscopic (integrative) network functions are therefore a general organization form of the central nervous system, and are not related to rhythmic movements, like walking or running only. It is proposed that synchronization of spinal oscillators, phase changes in oscillation, changes from alternating to symmetric firing and backwards, and changes in the focus of alternating oscillations are, among others, physiologic coupling rules of the human central nervous system to generate, by ongoing coupling changes of the oscillatory firing subnetworks, integrative functions such as rhythmic and non-rhythmic movement."<sup>47</sup>

The heart of their work was an experimental/clinical intervention wherein they observed the status of a patient with partial spinal cord transection and retrained the patient's system by having him bounce on a springboard. Thereby they used actively initiated oscillatory motion to reconstitute the native neuromuscular oscillatory organization.

In the FOR model, as in percussion vibration work, we are taking this one step further as therapeutic, directed passive introduction of oscillatory motion, at a harmonic frequency, though the vibrator head or treatment finger as a transducer.

### *Endogenous Control of Oscillatory Motor Neuron Firing; Clinical Implications in Function and Dysfunction*

As indicated above, the model of a central pattern generator coordinating an oscillatory baseline firing pattern in motor neurons, linked in networks for the purpose of postural or propriospinal purposes (functional motion), seems appropriate to their clinical observations and measurements. Voluntary motion is caused by an intensification of the rate of oscillatory firing and involvement of progressively more motor units previously described as recruitment. Coordination of oscillatory activity may be measured by noting either simultaneous or alternating coupled patterns of oscillation. Phase changes between agonists, antagonist or contralateral coagonists determine functional coordinated patterns of neuromuscular activity. Patterns of normal versus dysfunctional patterns of activity have begun to be elucidated. Intervention, active rhythmic motion, also involving rhythmic skin pressure, have been used as an active rehabilitative process to entrain the endogenous pathologic oscillatory pattern and induce resumption of organized gross motor function. Mechanical contact, as foot pressure when bouncing on a

springboard, or perhaps through oscillatory hand pressure, could generate stream potentials (described below) to reset the central pattern generator through entrainment, i.e. generating a rhythmic frequency near enough to the current one to "override" or capture it. The application of this to oscillatory or other forms of passive hand-to-body contact in osteopathic manipulation seems plausible.

Further work in research is needed to clarify the utility of the model in the elucidation of the nature of somatic dysfunction and manipulative treatment. Such is our plan.

It should also be noted again that others, including J.H. McAuley, observe that endogenous tremor or oscillatory movement in the range of 10, 20 and 40 Hz during muscle contraction of the finger demonstrates that oscillatory organization is part of normal motor function at the level of neuromuscular coordination. Schalow demonstrated that the lack of correct synchrony is part of neural damage and is remediable by stimulation in a rhythmic pattern. By extension, this way of viewing the neuromuscular system shows potential for elucidating normal motion and restriction of motion in the osteopathic model. The need is to complement, the dedicated circuit model, including attention to relationships of type II and Ia afferents and alpha and gamma motor neuron interconnectivity, and to think about temporospatial coupling of these processes and ways in which these may be resynchronized.

### *Bioelectromagnetics*

Clearly from the point of view of modern bioengineering and electrophysiology there are myriad electrochemical/biomagnetic properties of the human body. Most of us are aware of EEG, EKG, nerve conduction studies and MRI studies. Yet each of these clinical measures have a family of nonclinical measurement protocols to

→

which there has not been discovered or assigned a level of clinical application. And so, for example, magnetocardiography or electrooculography or magnetic susceptibility plethysmography are not routinely performed and most of us are not aware of their existence.<sup>33</sup>

Many medical interventions, including pharmacology, depend on appreciation of electrical properties of phase barriers, such as cell membrane where potentials are developed due to an ionic gradient caused by the semipermeability of the membrane. It is a coordinated reversal of these properties which generates the signal measures in an EKG or nerve conduction studies.

Electric phenomena are also appreciated when the body is modeled as a volume source or volume conductor. An organ, when considered as a whole may become electrically organized to generate a dipolar field, and the effects of this field can then be disseminated electrically through a wide bulk of tissue. And using this model, a sensible EKG has been developed using a coordinated array of peripheral leads comparing dipole transmission in a pattern.

The body's electromagnetic properties have also been modeled for several centuries including in Dr. Still's time, to conduct unidirectional signals through the conductive nerve fibers.

There is no lack of observable phenomena in the human body. The problems arise in trying to interpret purposeful organization of physiologic and therapeutic significance. The interrelationship between structure and function is such that in the human body one structure usually supports a variety of functions as each function depends on the coordination of multiple physical substrates. And it is in this context that this discussion needs to consider additional functions of the fascia, muscle, and interstitial milieu as interfacing with their electromagnetic properties, as clarified

through field theory in physics.

### *Corroborative Current Work in Bioelectromagnetics*

To preface my review, since many of us have not a current knowledge of the field of physics, let me make some remarks to clarify what follows. Classical Newtonian physics, to which many of us were introduced as a complete understanding of the physical world, elaborates a view of the world in which matter is discrete, and divisible into successively filter particles. For most of us, physical science education stopped at the biochemistry stage. Yet molecular biochemistry, with all its sophistication, including modern genetics, often ignores developments in the realm of physics beyond the Newtonian model, which includes most of the work of the last century. The consequences of the theory of relativity, for one thing, mean that no longer is our understanding of molecular, atomic or subatomic events dependent on the concept of  $kT$  or kinetic temperature for the completion of a chemical reaction. These principles are still indeed true but concepts, such as are introduced by quantum theory, suggest that energetically induced effects may promote the forward direction of a reaction without reaching  $kT$ . At least the possibilities are plausible.

One mechanism cited is the effect of electron spin. This concept of paired electron spin resonance is the quantum equivalent of valence in Newtonian chemistry. Chemical bonding depends, to a large extent, on the stability of radical paired electrons. Should the electrical state of the pair be altered, their spin resonance changes, and chemical reactions may be shifted in a forward direction toward product. This can be accomplished at an energy level below the thermal coefficient cited above. In the biological arena, we are just beginning to consider these issues of physical, including biochemical, change

due to subtle energies. This opens the door to biochemical interactions in a new arena. It is the arena of concern over magnetic fields and cancer among others. And yet these sensitivities may be part of microelectric milieu of which we have been largely naive. In other words, relevant forces that may generate biologically significant events may be due to indigenous and exogenous subtle forces, including periodic rhythms as the proprio-spinal oscillation of neural networks cited by Schalow above.

### *Endogenous Forces*

In this area of query, electromagnetic energy may affect all living tissues in ways previously unquestioned and may redefine concepts such as homeostasis. These would have consequences for our appreciation of what is transmitted in the vascular circulation, what is the constituency and properties of connective tissue including the fascia. Kenneth Little, DO,<sup>30</sup> and R. Taylor<sup>54</sup> together discuss the thermodynamic model, including energetic considerations, as it applies to homeostasis in the osteopathic context. Let me begin this part of the discussion by directing attention to the electrical conductive property of fascia most normally ignored by us.

Alan R. Becker, DO has called our attention to the possible piezoelectric effect of these tissues in heeding Still's call to look to the fascia. Piezoelectric effects involve the generating of a charge or electrical potential when tissue is placed under stress. This is a characteristic demonstrated on dry tissue samples. In hydrated, as in living tissue, these are called stream potentials.<sup>38</sup> MacGinitie, et al., demonstrate the presence of these currents in stressed bone in the dog model, which correlated with new bone deposition associated with the stress. Bone deposition is directed by the force field generated by the potential. These results correlate with osteoblastic cell culture proliferation

testing in reaction to strain.<sup>42</sup> Similar effects have been found to occur with the exogenous pulsed electromagnetic fields. MacGinitie goes on to cite the literature to demonstrate their presence in cartilage and tendon. They decrease with the denaturation by hyaluronic acid. It is easily seen that they represent a common characteristic in all connective tissue, and may be expected to be an organizing factor in fascia. Clearly dysfunction and OMT involve states of balance of tissue forces.

Endogenous electromagnetic forces are also observed in one-celled animals and embryos of a variety of species. Nucitelli,<sup>41</sup> in elaborating the presence of extracellular ionic currents in living tissue, measured in vivo electric fields by using micro electrodes. After citing the literature of fields measured in interstitial area of 25 species, ending with embryos of chicks and amphibians, she notes "These studies indicate that endogenous electric fields large enough to influence (neural) crest-cell do indeed exist in the chick embryo at the proper developmental stage." In larger animals such fields have been measured at the site of wound healing. At this stage it cannot be concluded whether or not these fields are cause or effect of the events studied but effects of these fields could be part of the patterning of a central pattern generator as well as other biologic processes.

If these subtle forces are capable of altering a developmental or healing cascade of biochemical events, can they be considered a relevant dynamic in homeostatic function or inflammation as normally encountered clinically? This is theoretically relevant when we open ourselves to move beyond envisioning the body as parts to be passively and actively moved, or biochemical events dependent on development of kT to drive a process forward. More germane is the perspective that bioenergetic process may be as significant an aspect of the

intracellular matrix as we normally associate with the structural components, and therefore part of the underpinning of fascial relationships in somatic function and dysfunction.

Multiple studies have been generated by the community defending against the possible effects of the magnetic fields generated by high tension wire.<sup>3</sup> These studies depend on the absence of fields strong enough to alter chemical stability within the Newtonian chemical model. J. Walleczek<sup>60</sup> explores the bioapplicability within their context. Reviewing the literature, she uses the popular recognition of free radical of calcium, oxygen or nitrous oxide as driving, acting as messengers in cell signaling for biosignificant reactions. She takes this further in reviewing the relevance of recombination of dissociated spin correlated pairs of electrons. Occasions of instability due to exogenous effects are referred to as windows susceptible to induced change.

Research in the use of pulsed magnetic fields is inconclusive as to its use in directable, controllable use for therapeutic effect. However, multiple studies show that PEMF's have physiologic effects in wound healing and in resolution of edema and tissue elasticity.<sup>45</sup> If there is even an unpredictable effect there are by deduction electromagnetic properties of tissue yet to be appreciated in order to accept such effects.

### *Relevance*

When one recalls that energy is described in waveform properties involving matter, that stress of connective tissue induced an electric potential, oscillation or percussion would, to some extent, be altering the endogenous bioelectromagnetic interstitial milieu with introduced force. It has been demonstrated that in a number of contexts, endogenous, electrical fields are part of the inflammatory or healing process. Rhythmic bioenergetic potentials are part of the func-

tional set of normal and distressed musculature, as peripheral movement is coordinated by the central nervous system.

### *Summary*

Osteopathy has explored the natural relationship of structure and function in health and disease. Dr. Still propounded the multivariate complexity of our nature but insisted that his students have significant effects by their palpatory interaction with the patient. When a musculoskeletal explanation of effect seemed insufficient, he would include consideration of a neural or vascular explanation. His field of observation was limited to palpation, dissection and late x-rays.

More recent scholars in the osteopathic field, including Jones, Willard, Van Buskirk, Mitchell and Johnston have developed a common theme, complementing the ligamentous articular components of motion and restriction with neurophysiologic aspects. Current neurologic study makes this plausible.

William Garner Sutherland elaborated an approach to somatic dysfunction involving local palpation of diffuse patterns of subtle motion. His student, Robert Fulford, explored further implications of these patterns of motion and other means of altering them when restricted, including the percussion vibrator.

He attempted to use electromagnetic field theory as a means of explaining his observation of dysfunctions and treatment effects. While working under Dr. Fulford and wishing for a device free approach to using vibratory motion, Facilitated Oscillatory Release, (FOR) evolved.

Gentle but directed oscillation of connective tissue is applied through manual contact with the patient at 150-200 cpm for short durations. The method is applicable to a variety of ligamentous, articular restrictions or palpable muscle spasm reflecting

→

neuromuscular hyperreactivity associated with somatic dysfunction.

Classic neuromuscular reflexes, including stretch reflex, tonic vibratory reflex or simple lagamma resetting may, explain the effectiveness. However, recent neural coordinative models involving temporal coordination of neurons complement the classic spatial or dedicated circuit. Cyclic firing of muscle fibers as measured on EMG show patterns suggesting temporal, as well as spatial, associations involving central pattern generation. Models of neural networks of cell assemblies frictioning in temporal association to oscillatory, vibratory motion support the clinical model of somatic dysfunction/osteopathic manipulative treatment in general, FOR and PV approach included. Dysfunction and treatment are then means of observing or rectifying a maladaptive pattern of central nervous system plasticity.

## Bibliography

1. Arcangel C., Johnston R, Bishop B. The Achilles tendon reflex and the h response during and after tendon vibration, *Phys Ther* 51: 889-902. 1971.
2. Becker R., *The Body Electric*. William Morrow. NY. 1985.
3. Blank M., Ed. *Electromagnetic Fields-Biological Interactions and- Mechanisms*. Columbia Univ., American Chemical Society. 1995.
4. Brown M., Engberg I., Mathews P. The relative sensitivity to vibration of muscle receptors in the cat. *J. Physiol*. 192:773-800. 1967.
5. Burr H.S. *The Neural Basis of Human Behavior*, C. Thomas. Springfield, IL. 1960.
6. Burr H.S., *Blueprint for Immortality, the electric picture of life*, Saffron Walden. 1972.
7. Byrne J., Ed. *Neural Models of Plasticity Experimental and Theoretical Approaches*. Academic Press, NY, 1989
8. Carter M., Smith J. *Soc Neurosci Abstr* 10:631
9. Chaitow, L., ND, DO. *Modern Neuromuscular Technique*, Churchill Livingstone. New York, NY. 1996.
10. Devor M., Bausbaum. A., and Seltzer, Z. Spinal somatotopic plasticity: possible anatomic basis for somatotopically inappropriate connections in Goldberger, E. *Development and plasticity of the mammalian spinal cord*. Springer Verlag. 1986.
11. Edwards S. MPH. *Manipulation and Mobilization*. Mosby. Louis. 1993.
12. Eklund G., Hagbarth K., Normal variability of tonic vibration reflexes in man. *Exp Neurol*. 16: 80-92. 1966.
13. Endo S., "Japan's Ancient Trees Whisper Their Secrets", *New Scientist*. 18 May 1995. p. 9.
14. Fourment A., Chenneville J. Responses of motor cortex cells to short chains of vibration, *Exp Brain Res* 1996, Sep 111(2): 208-214.
15. Fulford R. DO. *Vibratory Energy*, 1992. AAO Convocation address and personal communication.
16. Gurfinkle V. , and Ivanenko Y (The influence of head rotation on human upright posture during balanced bilateral vibration, *Neuro report*. 1995 Dec 29. 7(1):137-140.
17. Gevitz N., *The DOs*. John Hopkins 1982.
18. Goldstein D. "On the dialectic between molecular biology and integrative physiology: toward a new medical science." *Perspectives in Biology and Medicine*. 40,4 Summer 1997. p 505 ff.
19. Goodgold J., Eberstein A. , *Electro diagnosis of neuromuscular disease*. William and Wilkins Baltimore/London, 1983. p. 277ff.
20. Grunwald R., Yoneda Y., Idiopathic focal dystonia: a disorder of muscle spindle afferent processing? *Brain*. 1997 Dec: 120 (Pt 12): 2179-2185.
21. Hebb D. *The organization of behavior*. Wiley, NY. 1949.
22. Hildreth A. *The Lengthening Shadow of Dr. Andrew Taylor Still*. 1942. Hildreth/VanVieck.
23. Howell J. PhD, Cabell K., Chila A. DO, Eland D DO. "Stretch receptor and H-reflex response to manipulation treatment in Achilles Tendinitis", Somatic Dysfunction lab OUCOM, unpublished paper 1997.
24. Hazzard, C., DO, *Principles of Osteopathy*. pp. 35-52.
25. Hunt V. *Infinite Mind. Science of Human Vibration of Consciousness*. Malibu Press. Malibu, CA. 1989.
26. Jones L., DO. *Jones Strain-Counterstrain*. Jones Strain-Counterstrain Inc. Boise, ID. 1995. p. 9ff.
27. Kappler R.E., DO. "Osteopathy in the Cranial Field, Its History, Scientific Basis, and Current Status," Sutherland Memorial Lecture. AAO Convocation 1978. reprinted in *The Osteopathic Physician*. 1979. p. 13-19.
28. Kirkwood. Variation in the time course of the synchronization of the intercostal muscles of the cat, *J. Physiol*, London. 350:225-251.
29. Lance J., Gail P., Neilson P. Tonic and phasic spinal cord mechanisms in man, *J Neurol Neurosurg Psychiatry*. 29: 535-44. 1966.
30. Little K.E. "Toward more effective manipulative management of chronic myofascial strain and stress syndromes". *JAOA*, vol. 68. 3/69.
31. Luntzberger W., Flor H., Birbauner N. Enhanced dimensional complexity of the EEG during memory for personal pain in chronic pain patients. *Neurosci Lett*. 1997, May 2. 226(3): 167-170.
32. Maitland G. D. *MBE Peripheral Manipulation*. Betleheim-Heinemann. London 1991.
33. Malmivuo J., *Bioelectromagnetism: principles and applications of bioelectric and biomagnetic fields*. Oxford Press. New York, NY. 1995.
34. Martin B., Park H. Analysis of the tonic vibratory reflex: influence of vibration variables on motor unit synchronization and fatigue. *Eur J Appl Physiol*. 1997:75 (6):504-11.
35. Matthews P. The reflex excitation of the soleus muscle of the decerebrate cat caused by vibration applied to the tendon, *J Physiol* 184, 450-472, 1966.

36. McAuley J., Rothwell J. "Frequency peaks of tremor, muscle vibration, and electromyographic activity at 10 Hz, 20 Hz, and 40 Hz during human finger muscle contraction may reflect rhythmicities of central neural firing, *Exp Brain Res*. 1997. 114:525-541.
37. McConnell C.P., DO. The Basis of Technique. *JAOA* 1933, reprinted in The Selected Writings of C.P. McConnell DO. Editors, Jordan T., DO and Schuster R, DO. 1994.
38. McGinitie L., "Streaming and piezoelectric potentials in connective tissue," *Electromagnetic Fields*. Am Chem Soc, 1995, M. Blank, ed.
39. Miguel A., Hebb's Dream: the resurgence of cell assemblies, *Neuron*, vol. 19: 219-221, 1997.
40. Mitchell F., DO. *An Evaluation and treatment Manual of Osteopathic Muscle Energy Procedures*. Mitchell, Moran, Pruzzo Associates. Valley Park, MO. 1979.
41. Nuccitelli R. *Electromagnetic Fields*. M. Blank ed p 109. "Endogenous Electric Fields in developing embryos". 1995. p. 5ff.
42. Neidlinger-Wilke C., "Cyclic Strain Increases Proliferation of TGFB Release of Human Osteoblasts". European Orthopaedi Research Society. Annual Conference Transaction, Munich. 7/95.
43. Olmstead, J. Charles Edouard Brown-Seguard: Nineteenth Century. *Neurologist and Endocrinologist*. Johns Hopkins. 1946.
44. Reise W., *A History of Neurology*, MD Publications. NY. 1959. pp 131-136.
45. Revel J., Grace K. "The effect of pulsed electromagnetic fields in osteochondral healing in the rat". *EONS* (cf 23) p. 28.
46. Sakurai Y. Population coding of cell assemblies - what is in the brain. *Neurosci Res*. Sept 1996. 26:(1) 1-16.
47. Samsonovich A., McNaughton B. Path propagation and cognitive mapping in a continuous attractor neural network model, *J Neurosci*. 1997. Aug. 1: 17(15): 5900-20.
48. Schalow G., Blanc Y. "Electromyographic identification of spinal oscillatory patterns and recoupling in a patient within complete spinal cord lesion, oscillator formation training as a method of improving motor activities." *Gen Physiol Biophys*. 1996. Aug 15 (suppl) 1 pp. 121-220.
49. Schillen T., Koonig P., Binding by temporal structure in multiple feature domains of an oscillatory network, *Biol Cybern* 1994. 70 (5): 397-405.
50. Spatz H., Hebb's concept of synaptic plasticity and neuronal cell assemblies, *Behav Brain Res*. 1996. Jun 78(1):3-7.
51. Still A.T. *Philosophy of Osteopathy*. Kirksville 1899, p. 16 ff.
52. Sutherland W. G., *Contributions to Thought*, ed. Adah Sutherland, Anne Wales. Sutherland Cranial Teaching Foundation. 1967. p. 206 ff.
53. Takata T., and Nakajima, T., Quantitative evaluation of the tonic vibration reflex in the masseter muscle, *J Oral maxillofac Surg*. 1996, Nov: 54(11):1307-13.
54. Taylor R.B. "Bioenergetics of Man", *AAO Yearbook*. 1958. pp 91-96.
55. Valera F. Resonant cell assemblies; a new approach to cognitive functional and neuronal synchrony. *Biol Res*. 28 81-95. 1985.
56. VanBuskirk R., DO. "Nociceptive reflex and Somatic Dysfunction, a model". *JAOA*. v.90, no 9, 9/90, p 792 ff.
57. Van Dijk J., Lammers G., Wintzen A., Molenaar P. Repetitive CMAs: mechanisms of neural and synaptic genesis, *Muscle Nerve*. 1996. Sep 19. 90:1127-33.
58. von der Malsburg C., How are nervous structures organized in Basar, E et al. *Synergies of the brain*. Springer Berlin. Heidelberg, NY. 238-249.
59. Vogel M., PhD. misc. tapes and newsletters from Psychic Research Inc., San Jose, CA
60. Walleczek J. "Magnetokinetic effects of radical pairs: a paradigm for magnetic field interaction in biologic systems other than thermal energy". *Electromagnetic Field*. M. Blank, ed., p. 396.
61. Whittle M., Ed. *Biomechanic Measurement in Orthopedic Practice*. Clarendon Press. Oxford. 1985.
62. Willard F., PhD. "Joint Visceral and Muscular Irritation of the Origin of Somatic Dysfunction". AAO Convocation Didactic Presentation 3/96.
63. Windhorst U., How brain-like is the spinal cord, Springer-Verlag Berlin Heidelberg 1988, p. 11.
64. Windhorst U., The spinal cord and its brain: representations and models. To what do forebrain mechanisms appear at brainstem spinal cord levels, *Prog Neurobiol*. 1996. Aug. 49(5): 381-414. □

Send all correspondence to:  
 Zachary J. Comeaux DO, FAAO  
 Associate Professor/ Section of OPP  
 West Virginia School  
 of Osteopathic Medicine  
 400 N. Lee Street  
 Lewisburg, WV 24901  
 zcomeaux4,wvsom.edu

## Registering for the AOA Convention

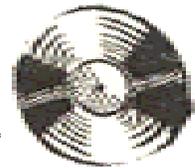
The AAO's Education Committee has chosen the theme, "Economic Benefits of OMT in Osteopathic Medicine". This program will encourage all DOs to better integrate OMT into their individual practices of osteopathic medicine and consider ancillary services that can distinguish their practices from other physicians in their communities. Speakers will also demonstrate proven strategies to facilitate appropriate and legitimate reimbursement for these unique services.

In order for the AAO to earn a greater share in Convention revenues which are coordinated by the AOA for its participating affiliates, please consider registering as an AAO Member. It is possible to **SPLIT YOUR REGISTRATION** between **TWO** affiliates, thus each of them sharing evenly in the net proceeds. The Academy depends on these financial resources to underwrite the expenses associated with sponsoring this educational program.

Please support the American Academy of Osteopathy with your registration as an AAO member for the 2002 AOA Convention in Las Vegas.

Sincerely,  
 George J. Pasquarello, DO, FAAO  
 2002 Program Chairperson

# Fifty Years (1938-1998) of AAO Yearbooks on CD-ROM



## Over 9,000 pages of osteopathic literature for \$149.95

CD-ROM is full-text searchable, enabling the user to find articles by title, author, and key word. An attractive resource for researchers, physicians-in-training, and to AAO members who do not currently have a full set of AAO Yearbooks.

### Order Information:

\_\_\_\_\_ Academy Yearbooks on CD ROM  
@ \$149.95 each (includes U.S. shipping and handling)

Total \$ amount of order: \_\_\_\_\_

#### Shipping Information:

Name \_\_\_\_\_

Street Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Daytime Phone \_\_\_\_\_

E-Mail Address \_\_\_\_\_

#### Payment Information:

\_\_\_\_\_ Check enclosed

\_\_\_\_\_ Charge my credit card

VISA OR  MASTERCARD

Cardholder's Name \_\_\_\_\_

Card No. \_\_\_\_\_

Expiration Date \_\_\_\_\_



For your copies, contact:  
**American Academy of Osteopathy®**  
3500 DePauw Blvd.,  
Suite 1080, Indianapolis, IN 46268  
phone: (317) 879-1881  
FAX: (317) 879-0563