

THE AAO

FORUM FOR OSTEOPATHIC THOUGHT

JOURNAL

 Official Publication of the American Academy of Osteopathy®

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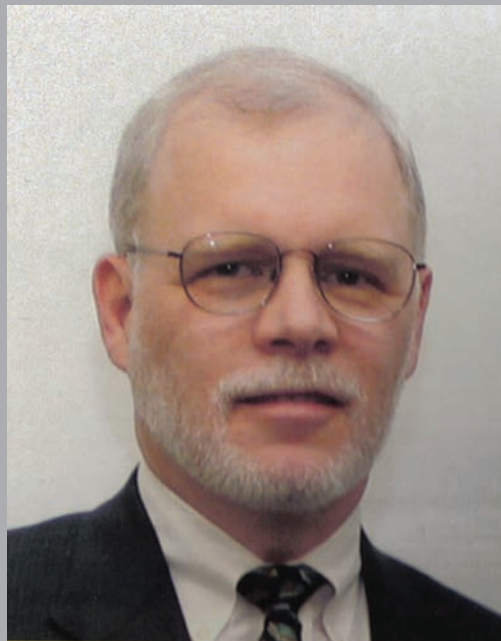
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Treatment of Asthma using OMT

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2005 Thomas L. Northup Lecture: What if?

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Thomas L. Northup, DO

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:

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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.

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

Book Reviews

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

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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.

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

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

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3. Check that all references, tables and figures are cited in the text and in numerical order.
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7. Describe the basic study design; define all statistical methods used; list measurement instruments, methods, and tools used for independent and dependent variables.
8. In the "Materials and Methods" section, identify all interventions that are used which do not comply with approved or standard usage.

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A PEER-REVIEWED JOURNAL

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

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American Academy of Osteopathy® Calendar of Events

2006

- Mar 20-22** *Visceral/Structural Integration*
in Birmingham, Alabama
- Mar 22** AAO Boards of Governors and Trustees
in Birmingham
- Mar 22-26** *AAO Convocation* in Birmingham
- May 5-7** *Diagnosis and Treatment of Low Back Pain*
in Durham, NC
- May 19-21** *Prolotherapy: Above the Diaphragm*
at UNECOM
- Jun 16-18** *OMT for Common Organic and Clinical
Problems* at UMDNJ-SOM
- Jul 1** AOBNMM application deadline
- Jul 14-16** *Visceral Manipulation: Urogenital*
in San Francisco
- Aug 18-20** *The Still Technique (Applications of a Redis-
covered Technique of Andrew Taylor Still, MD)*
at Southpoint Hospital in Cleveland, OH
- Sep 15-17** *Advanced Clinical Jones Strain-Counterstrain:
Emphasis on Extremities* at University
of Indianapolis
- Oct 15** One-day course – *Introduction
to Osteopathic Medicine for the Non-physician
Licensed Health Care Provider* in Las Vegas
- Oct 16-20** *AOA Convention* in Las Vegas
- Nov 3-5** *Prolotherapy: Below the Diaphragm*
at UNECOM
- Dec 1** AOBNMM application deadline
- Dec 1-3** *Visceral Manipulation: Membranes*
in San Francisco

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View from the Pyramids

Anthony G. Chila

The Wide World of Osteopathy

Andrew Taylor Still's contribution to the improvement of the practice of medicine has, in recent years, shown a propensity for international expression. Although still recognized as being of American origin, the community of practitioners abroad has shown diverse expression for many years.

The training and scope of practice in the osteopathic world has distinguished three types of practitioners: US-trained DOs (Graduates of American Osteopathic Association [AOA]-accredited osteopathic medical schools); Nonphysician osteopaths (Graduates of schools of osteopathy in foreign countries, trained in osteopathic principles and practice, but not having unlimited practice rights); Foreign physicians with osteopathic specialties (Graduates of foreign medical schools, specializing in Osteopathic Principles and Practice [OPP]).¹

The American Academy of Osteopathy (AAO) hosted its 1st International Forum in 1996. This forum provided an opportunity for discussion and deliberation for Nonphysician osteopaths. Subsequent years have seen the effects of the International Forums facilitate the emergence of two major forces for the expression of osteopathic practice: an Osteopathic International Alliance (OIA) established by the American Osteopathic Association (AOA); a World Osteopathic Health Organization (WOHO) established through the efforts of US trained DOs and international osteopaths. AAO members have been actively involved with both in membership and governing boards. The World Health Organization (WHO) has been instrumental in initiating an international project addressing "guidelines on the safety and efficacy of osteopathy." Again, the AAO has been actively involved.

There is an earlier history of activity which can be viewed as informal preparation for these post-1996 organizational accomplishments. Various aspects of activity spoke to an appreciation of heritage while expressing differentiation in traditions. It is in this earlier era that one can see the sowing of seeds which, slowly at first, but with gradually increasing momentum, prepared the scene which is being witnessed today. The practices of individual US trained DOs in countries abroad during the years following World War I, the inter-war years, and the post-World War II years can be cited. The establishment of the British School of Osteopa-

thy (BSO) by John Martin Littlejohn was the beginning of a European tradition which faced resistance to development similar to that of the US experience. This represented a cycle which began when this educator, a patient and student of Still, became a faculty member and Dean of the American School of Osteopathy (ASO), later founded the American College of Osteopathic Medicine and Surgery with his two brothers, then returned to his native country. The opposition of the General Medical Council of Great Britain to the efforts of Littlejohn was certainly comparable to the opposition of the American Medical Association to osteopathic development in the United States during this period of time. The decade following World War II saw the beginning of more frequent communication and teaching between US and British DOs in London. Full licensure of US DOs had not been achieved at that time, and interest was being shown in osteopathic practice by some European MDs. During the second post-WWII decade (1964), a Basic Course in Osteopathy in the Cranial Field was presented in Paris, conducted by a teaching team of the Sutherland Cranial Teaching Foundation (SCTF). In various ways, the next 30 years saw the emergence of national organizations and registries leading to more formal definition of educational requirements and practice statutes. A history of international activity from the early years of the 20th Century through, perhaps, 1975 would provide a wonderful prologue for the events of the past 10 years.

One year after the AAO-sponsored 1st International Forum, in 1997, the Andrew Taylor Still Memorial Address was delivered by W. Douglas Ward, PhD. Doctor Ward had served as the AOA Director of Education (1977-1993) and as Associate Executive Director for Educational Affairs (1993-1996). In his address to the AOA House of Delegates Annual Meeting at Chicago, he noted that: "Osteopathic medicine is now thoroughly integrated into the organizational structure of the United States. It is only a matter of time—perhaps 100 years—for this structure to extend throughout the world."²

Time has moved very rapidly, and the shadow of Andrew Taylor Still continues to lengthen.

1. *The DO*. April 2005; 10
2. *The DO*. November 2005; 42

Contributors

Dennis J. Dowling. What If? The 33rd Thomas L. Northup Lecture (2005) addresses a periodically recurring question. In this instance, the author discusses a bonesetter named Job Sweet. This apprenticed practitioner was a descendent of a family whose origins can be traced to 1637. Sweet was born in 1724, a century before Andrew Taylor Still. He was a decades long practitioner in the Rhode Island region. Typical of bonesetter family traditions, skills and methods were passed down through generations. *What If?* ponders the question of Sweet's ability to modify the evolution of American medicine via the implementation of a new school of thought, *Osteopathy*. The question continues exploration through recommendations for curricular teaching. (p. 11).

Wm. Thomas Crow and David Kasper. A Myofascial Trigger Point On The Skull: Treatment Improves Peak Flow Values In Acute Asthma Patients. Nine (9) patients who were experiencing acute asthmatic exacerbations and were refractory to standard treatment were seen by the authors approximately 1-3 hours following treatment. The authors identified a myofascial trigger point at the left parietal eminence on the skull. Direct pressure of the trigger point for 45 seconds, after which a repeat Peak Flow measurement was obtained. Retrospective study of these patients (ages 16-55 years) showed dramatic improvement. Further study is indicated. (p. 23).

Claudia L. McCarty. Intercostal Rib Release. This Scientific Paper/Thesis was submitted in partial fulfillment of requirements for Fellowship in the American Academy of Osteopathy. The author received status as Fellow in 2000. The paper is extensive, offering considerations of Epidemiology, Physiology, Pathophysiology, Management. A Review of Research is also provided. For publication, the section dealing with a protocol for management of acute asthmatic exacerbation utilizing intercostal rib release has been chosen. The author may be contacted regarding other sections of this paper. (p. 26).

JL Rook and AM Auburn. Multidisciplinary approach to treatment in a 38-year old female, restrained driver following injuries sustained in a rear-end collision. Complicated sequelae from motor vehicle collisions are perplexing to many practicing physicians. Currently known as Cervical Whiplash Syndrome (CWS) or Whiplash Associated Disorder (WAD), multifactorial considerations are necessary. The authors describe successful management of a patient seen 14 months after such occurrence, utilizing Osteopathic Manipulative Treatment (OMT) and Trigger Point Injections (TPI). (p. 33).

Regular Features

DIG ON. Andrew Taylor Still did not, in his writing, uniformly provide references for "standard medical authorities." His *Autobiography* (1897) offers an example (pp. 442-443, with illustration). Through courtesy of the Funk and Wagnalls Company, the illustration of the muscular system of the body affords Still the opportunity to discuss "The Army of Muscles." (p. 7)

FROM THE ARCHIVES. *The Practice of Osteopathy* (Carl Philip McConnell and Charles Clayton Teall, 1906) offers very useful considerations for treatment of asthma. Relief during exacerbation is a readily attainable goal. Remedy of the process is emphasized during the interval between exacerbations. (p. 8).

BOOK REVIEW. *The Science and Practice of Manual Therapy: Physiology, Neurology and Psychology* (E. Lederman, 2nd Ed., Churchill Livingstone 2005). Professor Eyal Lederman revisits the question of "What is happening under the hands of the manual therapist?" twelve years after beginning to write the first edition of *Fundamentals of Manual Therapy*. The key elements of patient cognition, active involvement of patient, effective feedback, repetition and similarity to normalized movements are addressed. (p. 37). *Cranial Osteopathy: Principles and Practice* (T. Liem, 2nd Ed., Elsevier 2004). Torsten Liem, DO (GB) has provided a comprehensive and highly structured text addressing the morphology, clinical associations, diagnosis and treatment of structures of the human cranium. This effort is the outcome of revision of his previous text and provides significant incorporation of contemporary research in this area. (p. 38).

ELSEWHERE IN PRINT. Urinary Tract Infection (UTI) is the most commonly diagnosed bacterial infection in women. While major morbidity or mortality are rare, economic and quality of life factors are considerable (*Johns Hopkins University Advanced Studies in Medicine: Volume 6, Number 1- January 2006 ; 24.*) Linear mouth opening is being replaced by temporomandibular opening index (TOI) as a measure of mandibular opening. The latter is independent of age, gender, ramus length and gonial angle. It is also more useful in diagnostic group categorization (*CRANIO, The Journal of Craniomandibular Practice; Volume 24, Number 1-January 2006; 25.*) (p. 39).

CME CREDIT. In response to reader requests, AAOJ will offer CME Credit to readers completing the enclosed quiz. At this time, 1 Hour II-B Credit will be offered, with request for upgrade as AAOJ qualifications are reviewed by the *American Osteopathic Association*. (p. 30).

Dig On



The Army of Muscles

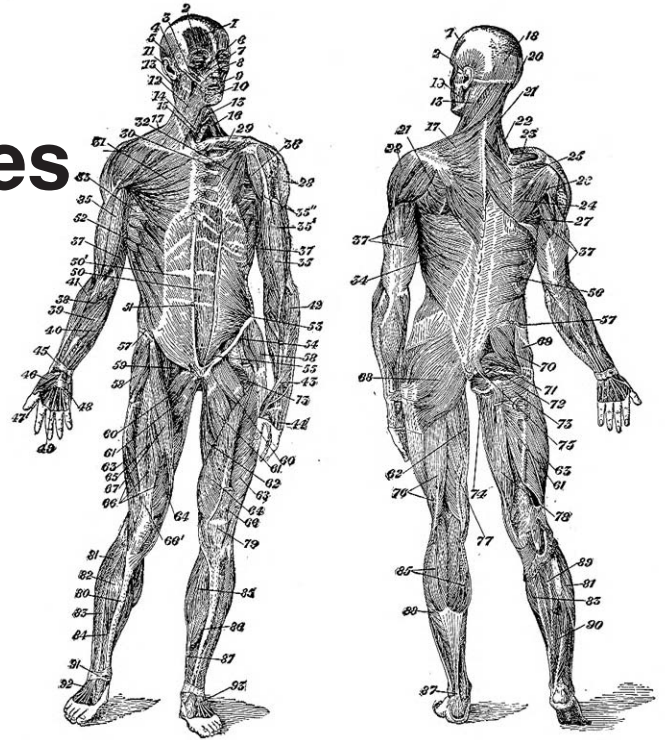
“Autobiography of A. T. Still”, pages 442-443
Published by the author
Kirksville, MO
1897© by A.T. Still

Chapter XXXII.

The Muscles-Brain Headquarters-The Army of Muscles-The Secret of God-How to Live Long and Loud-Time Coming for Big Dinners-Command to Eat-Off to the Country-Osteopathy Cures Seasickness-Country Friends-Quiet and Shady-Explaining the Cause of Lumbago-Tired Nature Seeks Repose.

THROUGH the kindness of Funk & Wagnalls Company of New York, we are permitted this elaborate cut, which shows about one-fourth of the muscles of the human body, each of which is a useful servant in performing the labors of life. I give place to those beautiful pictures of some of the parts of that greatest of all known machines, who bears the name of man. Will those of you who have not had the chance to study anatomy in schools or otherwise, please look for a few minutes and see the shapes of a few muscles; see how nicely they are formed and properly placed to do the great duties they have to perform in life? You see they have great strength, and all equal to the duties they have to discharge. If you look all over the being from head to foot, you find braces at all parts of the body, and they are powerful in quality and size, just to suit the place, and are fixed to hold all bones in position, with much power, left after doing the work of bracing, to lift much additional weight.

Each muscle is so distinct from all other muscles in form and office, in fact we might call each muscle an officer whose rank is a division commander. He must answer to the grand roll-call himself, which is from the commanding general, whose headquarters and name are in the brain. Each muscle must report to the commanding general and salute him with becoming dignity, and this high officer must salute and respect all subordinates, or the great battle of life will be lost. He must keep his couriers to each division commander in motion, all the time bearing despatches of the condition of all camps that are being reported at headquarters. Each division commander shall receive and read all despatches in the field of action-the quartermaster, commissary, company, squads, and sections, not of one camp or division, but all of the whole army.



Muscular System of Man.

1. Frontal. 2. Orbicularis palpebrarum. 3. Zygomaticus minor. 4. Zygomaticus major. 5. Temporal. 6. Levator labii superioris. 7. Levator labii superioris alaeque nasi. 8. Compressor narium. 9. Orbicularis oris. 10. Depressor labii inferioris. 11. Buccinator. 12. Platysma. 13. Sternocleidomastoid. 14. Sternohyoid. 15. Trachea. 16. Scalenus. 17. Trapezius. 18. Occipitalis. 19. Masseter. 20. Splenius capitis. 21. Splenius colli. 22. Levator anguli scapulae. 23. Supraspinatus. 24. Infraspinatus. 25. Rhomboideus. 26. Teres minor. 27. Teres major. 28. Deltoid. 29. Subclavius. 30. Intercostal. 31. Pectoralis major. 32. Pectoralis minor. 33. Serratus magnus. 34. Latissimus dorsi. 35. Biceps of the arm. 35'. Long head of same. 35". Short head of same. 36. Coracobrachialis. 37. Triceps. 38. Pronator radii teres. 39. Flexor carpi radialis. 40. Palmaris longus. 41. Supinator longus. 42. Extensor carpi radialis longior. 43. Extensor ossis metacarpi pollicis. 44. Extensor tendon of the little finger. 45. Annular ligament of wrist. 46. Abductor pollicis. 47. Flexor brevis pollicis. 48. Palmaris brevis. 49. Extensor tendon of middle finger. 50. Rectus abdominis. 50'. Sheath of same. 51. Navel. 52. External oblique of abdomen. 53. Internal oblique of abdomen. 54. Poupart's ligament. 55. Inguinal canal. 56. Serratus posticus inferior. 57. Crest of the ilium. 58. Tensor fasciae latae. 59. Iliopsoas. 60. Pectineus. 61. Adductor longus. 62. Gracilis. 63. Vastus externus. 64. Vastus internus. 65. Rectus femoris. 66. Quadriceps extensor femoris. 66'. Tendon of same. 67. Sartorius. 68. Gluteus maximus. 69. Gluteus medius. 70. Gluteus minimus. 71. Pyriformis. 72. Obturator internus. 73. Obturator externus. 74. Tuberosity of the ischium. 75. Sacrosacral ligament. 76. Biceps of the thigh. 77. Semitendinosus. 78. Semimembranosus. 79. Patella. 80. Tibia. 81. Peroneus longus. 82. Tibialis anticus. 83. Extensor longus digitorum. 84. Extensor longus pollicis. 85. Gastrocnemius. 86. Flexor longus digitorum. 87. Tendo Achillis. 88. Soleus. 89. Tibialis posticus. 90. Flexor longus pollicis. 91. Annular ligament of the ankle. 92. Extensor brevis digitorum. 93. Extensor tendon of the toes.

Bronchial asthma

The Practice of Osteopathy. Carl Philip McConnell and Charles Clayton Teall.

Copyright 1906. pgs. 517-521

Bronchial or spasmodic asthma is a chronic affection, characterized by a paroxysmal dyspnea due to a spasmodic contraction of the muscles of the bronchial tubes or to swelling of their mucous membrane.

Osteopathic Etiology and Pathology. The majority of lesions causing bronchial asthma are from the second to the seventh dorsal region, inclusive, either in the ribs posteriorly or anteriorly, or in the vertebrae. These lesions involve vasomotor nerves to the bronchioles, which produce the narrowing of the tubes and thus cause the dyspnea. Usually the lesion is at the third, fourth or fifth rib on the right side, although, as stated, a lesion may be found above or below this point at the anterior or posterior ends of the ribs or in the vertebrae corresponding to the same region. Probably lesions are found more on the right side, because most people are right handed; these muscles being better developed would tend, when contracted, to draw the ribs from their articulation. The third, fourth and fifth ribs are usually found involved because it is the region of greatest vaso-motor innervation to the bronchial tubes.

In a number of cases there will be found a posterior curvature of the dorso-lumbar region; and accompanying this condition will be catarrh and dilatation of the stomach, congestion of the liver, and, perhaps, intestinal indigestion and constipation. Careful attention should be given to the digestive organs.

Occasionally a lesion is found involving the pneumogastric at the atlas and axis. Such a lesion also irritates fibres of the pneumogastric to the muscles of the bronchioles and thus produces narrowing of the tubes and consequently the paroxysms. Other points to note are the costal cartilages and hyoid bone, and probably, in a few instances, lesions to the phrenic.

Attacks may be induced reflexly by various excitants, as dust, diseases of the upper respiratory tract, etc., but the lesions to the vaso-motor and motor nerves are the predisposing causes. Laughlin¹ says: "It is questionable whether reflex causes alone are sufficient to produce genuine asthma without the existence of specific lesions affecting the direct nerve connections of the part involved."

Pathologically, true asthma is a pure neurosis. There is more or less chronic inflammation of the bronchial tubes, shown by injection and thickening of the bronchial mucosa in the majority of cases. There may be found the morbid states peculiar to chronic bronchitis and emphysema. Whether the

constriction of the tubes is due to spasms of the bronchial muscles or to swelling of the mucosa, or to both, the primary, predisposing and irritating influences are common to both. These are vertebral and rib lesions affecting the spinal nerves at their exit and the sympathetic chain along the head of the ribs; irritating lesions to the vagi, constricting pulmonary vessels, and to the cervical sympathetics, causing disturbance

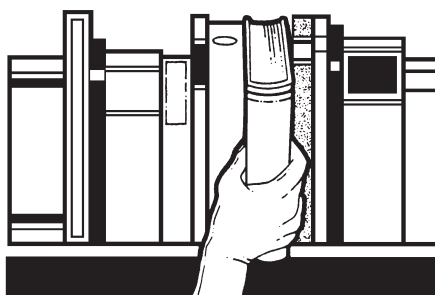
of the same, would be factors in the pathological chain. Reflex irritations may be found in various regions, but the principal osseous lesions, according to Dr. Still, are on the right side from the second to the sixth dorsal.

Symptoms. The attack may come on at any time, but usually it comes on in the night during sleep. The onset may be sudden or the attack may be preceded by premonitory sensations, such as tightness in the chest, flatulence, sneezing, chilliness and a copi-

ous discharge of pale urine. Nervous symptoms, headache, vertigo, neuralgia, and an anxious, nervous, restless feeling may precede the attack. There is a sense of oppression and anxiety, followed by dyspnea. Soon the respiratory efforts become violent and the patient is obliged to sit up or run to the window for air. The shoulders are raised, the hands are placed upon something firm to keep the shoulders fixed so that the accessory muscles of respiration can be brought into play. The contracted tubes resist the entrance of air. Expiration is prolonged and wheezy.

In severe cases the face becomes pale, the skin is covered with perspiration, the extremities are cold, the lips, finger-tips and eyelids are livid, owing to defective oxygenation of the blood. The pulse is small and quick and the temperature is normal or subnormal. The attack may terminate suddenly, some times with a spell of coughing; this is especially so of severe cases, as the cough is generally absent in brief paroxysms.

The cough is at first very tight and dry and accompanied by a tough, scanty expectoration which is expelled with great difficulty. The sputum contains rounded masses of matter, the so-called "perles" of Laennec. Microscopically, they are found to be of a spiral structure, containing cells derived from the bronchial mucous membrane and fatty degenerated pus cells. A second form is contained in the inside of the coiled spiral of mucin, a filament of great clearness and translucency, that is most probably composed of transformed mucin. Curschmann's spirals are found in the early stages of the attack and for a time these were supposed, by their irritation,



to excite the paroxysms. Their spiral form is unexplained. Curschmann believes that these spirals are found in the finer bronchioles and to be a product of bronchiolitis.

Physical Signs. Inspection shows enlargement of the chest which is fixed and barrel-shaped. The breathing is labored and the chest moves but slightly. The diaphragm is lowered. Percussion yields hyper-resonance, especially in cases which have had repeated attacks or when the asthma is associated with emphysema. Auscultation. With inspiration and expiration are heard sonorous sibilant rales, which are more marked on expiration. As the secretion increases, which is later in the attack, the rale becomes moist. The attack lasts for a variable period, rarely less than an hour. In severe attacks the paroxysms recur for three or four nights or more with spontaneous remissions during the day. In some cases the relief seems to be absolute, but in the majority of cases there is more or less oppression and cough for a day or two, sometimes for many days.

Diagnosis. The physical signs, examination of the sputum and the history of the case makes the diagnosis easy.

Prognosis. It is not a fatal disease and only dangerous when complications arise. Under osteopathic treatment the prognosis is usually favorable, unless there are serious complications, as this is a disease that osteopathy has treated with signal success. In long standing cases emphysema invariably develops.

Treatment. Asthma, unless complicated with bronchial and lung diseases, is readily relieved during the paroxysms.. Cases of many years' standing have been cured in a few treatments. It should be borne in mind that asthma is a respiratory neurosis.

To relieve an attack the osteopath should locate the lesion, if possible, and correct it. If the muscles are so severely contracted that it is impossible to make out the nature of the lesion, then strong inhibition, with an upward, outward movement over the angles of the ribs involved, will be quite sufficient. The object to be gained in every case is to relieve pressure or irritation to the vaso-motor or motor nerves, so that the narrowed tubes may be relaxed. Strong inhibition, such as placing the knee in the patient's back, at the same time pulling on the shoulders, will have temporary effect, but it is always best to reduce the lesion if possible. In severe cases dilatation of the rectum may relieve the paroxysm, and in a few instances it will be necessary to treat the uterus locally.

During the interval between the attacks is the time to remedy the disease. Then one is able to locate exactly the position of the disturbed tissues that are causing the paroxysms and apply treatment in the regions given under etiology. Many

cases of asthma are cured in from one to three months' treatment. One treatment a week is sufficient, provided one is able each time to accomplish something toward a correction of the lesion and that the patient does not suffer during the meantime. Too frequent treatments may simply act as an irritant to the nervous lesions.

Attention should always be given to the diet and hygiene. Gastric digestion should be complete before retiring or it may induce an attack. Complications are treated according to the disease. . Examine the upper respiratory tract, the digestive tract, and the pelvic organs when there is reason to believe the paroxysm may be induced reflexly. Laughlin sums up the treatment as follows: (1) Removal of specific lesion; (2) removal of exciting causes; (3) removal of reflex causes; and (4) treatment of the patient to improve the condition of the general nervous system.

References

1. Laughlin. Asthma. *JOA*. Oct 1904.

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What if?

Dennis J. Dowling

A war such as the continent had never previously seen had devastated the country. Brother had been pitched against brother and the toll had created alterations in how commerce, politics, education, and medicine had been practiced.

It was during this time that a lone itinerant doctor traveled hundreds of miles at the request of a family in need to do what he felt was his life's work, healing the sick. The lone rider made the trip to see to the needs of the young woman who was crippled with what was described as a dislocated hipbone. His reputation had been well established within his immediate region because of all of the miraculous cures that were associated with his hands.

The patient, the daughter of a prominent soldier and politician, had been unsuccessfully treated by conventional medical approaches. In fact, the family physician and several other learned doctors wanted to be present during the treatment. After his arrival, a time for the demonstration was set for 10:00 AM the next morning. The spectator doctors left for their homes and the host sought to get his guest settled. Being weary and tired, but noting the great pain the patient was experiencing, the doctor expressed his desire to set about to work immediately and not wait for the next day. The 13-year-old girl was a little taken aback with the doctor's disheveled and apparently eccentric appearance. However, the doctor approached the patient and explained in comforting tones what it was that he was going to do to treat her. Once he had secured her cooperation, he asked for permission from her father, as was proper for the time, to touch her hip and leg. Like the doctor, the patient's father was not so much interested in demonstrations, only in his daughter's comfort and readily agreed for the treatment to begin. In a few minutes, manipulation of the region had been completed and the doctor instructed the patient to walk around the room. Much to the surprise of the patient and her father, she walked around the room without pain. By the time the physicians arrived the next morning, the doctor was on his way homeward.¹ If he had been more of a showman, perhaps he could have changed the way medicine was practiced on the American continent forever.

For anyone who has read stories about Andrew Taylor Still, this scenario would not sound that unusual. Perhaps it sounds like something from Hildreth's *The Lengthening Shadow of Dr. Andrew Taylor Still*. In truth, it occurred a little less than 80 years before A.T. Still "flung high the banner of osteopathy." The doctor of the story was not Andrew Taylor Still, but was a bonesetter named Job Sweet, and the year was most likely 1795.

During the revolutionary war, Dr. Sweet was often called

to Newport, Rhode Island to set the bones of French soldiers, something that their own doctors could not accomplish. He was a doctor like many of the era were: a man who healed the sick. Like others of the Sweet clan, which can be traced as far back as 1637 when John Sweet came to the colonies, Job was said to have "inherited" his bonesetting talent.

He was born in 1724, practiced for decades in the Rhode Island region, and like other members of his family appeared to have an uncanny knowledge of anatomy despite lacking a formal education. Once, while being shown some exhibits in a science hall in Boston by a learned professor and physician, he remarked that one of the foot bones of a displayed skeleton was in the wrong orientation. The physician protested that it was expertly assembled but upon later examination, determined that Job Sweet was correct.²

It was not until the twentieth century that some members of the family became medical school trained physicians. Dr. Job Sweet made the trip from Rhode Island to New York to treat Theodosia Burr, the daughter of Colonel Aaron Burr, the third vice-president of the United States of America. It was many years before the unfortunate duel (July 7th 1804 at 7 AM)³ that has been a big part of Burr's legend or his subsequent attempt to establish a separate empire in the Midwest part of the continent. Job Sweet may have been the most skilled bonesetter of a family of practitioners that had first emigrated from Wales to the American continent in the seventeenth century. As was the tradition of the times, the secrets were passed from generation to generation prior to and after Dr. Sweet's treatment of Theodosia Burr.

As has been indicated, it occurred nearly 90 years prior to Dr. Still's establishment of the first school of osteopathy as well as nearly 60 years prior to Wharton Hood's treatise supporting bonesetting⁴. It occurred shortly after Colonel Burr had become a single parent. He was extremely devoted to his daughter Theodosia and to his two step-sons and insisted upon a thorough education for all. Theodosia could read and write several modern and classical languages and engage in conversation concerning all matter of topics, including politics. She meant the world to him and he consulted all types of physicians regarding her condition without much benefit. Apparently, Job Sweet accomplished what "modern medicine" could not. However, being a relatively shy man, he finished his task and retreated to his home without fanfare or showmanship. What if he had waited until 10:00 AM the following morning? Could that have been

as important as the same time on June 22nd, 1874? What if the doctors had been impressed with his skills and desired to learn more? Was he reticent to be the center of attention or was it a tactical move to avoid exposure of the family secrets to critical eyes? What if bonesetting had been incorporated into colonial American medical treatment?

Colonel Burr was at one time a very influential man and as a politician actually came very close twice to becoming president of the United States. In fact, he tied Thomas Jefferson in electoral votes and only lost to become vice-president following 36 ballots by the House of Representatives. He was always interested in wielding power. Could he have exerted his influence to incorporate bonesetting into the American medical system? In truth, there was no organized system of medicine. There was the educated physician or the apprenticed physician. Dr. Sweet qualified as the latter.

The first medical school at the College of Philadelphia was only established a few years prior in 1765. Dr. Sweet was already 41-years-old by this time. Kings College, which would become Columbia, would not have a medical school until 1768. Harvard, the third institution to host a medical school, would not establish its college of medicine until the conclusion of the Revolutionary War in 1781. Most medical-school-trained physicians on the North American continent up to that point and even for a long time afterwards, were trained at the University of Edinburgh⁵. The victims of battles waged during the Revolutionary War were treated by physicians having all sorts of training, but most likely by the common apprenticed-trained variety. There were also battles being fought, politically and otherwise by the physicians of the late eighteenth century. Shippen, Morgan, and Rush, as well as a host of others, contested to see who would control the medical profession of the era. Could Aaron Burr have introduced Dr. Job Sweet and his system of care to the world at large? Could Dr. Sweet teach what had only been passed down from parents to children? Would it be “osteopathy” as we know it? It would not have, most probably, been treated as a system of medicine different than what was practiced and would most likely have been added to the then



current processes of phlebotomy, amputations, and poisonous medicinals. It would have been merely an additional modality. In a way, it would not be viewed any differently than how some MDs see osteopathy today: manipulation as a possible form of treatment to be added to the other tools and not as a whole system of health care.

The bigger question to ponder regarding the story of Job Sweet is, “What if Dr. Sweet had had the mentality of Andrew Taylor Still?” Could he have initiated the evolution of American medicine away from its allopathic course? He would have

needed to have had the intellectual curiosity of Andrew Taylor Still, accompanied by the eccentric ego that gave inner strength and a sense of righteousness, as well as the significant events that went into the founding of osteopathy. He would have needed the conviction that he should teach the family secrets to others for the good of mankind. He would have needed to plant the seeds of the new medicine in a philosophy that looked at the patient and not the disease; at the interaction of the parts of the whole and not the effect of the symptoms; at the integrative processes of the individual in seeking or restoring his own health with the aid of the physician and not the passive role when physicians took extraordinary and oftentimes dangerous measures. The events of the founding of os-

teopathy came about at the most propitious time for its birth. Yet, Dr. Still claimed that it had always been present. To quote the old doctor, “I do not claim to be the author of this science of Osteopathy. No human hand has framed its laws; I ask no greater honor than to have discovered it.”⁶ It had been there for Dr. Still to find and it was there for Job Sweet or some other healer to discover. Instead, it remained hidden as do so many of the “secrets” that have been described by great physicians for millennia. Glimpses of great things have been observed only briefly to then be buried and forgotten. Why didn’t Job Sweet discover osteopathy? He was not the right person. There would and could have been no one other than Andrew Taylor Still to expose osteopathy to the world.

The practice of wondering “What If?” is not something new. Science fiction stories have explored the concept for hun-

dreds of years and comic books have engaged in the process for decades. Popular novels and movies are just the juxtaposition of imagination, creativity, and reality. We all do it in our minds whether we voice it or not. We do it prospectively and retro-



spectively. What if I didn't make that turn? Maybe I wouldn't have gotten into that accident. What if I had picked the right numbers in the lottery? What if I hadn't gone to osteopathic medical school? Would someone have been there to help the patients when they needed it most? We use "what ifs" to look back at the roads not taken as well as looking forward during decision-making times to try to determine the alternatives.

It is even practiced by historians. The Military

History Quarterly has published two popular books titled "*What If?*"^{7,8}, which are collections of articles that have appeared within its pages. The term that is used by the editors is "counterfactual history" indicating that a changed key event in history is explored for the possible consequences. Rather than just being fiction, the stories indicate a great deal about the impact of the events as they actually did occur. What would have happened had Alexander the Great been killed when he attacked the Persians nine years prior to his eventual death? Certainly, there would have been no city of Alexandria in Egypt, no library of great knowledge, no Ptolemy pharaohs, no Cleopatra, and no conquest of the known world. Perhaps, there would have been an earlier or later development of a Roman Empire⁹.

Would the American Revolution have succeeded without its iconic leader, George Washington? Besides his miraculous escape from Brooklyn with all of his troops during an almost preternatural fog¹⁰, he came within moments of being shot in the back. The British marksman who invented the breech loading musket could hardly have missed the stately 6'3" redheaded commander whom he easily recognized. However, being the man that he was, he could not bring himself to behave dishonorably by shooting the unsuspecting general¹¹. We can also wonder what would have happened if he was not treated by physicians after an upper respiratory infection. It was not a virus or bacterium that killed President Washington but his doctors who phlebotomized him until, in his weakened condition, he succumbed to his illness.

Scientists also engage in the same sort of "What If?" thinking. What if Heron of Alexandria, also known as Hero or "Mchanikos, the Machine Man", had combined his knowledge of other machines with his invention of the steam engine? This was nearly eighteen hundred years prior to the appearance of the steamboat and locomotive. Some historians think that Heron only considered his invention a toy while others think that the economics of the day and availability of slave and cheap labor

precluded the use of mechanical devices¹². So many of Heron's inventions¹³ were lost: hydraulics that automatically opened temple doors and powered machines, mechanical birds that sang and moved, the repeating crossbow that was a "machine gun" that could fire several powerful bolts per minute, clocks whose function remained a mystery for nearly two thousand years, and the automated theater that was as "computerized" as any Disney animatronic exhibition. He was as prolific and ingenious as Edison and we can devise all sorts of alternative futures extending from this point. Explorers would have traveled hours or days across seas and oceans that had previously thwarted their efforts. Flying machines such as envisioned by DaVinci would have traveled from city to city. Empires such as we have never previously imagined would have risen and fallen. The industrial era could have occurred 17 centuries earlier than it did.

Andrew Taylor Still engaged in his own "What If?" musings. One of these concerned his Civil War experiences:

"During the hottest period of the fight a musket-ball passed through the lapels of my vest, carrying away a pair of gloves I had stuck in the bosom of it. Another minie-ball passed through the back of my coat just above the buttons, making an entry and exit about six inches apart. Had the rebels known how close they were shooting at Osteopathy, perhaps they would not have been quite so careless."¹⁴

He must have also wondered what could have become of him when he accidentally came upon a group of pro-slavers prior to the outbreak of the war. They were drilling in a field while he was on his way to visit Mrs. Jones, who was ill. He took a defiant stance:

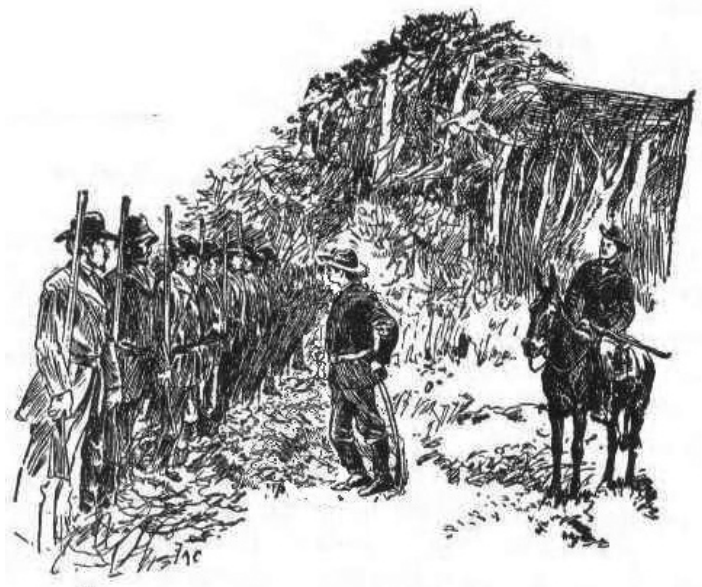
"What in the h--l are you fellows up to?"

I was answered by the Captain in command:

"Where in the h--l are you going?" I saw in a moment that my firmness had produced good effect, and there was no further danger. I rode up and stopped in front of the company, shook hands with the Captain, told him to give the command to me and I would drill his men, and show him how Jim Lane and John Brown did it, concluding with:

"If you don't have your men better trained, and Jim Lane

→



ever meets you, he will shake you up.”

The Captain turned his men over to me, and I drew them up in line, put them through all the cavalry movements, tangled them up, straightened them out, and told the Captain he must drill better, so they could get out of tight places when they met



us. Then I turned the company over to the original Captain Owens, who said:

“Attention, company; this is Dr. Still, the d--dest abolitionist out of h--l, who is not afraid of h--l or high water. When you are sick, go for him; he saved my wife’s life in cholera, and I know him to be successful any place you are a mind to put him. In politics he is our enemy, in sickness he has proven to be our friend.” And closed by saying: “Doc, go home to dinner with me, and I will go with you to see Mrs. Jones.” I went with the Captain to dinner, and he made his word good by going with me. From that, time until the close of the pro-slavery question in 1857 I met, passed, and repassed his men without fear or molestation.¹⁵

There are so many other osteopathic “What Ifs?”: What if Dr. Still’s first wife and children had not died of disease? What if he had not treated his own headaches with a rope swing? What if he had not been so interested and knowledgeable about anatomy? What if he had been a more successful allopathic physician? What if he had been a less successful osteopath? What if Dr. Still had had the American School of Osteopathy (ASO) grant an MD degree instead of a Diplomate and later a Doctor in Osteopathy degree?¹⁶ What if Abram Still had been a lawyer instead? Would he have become “A.T. Still, Esq. – Lightning Lawyer” instead? The list can go on and on yet the facts remain that his actions lead to the founding of the osteopathic profession and more than 55,000 osteopathic physicians today.

Much conjecture can be directed at other events in the history of the profession. The Still National Museum published an article in a newsletter years ago relating that some of Dr. Still’s admirers gave him a memento from the Civil War, which he kept on his porch for years. He must have struck his pipe against it many times and may have even tapped it with the walking stick that he always carried. After his death, it was later discovered

that the cannon shell held live ammo. The real counterfactual story would be to consider what would have happened to the profession had Dr. Still died before December 12th, 1917. Would there have been a power struggle that would have torn the ASO and the profession apart at a time when it was less capable of

weathering the stress? Even immediately after his death, there were struggles among the board members when a non-DO non-family member, Mrs. Mae DeWitt Hamilton the next highest stockholder after Dr. A.T. Still in the corporation, was selected president. Charles Still, DO had sold off many of his shares in the corporation that owned the ASO and had no clout.¹⁷ The loyalties of the members of the board and the faculty were very much tested at that time. The school had survived the early schisms with Elmer Barber and Marcus Ward, as well as conflicts with the Littlejohns, William Smith and several others but those events occurred prior to Dr. Still’s death. Some, even though they were disruptive at the time, definitely reinforced the profession. If it were not for these conflicts, there would be no Chicago College of Osteopathic Medicine and probably no osteopathy in Europe. The strength to maintain the profession should Dr. Still had died in 1900 may have come from Blanche Still. Along with her husband, George Laughlin, she co-founded the A.T. Still College of Osteopathy and Surgery in 1922. It merged two years later with the original school to become the Kirksville Osteopathic College.¹⁸

The profession has had many other crossroads or key events that could have resulted in other outcomes. One of these concerned the Spanish influenza pandemic of 1917-1918.^{19,20,21,22,23} It is not so much that the profession changed, but let us imagine what would have happened had there been no osteopathic physicians. More than 500,000 Americans died related to the disease. Tasker did a survey and published the results from 1,350 DOs and 43,500 cases of flu with just 160 deaths.²⁴ Kendrick Smith, an M.D./D.O., collected data from 2,445 osteopathic physicians who collectively treated 110,122 cases with 0.25% mortality or 275 deaths²⁵. The projected number for this cohort given the general mortality rate should have been at least 11,012 dead. That indicates that 10,737 people survived who would have

otherwise died. If we extrapolate even further and consider that a generation occurs every 20 years with each person having two children, then we can estimate that over 170,000 Americans alive today are descendants of those fortunate patients. If we take the half million who died and apply a 0.25% mortality, 12,500 would have died instead. That is relatively near what the normal statistics are for most recent virulent flu epidemics. It would have then placed behind the 1957-1958 and 1968-1969 epidemics with 70,000 and 33,000 Americans in related deaths respectively²⁶. The difference with the Spanish flu pandemic is that it did not just kill the very old, the very young, or the very sick; it killed indiscriminately. There may have been 15,000,000 more Americans today had there been lymphatic treatment for all. With more than 20 million dead from the pandemic worldwide, many times the combatant casualties from World War I, the number who could have survived if the focus had been on facilitating the natural immunological defenses would be incredible. The need to have alternatives to the treatment of influenza may be even more pressing today since we have seen the lack of discovery, preparedness and efficacy in many of the current interventions. However, we can not rest on the successes of the past. When osteopathic physicians saved all those thousands of people, they were still making housecalls and sometimes treating patients two and three times per day. We, as a profession, should prepare for the future needs of patients should another such virulent pandemic occur.

Two decades later, Watson and Percival²⁷ did a three year study of children hospitalized for pneumonia in two metropolitan hospitals. At one hospital, the children received OMT and at the non-osteopathic hospital, standard care. Where the Tasker and Smith articles were the results of a retrospective survey, Watson and Percival produced a prospective study that met or far exceeded the sophistication of many of the other epidemiological studies of the era. The children with bronchopneumonia had nearly one-third the mortality of the untreated group. The mortality for children with lobar pneumonia in both groups was essentially the same. One hundred and fifty children with bronchopneumonia were treated at the osteopathic hospital and 90% lived versus the 70% of the 331 children who lived at the other hospital. This indicates that 44 children survived who otherwise would have been expected to succumb and there are possibly 700 descendants alive today because their ancestors were fortunate enough to be patients of osteopathic physicians. Although Watson and Percival had only percentages to report the differences, their review of the data was detailed and well recorded. A Chi test on the data would be very statistically significant. Is there a possibility that someone in this audience is a descendent of the treated children?

We can wonder if there was no lymphatic treatment and no osteopathic medicine. We can wonder if there may have been more interest in such alternative treatment had there been no development of relatively effective medications. Prior to the late 1930s, there were anti-sera and inoculations but not much else. The sulfa antibiotics were only a few years old and not very available. The mould had settled onto Fleming's culture plates but it was years before it had any consequence in the war against infection. Other than osteopathic treatment, there really was a hodge-podge of approaches for infectious diseases. The heroic

age of medicine had not yet run its course. Extraordinary methods, the mainstay of the "allopathic" orthodox approach were still rampant. Sweating fevers, dangerous home and prescription remedies were still in use, and the typical physician could just watch and wait. Osteopathic medicine, with its hands-on approach made a difference. From more recent studies, we understand to a greater detail the mechanism of action and the true effectiveness of osteopathic manipulation in treating infectious diseases.^{28 29 30} We can wonder if osteopathic medicine would have become more popular had there been no development of antibiotics. We can also consider that there may be greater interest in the current age since there are growing concerns regarding pharmaceuticals as well as antibiotic resistances on the part of many pathogens.

The growth of the osteopathic profession did not just concern the number of physicians. The members of the profession also added to the knowledge and development. Where would we be without their contributions? We can only hope that there would have been someone to discover Cranial Osteopathy if there was no William Garner Sutherland or Muscle Energy if there was no Fred Mitchell, Sr.. Would there have been Counterstrain if Lawrence Jones hadn't considered what to do with a patient who was severely bent forward? What if Thomas Northup had not existed? First of all, there may not have been an American Academy of Osteopathy. It was Thomas Northup who took the initiative to get study groups organized³¹.

In the first three decades of the twentieth century, there were sectional societies that would meet at the AOA conventions in rooms that they would secure at the hotels. Dr. Perrin Wilson ran the sacroiliac section, which was sometimes called the "Society of Sacroiliac Technicians." Dr. Northup had his sights set lower and was in charge of a group that focused on the foot. In 1937, Dr. Northup wrote to 135 colleagues in the AOA inviting them to a breakfast meeting on July 6th. Sixty three came and the genesis of a society to develop the science and art of osteopathic manipulative treatment, arrange programs to improve osteopathic physicians' skills, encourage the development and distribution of teaching of new methods, and publish original articles was established. The Society of Sacroiliac Technicians evolved to become The Osteopathic Manipulative Therapeutic and Clinical Research Association by the next year's convention, when it was recognized as a component society. This became The Academy of Applied Osteopathy in 1944 and it underwent another name change in 1970 to its current status, The American Academy of Osteopathy.³²

We have to also assume that if there was no Thomas Northup, there would be no George Northup. The younger Dr. Northup was also the editor of the *Journal of the American Osteopathic Association* for 26 years, editor of the *AAO Yearbook and Osteopathic Research: Growth and Development*, author of *Osteopathic Medicine: An American Revolution*, and was a president of the American Osteopathic Association in 1958 to 1959.³³ Between them, the contributions of Thomas and George Northup to the profession have been invaluable.

Within the history of the profession, there are few seminal events that have had an impact on its growth or danger to its existence like the California situation that exploded in 1962.

Proposition 22 eliminated the mechanism to license any additional osteopathic physicians within the state while simultaneously allowing for the exchange of a DO for an MD degree. The process could not have come about without the conspiracy and cooperation of a select group of leaders and members of the California Osteopathic Association. John Cline, MD, 1952 president of the AMA, surveyed osteopathic colleges in 1953-55 and recommended that MDs could teach in osteopathic colleges. He also advocated that the “cult” label be removed from DOs and that state medical societies could determine the professional relationship between MDs and DOs. However, the AMA would maintain the same requirements that they had for other non-allopathic practitioners whom they otherwise found acceptable and assimilated; would remove philosophical and historical references; and would adhere to only those AMA approved scientific principles. The College of Osteopathic Physicians and Surgeons as well as the California Osteopathic Association accepted these provisions and the latter amalgamated with the California Medical Association in 1961. COPS became the California College of Medicine. Proposition 22 was supposed to seal the deal by eliminating the further licensing of osteopathic physicians. Two thousand became MDs in the conversion processes while 400 did not. Of the 400, many actually maintained practices out of state. If the actual number of DOs who maintained their license fell below 40, the proposition allowed for the total dissolution of the osteopathic board. The AOA lost nearly one-seventh of its members and there appeared to be the possibility of a cascade. Part of the irony is that the converted physicians, the “little m.d.s” still did not attain the recognition they sought from the specialty societies across the country, by their “colleagues” within California and especially by other state medical licensing boards. A core group in California banded together and 12 years later won the right for future DOs to be licensed. Eventually a new school, the College of Osteopathic Medicine of the Pacific, was developed. Rather than roll over and die, the profession arose to be stronger and more secure. That is the history.^{34,35}

We can entertain several corridors of “What Ifs?”. What if the CMA and the AMA had bided their time and negotiated with several state osteopathic medical societies simultaneously. If there were DOs in California who wished to be MDs, then there were certainly many others who had the same desire from other parts of the country. Even in the present there are many ‘wannabe MDs’. The conversion process could have caused such a domino effect that it may have made it impossible for the osteopathic profession to ever recover. Perhaps, the military in the mid 1960s would have only accepted an osteopathically schooled physician if he or she had received a license to be an MD. We can also look at it from the perspective that the amalgamation attempt failed and that there would have been no Proposition 22. Without the enticement to become instantly recognizable, the 2,000 who converted would not have become MDs. Instead of the generation of new schools that arose more than a decade later, the profession may have remained with the same six osteopathic schools. Perhaps, that event had more to do with the growth of the osteopathic profession over the last 30 to 40 years than with a setback.

What about the present and the future? What if osteopathic

education was osteopathic? That is not an attempt at sarcasm or irony but an observation of the condition of things as they are. As the liberal economist Stuart Chase (1888-1985), said, “Democracy, as has been said of Christianity, has never really been tried.” The same can be said any governmental philosophical approach or theology as well as for osteopathic medicine. Osteopathy has not truly happened – not in our schools, residencies, and not in our specialty colleges. Although we could analyze any of these, I would like to specifically address one of my greatest interests: osteopathic medical school education. It would be a simple extension to address the other institutions. The schools of osteopathic medicine have roots stretching back to the original institution in Kirksville and the deans of all of the schools must be osteopathic physicians and all must have departments to teach osteopathic manipulative medicine. There have been many “ten-fingered” deans and faculty at these schools over the years. Of course, there have also been deans who have had considerably fewer fingers, at least figuratively. The truth is that the academic programs are often not that different than one would find in an MD school with the exception of the additional Osteopathic Manipulative Medicine (OMM) course. If it is just seen as a manipulation course, just a modality to pull out at certain times when convenient, then we have failed.

Project 100 that is being promoted by the United States Bone and Joint Decade organization is seeking to integrate some levels of musculoskeletal medicine in 100% of the MD schools. Even if they include training in manipulation, it will not be the same. It will be missing the core component to drive the successful application: the osteopathic philosophy. Since the days of the Flexner report, there has been great attention towards fulfilling the requirements that an MD school must fulfill. It was for this reason that the College of Osteopathic Physicians and Surgeons was able to be so easily converted to a non-osteopathic college of medicine in 1962. With more than 20 schools, there are as many different ways to organize the curriculum. It is almost like the old statement that if there were two osteopaths in a town, there would need to be three hospitals. There is a “home rule” phenomenon that results in a lack of consistency. There needs to be a paradigm shift. In order to become osteopathic, they need to follow osteopathic structure and function in their curricular design. Many of the schools have instituted Problem-Based Learning (PBL) or other curricular variations. These programs are typically “disease oriented” and have little to do with the osteopathic approach. Often, the osteopathic component is limited to the question “What OMT would we use” at the end of a medical discussion on etiology, pathophysiology, and treatment. That does not make it osteopathic. Generally, we are looking at an academic framework at most schools that has more to do with separate systems than it does with true integration. There is little or no “Body Unity”. We have PhDs, MDs, as well as DOs who teach in our schools who never bring the concepts of osteopathic principles and practice into their teaching in the laboratory courses, didactic courses and the clinical rotations. At least the non-osteopathic personnel have some level of excuse; the DOs do not. They do not act as osteopathic role models for our students. Our osteopathic students and physicians see less and less distinction between themselves and their non-osteopathic colleagues.^{36,37,38,39,40,41} The obvious cause is that the DOs have

become more assimilated into the practice of “routine” medicine. By the failure of not being reinforced in the basic tenets of osteopathy, the schools, residencies, and specialty colleges have allowed the slippage of physicians away from the fold. The last post-graduate opportunity, the osteopathic internship,^{42,43,44,45,46} is itself falling away. In order to combat this, we must restructure and strengthen the foundation. The solution is not in technology, generalist-to-specialist ratios, distance learning, research or any other mechanism of the day.⁴⁷ All of those have importance as tools for the support of what should be done.

We have seen the emphasis on primary care. Osteopathic physicians are more frequently primary care physicians, but that is not their exclusive purview. Osteopathic physicians apparently communicate with their patients differently⁴⁸, but this is easily remediated for other physician practitioners. We have heard that we are “Doctors treating patients, not symptoms.” If I was an MD, I would be insulted and would reply to this with “Hey I treat patients and not symptoms, too!” I have been fortunate to have been taught by and worked with several excellent MDs who represented our philosophy better than many of our DO colleagues. The fact that someone has the fourth and fifteenth letters after their name does not make them osteopathic. The solution is in a return to osteopathy. The profession must undergo a paradigm shift to WWSDS - “What Would Dr. Still Do?” The greatest gifts that I have been given by my mentors and other teachers have not been osteopathic manipulative techniques. Without a doubt, they have taught me a great deal about those. Instead, it has been the way in which I can think about a person in health and even disease. There are many things that I can do routinely that just seem to work. However, whenever I get confused, disrupted, or stopped by a clinical situation, I reconfigure my thinking to apply the osteopathic principles. It is these that we need to reinforce with those who seek to join our profession. We need to follow the directions from our founder when he said, “My object is to make the osteopath a philosopher... I want to establish in his mind, the compass and searchlight by which to travel from the effect to the cause of the abnormality of the body.”⁴⁹

Following Dr. Still’s directions that “Basic principles must at all times precede each philosophical conclusion.”⁵⁰, I would like to take the opportunity of this privilege to speak before you to recommend a template that could be applied easily to any of the curricula of the colleges of osteopathic medicine as well as to many other situations: All academic events should be organized according to osteopathic principles and philosophy.^{51,52,53,54,55,56,57} I say “all” but feel that if we can aim for the stars and then reach the moon, we will still accomplish a great deal. We would begin with the basic principles that are familiar to all here:

1. Structure and Function are interrelated
 - A. Normal
 - 1) Structure governs Function
 - 2) Function modifies Structure
 - B. Abnormal
 - 1) Abnormal Structure results in Abnormal Function
 - 2) Abnormal Function results in Abnormal Structure
2. The Person (Body) is a Unit
 - A. Interaction of different systems
 - 1) Neurological

- 2) Dermatological
 - 3) Musculoskeletal
 - 4) Hematological
 - 5) Cardiovascular
 - 6) Pulmonary
 - 7) Gastrointestinal
 - 8) Genitourinary
 - 9) Endocrine
 - 10) Immunological
 - 11) Behavioral/Psychological
- B. Mind, Body, Spirit connections
 - 1) Psychosomatics
3. The body has an inherent ability to perform:
 - A. Regulation
 - 1) Normal
 - Maintain systems
 - 2) Abnormal
 - Altered regulation
 - B. Adaptation
 - 1) Normal
 - React to small alterations in environments
 - External
 - Internal
 - 2) Abnormal
 - (a) Poor adaptation
 - (b) Inappropriate reaction
 - C. Compensation
 - 1) To inherent or developed inadequacies
 - (a) Normal
 - Congenital malformations
 - Genetic
 - Functional inadequacies
 - (b) Abnormal
 - Overcompensation
 - Under-compensation
 - Maintenance of adaptation past usefulness
 - D. Repair
 - 1) Normal
 - Tissue repair
 - 2) Abnormal
 - (a) Scar formations
 - (b) Adhesions
 - E. Defense
 - 1) Normal
 - (a) Internal derangements
 - (b) External invasions
 - 2) Abnormal
 - (a) Inappropriate reaction to irritants
 - (b) Recognition of host elements as “enemy”
4. Dysfunction of the body
 - A. Is the interaction of the:
 - 1) Host (person)
 - 2) Activating event
 - (a) Endogenous
 - (b) Exogenous
 - B. Disease occurs when the body is
 - 1) Overwhelmed
 - 2) Under-prepared
5. Rational treatment is based on the above principles
 - A. Treatment decision is based on proper:
 - 1) History

- 2) Examination
 - 3) Experience
 - 4) Knowledge
 - 5) Understanding
- B. The function of the physician is to:
- 1) Facilitate the body's inherent capacities
 - 2) Minimize effects of disease
 - (a) Endogenous alterations
 - (b) Exogenous threats
- C. Methods
- 1) Lifestyle
 - (a) Environment
 - (b) Diet
 - (c) Exercise
 - (d) Social/Familial
 - (e) Habits
 - 2) Osteopathic Medical Interventions
 - 3) Osteopathic Surgical Interventions
 - 4) Osteopathic Manipulative Treatment

- Gastroenterology
- Nephrology
- Neurology
- Endocrinology
- Pharmacology
- Family Practice
- Psychiatry
- Surgery
- General
- Otorhinolaryngology
- Orthopedics
- Urology
- Ophthalmology
- Obstetrics/Gynecology
- Pediatrics
- Radiology

The overall curriculum should follow this and each individual course would do likewise by having the courses grouped theoretically:

The Person as a whole – the emphasis of osteopathic medicine is on the host

- Behavioral medicine
 - OMM
1. Structure and Function are interrelated – understanding how the components are built and what they do; how the two interact and modify each other
 - a. Structure
 - Gross Anatomy
 - Embryology
 - Histology
 - Neuroscience
 - Neurology
 - Cardiovascular
 - Pulmonary
 - Renal
 - Gastrointestinal
 - b. Function
 - Biochemistry
 - Physiology
 - Endocrinology
 - Clinical Nutrition
 2. The body has an inherent ability to:
 - a. Defend, Heal, Compensate, Repair
 - Dermatology
 - Immunology/Allergy
 - Hematology
 3. Disease occurs when the body is:
 - a. Overwhelmed
 - Microbiology
 - Infectious disease
 - Clinical Toxicology
 - b. Underprepared
 - Genetics
 - Pathology
 4. Rational treatment facilitates all of the above processes
 - Osteopathic Manipulative Treatment
 - Medicine
 - Cardiology
 - Pulmonary

There could be repetition without redundancy. At each level – Curricular, Year, Subject, Topic, and Lecture – the course objectives and components should be organized according to the osteopathic principles. In other words, the students would be exposed to these principles over and over again and not just in the OMM course. Whether the professors are a DO, an MD, or a PhD, they could be oriented to structure the approach of the lecture or the course to follow the framework of osteopathic principles. One of the great questions in education is “How do you get someone to think?” Among the many suggestions are repetition and provocation to apply key concepts. Instead of being only lectures in the OMM course, the students would learn an approach that they could utilize every day of their careers. Dr. Still wrote that “Osteopathic physicians must be able to give a reason for the treatment they give, not so much to the patient, but to themselves.”⁵⁸ Rather than seeing no difference between themselves and others, the osteopathic way could be demonstrated again and again. The following is an example that is in no way exhaustive for a Pulmonary course:

Pulmonary considerations:

- b. The body is a unit:
 - Respiration delivers oxygen to the whole body through diffusion by the pumping of the heart
 - The heart as well as blood vessels are responsible for the delivery
 - The lungs affect blood pressure (angiotensin)
 - The process of breathing is controlled by the CNS
 - The air passages begin in the head and neck and extend to the chest
 - Respiration is an action of the whole body
 - The Primary Respiratory Impulse of the Cranial mechanism affects pulmonary respiratory function
 - Chemotactic as well as other centers exist in the brain to regulate breathing
- c. Structure and function are inter-related:
 - The nasal passages and oral pharynx moisturize the air
 - The rings of the trachea provide support and protection for a structure that should remain

- uncompressed by position or normal applied pressures
 - The multiple bronchioles and aveoli provide a greater surface area for diffusion than if a single surface was adapted
 - The proximity of the capillaries provides for turnover of CO₂ and O₂
 - The function of hemoglobin in the release of CO₂ and absorption of O₂
 - The diaphragm acts like a bellows creating negative pressure within the thoracic cavity thus drawing in air
 - The ribs provide a framework for the action of the muscles allowing for a change in diameter of all planes and thereby increase the volume
 - The secondary muscles of respiration assist in changing the position of the ribs and alter the volume
 - The costal cartilage is flexible and twists during inhalation and untwists when the diaphragm relaxes and they contribute to exhalation
- d. The body has an inherent ability to defend, heal, repair, and adapt:
- The hairs in the nares filter particulate matter
 - Some infecting agents and particulate matter is captured in mucous mixed with saliva and swallowed for destruction in the acid of the stomach
 - The cilia act as an “escalator” and deliver some foreign components back to the oropharynx
 - There are large lymph nodes adjacent to all bronchi with many terminal and conducting lymphatic structures adjacent to all lung tissue
 - The structures change based on altitude with expansion of chest cavity and adaptation to lower oxygen environments
 - There is a physiological switch to air components when there has been damage. Normal people are CO₂ dependent for their drive to breathe while patients with emphysema are O₂ dependent
- e. Disease occurs when the body is overwhelmed or underprepared:
- We are exposed to millions if not billions of pathogens each day yet don’t become ill unless our immune systems are at a reduced capacity or unless the pathogen is able to overwhelm the defenses
 - Smoking immobilizes the cilia that line the respiratory tract
 - Tobacco products increase the likelihood of aberrant cells to replicate
 - Allergic reactions occur because of an overwhelming and oftentimes inappropriate immune response
 - Asthma is a combination and cascade of reactions including precipitating elements, bronchospastic reaction, and inflammatory response
- f. Rational treatment is based on the above principles (i.e. Asthma):
- Decrease the work and effort of breathing
 - (i) provide oxygen
 - (ii) relax spastic muscles
 - (iii) remove rib motion restrictions
 - Increase the efficiency of structures
 - (i) Beta-agonist medications - increase efficacy of the mechanism
 - (ii) Corticosteroids - facilitate reduction of inflammation
 - (iii) Increase excursion of the diaphragm
 - (iv) Stimulate sympathetic response
 - (v) Treat C3, C4, & C5 in the cervical spine to remove restrictions to the scalenes and the phrenic nerves
 - (vi) Rib raising
 - (vii) Treat the pelvic diaphragm to allow the changes in abdominal cavity pressure changes
 - Encourage the defensive and adaptive inherent mechanisms
 - (i) Lymphatic
 - Thoracic pump
 - Hepatic pump
 - Splenic pump
 - Dalrymple pedal pump
 - Effleurage
 - Galbreath technique
 - (i) Chest percussion
 - (ii) Vaccination
 - Influenza
 - Pneumococcus
 - Provide interventions
 - (i) Remove possible environmental and other irritants
 - (ii) Use mast cell stabilizing medications
 - (iii) Prevent late phase inflammatory response with low dose inhaled and other steroids
 - (iv) Lifestyle changes
 - Exercise
 - Diet
 - (v) Patient education

There are many resources that can be used⁵⁹. The Educational Council for Osteopathic Principles (ECOP) has developed a Core Curriculum that contains the basic framework. It was the original document that led to the creation of the *Foundations for Osteopathic Medicine* textbook and many of the brilliant members of our profession worked on its creation. ECOP has also created the COILS, *Clinically Osteopathically Integrated Learning Scenarios*⁶⁰ as a teaching instrument for post-graduate training. Although I consider it to be a flawed instrument, the Osteopathic SOAP Note is a step in the right direction of presenting a framework for organized osteopathic thinking. There are many other resources located in articles⁶¹ and textbooks.^{62,63,64} We can rely upon the good sense and guidance of our founder, Dr. Andrew Taylor Still.^{45,46} Some of the science

of over one hundred years has reaffirmed his legacy to us. The man-power resources can be drawn from the members of ECOP, the members of the departments of Osteopathic Manipulative Medicine, the FAAOs, the members of the AAO, and ultimately, any osteopathic physician who holds the philosophy and principles close in mind, hand and heart. If we can accomplish some progress in this regard within the schools, then we can extend the concept beyond in a way that truly demonstrates the uniqueness of osteopathic medicine. Quite possibly, we may not need to transform our post-graduate programs since those trained in the above described manner could naturally bring it about.

The future of the profession is dependent on a number of “What Ifs?” Is it too much of a conceit to hope that we can re-establish the basic principles into all parts of our profession? We can continue the evolution of medicine that Dr. Still planned by facilitating an instruction of osteopathy as it should be learned and practiced. Perhaps it could meet its destiny by becoming the predominant system of medical care in five centuries.

(The scene is from Star Trek Voyager and Captain Kathryn Janeway is lying prone on a treatment table in her private quarters while the Emergency Holographic Physician is treating her with manipulation for her headaches and other physical complaints.)

Holographic Doctor: “Your trapezius is hard as a rock. You haven’t been following the relaxation regimen I prescribed for you.”

Captain Janeway: “I’ve been too busy.”

Holographic Doctor: “The usual story. Have you been getting enough sleep?”

Captain Janeway: “More or less. Mostly less.”

Holographic Doctor: “And have your headaches been getting any worse?”

Captain Janeway: “No. They’re not getting any better either. They’re like hot needles driving into my skull.”

Holographic Doctor: “These symptoms are hardly surprising, Captain. You work absurdly long hours, under constant stress, eating on the run, without sufficient exercise or rest. Your body is crying out for mercy.”

Captain Janeway: “It certainly is right now! There must be some easier way to do this, Doctor. A hypospray maybe?”

Holographic Doctor: “Always looking for the simple fix. Sometimes there’s no substitute for intensive osteopathic pressure therapy...”⁶⁵

I would like to thank the Board of Trustees and the members of the American Academy of Osteopathy for their selection of me to give this lecture. There are so many other individuals whom I would also like to thank: my family for the help and understanding in all of my activities; my mentors, Stanley Schiowitz, DO, FAAO and Eileen DiGiovanna, DO, FAAO for their guidance; and the many professors, clinicians and students who have taught me all of these years., I also would like to specifically

thank Michael Seffinger, DO who kindly shared his knowledge and material concerning the California amalgamation as well as discussing with me the concepts of this lecture. Finally, I owe a great deal of appreciation to all of those osteopathic physicians, especially Andrew Taylor Still, who by their efforts and knowledge have made it possible for us to do our life’s work, the care of patients. Thank you for your kind attention.

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Component Societies' CME Calendar and other Osteopathic Affiliated Organizations

April 21-23, 2006

NeuroFascial Release Course East
Phoenix, AZ
Contact: Steve Davidson, DO
800/359-7772

May 4-7, 2006

109th Annual Convention
Indiana Osteopathic Association
CME: 30+ Category 1A (anticipated)
Hyatt Regency
Indianapolis, IN
Contact: IOA
317/926-3009 or
800/942-0501

May 4-7, 2006

51st Annual Conference
Florida Academy of Osteopathy
Orlando, FL
CME: 22 Category 1A (anticipated)
Contact: Kenneth Webster, EdD
phone: 727/581-9069
fax: 727/581-8537
E-mail: docwebster@aol.com

June 17-21, 2006

Basic Course
The Cranial Academy
Founders Inn
Virginia Beach, VA
CME: 40 Category 1A (anticipated)
Contact: The Cranial Academy
317/594-0411

June 22-24, 2006

*AACOM's 2006 Annual Meeting
Challenges and Opportunities*
Renaissance Harborplace Hotel
Baltimore, MD
Contact: AACOM
301/968-4143

June 22-25, 2006

*Annual Conference – "Bent Twigs:
Pediatric Osteopathy and Beyond"*
The Cranial Academy
Founders Inn
Virginia Beach, VA
CME: 40 Category 1A (anticipated)
Contact: The Cranial Academy
317/594-0411

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Oklahoma State University Center for Health Sciences, College of Osteopathic Medicine is seeking to fill a full-time, non-tenure (clinical) or tenure-track faculty position in the Department of OMM. This position is actively involved in patient care and teaching medical students and residents at College ambulatory clinics, as well as the hospital inpatient service. Appropriate effort and activity in clinical research and service will also be necessary as well as a clinical record of sufficient depth to qualify for faculty appointment at the rank of Assistant or Associate Professor. Requires a D.O. degree, eligibility for licensure in the state of Oklahoma, Board eligibility and a devoted interest in education. Prefer residency and/or fellowship training and teaching experience. Competitive salary with excellent fringe benefits. Applications will be reviewed as received; open until filled. Must apply online at: <https://jobs.okstate.edu>, search Health Sciences campus. OSU is an affirmative action/equal opportunity employer.

A myofascial trigger point on the skull: Treatment improves peak flow values in acute asthma patients

Wm. Thomas Crow and David Kasper

Abstract

Background

4.4 to 6.2 percent of the adult population has a physician confirmed diagnosis of asthma. Physicians use pulmonary functional tests to accurately assess and reproduce the pulmonary functional state of an asthmatic or non-asthmatic patient. Myofascial trigger points in various parts of the body have been documented to have physiological effects on the organs of the body.

Objective

A myofascial trigger point on the skull was identified and treated in nine patients with an acute asthmatic exacerbation and who were at the time refractory to standard rescue treatments.

Methods

A Peak Flow Meter was used to determine peak flow. These measurements were obtained after the use of a rescue inhaler or nebulizer but before the experimental treatment. A trigger-point was found at the left parietal eminence on the skull in patients. The trigger-point was treated using direct pressure, and the scalp was folded around the point. An additional measurement was obtained approximately three minutes after the treatment was applied.

Results

The percent change in peak flow for patients classified as mild varied from 82% to 89%. For the moderately involved, the percent change was 52% to 87%. Only one patient was classified as severe and the increase was approximately 53%. A significant change in peak flow was seen with the patients treated with the osteopathic manipulative treatment technique described ($p < 0.0003$).

Conclusion

While the retrospective study showed interesting and dramatic results, further study is needed.

Keywords

Asthma
Myofascial trigger points
Osteopathic Manipulation

Abbreviations

(FEV1) forced expiratory volume in one second
(PEFR) peak expiratory flow rates

Introduction

In Europe and the United States 4.4 to 6.2 percent of the adult population have a physician confirmed diagnosis of asthma.^{1,2} Asthma cost nearly \$500 million dollars in emergency department visits in 1994, according to the most recent data available.³

Physicians use pulmonary functional tests to assess the pulmonary functional state of an asthmatic or non-asthmatic patient. Data from these pulmonary function tests can quantify the disease severity, assess and monitor the disease progression, and lastly determine the patient's appropriate future course of treatment.⁴

Peak flow meters are increasingly being used to objectively measure the severity of airflow obstruction. Currently, the "gold standard" parameter in screen-

ing patients for airflow obstruction is forced expiratory volume in one second (FEV1). However, physicians are using peak expiratory flow rates (PEFR) via peak flow meters as an acceptable alternative screening tool in identifying and managing their asthmatic patients.⁵ PEFR is an easily reproducible measurement with predicted normal values calculated based on height, age, and sex with no differences among racial groups.^{5,6} By using peak flow meters to monitor the disease course and assessing the response to medications, early intervention can reduce the risk of hospitalization.⁷⁻¹⁰ Overall, the increasing use in the peak flow meter is due to its portability, simplicity in use, economic value and overall practicality in testing lung function.^{5,6}

PEFR is now accepted as the least invasive measurement in measuring airway obstruction. Three attempts are recorded taking the best of the three recordings.^{6,11-13} Measurements can be correlated to severity of exacerbation (Table 1). Regarding blowing into the peak flow meter, some authors conclude with the magnitude and order of the blows there was no systematic relationship nor trend between those two variables since some patients improved, while others deteriorated during their three attempts.¹¹

A myofascial trigger point has been defined as a localized, hyperirritable spot in a palpable taut band of skeletal muscle fiber.¹⁴ The clinical characteristics of

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Table 1*

	PEF COMPARISONS
PEF	Condition
<50% predicted value or personal best	Severe Exacerbation
50%-80% of predicted or personal best	Moderate Exacerbation
>80% predicted or personal best	Mild Exacerbation

a myofascial trigger point include: (a) localized tenderness in a taut band of muscle; (b) a local twitch response to cross-fiber stimulation of the taut band; (c) pain to deep palpation that is recognized as pain; (d) and autonomic dysfunction. Travell and Simons proposed an integrated working hypothesis to explain the underlying pathophysiology associated with myofascial trigger points.¹⁵ In short, the theory states that injury can lead to motor endplate irritability, which may cause frequent local depolarizations of the muscle fibers, resulting in an energy crisis with a relative loss of sufficient quantities of high-energy phosphates to allow the calcium-dependent lengthening of the myofibril unit. This in turn can lead to decreased capillary flow into the muscle secondary to the increased muscle tension, lowering of the local pH, and release of sensitizing substances into the muscle that can cause activation of muscle nociceptors and pain.¹⁶

Referred pain from myofascial trigger points can mimic visceral pain syndromes and visceral pain syndromes can induce myofascial trigger point development and myofascial pain and dysfunction.^{14, 15} An example of this myofascial trigger point mimicking visceral pain was reported by Travell and Simons. In the anterior chest wall in the right pectoralis minor, a trigger point can cause supra-ventricular tachycardia as well as other cardiac pain. Triggerpoints have been known to cause or mimic chronic pelvic pain, interstitial cystitis, prostatodynia, and irritative voiding symptoms as well as chronic abdominal pain.^{14,15,17-23}

Methods

This retrospective study involved the collection or study of existing data, documents, and charts recorded by

the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects and is exempt from IRB approval under Federal Regulation. [15 C.F.R. § 27.101(b)(4)]

Subjects

All nine patients (age 16 to 55 years) had a prior history and diagnosis of asthma. They had experienced an acute asthmatic exacerbation and had used the standard inhaler or nebulizer. They self-referred to an office when they felt they had less than the desired results from the standard rescue treatment. Patients were seen from one to three hours after their standard treatment. The patients were classified as to severity of the asthmatic episode following the standard treatment of inhalers and/or nebulizer by use of the published guidelines for peak expiratory flow.⁸

Measurements

A model HS710 Peak Flow Meter (Respironics HealthScan Asthma & Allergy Products, Cedar Grove, New Jersey) was used to determine the peak flow. This was accomplished by having the patient exhale into a mouthpiece attached to the Flow Meter. The exhalation was repeated three times with the highest value accepted as the score. These measurements were obtained after the use of a rescue inhaler or nebulizer but before the experimental treatment. One additional measurement was obtained approximately three minutes after the experimental treatment.

Treatment

A trigger-point was found at the left parietal eminence on the skull in the patients.

The trigger-point was treated using direct pressure and folding the scalp around the point. While similar to counterstrain, the trigger point was held for approximately 45 seconds not 90 to 120 seconds suggested for counterstrain techniques.

Results

The number of patients classified as mild, moderate or severe is shown in Table 2. Additionally, Table 2 provides the raw data for both the pre- and post-experimental treatment Peak Flow values for each of the nine individuals. The weight and age of the patients were removed from the table due to HIPPA requirements.

The percent change in peak flow for patients classified as mild varied from 82% to 89%. For the moderately involved, the percent change was 52% to 87%. In this report, there was only a single patient classified as severe and the increase was approximately 53%. Thus, overall, most patients did show an improvement.

The pre-experimental treatment and post-experimental treatment values of the Peak Flow Meter for each subject were analyzed using a match-pair t-test. A P value of 0.05 or less was accepted as significant. In fact, a significant improvement in peak flow was determined when the data were analyzed ($p < 0.0003$).

Discussion

While the retrospective study showed interesting and dramatic results, further study is needed. The neurological basis for the change cannot be directly inferred from any of the data. One etiology of asthma is believed to be an over stimulation of the parasympathetic nervous system. It is interesting to speculate that

Table 2: Patient Data

IDENTIFIER	Pre PEF (L/min)	Post PEF (L/min)	% Change of Pre/Post	SEVERITY	% Pre PEF to Normal	% Post PEF to Normal
1	450	550	81.82%	Mild	83.06%	101.51%
2	550	620	88.71%	Mild	96.09%	108.32%
4	550	670	82.09%	Mild	96.09%	117.05%
9	260	500	52.00%	Moderate	50.98%	98.04%
8	275	350	78.57%	Moderate	53.92%	68.63%
6	325	375	86.67%	Moderate	57.02%	65.79%
7	300	450	66.67%	Moderate	58.82%	88.24%
3	350	550	63.64%	Moderate	61.15%	96.09%
5	225	425	52.94%	Severe	37.96%	71.69%

this myofascial trigger point treatment may have impacted the parasympathetic nervous system and reduced the activity thus improving respiratory function as demonstrated by the increase in peak flow.

Conclusion

Further study is needed in a prospective, double-blinded study to see if these findings are supported in large scale trial.

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Intercostal rib release

Claudia L. McCarty

Asthma Protocol – Acute Exacerbation – Intercostal Rib Technique

- A. Standard pharmacologic therapy should be in progress.
- B. Explain to the patient that you are going to use a technique that may help the respiratory muscles relax so that they can work better and breathe easier.
- C. The patient should be seated either at the foot of or on the side of a treatment table (gurney).
- D. The physician stands perpendicular to, and facing toward the left side of the patient.
 1. The physician places the finger pads of the four digits of one hand over the intercostal muscles between the first four ribs and above rib five anteriorly near the sternal border.
 2. Posteriorly, the physician places the finger pads of the four digits of the physician's other hand over the corresponding intercostal spaces (levels 1 to 4) between the transverse processes of the vertebrae and the angle of the ribs.
 3. Physician's upper arms are close to the physician's ribs.

Note: the physician's posterior hand should be higher than the anterior hand based on the anatomical structure of the rib, posterior ribs are higher than anterior ribs at the same intercostal level.

4. The physician next exerts a mild/moderate compressive pressure (deep palpation) with the finger pads, to the intercostal muscles, directed in an anterior/posterior direction down to the level of the fascia. (The amount of pressure will depend on the degree of spasticity in the intercostal muscles).
5. Treatment is done without regard to inhalation/exhalation

- phase.
6. While continuing to hold the compressive pressure on the intercostal muscles, the physician's finger pads are drawn laterally toward the physician, just until taut.
7. This position (inward and lateral) is held until a release (change in tissue texture and/or tension) is felt under the examiner's fingers. The tissue change may start with some elliptical movement/sensations under the physician's finger pads and finish with relaxation of the intercostal muscles and a change in chest excursion.
8. This procedure should take approximately one-and-a-half to two minutes at this level.
9. The physician then changes hand placement by slowly releasing the anterior/posterior pressure and allowing the tissue to move medially away from the original taut position.
10. The physician's finger pads are then relocated to a lower position and placed on the intercostal muscles between ribs 4-5, 5-6, 6-7, 7-8, again near the costal margins anteriorly and between the transverse processes and rib angles posteriorly.

If necessary, placement and corresponding position may be evaluated by placing one finger on a rib posteriorly and moving the rib anterior/posteriorly, checking for motion at the same level on the anterior surface.

11. Physician's upper arms are close to the physician's ribs.
12. The physician now exerts a mild/moderate compressive pressure (deep palpation) to the intercostal muscles, directed in an anterior/posterior direction to the level of the fascia. The

amount of pressure depends on the degree of spasticity in the intercostal muscles.

13. Treatment is done without regard to inhalation/exhalation phase.
14. While continuing to hold the compressive (inward) pressure on the intercostal muscles, the finger pads are then drawn laterally toward the physician, until just taut.
15. This position is held until a release (change in tissue texture and/or tension) is felt beneath the examiner's fingers. This may start with some elliptical movement/sensations under the physician's finger pads and end in relaxation of the intercostal muscles.

Again, this procedure should take approximately one-half to two minutes at this level.

16. The physician then releases the hand placement by slowly releasing the anterior/posterior compressive pressure and allowing the tissue to slowly move medially away from the original taut position.
17. Moving to the opposite side of the patient, the physician repeats the procedure.

During an acute episode, it may be necessary to repeat the treatment with each nebulizer treatment, depending on the severity of the exacerbation. Treatment may be stopped or modified at any time.

Note: During an acute exacerbation, the C₂ dysfunction, which is a reflection of vagal stimulation should NOT be treated. Treatment of C₂ during an acute attack may over stimulate the vagus nerve and worsen bronchospasm.

The intercostal rib release procedure is performed in a similar manner for the chronic asthmatic patient. In the chronic patient, treatment may be done in either the seated or supine position. Treatment position will be determined by the patient's asthma status at the time of treatment. Additionally, in the chronic patient, the physician must address the C₂ dysfunction, any thoracic dysfunctions T₁₋₆, release the diaphragm T₁₁-L₂, and address the extension dysfunction of the cranium. Lymphatic drainage should also be encouraged. The chronic asthmatic patient is treated at weekly sessions until medication use and frequency of exacerbations are diminished. It may be necessary to treat the patient more frequently during environmental asthma periods.

This technique incorporates properties of fascial-ligamentous release (FLR), balanced ligamentous tension (BLT) and facilitated positional release (FPR). A fulcrum is established between the physician and the patient in the positioning of the forearms and finger pads, as in (FLR). A facilitating force or compression is applied between the two hands (FPR). Drawing the tissue laterally toward the physician and awaiting the release incorporates BLT. The tension is balanced with that of the degree of spasm within the tissues being treated. Deep pressure palpation plays a role in this technique as well.

Chila reminds us that, "In performing manipulative procedures, the body responds comprehensively to an externally applied force. From the moment of contact with the skin, avenues for the implementation of variations of force are provided by palpatory clues. The body's covering, the skin, may be regarded as a mass adrenergic medium that is useful in the facilitation and amplification of proprioceptive interchange between unique persons, the patient and the physician. The sustained effective response following treatment is contingent on selective and controlled variation of force from an appropriate fulcrum.

When these conditions are met, inherent neuroregulatory mechanisms acting in accordance with the capacity of the patient will facilitate the resolution of the dysfunction. Generally speaking, the body's connective tissues are under some degree of load and extension. The

increase and subsequent reversal of extension produces a degree of tissue response less than the relatively unloaded state. This phenomenon is referred to as hysteresis.¹ Hysteresis is the occurrence of some flow and dissipation of energy throughout the loaded tissue. Hysteresis occurs less with successive cycles of extension, indicating stabilization of response. Connective tissues under sustained load will extend in response to the load. This continued extension is referred to as "creep." An imposed constant load will result in "relaxation" as the extension remains constant."¹

Rationale

Possible explanations for the efficacy of this treatment include the fascial release of both the internal and external intercostal muscles. Since fascia envelops and covers the muscles, decreasing the overlying tension would likely increase chest excursion. The muscles themselves would respond to the facilitating pressure of inward compression, deep palpation or inhibition. The internal intercostals are muscles of exhalation, which are quiet in normal breathing. During an acute exacerbation of asthma, exhalation is restricted secondary to bronchospasm and airway inflammation.

In asthma, airway obstruction is due to (1) profound constriction of the smaller airways by allergy-induced spasm of the smooth muscle in walls of these airways; (2) plugging of the airways by excess secretions of a very thick mucus and (3) thickening of the walls of the airways due to inflammation and histamine induced edema.²

It is possible that the efficacy of the proposed treatment may occur as a result of decreasing the work of breathing by improving compliance and decreasing airway resistance. Compliance is a measure of the magnitude of change in lung volume accomplished by a given change in the transmural pressure gradient. Changes in thoracic dimensions are always accompanied by corresponding changes in lung dimension.

The primary determinant of airway resistance is the radius of the conducting airways. Airway resistance is affected by sympathetic and parasympathetic stimulation of airway caliber in response to ventilation and perfusion.²

Chila¹ suggested in Foundations, the inherent neuroregulatory mechanisms acting in accordance with the capacity of the patient facilitates the resolution of the dysfunction. Kuchera mentions that increasing the excursion of the chest by 1 cm will increase the volume of air exchanged by 200 cc.³ Air hunger and air trapping could be significantly reduced by intercostal muscle relaxation and decreased fascial tension.

As discussed earlier, the work of breathing during an exacerbation of asthma, requires a significant increase in total body energy expenditure.² Reducing this workload should allow the patient's inherent ability to re-establish homeostasis.

Comparison of techniques

The proposed technique shares some similarities with other techniques found in reviewing both the osteopathic literature and osteopathic textbooks.

Hoag notes that manipulative techniques differ for the acute and chronic attack, and that it might be necessary to treat an acute attack seated or semi-reclining. He proposed that manipulation should be directed to the thoracic spine.⁴

DiGiovanna⁵ describes how the workload of breathing should be reduced and additionally recommends treatment in the chronic patient as well.⁵

Paul and Buser⁶ treated the acute asthmatic in the ED using a seated posture for rib raising and respiratory motion augmentation. Treatment of the upper cervical unit was avoided.

Purse⁷ sometimes used a modified seated technique with the patient's back to the operator with hands spread around the thorax, pressure was then applied downward & caudally with exhalation.

Belcastro⁸ et al, used an intercostal release, which was described as "each hand being placed laterally on the middle and lower thoracic cage. A rhythmic caudad motion contributes to the stretching of intercostal muscles."

Wilson in 1946 noted that "I like to set my patient up at the end of these manipulations and place my fingers over the first ribs and my thumbs between the transverse processes 4th and 5th thoracic vertebrae. In this position I use direct

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pressure through the thumbs and fingers for about two minutes. This pressure alone in an acute episode is often effective.”⁹

Rowane and Rowane¹⁰ also use a seated posture, with the patient facing away from the operator. Treatment was directed to T₁-T₆, especially on the left for normalization of the sympathetic innervation of the lungs.

Similarities are noted with Sutherland, Rowane and Rowane,¹⁰ Paul and Buser⁶ and Wilson techniques that have the patient seated. Both the Belcastro et al⁸ and Rowane and Rowane¹⁰ techniques mention the intercostals. Belcastro et al⁸ specifically addresses the fascial release of the intercostals using the ribs.

The review of the textbooks and literature has shown numerous ways of addressing the asthmatic patient with manipulative technique. Most osteopathic manipulative techniques presently being taught in the osteopathic colleges have the patient in a supine position. Those that have the patient seated utilize a thrust technique to the ribs or transverse processes. There is mention of rhythmic caudad motion.⁸ Rib raising is traditionally done with the patient in the supine position. The physician's fingers are placed on the transverse processes and anterior (upward) pressure is exerted to balance the ligamentous tension and affect the sympathetic innervation. Rib articulation is done by grasping the ribs near the head and along the shaft and distracting as the patient rotates away to gap the joint.¹¹

Other techniques

In functional release, palpation at the dysfunctional segment (spinal or appendicular) provides for continuous feedback information about the patient's physiologic response to motion. Relative degrees of compliance or resistance of component parts are compared by operator-induced motion. It does so in opposing directions. The motions introduced are those that lead to an increased sense of compliance (decreased resistance) of component parts.¹²

In fascial-ligamentous release, the patient during the corrective procedure provides muscular or respiratory assistance. A fulcrum is sought within the physician's body to match or balance the fulcrum within the patient's body. This fulcrum facilitates a continuum of reflex

release from within the patient's body. The patient's body responds comprehensively to an external force applied during manipulative procedures.¹

The fascia-ligamentous release technique for the rib cage follows. The patient is supine. The physician places one hand posteriorly, beneath the rib cage, with the fingertips just beyond the spinous processes of the associated thoracic vertebrae. Place the other hand on the anterior heads of the ribs. An elbow on the knee establishes the fulcrum. If we combine this with the upper thorax fascial-ligamentous release, the patient's head rests on a pillow. One hand and arm contact the upper thoracic transverse processes, with the physician's fingers spread slightly to contact the ribs on each side. Place the opposite hand on the sternum. The elbow on the tabletop, beneath the patient's head establishes the fulcrum.¹

Belcastro described intercostal fascial release, et al. The specific technique was described as follows: Each of the physician's hands is placed laterally on the middle and lower thoracic cage. A rhythmic caudad motion is then added, which contributes to the stretching of intercostal muscles.⁸

Deep-touch palpation, the fingers compress the skin surface, palpating through skin and subcutaneous tissues to the superficial muscle layer. Further compression leads to palpation of deeper muscles, fascia and bone. Deep palpation utilizes forces of compression and shear. Compression is a force applied perpendicularly to the skin surface. Shear is a force applied parallel to the skin surface. In some instances, deep palpation combines both compression and shear in the exploration of deep tissue texture.¹⁴

Facilitated positional release involves placing the dysfunction into first a neutral position, adding a compressive force and the taking the dysfunction into a position of ease.¹³

Polarity is an additional consideration. This technique directs specific combinations of gender-specific positioning. It is an additional consideration in treating the asthmatic patient.

The proposed intercostal rib technique incorporates some features of these previously published techniques but with enough variation to offer a difference.

Summary

In treating asthmatic patients both acutely and chronically with osteopathic techniques, mechanical considerations have a different priority. It is clear that the patient's total picture involves better exchange of air not only in a gross sense but in a cellular sense as well. The problems that persist even with the best medicinal treatment are mechanical.

The problem, simply put, is an inability to exhale. Exhalation is primarily a function of compliance or chest wall elasticity and muscular function. One must also consider the pulmonary tissue elasticity. In the asthma patient, the parenchyma is not a problem so far as stretch or resilience is concerned. Secretions may affect surface tension but this is a small component, relatively speaking, in the overall scheme.

The main problem is that ligamentous and muscular components have been in a shortened and hypertonic condition the majority of the time. This is known as an inhalation position or on x-ray, a flattened diaphragm. The significance of this situation is that it now requires work to exhale which is normally a passive process.

The cause of death in an asthmatic patient who dies during an admission for status asthmaticus is respiratory failure or rather respiratory muscular exhaustion. (Retractions, secondary muscles of respiration in excessive use, paradoxical respirations etc.)

With osteopathic treatment, the mechanical issues are addressed directly. The structural goals include decreasing the work of breathing by increasing the functional range of motion of the rib cage and the diaphragm. A secondary effect of this is to promote lymphatic drainage of the pleural spaces and the parenchymal tissues as a result of the restoration of large expansile and contractile motions in the tissues. This drives fluids and secretions into the terminal lymphatics at the bronchioles, and at the parietal pleura. This osteopathically addresses the inflammatory component of asthma.

If this manipulative approach is combined with the administration of appropriate medication, the total dosage is often reduced significantly and the efficacy of the medicine is extremely enhanced. This may reduce the number of hospital admissions dramatically. In the long term care of the asthmatic patient, these techniques

often reduce the frequency, duration, and severity of attacks. It also reduces the utilization of high dose medications over extended periods of time.

The intercostal rib technique offers an additional option in the treatment of both the acute and chronic asthmatic patient. Seated, the patient is less threatened and more cooperative. There is no interference with pharmacological or medical management.

The work of breathing is decreased. Physician touch and presence reassure the patient.

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CME QUIZ

The purpose of the quiz found on the next page is to provide a convenient means of self-assessment for your reading of the scientific content in the "A Myofascial trigger point on the skull treatment improves peak flow values in acute asthma patients" by Wm. Thomas Crow and David Kasper AND in an FAO thesis paper, "Intercostal Rib Release" by Claudia L. McCarty. For each of the questions, place a check mark in the space provided next to your answer so that you can easily verify your answers against the correct answers that will be published in the June 2006 issue of the *AAOJ*.

To apply for Category 2-B CME credit, transfer your answers to the AAOJ CME Quiz Application Form answer sheet on the next page. The AAO will record the fact that you submitted the form for Category 2-B CME credit and will forward your test results to the AOA Division of CME for documentation.

A. T. STILL UNIVERSITY | ATSU

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This CME Certification of Home Study Form is intended to document individual review of articles in the *Journal of the American Academy of Osteopathy* under the criteria described for Category 2-B CME credit.



CME CERTIFICATION OF HOME STUDY FORM

This is to certify that I, _____,
 please print full name

READ the following articles for AOA CME credits.

Questions 1-3: Name of Article:

A Myofascial Trigger Point on the Skull Treatment Improves Peak Flow Values in Acute Asthma Patients

Author: *Wm. Thomas Crow, DO, FAAO and David Kasper, MBA*

Publication: *Journal of the American Academy of Osteopathy*, Volume 16, No. 1, March 2006, pp 17-21

Questions 4-6: Name of Article:

Intercostal Rib Release: Asthma Protocol

Author: *Claudia L. McCarty, DO, FAAO*

Publication: *Journal of the American Academy of Osteopathy*, Volume 16, No. 1, March 2006, pp 29-32

Mail this page with your quiz answers to:
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Category 2-B credit may be granted for these article.

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Complete the quiz to the right and mail to the AAO. The AAO will forward your completed test results to the AAO. You must have a 70% accuracy in order to receive CME credits.

*Answer sheet to
 June 2006
 AAOJ CME quiz
 will appear in the
 March 2006 issue.*

December 2005
 AAOJ CME
 quiz answers:
 1. D
 2. D
 3. A
 4. A
 5. B

CME QUIZ

Dr. Crow's Article:

1. A trigger point was found for treatment of asthma at
 - A. The left parietal eminence
 - B. The right parietal eminence
 - C. The level of T4 left
 - D. The left of T5 right
 - E. The edge of the left SCM
2. Peak flow meters
 - A. Are the gold standard for inpatient measurements of asthma
 - B. Assess tidal volume of the lungs
 - C. Have race based different values
 - D. Use height, age and sex
 - E. Use only one attempt
3. The treatment of a scalp triggerpoint showed improvement in peak flow values in acute asthma.

True or False

Dr. McCarty's article:

4. In which of the following positions is the patient usually treated with Intercostal Rib Release Technique during an acute asthmatic attack?
 - A. Lateral Recumbent
 - B. Prone
 - C. Seated
 - D. Standing
 - E. Supine
5. The anterior/posterior pressure used during the Intercostal Rib Release Technique is applied down to which tissue level?
 - A. Bone
 - B. Fascia
 - C. Muscle
 - D. Skin
 - E. Tendon
6. Kuchera and Kuchera have reported that for each 1cm of increase in chest excursion, the volume of air exchange will increase by how much?
 - A. 25 cc
 - B. 75 cc
 - C. 100 cc
 - D. 200 cc
 - E. 600 cc



Guy A. DeFeo, DO
Program Chair

Diagnosis and Treatment of Low Back Pain

May 5-7, 2006 Hilton Hotel, Durham, NC

Course Description: Level II

Low back pain continues to be one of the most common presentations to the physicians' office. This course will present participants with practical approaches to the evaluation and treatment of low back pain. Emphasis will be on the overall treatment approach utilizing various types of OMT based on the clinical scenario. Specific techniques will include high velocity low amplitude (HVLA), muscle energy, counterstrain and myofascial release. Additional treatment approaches which can be integrated into the overall care of low back pain will be reviewed, however, demonstrations and practice will be limited to osteopathic manipulative techniques.

Learning Objectives:

Participants should be able to: 1) Understand the functional anatomy of the low back region; 2) Correlate somatic dysfunction to the pathophysiology of low back pain; 3) Efficiently diagnose somatic dysfunction in the lumbar, pelvis and sacral regions and correlate with clinical presentations of low back pain; 4) Select and perform appropriate types of OMT based on diagnostic findings; 5) Understand how to integrate other treatment approaches, such as exercise prescription and injection techniques, into the care of the patient with low back pain; and 6) Document findings and select codes for reimbursement.

Prerequisites:

The participant should have a basic understanding of functional anatomy and (1) Level I course

CME:

The program anticipates being approved for 20 hours of AOA Category 1-A CME credit pending approval by the AOA CCME.

Program Time Table:

Friday, May 58:00 am - 5:30 pm
Saturday, May 68:00 am - 5:30 pm
Sunday, May 78:00 am - 12:30 pm
(Friday & Saturday include (2) 15 minute breaks and a (1) hour lunch; Sunday includes a 30 minute break)

Course Location & Hotel Accommodations:

Hilton Durham near Duke University
3800 Hillsborough Road, Durham, NC 27705
www.hiltonhotel.com; Phone: 919/564-2912
AAO Room Rate: \$99.00
Room Rate Deadline: 4/6/06

REGISTRATION FORM

Diagnosis and Treatment of Low Back Pain

May 5-7, 2006

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Mark S. Cantieri, DO, FAAO
Program Chair

Prolotherapy: Above the Diaphragm

*(Special emphasis on cervical and thoracic spines,
ribcage, shoulder, elbow, wrist and hand.)*

May 19-21, 2006 UNECOM, Biddeford, ME

Additional Faculty: Thomas Ravin, MD
George Pasquarello, DO, FAAO

Courses Description: Level III

This is a course designed to instruct participants in the physiology of wound repair using cadavers and prosections. Participants will review the anatomical relationships of tendon 5/15 and ligament structures and gain insight into the referred pain patterns of tendons and ligaments. Also, participants will learn diagnostic and injection techniques for tendon and ligament instability. The course will also include a lecture on coding and billing.

Learning Objectives:

At the end of each session, participants should:

- Readily evaluate for joint instability
- Readily diagnose tendon instability
- Know how to inject unstable tendons and joints

CME:

The program anticipates being approved for 20 hours of AOA Category 1-A CME credit pending approval by the AOA CCME.

Program Time Table:

Friday, May 198:00 am – 5:30 pm
 Saturday, May 208:00 am – 5:30 pm
 Sunday, May 218:00 am – 12:30 pm
 (Friday & Saturday include (2) 15 minute breaks and a (1) hour lunch; Sunday includes a 30 minute break.)

Course Location:

UNECOM
 11 Hills Beach Road, Biddeford, ME 04005
www.une.edu

Hotel Accommodations:

For hotel possibilities, visit:
www.expedia.com; www.travelocity.com;
www.priceline.com; or www.BizRate.com

Search for South Portland, Biddeford or Kennebunkport. A rental car is recommended since the campus is located about 15-20 minutes from most hotels and restaurants.

REGISTRATION FORM
Prolotherapy: Above the Diaphragm
May 19-21, 2006

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Multidisciplinary approach to treatment in a 38-year-old female, restrained driver following injuries sustained in a rear-end collision

J.L. Rook and A.M. Auburn

Background

In 1928, orthopedic surgeon Crowe was the first individual to use the term whiplash to describe neck injury related to motor vehicle accident.¹ With greater reliance on motorized transportation in the 21st century, the rate of whiplash related injuries in Western countries has increased significantly. New terminology has arisen to describe the complexity of injury related to both the acute and chronic phase of whiplash. Now termed cervical whiplash syndrome (CWS)² or whiplash associated disorder (WAD)³, it embodies an array of muscular, skeletal, neurological and psychosocial impairments.

Treatment options and outcomes for individuals suffering from WAD/CWS have been extensive and vary in success. Modalities include pharmacological management of pain, acupuncture, physical therapy, chiropractic, hypnosis, surgery, osteopathic manipulative techniques (OMT) and trigger point injections (TPI). The treatment plan must be individualized for each patient and should include a multidisciplinary rehabilitative approach in order to provide pain management and restoration of function.

We present this report as we feel that this patient represents a more complicated case of WAD/CWS suffering chronic effects from her injury. Furthermore, her case demonstrates treatment failure in the early process of management by other clinicians. Moreover, we believe that the combined modalities of OMT and TMI utilized at our clinic have been instrumental in the healing process of this patient.

Patient Report

This report describes a 38-year-old Caucasian female who was the restrained driver of a vehicle, which while making a right turn, was struck from behind. The patient describes the impact as sending her forward, backward and to the right. Immediately following the accident, the patient was able to exit the vehicle, ambulate without difficulty and only reported stiffness. She did not experience any loss of consciousness (LOC) and did not require emergency medical services. However, two days following the accident, the patient began to experience vertigo, neck and low back pain, headache in the occipital region, nausea with dry heaves and subsequent difficulty with forward bending. At this time, she sought medical attention at a local emergency department. Evaluation by the emergency room physician revealed no evidence of fracture or life threatening injury and the patient was discharged with an anticholinergic and a non-steroidal anti-inflammatory (NSAID). She subsequently sought intervention in the form of physical therapy, chiropractic and cranial-sacral with minimal improvement in function and negligible decline of symptomatology.

Approximately 14 months following her accident, the patient presented to our clinic for evaluation. She complains of occipital-neck pain (6 out of 10 quality in static positioning, increasing to 8-9 of 10 with movement), mid-upper shoulder pain (4 of 10 quality, increasing variably to 9 of 10), right-sided lumbrosacral pain (3 of 10 quality, increasing variably to 5-6 of 10), vertigo associated with for-

ward and rotational head movements, intermittent diplopia, decreased ability to perform activities of daily living, increasing fatigue, and increasing difficulties coping with her impairments. Past medical and surgical history are remarkable for two previous strabismus corrections, two dilatation and curettage (D&C) procedures, and a cesarean section. Family history is non-contributory and the patient reports no medical or food allergies. At the time of evaluation, the patient's medication usage includes Motrin, Wellbutrin, Zyprexa, Tramadol and a multivitamin.

On physical exam, the patient is an obese female with a BMI of 37.1 (71" and 266 lbs), who is in obvious discomfort and mild distress. She is afebrile, normotensive and non-tachycardic. Gait analysis was within normal limits (WNL), Romberg was negative, deep tendon reflexes (DTR) were 2+/4 bilaterally in both upper and lower extremities and the patient demonstrated 4/5 muscle strength bilaterally in both her upper and lower extremities.

Osteopathic examination revealed the following findings: C1 R(R), C2 FRS(L), C5 FRS(R), C6 FRS(L), increased CRI approximately 15/min with restricted movement and increased tissue texture abnormalities (TTA) in the posterior and lateral cranium; R occipital compression, L torsion, L lateral strain, SR(R) strain with restricted movement of the L occipital-mastoid and L sphenoidal-squamous pivot sutures; TTA at the R occipital-cervical junction extending to the R levator, rhomboids, scalenes, ster-

→

nucleidomastoid (SCM) and trapezius, collectively; stacked ERS(L) of T5-T8 with concomitant L posterior rib dysfunction; increased texture abnormality of the L erector spinae; + R standing and R seated flexion tests with tenderness to palpation (TTP) at the R lumbrosacral (LS) junction, L1-L3 NRrSI, L4 FRSr, L5 FRSr and a R/L sacral torsion. Furthermore, orthopedic testing done previously yielded the following results: (-)R Spalding, (+)L Spalding, (-) bilateral seated straight leg raise (SLR), (-) Soto-Hall, (-) Ely's, (+) R Yeoman's, and (+) R Patrick FABERE.

Other significant physical exam findings included neuromuscular imbalance secondary to bilateral hip flexor testing with noted TTA and decreased length (R>L), TTP (R>L) in the ileo-lumbar and sacro-iliac ligaments indicating ligamentous laxity and finally the following myofascial trigger points: R occipital, R upper trapezius, R levator, R scalene, R SCM, R rhomboid and along the cervical and lumbar erector spinae.

Based on our physical exam findings coupled with the patient's history, we conclude that the patient has multiple somatic dysfunctions (SD) as noted in physical exam, myalgia/myositis, occipital and LS ligamentous laxity, cephalgia and chronic pain syndrome secondary to above and a history of vertigo associated with nausea. The decision to begin a regimen of OMT preceded by TPI with a frequency every 1-3 weeks as tolerated was initiated immediately. In addition, the patient was referred for physical therapy using neuromuscular balance training (2-3 times per week).

As of the date of this report, the patient has undergone six treatments utilizing a combination of OMT with and without preceding TPI: 1) TPI/OMT; 2) OMT;

3) TPI/OMT; 4) TPI/OMT; 5) TPI/OMT; and, 6) OMT. TPI is prepared in our clinic using the following: 4 cc marcaine, 2 cc procaine, 0.5 cc wydase (hyaluronidase), 1 cc serapin and 2 cc traumeel. For treatment 5, an addition of Kenalog (0.5 cc) was added to the standard mixture.

In response to each treatment session, the patient reported immediate improvements that were further verified with re-evaluation demonstrating im-

proved range of motion, restoration of musculoskeletal form and function and decreased TTP.

At the completion of six treatments using the a combination of TPI and OMT the patient admitted to decreased episodes of vertigo and nausea, an improved level of energy and greater ability to accomplish ADL's.

Discussion

In this paper, we describe a female patient with whiplash associated disorder manifesting as a progressive chronic pain syndrome (CPS). Patients who have developed CWS/WAD symptoms that are still present beyond three months usually do not fully recover.⁴ In fact, some patients, like ours, progress towards psychological symptomatology that impair overall physical and cognitive ability⁵ further complicating the healing process. This patient responded well to a multidisciplinary treatment strategy utilizing combined TPI/OMT complemented by physical therapy that incorporated neuromuscular re-education.

Simons et al have best described trigger points as hyperirritable spots, both focal and discrete that are located within a taut band of skeletal muscle.⁶ Trigger points may be either active,⁷ causing pain at rest or latent,⁸ leading to movement restrictions and muscle weakness. In addition, they can induce referred pain, tenderness, motor dysfunction and autonomic phenomena.⁶

The decision to use manual techniques or TPI for the treatment of trigger point associated symptoms is multifactorial.⁹ TPI is an effective technique to provide rapid relief from the symptoms associated with trigger points,¹⁰ especially those that have a more latent nature.⁹ Unfortunately, few controlled studies exist that examine the effectiveness of TPI for the relief of chronic pain. Moreover, we are unaware of any studies or case reports that have reviewed the use of TPI followed by OMT. However, it has been demonstrated that stretching of the muscle group following TPI increases its efficacy¹¹ and this is further accomplished by engaging the muscles between both their fully shortened and fully lengthened positions.⁹ The premise of OMT is to relieve somatic dysfunction by engaging the anatomic and/ physiologic barrier in

a musculoskeletal unit to restore balance of function and form.^{12,13}

Building upon the concept of muscle stretching and activity to increase the effectiveness of TPI is the use of neuromuscular re-education in our patient. As previously mentioned, latent trigger points are associated with restrictions in motion and muscle weakness. This ensuing neuro-muscular imbalance is complicated by a complex series of pathophysiologic mechanisms.^{14,15} Therefore, having the patient perform a series of repetitive contractions that train the neuromuscular system to memorize a series of motor patterns, an engram, is the basis of neuromuscular re-education.¹⁶ The result is restoration of the normal arthrokinetics of agonist and antagonist muscle groups with equivalent balance in the input and output channels of underlying neurological units.

There is a significant absence in the medical literature that discusses viable treatment options for individuals suffering from CPS. As the leading form of disability in adults¹⁷ and with current figures suggesting that approximately 10% of the U.S population is living with the disabling affects of one or more chronic musculoskeletal disorders,¹⁸ physicians must be able to provide therapeutic options which allow their patients to maintain quality of life. We strongly believe that this case report illustrates the success that can be achieved in patient outcome by prescribing a multidisciplinary treatment approach that encompasses restoration of function, elimination of pain and re-education of form.

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The OPP Division Chairperson serves as administrative head of the Division of Osteopathic Principles and Practice (OPP) and is administratively responsible for the operation of the OPP Division, including its faculty, staff, and programs. This position reports to the Associate Dean for Osteopathic Medical Education and serves at the will and pleasure of the Vice President for Academic Affairs and Dean. This position is supplemental to regular OPP Division faculty duties.

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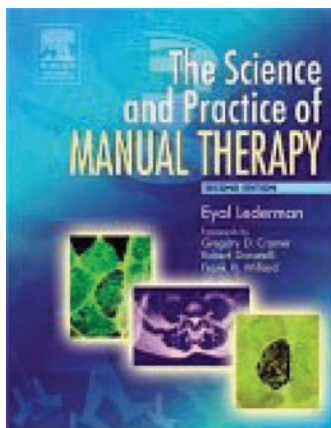
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Book Review

Reviewer: David J. H. Baskeyfeld

The Science and Practice of Manual Therapy: Physiology, Neurology and Psychology
E. Lederman, second ed.. Churchill Livingstone, 2005.
Paperback, 336 pp., 186 illus, ISBN 0 443 07432 1. Price: \$67.95



One of the many challenges facing osteopathy and manual therapy in general is understanding the processes and mechanisms that occur in our patients in response to therapeutic manual techniques. This understanding includes the biophysical, cognitive, affective, spiritual and social domains. An appreciation of how these domains function and interact is essential to enable the osteopath to dynamically assess a patient and identify the most effective 'entry point' for their treatment.

Twelve years after beginning to write the first edition of *Fundamentals of Manual Therapy*, Professor Eyal Lederman again revisits the question of "What is happening under the hands of the manual therapist?" In this version, Lederman has written a text aimed at all manual therapists, and has reworked his ideas and theories in light of research that has emerged in the interim. This provides a vital bridge between treatment technique and science - increasingly necessary in the current climate. As before, the text is organised into three main sections which explore the responses to manual intervention in the tissue, neurological and also psychophysiological dimensions.

At a tissue level, manual techniques are examined in the context of repair, adaptation and fluid movement. The selection of suitable manual techniques depending upon the phase of injury are

discussed together with contra-indications and how the therapist may effectively facilitate the optimum environment for tissue repair and adaptation. This extends into actively engaging the patient in their healing by encouraging them to apply these principles in their daily activities. A central concept in the tissue dimension is understanding the means by which cell signalling (especially cells involved in repair) may be modulated by manual intervention. The concept of mechanotransduction is well contextualised and explored within a manual therapy context, and poses many interesting follow on questions for the reader.

Lederman proposes that it is in the neurological dimension that the osteopath and patient interface with manual techniques as their 'shared language'. Healing and 're-abilitation' are modulated centrally in the patient to the periphery, and this process may be facilitated by the practitioner. Five key elements are identified as being therapeutically important: patient cognition, active involvement of patient, effective feedback, repetition and similarity to normalised movements. Vital to this is the understanding that the treatment process is therapeutic relationship guided by the practitioner and fully engaging the patient at all levels (tissues, peripheral and central nervous system, emotions, thoughts, etc.) to heal themselves. Lederman emphasises that treatment is not simply something that is done to the patient's tissues from their periphery.

The final section examines the involvement of psychological and psychophysiological factors in manual therapy. The effects of manual intervention go beyond the local tissues being touched and Lederman reviews whole-person effects and processes encountered during injury, therapeutic intervention and recovery. Alterations in body image and self-esteem are important here and often healing in the biophysical domains is impeded by the failure to address the ramifications of injury in the cognitive and affective domains. The well known link between emotion and posture is examined and discussed in terms of an interacting somatopsychic-psychosomatic sequence and how these responses are developed. The psychophysiology underlying manual therapy is explored and how these processes are deeply enmeshed with the limbic, neuroendocrine and autonomic nervous systems are reviewed therapeutic touch and techniques are discussed in the context of re-ordering and re-integrating the body-self.

This is a superb revision and expansion upon *Fundamentals of Manual Therapy*. It is well written and organised with numerous clear diagrams that illustrate the text. I have used *Fundamentals of Manual Therapy* as a core textbook in the teaching of undergraduate level osteopathy students, and this updated edition is most welcome as it further develops and updates the same concepts in a fresh and accessible way.

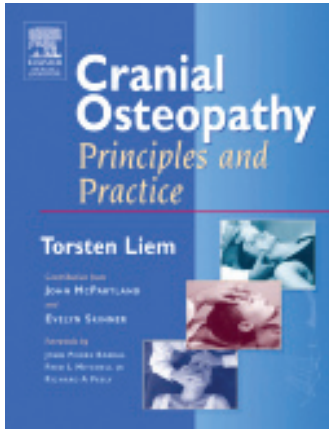
Although Lederman has taken great effort to write a text that all manual therapy professions will find relevant, I would suggest that the echo of underlying osteopathic principles is evident throughout the text, and as such the book will prove particularly popular amongst both practicing osteopaths and students.

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Book Review

Reviewer: Anthony G. Chila

Liem, Torsten: Cranial Osteopathy, Principles and Practice. Second Edition, Published in English. ©2004, Elsevier Limited; Paperback, 728 pp. including Glossary and Index, 514 illus. Price: \$105.00.



Torsten Liem, DO is a registrant of the General Osteopathic Council (GB). He serves as Principal of *Osteopathie Schule Deutschland* (Germany) as well as an MSc program in Pediatric Osteopathy. He is a member of the Research Committee of the *Akademie der Osteopathie* (AFO). His publications include *Praktisches Lehrbuch der Kraniosakralen Osteopathie*, *Praxis der Kraniosakralen Osteopathie* and *Osteopathie-Die sanfte Lösung von Blockaden*. He has served as Co-Editor of the *Liefaden Osteopathie* and Co-Founder and former Chief Editor of the journal *Osteopathische Medizin*.

The present text is a substantial reworking of *Praxis der Kraniosakralen Osteopathie*. Having moved well beyond the original intention of brief revision, the result is a major contribution to the concepts and practice of *Osteopathy in the Cranial Field*. With particular attention to the original thought of Sutherland, whose concept was influenced by Still, the contribution of Magoun and many of the students of Sutherland are appropriately recognized. Forewords to the text are provided by Jean-Pierre Barral, Fred L. Mitchell, Jr. and Richard A. Feely. Each one acknowledges the comprehensiveness of this effort.

The text consists of 20 chapters. As indicated by the author in his *Preface to the second edition* (2005):

“The results of new research and understanding of the anatomical structures and their physiological significance as well as additional diagnostic and therapeutic procedures are presented. Osteopathic approaches to the temporomandibular joint are increasingly being used in place of orthopedic treatments of the jaw. In the light of this it becomes essential for the osteopath to possess a sound body of knowledge. All other chapters have also been updated to reflect the present state of knowledge.”

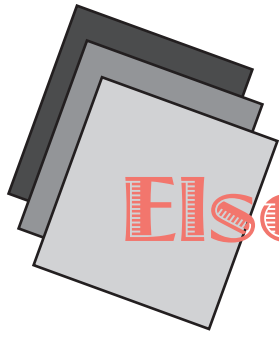
The *Introduction* (pp. 1-28), is an excellent presentation of topics such as palpation, frequency of primary respiration, methods of manual diagnosis, principles and methods of treatment, stages of treatment and the fulcrum, treatment of electrodynamic fields, and assessment of the course of treatment. The information presented is supported by 87 references indicative of the broad, international and multidisciplinary activity contributing to the study of this form of practice.

In any given chapter throughout the text, excellence of illustration and photography contributes significantly to ease of understanding for use by the practitioner. Morphology, clinical associations, diagnostic and treatment approaches provide the framework for each chapter. It is this clarity and consistency of organization which will prove valuable for the teacher and the student. Substantial numbers of references are provided for each chapter.

Chapter 11, *The mandible and temporomandibular joint* can be regarded as the *tour de force* of the text. 145 pages in length, this chapter is a masterful exposition of the osteopathic profession’s traditional view of this joint and its involvement in whole body responses to its dysfunction. As an example, the section addressing *The temporomandibular joint and body posture* (pp. 328-343) provides a framework for assessment which can be utilized in any form of clinical practice.

The *Glossary* represents an effort to contribute to clarification of terms having a history of communication difficulty. The focus is derived from the publications of WG Sutherland, RE Becker and the 1951 edition of HI Magoun’s *Osteopathy in the Cranial Field*. Descriptive terminology is given preference over epistemological considerations.

This text provides a comprehensive, consistently structured and detailed coverage (referenced) of the material presented. The line drawings and photographs employed abundantly throughout enhance and make more approachable the intricacies of palpation, diagnosis and treatment particular to the understanding and utilization of *Osteopathy in the Cranial Field*.



Elsewhere in Print

Urinary Tract Infection in Women

Linda French, MD

ABSTRACT

PURPOSE: To review the epidemiology, diagnosis, and treatment of urinary tract infection (UTI) in women.

EPIDEMIOLOGY: UTI is the most commonly diagnosed bacterial infection in women. Uncomplicated cystitis rarely leads to major morbidity or mortality, but economic costs and impact on quality of life are considerable. Populations at increased risk of complications include older women, pregnant women, and women who have diabetes, are immunocompromised, or have anatomic or functional disorders of the urinary tract.

REVIEW SUMMARY: A presumptive diagnosis of uncomplicated UTI can be made based on history alone, or with limited diagnostic testing such as dipstick urinalysis. Culture should be obtained if the patient has risk factors for complicated disease, presumed treatment failure, or frequent recurrences. A 3-day course of trimethoprim-sulfamethoxazole has been recommended as the preferred initial treatment for uncomplicated UTI as long as resistance to the drug remains sufficiently low. Other options for first line treatment include ofloxacin, nitrofurantoin macrocrystals, and cephalexin. Women with frequent recurrences may use continuous prophylaxis, postcoital prophylaxis, or self-treatment of recurrent episodes. Cranberry juice or pills reduce recurrences. In postmenopausal women intravaginal estrogen can reduce recurrences.

TYPE OF AVAILABLE EVIDENCE: Meta-analyses, controlled trials, cohort studies, case-control studies, and nationally recognized and foreign treatment guidelines.

GRADE OF AVAILABLE EVIDENCE: Fair to good.

CONCLUSION: Diagnosis of UTI based on suggestive history alone is safe but leads to overtreatment. In regard to treatment, there is concern about emerging antibiotic resistance. Future research should include head-to-head trials of inexpensive generic antibiotics for the treatment of UTIs.

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Differences in Initial Symptom Scores Between Myogenous TMD Patients with High and Low Temporomandibular Opening Index

Victor J. Miller, BSc, BChD; Vesna V. Karic, DDS, MSc; Sandra L. Myers, DDS

ABSTRACT

The temporomandibular opening index (TOI) is a more useful measure of mandibular movement than linear mouth opening, since it is independent of age, gender, ramus length, and gonial angle. It is also useful when categorizing temporomandibular disorder (TMD) patients into diagnostic groups. Two subgroups of myogenous patients have been identified, one with a high and one with a low temporomandibular opening index. This study examined initial symptom severity in these two subgroups. Thirty-three (33) patients with a myogenous temporomandibular disorder were recruited. Twenty-six (26) were female and seven male. Eleven were found to be in the high temporomandibular opening index group and the remaining 22 in the low group. Symptom severity scores were determined prior to the start of treatment. Pain, joint sounds, headache, and neck pain were all rated by patients on a four-point verbal response scale. These symptom scores were compared between the two subgroups using the Wilcoxon two sample test. There appeared to be a significant difference between the two groups ($p=0.0025$). TMD patients with high temporomandibular opening index appeared to have more severe signs and symptoms of TMD than patients with a low index.

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