

The AAO

FORUM FOR OSTEOPATHIC THOUGHT

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TRADITION SHAPES THE FUTURE

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Osteopathic Medicine and the Geriatric Patient

Page 16

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Correction to "A Comparison of Swedenborg's and Sutherland's Descriptions of Brain, Dural Membrane and Cranial Bone Motion", *AAOJ* Vol. 18, No. 2

The original article section 5.9 "Herb Miller" stated that Herb Miller, DO, FAAO, FCA was a student of Dr. Sutherland. This is not correct. Dr. Miller did meet Dr. Sutherland and did attend Dr. Sutherland's last cranial course in Des Moines. However, this does not qualify Dr. Miller as a student of Dr. Sutherland. Dr. Miller was a student of many of Dr. Sutherland's students, including Rollin Becker, DO, W.C. Rankin, Sr. DO, Anne Wales, DO and others.

This correction is made to maintain the integrity and scholarship of this article in particular and the AAO Journal in general. Fortunately, it does not affect the substance of the article or any of the conclusions.

David B. Fuller, DO, FAAO



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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 that integration of osteopathic principles, practices, and manipulative treatment in patient care.

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Contributors

Zachary Comeaux, DO, FAAO, Associate Professor, Division of Osteopathic Principles and Practice of the West Virginia School of Osteopathic Medicine United States Osteopathic Education; The Challenge of Globalization Maximizing the legitimacy of a separate osteopathic medical profession while fostering acceptance of osteopathic graduates into accredited residencies has been a domestic pre-occupation. The globalization of the osteopathic profession places American osteopathic physicians in a different perspective. It impacts how we describe or represent ourselves domestically and to the international community. The author reviews issues regarding how the profession might think about organizing and describing its educational curriculum. The issue of Integrated Osteopathic Medical Education is introduced as part of a possible solution.

Ray Hruby, DO, FAAO, MS, Professor and Chairman of Osteopathic Principles and Practice of the Western University of Health Sciences College of Osteopathic Medicine of the Pacific Osteopathic Medicine and the Geriatric Patient The geriatric population is growing. Age related changes impact many aspects of the lives of geriatric patients. Osteopathic manipulative medicine has the potential to greatly enhance the quality of life for many of these patients. Selection of technique is influenced by the age and condition of the patient. The realms in which osteopathic treatment can be used is nearly unlimited.

James A. Lipton, DO, FAAO, Clinical Adjunct Professor of Osteopathic Manipulative Medicine and Physical Medicine and Rehabilitation, Edward Via Virginia College of Osteopathic Medicine; Private Practice, Virginia Beach, Virginia and Letitia Carter, OMS 4 at Edward Via Virginia College of Osteopathic Medicine Improvement of L4-L5 disc positioning following treatment with orthotics used to correct gait dysfunction and level the sacral base Sacral base unleveling and gait dysfunction is a source of asymmetrical posture, possibly causing disc protrusion over time. This case presentation demonstrates the possibility that improving gait and leveling the sacral base with the use of heel lifts and orthotics may reduce disc protrusion.

A Year Ago

A year ago the content of the AAOJ reflected the following information *From the Pyramids* and *Dig On*. A year later we appreciate the product of everyone's efforts made since then. We have evolved through leadership and teamwork.

Periodically we will provide "A Year Ago" information. Our purpose is to share interesting commentary and historical information. By looking back we can see how far we have come and how much further we may go.

We hope you will enjoy this review. Please give us your comments on our new idea about old but interesting information.

Bill Garrity, M.A., D.O.
Chair, Publications Committee

Regular Features:

Book Review. James Binkerd, DO, associate dean for student affairs of Touro University of California reviews Johannes Rothen's book *Functional Morphology*. Dr. Binkerd previously taught OMM and table trained in the anatomy lab at Touro University College of Osteopathic Medicine.

Dig On. DIG ON: Steve Paulus, Independence and Interdependence. In order to be a community, we need to cooperate with each other and other professionals. At the same time, we need to maintain our independence and with that our identity. Where do we fit and how do we keep the balance?

From the Archives. Donald Siehl, DO, FACOS, FAAO, FAOAO, wrote about short leg problems in orthopedic patients. His article, **Management of postural imbalance in orthopedic patients (leg length inequality)** is reprinted from the 1983 AAO Yearbook, *Postural Balance and Imbalance*.



From the Pyramids

Robert C. Clark

(Fall 2007)

A funny thing happened on my way to the convocation. As I stepped off of the elevator to register, an acquaintance greeted me, “Hi Bob, there is something you need to do!” A greeting like that quickly gets your attention. “You need to apply for the editorship of the *AAOJ*.” I told my colleague that I had applied and instantly saw satisfaction in her face. That was just the first of several comments from friends and colleagues encouraging me to seek the editorship. I was both amazed and honored by their conviction that I was the right person to follow in the august footsteps of Raymond J. Hruby, DO, FAAO and Anthony G. Chila, DO, FAAO. The publications committee and the board of trustees confirmed my colleague’s belief.

Upon formal notification of my appointment, I had several thoughts. The first was, “now what have I gotten myself into?” Fortunately, I have the great staff of the AAO to help me. The second was a quotation from the renowned investor, Warren Buffet, when he started his investing and management business using mostly other people’s money, “now don’t mess up”.

The question is “where do we go from here?” The format of the *AAOJ* is solid, which means there will be few changes. In the publishing world it is often said that a publication is only as good as its editor. Others claim that a publication is only as good as its writers and contributors. I subscribe to the latter philosophy. As part of that philosophy, the editor’s role includes working with the writers to enable them to achieve their best. Few things hurt a writer more than poor grammar, syntax and spelling. My mother taught English grammar, business English and journalism. She had me help her grade her high school students’ papers when I was in middle school. That was an education unlike any other!

One important lesson is that all primary English speakers have two languages. The first is the spoken language. Conversation is alive and spontaneous. It allows many short cuts including grammatical and syntactic aberrations that are intolerable and even unpleasant in our second or written language. Written language has dialects based on formality but it rarely allows the laxity of rules that are invisible in our spoken language. Body language, tone, pace and inflection are the punctuation of spoken language. They are impossible to translate to the written language so we must use a different structure. For the person for whom English is a second language, writing in

primary English can be very difficult. The primary English speaker reading translated English finds the article very difficult to read and understand. I ask writers who are not primary English speakers to please have their writing professionally translated.

James Cox, PhD taught the class in educational tests and measurements for my Masters Degree program. He was a master of writing test questions. He maintained the first reason for writing a test question on paper (or a word processor) was to have something that could be **edited!** The first draft is rarely the final version! The first draft that any author produces is the same thing: something to be edited from a rough first draft to a great article.

Over the past year, I have worked with several student authors helping them prepare their first articles for the publications committee of the Osteopathic Physicians and Surgeons of California. The last author was not a primary English speaker but worked diligently. Despite this difficulty, I only had to edit his article twice.

My own articles are no exception to the editorial process. The article that I did with Thomas M. McCombs, DO, presenting an OMT protocol for students in allopathic hospitals, went through six edits before we felt it good enough to submit to the *AAOJ*. As part of our process, we had one doctor and two non-doctors review and edit our article. Please be assured, not every article needs this much review.

My promise to all authors is to help them, as my friends, my colleagues, and my family with careful, thoughtful, but critical editing. I look forward to working with the AAO staff and the *AAOJ* editorial board. In time, I hope there will be a panel of reader reviewers who will help me put together readable and pertinent issues of the *AAOJ*. Several journals have reader reviewer panels whose purpose is to provide the perspective of the working practitioners on the articles for publication. I have done this for the *Journal of Musculoskeletal Medicine* for 20 years. The editorial rationale is to keep the editors in touch with the readers and their interests. If you are interested in being a reader reviewer, or if you have any other suggestions, please contact me at my e-mail address: editoraaoj@yahoo.com.

There are members whose knowledge of the profession’s history and literature are superior to mine. It is

logical that one or more of them could act as my guide for the "From the Archives" section of the *AAOJ*. Additionally, readers who have read a book or a new journal are invited to submit a review. Those who have read other journals and found an article of interest that may not be readily available to the rest of the membership are invited to submit brief summaries for the "elsewhere in print" section of the *AAOJ*. Such contributions will be greatly appreciated. Please use the e-mail address listed, so that you will receive rapid acknowledgement of your submission.

View from the pyramids is exciting. We live in interesting times. I leave you with a thought from a senior colleague. This distinguished gentleman commented that a major reason for his attending the convocation is to share his many years of accumulated experience and knowledge with younger doctors and students. He observed that with the increasing number of osteopathic colleges and the limited amount of time for the colleges to teach the skills of **OSTEOPATHY**, the philosophy and message of osteopathy are being diluted. The convocation is an event for many to see the profession as it once was, is still practiced by some and as it can be once again. I add that the convocation is a way of sharing that knowledge one on one or in small groups. The *AAOJ*, however, is a way to share that knowledge with the entire membership. I dedicate my efforts as the new *AAOJ* Editor to this vision. With your help, we will succeed.

Dig On: Independence and Interdependence



Stephen F. Paulus (From Fall 2007)

In unpublished notes written by A. T. Still in the early 20th century, he referred to the osteopathic profession as a "Brotherhood of Independent Thinkers". Osteopathy was founded by a radical individualist who was an explorer and philosopher. He did not invent osteopathy; he discovered eternal principles of nature. Most importantly, Dr. Still created a teachable system of health care by founding the first osteopathic school and setting up the structure for osteopathic professional organizations to come into being.

It has been said that bringing osteopaths together is like "herding cats". Our profession was founded by a self-reliant individual who was a free spirit. Dr. Still not only encouraged integrative and independent thinking, he demanded it. Functionally, osteopathy was established in the late 19th century as an alternative to allopathic medicine. Doctors of osteopathic medicine (DOs) were thought of as being eccentric and were forced to operate outside of mainstream medicine.¹ Because we were seen as outsiders and eccentrics we were attacked by our allopathic brethren for most of the 20th century.

It was the constant barrage of harassment from the allopathic profession that forced the independent minded Dos to band together for professional survival. We were linked primarily through survival mechanisms, not just by a common philosophy. As a profession, we created a separate medical school structure, a distinct post-graduate education system of internships and residencies, and an independent hospital network of osteopathic institutions. For decades, DOs were not allowed to practice in allopathic hospitals, join allopathic professional organizations, or participate in government sponsored programs for physicians. We were discriminated against and segregated from the greater medical community in the United States.

Segregation and discrimination bound all DOs into a cohesive unit, even in the presence of personal or osteopathic professional disagreement. Philosophic differences between DOs became practically inconsequential when faced with the foreboding of attempted legal and financial destruction by the local and national allopathic organizations.

During the past 20 years, barriers between DOs and MDs have been functionally eliminated. DOs are fully

integrated into the allopathic system. We are no longer segregated. We are rarely discriminated against, as long as we practice in alignment with allopathic principles. DOs and MDs are full partners in the health care industry in the United States.

Once DOs became integrated and were no longer under attack, it was not necessary to maintain systems of osteopathic professional cooperation. The diverse individuals within the osteopathic community became a professional centrifugal force-proceeding in a direction away from their source. Being under attack for nearly 100 years held the osteopathic profession together. Being integrated dissipated our cohesion.

If we were once bonded by survival mechanisms and a common philosophy, what happens when survival mechanisms are no longer needed? Once those DOs, who did not utilize the osteopathic principles and manipulation, saw themselves as equals to MDs, they also envisioned themselves as being separate from DOs who practiced osteopathy in alignment with Dr. Still. Most of our DO brothers and sisters have now allied themselves with allopathy and have quietly placed osteopathically-oriented DOs on the outside of the health care system in the United States.

Because the osteopathically-oriented DOs are small in number, they have no real political power within local and national allopathic or osteopathic societies. There is a new insidious style of discrimination that is directed at the osteopathically-oriented DOs and it is perpetuated by both MDs and the majority allopathically-oriented DOs. Because this new form of intolerance is insidious, there has not been a comprehensive professional outrage or sense of injustice that motivates cohesive political actions.

Are osteopathically-oriented DOs only linked by independent thinking and a common philosophy? Independent thinking, unfortunately and usually overrules our shared philosophy and the practice of osteopathic manipulation. Widespread independent thinking by itself can be divisive to professional organizations. Our national osteopathic medical societies contain a very small percentage of osteopathic physicians who regularly utilize osteopathic principles and manipulation. The independent minded DOs have failed to generate enough cohesiveness or power to have significant influence on national osteopathic policies. National osteopathic policies are, more often than not, aligned with allopathic medical values.

Dr. Still, however, referred to the osteopathic profession not just as a group of independent thinkers, but as a "brotherhood". Brotherhood is a feeling of fellowship and compassion for all people. It is an organization or a whole body of persons engaged in a common purpose or in a particular profession. A brotherhood is an organized

system of interdependence.

Independent thinkers usually separate themselves and are generally not aligned with groups. Dr. Still, however, asked that we not only become independent thinkers but also brothers and sisters. We agree to be different and we grant permission for diversity. Osteopathically-oriented DOs are bound by a common purpose and potentially by our fellowship. Most of all, we agree upon the principles of osteopathy as discovered by Andrew Taylor Still.

The future of osteopathically-oriented DOs depends upon cooperation among diverse individuals. It depends upon independent thought and interdependent action. I believe that our future requires a model of cooperation based upon the celebration of inclusion, democracy, and member participation in organizations that promote osteopathic principles and the practice of manipulative medicine. The essential philosophy of osteopathy is based upon cooperation, which is holistic. Cooperation is also based upon solidarity and harmony. Our future requires that we engage in fellowship and cooperation as the binding elements in our osteopathic professional organizations. We do not need to artificially utilize survival mechanisms to bind us. In fact, to use survival mechanisms as a professional linkage device is dysfunctional and based upon a disease model.

True osteopathy is model based upon health not disease. It is based upon this teaching of Dr. Still: "To find health is the object of the doctor. Anyone can find disease."² DOs who practice osteopathic philosophy and manipulation every day with every patient have an alternative pathway to professional holism. We can foster societies of interdependence based upon sharing a common osteopathic philosophy and having a respect for diversity. We can base our fellowship upon health rather than the lesion of survival mechanisms. And, we can recognize the need for osteopathic independence and the creativity that arises from our distinctiveness. Finally, our success depends upon engaging our interdependence and admitting that what connects us is more important than what makes us unique.

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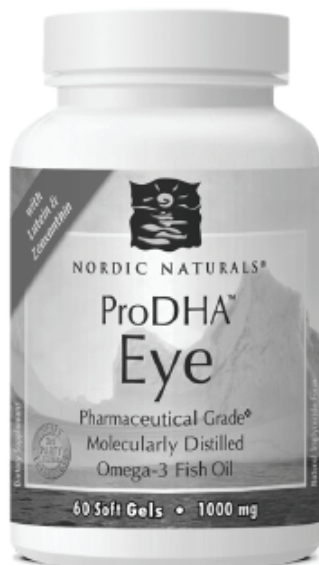
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From the Archives

Management of postural imbalance in orthopedic patients (leg length inequality)

Donald Siehl, DO, FACOS, FAAO, FAOAO

The basic concepts of management of the “short leg” are the same for the orthopedic patient as for any patient, except the leg-length differences are frequently more pronounced and treatment may require some special device or orthopedic procedure. Children and adults must be considered separately.

Children

In the child, shortness of one lower extremity compared with the other may be due to a congenital anomaly. Such anomalies would include a short femur, a short tibia, various foot deformities, absence of one of the long bones, congenital dislocation of the hips, or hemihypertrophy. In this instance the primary consideration is the use of a prosthetic device that will approximately equalize the leg length. There then has to be a rather frequent check by prosthetist, as well as by the physician, to keep up with growth and to ascertain whether the legs are growing equally, or whether growth is producing additional, or less inequality. Correction of certain deformities such as dislocation of the hip will frequently take care of the short lower extremity, but in most of the congenital abnormalities, the prosthetic device has to be utilized. There have been a number of special procedures attempted in some of these cases, especially those of hemihypertrophy, but these are still in an experimental state and so far not uniformly successful.

Acquired inequality of leg length in the child may be found in the instance of anterior poliomyelitis residual, epiphyseal arrest from trauma, and overgrowth of the femur following trauma. This overgrowth frequently is not recognized because many physicians do not realize that a fracture of a long bone in a child often stimulates growth of the bone. If there is a displaced fracture left in bayonet position, the overriding is almost always overcome by the growth differential which occurs. In the undisplaced fracture of the femoral shaft, there frequently is still the growth stimulation and overgrowth as compared with the opposite side. However, in the epiphyseal fractures, especially around the knee, there may well be epiphyseal delay or arrest, or an abnormal growth in one portion of the epiphysis, producing a varus or a valgus deformity with resultant inequality of the leg length.

In the cases of acquired deformity, or shortness, it is best to use a shoe build-up to level the pelvis as best

possible. A build-up of as much as $\frac{1}{2}$ inch may be utilized on the heel only. If the build-up has to exceed $\frac{1}{2}$ inch, then the sole must be built up as well.

There have been attempts at stimulated growth of the short lower extremity, but these are not reliable.

Surgical correction of the inequality of the extremities may be considered. It should be noted that any operation to stimulate or to retard growth should be carried out or initiated prior to the age of 12. There are procedures available to lengthen the short leg, but these are quite complicated and productive of complications. These methods must still be considered experimental. Surgery to shorten the long leg can be carried out, or some type of permanent or temporary epiphyseal arrest can be carried out. After the epiphyses reach relative maturity, residual shortness of one lower extremity may well be corrected by surgical shortening of the opposite extremity, especially in the case of femoral inequality. The surgical shortening should not exceed $1\frac{1}{2}$ inches; approximately 1 inch is preferable.

In order to determine the exact amount of shortness of the lower extremity in the orthopedic patient, whether it be in the child or the adult, in whom the shortness probably exceeds $\frac{3}{4}$ inch, the usual standing anteroposterior pelvic x-ray is not adequate in most instances. The patient with a gross shortness simply cannot stand with the weight borne equally on both heels. When these x-ray studies are done with an elevation under the foot on the short side, there may be considerable error because the patient is in the habit of bearing weight unequally. Using an elevation of 1 inch under the involved extremity, with the standing pelvic x-ray will frequently give a rather good impression of sacral base plan leveling or unlevelling, but this cannot be relied upon entirely. Measuring from the iliac crest to the malleoli gives only a very rough estimate, and this may be off by as much as $\frac{1}{2}$ inch or more.

It is best to obtain specific leg length measurements by a radiologic procedure. The best method at present is known as Bell-Thompson method, of which there are some variations. The method can be carried out on any x-ray table. Generally a long aluminum ruler is used, which is marked either in inches or in centimeters; the markings are visible on the x-ray film. Then spot films are taken at the hip, at the knee, and at the ankle in direct anteroposterior views, and measurements can easily be as-

certained at the joint levels. This method enables one to determine if the shortness is mostly in the femur or mostly in the tibia, and it sometimes will indicate that the shortness is chiefly below the ankle.

In a child it is generally best to obtain a full equalization of the leg length and a level of sacral base. Both factors are essential, because deformity of the pelvis may make an important difference. However, the level of the sacral base is more important than the actual shortness.

Adults

In the adult, we may still see a congenital abnormality causing inequality of leg length. We still may see an acquired inequality from poliomyelitis or trauma. It must be recognized that shortness can occur from trauma in childhood, whether the trauma be to the pelvis, the femur, the hip, the tibia, or the foot. After any major injury of the pelvis or lower extremities it is best, at a later date, to obtain a standing anteroposterior pelvic x-ray, or to determine equality of leg length by another radiologic method. I emphasize the use of radiologic method because the other types of measurements are inaccurate.¹

“Regardless of the cause, the significance of leg length shortening resides in its effect on the pelvic level and ultimately in its effect on the spinal alignment.”

In the adult there frequently is an apparent short leg which is not a true short leg; such a condition may follow a cerebral vascular accident or trauma to the hip or lower extremity, wherein no actual shortening occurs but where there is a disturbance of muscular function in the extremity.

In the instance of an amputation of a leg for any reason, one must ascertain the correct length of a prosthesis. An amputee having a low back problem may have this because of inequality of leg length which he had not had prior to the amputation, or which he had before and now had a breakdown of his normal compensatory mechanisms.

The back pain may also be due to an error of locomotion caused by the prosthesis itself. Standing anteroposterior pelvic x-rays are indicated in this instance.

In the adult, we aim for partial leveling of the pelvic base or sacral base, because the patient in many instances has already compensated for some inequality and needs only enough elevation to bring him back into a compensated state. Frequently full leveling will aggravate his problem. This depends largely on the age of the spine. A grossly hypertrophic spine generally is not going to respond well to lift therapy except in small amounts, and then it may be useful only to compensate for traumatic

problems. Shoe build-up or heel lift therapy in adults must be entered into upon a trial basis and frequently graduated over a period of time.

If there is more pronation of one foot than the other, correction of this by a heel wedge may provide sufficient leveling of the sacral base to diminish low back symptoms. There is a further point to consider in orthopedic patients: The patient who has a continuing error of locomotion following trauma may well be unable to stand with weight borne equally; this will cause inaccuracy in the standing pelvic x-ray. The physician must make sure that there is no contraction of tissues around the knee or the ankle, and that a standing pelvic x-ray is taken with the knees equally in full extension and the ankles equal at approximately right angles. A patient with equal leg length who develops a foot problem on one side, which is subsequently treated with a foot appliance, may well require a similar appliance on the opposite side to keep the sacral base plane level.²⁻¹⁰

A number of references were proposed for those who wish to pursue this topic further

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United States Osteopathic Education; The Challenge of Globalization

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Abstract

Throughout its existence, Osteopathy has been challenged to demonstrate competence as well as distinctiveness. The osteopathic physician model, developed as a system of education paralleling a medical model, has advantages and disadvantages in maintaining this balance between competence and distinctiveness. From an international perspective, the American osteopathic profession may have tactically put itself at a disadvantage by modeling osteopathic education curricula along the lines of allopathic medical education. Although Osteopathy has been carried and separately developed outside the US for a hundred years, this process has accelerated in the last twenty years. While two models of Osteopathy have developed abroad, one includes an MD education, both pathways report more hours in osteopathic education than American trained DOs. Furthermore, the lower proportion of curriculum hours in the United States identi-

fied as uniquely osteopathic in contrast to hours similar to allopathic training suggests two things. First, American osteopathic medicine may be compromising its role as a profession distinctly different from allopathic practice. Secondly, the preparation for a distinctively osteopathic practice may not meet the level of competency achieved elsewhere. If American DOs are to continue to lead the profession, the remedy may lie in adopting an integrated osteopathic medical model.

Introduction

Within a climate of progressive economic and professional globalization, osteopathic medicine faces significant challenges and opportunities. On the one hand, practicing in the founding nation, the American osteopathic pro-



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profession would like to be perceived as the trendsetter and the benchmark for setting competency standards. However, for historic reasons, osteopathic practitioners trained outside the United States do not universally follow the osteopathic physician model. They may train primarily as Osteopaths in the limited license model initiated through John Martin Littlejohn in the United Kingdom. Or, as in Germany or Russia they may be fully trained in medicine then pursue subsequent osteopathic study. As a result a variety of pathways to osteopathic practice exist.

These differences present challenges in recent attempts at the development of a set of common international guidelines for education and competency for these various pathways, as well as in establishing criteria for membership in international organizations. It is often an uneasy match as members from the various pathways seek membership in our associations and participate in our training programs or seek to practice in the United States. We can hope for and work toward international implementation of the American osteopathic physician; however, these expectations can only influence but not control a century old process of osteopathic development abroad.

Disparities in professional preparation have existed within and between the various countries that have included an osteopathic approach to health care. Solutions toward assurance of standards of competency and adequate education are progressing. If the American model is to be universally adopted or represent the standard of osteopathic excellence in education, the case must still be made for its superiority in light of some of the current alternatives.

Many fully trained German physicians subsequently take 600 hours of postgraduate training in osteopathic philosophy and technique. American institutions provide some of this training. In terms of educational competency, how do these physicians compare with the average American osteopathic graduates with a medical education similar to American medical schools plus 200 hours of osteopathic principles and practice? The issues are complex but one would be hard pressed to clearly define the American candidates as superior in terms of either medical or osteopathic preparation.

Brief historical perspective

Still's Osteopathy began with training in anatomy, minimal physiology, and manipulative intervention. Surgery was taught with limited application and pharmacy was not introduced until 1928.¹

The Flexner report² challenged all schools of

medical education to conform to the scientific basis of medicine implemented in the establishment of the Johns Hopkins School of Medicine. Osteopathic institutions agreed to demonstrate conformity to scientifically validated standards of medical education and practice. This meant the development of an educational format that parallels that of allopathic medical schools, with the inclusion of osteopathic principles and practice. In 1966, osteopathic physicians were accepted into the US military. Subsequently privileges in allopathic hospitals have become routine, and many graduates enter non-osteopathic or jointly accredited residency programs.³

In the wake of achieving parity with MD's, the debate continues about how to provide adequate but distinctive osteopathic medical education in order to support a separate profession.

Traditionally American osteopathic medicine has maintained a balance between medicine and Osteopathy by designing curricula that have been inclusive of the subjects and disciplines identified as important in allopathic educational institutions but also required the teaching of osteopathic principles and practice including osteopathic manipulation. These concepts and skills are generally presented as a separate course with designated contact hours. Although this element of the curriculum is mandated by the AOA on accreditation reviews, no benchmarks for number of hours or method of teaching have been set. According to a recent survey by American Association of Colleges of Osteopathic Medicine⁴ the average number of OPP contact hours (lecture and lab) was 211, with a range from 160 to 304. Although this validates the claim that American DO's receive additional training in comparison to MD's, it does not approach parity with Osteopaths trained abroad. Postgraduate training hours do not contribute substantially to a uniquely osteopathic practice style.

A contrasting history

Many of the reasons for the disparity between American osteopathic practice and that overseas are historical. Although Osteopathy spread as individual graduates traveled abroad, osteopathic education was introduced overseas initially by John Martin Littlejohn, a Scotsman who had served as chair of the physiology department and as the second dean at the American School of Osteopathy⁵. Littlejohn's London based British School of Osteopathy taught a non-drug, non-surgical approach to healthcare. Its graduates were conferred with the title Diplomate of Osteopathy (DO) just as were the early graduates of Still's American School of Osteopathy⁶. Until recently, most Osteopathy abroad grew from the root of Littlejohn's model. Since government acceptance of Osteopathy in England did not occur until the

Osteopaths Act of 1993, countries stemming from this tradition inherited the same struggle for government recognition. Several schools provide post-graduate osteopathic certification “conversion” courses to MD’s.

More recently, Osteopathy has been introduced in many countries through other direct contacts with American osteopathic programs or individual physicians. Currently there is not an international standard for curriculum, competency testing or registration. Within individual countries there is competition among schools, associations, and models of practice. However, compared to the US, this does not represent inferiority. Actually, non-physician programs boast their training includes 1200 hour, 2400 hours or even more in osteopathic education over a four to five year training period. A significant number of these hours reflect basic courses in anatomy and physiology, which in an American context are part of basic medical education. Notwithstanding this ambiguity over hours, most programs involve technical lab and supervised clinic time well in excess of an American program.

By contrast, in several countries, most notably Russia, Germany, and France, a significant number of those seeking osteopathic training are fully trained and licensed physicians, recognizing possible disparity in program standards. Often their areas of medical specialty will be physical rehabilitation or sports medicine. Programs or registries for these physicians commonly cite up to 780 hours of additional osteopathic training as a requirement⁷.

An unlevelled field:

Despite the varied educational processes, and the ambiguity over the DO designation, there is the common feature that in each preparatory pathway individuals are trained to perform osteopathic manual diagnosis and treatment within the context of their training and practice rights.

In assessing the competence of individuals trained abroad in Osteopathy, the trend has been to present the American educational and licensing processes as the gold standard.

Additionally, in defending the American Osteopathic Physician model abroad; the case has been presented that our credential should grant us full practice rights in other countries. In a number of countries, the American DO is recognized as having medical competency by right of the appended “physician”, but often with certain other conditions attached such as testing or language competency⁸. In most countries outside the US, the term Osteopath is more commonly recognized as de-

fining the profession since practice rights are limited to the manipulation of the musculoskeletal system. Only in a limited number of countries grant the Osteopath legal recognition as a separate profession. Progress in obtaining practice rights for American trained DOs is being pursued by the AOA on a case-by-case and country-by-country basis. The Osteopathic International Alliance, the World Osteopathic Health Organization, as well as many national and regional groups are pursuing progress in recognition of the profession worldwide.

When pursuing public recognition globally, Osteopathy currently presents three faces, each representing a different educational process. In this forum, American osteopathic education, with its separate OPP course with defined but limited hours, may not be competitive. Certainly part of this discrepancy revolves around a choice of how to describe curricular hours. In justifying the validity of osteopathic medical education, after Flexner, a significant but necessary effort continues in demonstrating educational competence in comparison to American medical schools. The challenge is to do so without attenuating the uniquely osteopathic contribution to medicine that justifies having a separately identifiable profession. The global issue adds an additional dimension in defining osteopathic educational and practice competency.

Relevance?

The World Health Organization (WHO) of the United Nations is attempting to develop criteria of competency for all categories of health care professionals. In seeing the three faces of Osteopathy, in addition to international competition for advantage, the WHO initially thought it could not recommend practice and training benchmarks for the osteopathic profession which had no consensus of its own. Further it would remove Osteopathy from its catalogue of health professions.

Two organizations, the International Osteopathic Alliance (IOA) and the World Osteopathic Health Organization (WOHO), have been key players in helping project a positive image of osteopathy and assisting the WHO in the face of this dilemma.

The American Osteopathic Association has been trying to deal with requests for recognition of osteopaths from abroad plus pursuing international recognition of the American osteopathic physician model. Since 1998 this coordination has occurred through the Council on International Osteopathic Medical Education and Affairs⁸. Over time the AOA position has evolved from threatening ethical sanctions against American DOs who train non-physician Osteopaths to one encouraging the adoption of the American physician model. These efforts have led to the formal initiation of the International Os-

teopathic Alliance in July 2005 in Washington, DC. The OIA is intended to be an organization of nationally recognized osteopathic associations from member countries. It is intended to be the international organizational voice of Osteopathy. The ultimate goal is to assure some cohesiveness in the profession regarding quality standards of osteopathic care and the means to achieving this are constantly being adjusted as events unfold.

Another venture, the World Osteopathic Health Organization, formed in 2003, is intended as an organization of individual osteopaths, recognized in their member countries. WOHO was formed through the collaborative effort of the American Academy of Osteopathy through its annual International Forum. Each of these organizations is working with the WHO in development of the Guidelines for Basic Training and Safety for Osteopathic Practitioners. This document is expected soon, the circulating draft recognizes the several physician and non-physician tiers of osteopathic preparation and practice.

This will go a long way in clarifying the international status and the relative place of American physicians. The American model is not favored when assessment of competency is based on hours in training. In this context, calling attention to our full medical training as we do in the United States does not have the effect it once had. In the past, many international individuals, organizations and schools would send representatives to American Academy of Osteopathy Convocations hoping for validations from an American institution. Now, the same struggling groups direct their efforts at conferences worldwide. With the drafting of the WHO Guidelines, the American osteopathic physician model is recognized but is not the “gold standard.” In this context, there is no single recommended model.

Much of this shift in focus is a rebirth of interest abroad in the fundamental manual approach to Osteopathy, rather than the American medicalized model. If national budgetary or regulatory challenges regarding our right to exist as a separate and distinctive profession in the United States were to emerge, our international osteopathic allies would not necessarily be motivated to defend us as the model of Osteopathy. Whether or not these relationships would have any significant influence is as yet a moot point; however, these trends suggest a deeper issue, the erosion of American Osteopathic primacy and uniqueness. Preemptive action to eliminate this vulnerability seems prudent.

A Possible solution: Documented Integrated Osteopathic Medical Education

To some extent the disparity in educational programs, between those in the United States and overseas, is

misleading since it involves differences in methods of describing contact or course hours. Although the definition of “treating the whole person” carries some merit and is intended to claim some uniqueness in osteopathic practice throughout the curriculum and beyond, this definition of “osteopathic” is debatable. However, there has been a clear, persistent trend to interpret the typical American osteopathic curriculum in terms acceptable to a medically oriented American public and government. In the process, American DOs appear to have devalued themselves in the international osteopathic community through progressive medicalization, as well as minimizing the distinctiveness of osteopathic medicine to the American public, and de-emphasis on manual diagnosis and treatment. This trend is most apparent in residency education, in which becoming medically equivalent as physicians still seems to be a predominant goal. Although this reflects strength in demonstrating medical competency, it reflects a vulnerability to the profession if amalgamation, as occurred in California in 1962, is at some time threatened¹⁰.

John Glover, in the 2004 Thomas L. Northrop address, reiterated the efforts by the Education Committee on Osteopathic Principles to strengthen osteopathic education through the recommended Core Curriculum and the Clinically Integrated Learning Modules for the clinical training years. He cites the challenges in having these ideas accepted. Often they are perceived as superfluous additions to an already content heavy curriculum.¹¹

Further recommendations include “integrating OMM into basic science and all clinical lectures”, “Integrated structural exam into physician exam from the beginning” and for years 3 and 4, “Stress the role of OMM in optimizing systems function, not just for alleviation of motion restriction or pain.”

This call to reflect and reform is not new. Gevitz reformulated the key to survival in 1994 by saying “In the undergraduate years, OPP must occupy a central and unifying role throughout the curriculum.”¹²

Former AAO Executive Director, Steve Noone, who cites a number of initiatives taken to carry this theme into post-graduate years, reinforces the theme.¹³ Among these were better communication by AAO with interns and residents through the Postgraduate American Academy of Osteopathy, review of a survey distributed to Osteopathic Post-graduate Training Institutes to assess residents meeting the OMM competency, as well as promotion of the use of the Outpatient Osteopathic SOAP Note Series.

Implementation of the integration concept requires a reevaluation of the relevance of osteopathic principles to medical science and clinical practice. This in

turn leads to a rethinking and redesigning of the curriculum of osteopathic medicine. To do so requires insight and a commitment to seeing osteopathic medical education and practice in another way. It requires our clinical faculty to become updated in current issues in biomedical science. Additionally it requires biomedical science faculty to embrace the tradition that has formed the profession, to learn substantively what the philosophy entails, and to decide where to contribute. If such were the case, osteopathic education itself would be substantially unique and legitimately far more hours could be credited as uniquely “osteopathic education.” These recommended changes will require a significant “attitude adjustment” on the part of the American osteopathic profession as a whole, significant, but within grasp.

The recent development of the curriculum at the Edward Via Virginia College of Osteopathic Medicine has included the integration of osteopathic concepts into physical examination skills without an identifiably separate OPP course. Performance of graduates has not yet been assessed. The West Virginia School of Osteopathy, since 1992,¹⁴ has been implementing its Clinical Integration Project. Based on the “Four Principles of Osteopathy”,¹⁵ basic science and clinical faculty are encouraged and even evaluated on the degree and manner in which they relate the content of their courses to these principles. The challenge of implementation has included much collaboration and co-teaching activity between clinical and basic science faculty with additional help from the Division of OPP. However, the Osteopathic Principles and Practice Course is still conceptualized as separate and total curricular hours in OPP are cited as 188 hours. Case Studies in Osteopathic Medicine discipline, and other integration strategies, are woven through the courses in the first two years but these hours are not credited as “osteopathic” education.

Challenge and conclusion

If the American osteopathic profession has the will to persist as a unique and separate expression of medical care, and if, as the American Osteopathic Association has suggested, the American model of the osteopathic physician is to be universally recognized as the desired paradigm, several challenges need to be met. Domestically, the struggle to continue to validate Comprehensive Osteopathic Medical License Examination also known as COMLEX, to upgrade curriculum in both content and teaching method, to keep preparing student physicians with technical changes in medical diagnosis and practice are all still critical. The primary vulnerability, which has not been seriously addressed in maintaining our uniqueness, is our keeping abreast of our osteopathic colleagues abroad in documenting uniquely osteopathic education. If we are to continue to be critical of Osteopathy

outside the United States, we need also to be self-reflective and reforming domestically. Furthermore, if the current trend in developing the WHO guidelines for health care workers unfolds showing tiered competencies and credentials for the three categories of Osteopathy, our model may be viewed as deficient compared to both our physician and non-physician counterparts abroad.

This is not the way we wish to see ourselves. Nor is it the image we wish to project as a profession. How can we build for a strong future for osteopathic medicine as a distinctive approach to health care in both the national and international context? The difficult job of working out the details will only happen if we have the will to do so.

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Osteopathic Medicine and the Geriatric Patient

Raymond Hruby, DO, FAAO, MS

Introduction

Osteopathic medicine, with its distinctive philosophy and principles, can provide unique and beneficial approaches for geriatric patients who require special considerations for certain aspects of their medical care. Changes in anatomy and physiology that occur with aging, the psychosocial aspects of aging, and the potential for age-related diseases dictate that geriatric patients cannot simply be considered older adults. Medical care of geriatric patients is a multidisciplinary and holistic endeavor, with the ultimate goal of assisting these patients in maintaining optimum health and function.

The definition of osteopathic medicine is: “A complete system of medical care with a philosophy that combines the needs of the patient with the current practice of medicine, surgery, and obstetrics, that emphasizes the relationship between structure and function and that has an appreciation of the body’s ability to heal itself.”

The philosophy of osteopathic medicine is: “The osteopathic concept emphasizes four general principles from which are derived an etiological concept, a philosophy and a therapeutic technique that are distinctive, but not the only features of osteopathic diagnosis and treatment:

- The body is a unit.
- The body possesses self-regulatory mechanisms.
- Structure and function are reciprocally interrelated.
- Rational therapy is based upon an understanding of body unity, self-regulatory mechanisms, and the inter-relationship of structure and function.”

Who is the geriatric person?

There is no strong consensus or definition of the “geriatric person”. In other words, when it comes to old age, no one really knows who exactly fits in this category. Factors other than chronology must be considered when defining the aging process as exemplified by Heilig, who wrote,

“At the onset it becomes necessary to decide who the geriatric patient is. I suspect that the recent medical school graduate would consider anybody over 50 years of age in this category; the man (sic) who has been in practice for 20 years would raise the definition of geriatric patient to those of



retirement age; and then as we ourselves approach the retirement age we begin to classify patients in their eighties or nineties as geriatric! This is human. I think we have to establish that we are referring to the patient who is beyond a certain point in his metabolic life, where certain changes in tissue, metabolism, circulation, etc. are bound to be occurring. The female menopause or male climacteric will have occurred to some degree, but this is not a total point of change, though it may be dramatic. Perhaps the evidences of aging significant in this classification are to be seen in the musculoskeletal system; the amount of structural change gives early and objective evidence. There is no one age and no one patient who would fit in the category of being aged on a chronological basis alone.”

Many developed countries use the chronological age of 65 years as a definition of ‘elderly’ or older person, but like many westernized concepts, this does not adapt well to the situation in less developed countries. Although there are commonly used definitions of old age, there is no general agreement on the age at which a person becomes old. The common use of a calendar age to mark the threshold of old age assumes equivalence with biological age, yet at the same time, it is generally accepted that these two are not necessarily synonymous. The British *Friendly Societies Act* of 1875, defined old age as, “any age after 50”, yet pension schemes mostly used age 60 or 65 years for eligibility.

Body unity

The holistic view of the geriatric patient means the physician must be aware of changes in the musculoskeletal system that occur with aging. For example, older patients may not perceive or react to pain as sharply as younger patients do. One should also be aware of the osseous changes (demineralization, joint stiffening) that may occur with aging, and also with changes in soft tissues associated with aging. These soft tissue changes in-

clude tightening of fascial sheaths, muscle atrophy (sarcopenia), and an increase in abdominal fat stores. These changes combine to produce a change in the body composition of the elderly person.

Changes in the bone density of vertebrae and intervertebral discs may contribute to changes in spinal curvatures that in turn result in postural changes associated with aging. Other common problems seen with aging include degenerative arthritis (osteoarthritis), rheumatoid arthritis, osteoporosis and an increased risk of falling, which may result in fractures.

In addition older patients may also experience a slowing in the production and circulation of neurotransmitters, and a slowing of axonoplasmic flow. Such physiologic changes may contribute to clinical problems such as sleep disturbances or depression. Other associated signs and symptoms may include changes in balance and coordination, decreased mental acuity, and mood changes.

All of these changes may alter an elderly patient's response to treatment whether pharmaceutical agents, rehabilitative measures or osteopathic manipulation. An elderly patient's ability to exercise or perform activities of daily living may also be affected. Awareness of these situations will assist the physician in determining appropriate pharmaceutical regimens, rehabilitation pro-

cedures, exercise programs and other activities for the patient.

Self-regulation

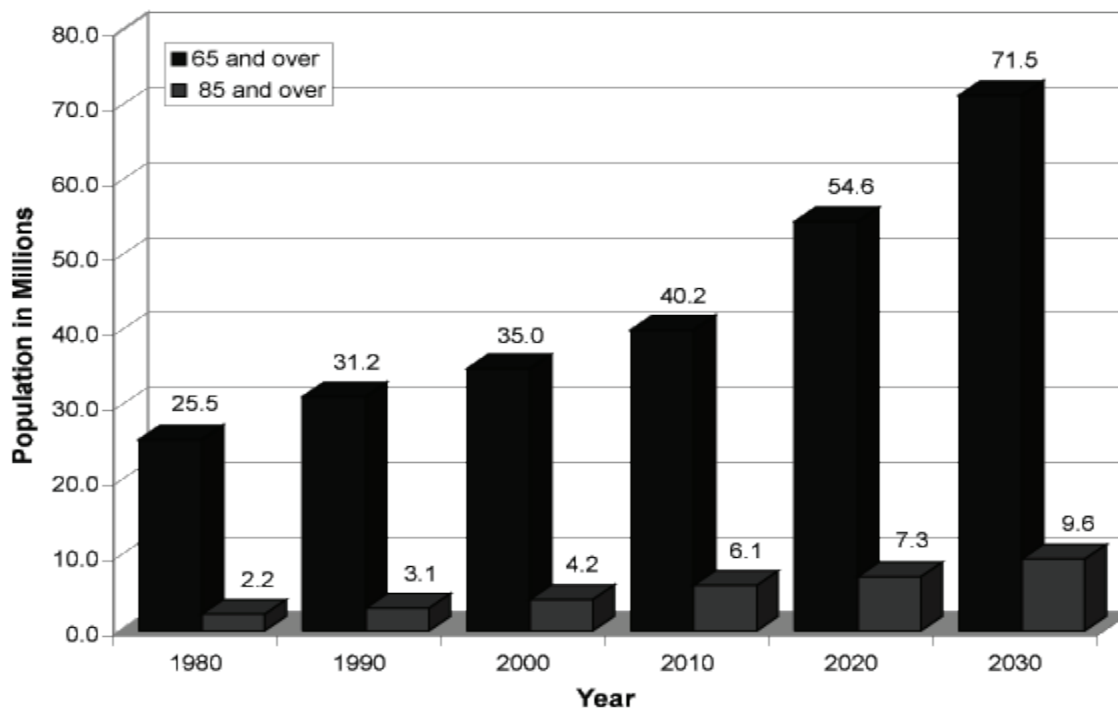
In order to help the geriatric patient optimize his or her functional abilities, health promotion and disease prevention must be included in the patient's overall care plan. Some important topics to consider are:

- Nutrition and weight control
- Posture and exercise
- Healthy lifestyle
- Reduction of emotional stress
- Prevention of illness and injury

Keeping the musculoskeletal system healthy can contribute to the patient's overall level of health and quality of life. Some aspects of lifestyle and behaviors can affect the health of the musculoskeletal system. Educating patients in these areas is an important part of their overall health care.

A regular exercise program also helps to maintain the health of the neuromusculoskeletal system. Regular exercise helps to maintain the strength and mass

Number of People Age 65 and Older and 85 and Over, 1980-2000 and Projected 2010-2030



Retrieved from :<http://www.cdc.gov/nchs/pressroom/08newsreleases/visitstodoctor.htm>. Accessed August 15, 2008.

of bones and muscles, and helps to keep the joints stable. A good exercise program should include cardiovascular and strength-building maneuvers, and a stretching program to help maintain flexibility and good posture.

Patients should also maintain a healthy lifestyle. They should be encouraged to avoid such things as smoking and alcohol abuse. It is reasonable to assume that everyone experiences varying degrees of stress. The physician, however, can help the patient to find effective methods to cope with stress even under the most trying of circumstances. It is also important for the physician to assist the patient in seeking out adequate support systems from family, friends and community support services.

The health of the neuromusculoskeletal system can also be maintained by having patients take measures to avoid accidents or injuries, both at work and at home. For example, patients should be encouraged to maintain their automobiles properly and to make sure they utilize auto safety devices such as seat belts. Home and work safety can also be encouraged by educating patients about fire safety, gun safety, prevention of falls, prevention of power tool injuries, and avoidance of exposure to chemicals or toxins in the environment.

The Interrelationship of structure and function

An osteopathic structural examination is a distinctive part of the history and physical examination of the patient. This part of patient evaluation combines palpation of musculoskeletal tissues and anatomical landmarks with motion testing in order to assess the musculoskeletal system for evidence of *somatic dysfunction*, which is impaired or altered function of related components of the somatic (body framework) system: skeletal, arthrodial, and myofascial structures, and related vascular, lymphatic and neural elements.

Somatic dysfunction is present with virtually every condition that may affect the patient. It is present whenever there is trauma to, or disease of, the musculoskeletal system. Through complex neurological interconnections, disease or dysfunction of internal organs or systems often results in somatic dysfunction being present in segmentally related areas of the musculoskeletal system. The finding of somatic dysfunction gives the examiner important information that may help in determining precisely what is affecting the patient, and may aid in determining more precise diagnostic and treatment options. In addition, treatment of somatic dysfunction related to the patient's illness might offer a faster recovery of health and a better ability to maintain this recovery. Relief of somatic dysfunction is accomplished by the application of osteopathic manipulative treatment (OMT). Specific goals for the use of OMT in the geriatric patient are dis-



cussed later in this article.

The criteria for identifying somatic dysfunction are: Tissue texture abnormalities, Asymmetry of position of bony (or other) anatomical landmarks, Restriction of motion (quantity and/or quality), and Tenderness. These criteria are easily remembered by using the mnemonic TART.

Goals of osteopathic manipulative treatment

As in any clinical situation, the goals of manipulative treatment in the geriatric patient vary with the specific problem. Experts in osteopathic manipulative medicine^{1,2,3} have pronounced some of the goals of manipulative treatment for the elderly as follows:

- Return the patient to a degree of independence in daily activity.
- Prevent secondary disabilities; restore functional ability; prevent succumbing to multisystem diseases.
- Postural drainage.
- Respiratory assistance.
- Stretching tight fascial sheaths.
- Mobilize and move fluids: blood, lymph, CSF, urine, digestive fluids.
- Aid digestion and elimination.
- Relieve pain.
- Restoration and maintenance of autonomic balance.
- Increase the patient's feeling of well-being.

- Maintenance care and palliation.

The success or outcome of treatment should be measured by the patient's ability to successfully resume daily activities. In the case of maintenance and palliation, the patient's overall level of comfort and peace of mind are useful and measurable outcomes for determining the success of manipulative treatment.

Indications and contraindications for OMT in the elderly

In general, OMT is not contraindicated in the geriatric population. Indications for the use of OMT are by and large the same as that of any other adult age group. The development of indirect techniques, and direct techniques other than high velocity low amplitude (HVLA), has eliminated some cautions and contraindications. Most precautions and contraindications may be thought of as relative, and absolute contraindications (with few exceptions) are usually associated with the use of HVLA techniques. According to Heilig:

“The use of the term ‘absolute contraindication’ should be reserved for an *area* of involvement, or it should be a matter of the physician's judgment in view of the overall condition of the patient rather than in view of the title given to a dominant pathology. We must remember that if the patient has more than one pathology, he (*sic*) has more than one source of aggravation.”

“Frequently contraindications are defined in terms of ‘thrust’ techniques or vigorous articular techniques; and we forget the possible hazards of myofascial or ‘soft tissue’ techniques in some of the vascular diseases such as thrombophlebitis, phlebitis, arteritis, arteriosclerosis and atherosclerosis. With the aging patient, who (*sic*) we know

may have some of these vascular changes; we should use considerable caution as to the amount of myofascial manipulation. There should be particular caution in certain areas: for example, the cervical techniques which might involve excessive mobilization around the carotid sinus in the arteriosclerotic patient or manipulations affecting the abdominal content where there are advanced changes in the

mid-aorta.”

Considerations in the application of OMT techniques

Most OMT techniques can be used in the elderly population. Again, as Heilig has stated:

“Every form of technique, from superficial lymphatic drainage through myofascial techniques of stretching and muscular relaxation, ranges of motion, articular and springing type of techniques, and even modified thrust techniques, can be utilized in the aging patient. Certain conditions would preclude forceful or extreme forms of manipulation, and these would include such conditions as arthropathies, osteoporosis of the disseminated type, multiple myeloma, Paget's disease of bone, and of course primary bone tumors or metastatic lesions of bone. I think a word should be said even concerning these, because these are the conditions which we are liable to encounter in the aging patient, who may have been under osteopathic care for a number of years prior to the onset of his (*sic*) bone or joint condition.”

Depending on the clinical situation, it may be necessary to avoid or modify the use of HVLA techniques in the geriatric patient. In addition, the patient may require modifications in treatment position because of concomitant clinical conditions, such as arthritic joints, muscle contractures, or other similar situations. The practitioner may find that the musculoskeletal changes associated with aging and the precautions previously noted, make OMT modalities such as counterstrain, muscle energy, soft tissue, myofascial release, and articular and joint play techniques preferable choices.

Some clinical conditions in the elderly that may be amenable to the use of osteopathic manipulative treatment

Hypertension

Hypertension has been shown to respond favorably to OMT. Northup⁷ has recommended the use of OMT to segmentally related spinal areas such as the cervical spine, the T1-T4 region, and the upper rib cage.

Arthritis

Many osteopathic physicians have reported a decrease in joint pain, decreased use of anti-inflammatory medications, and increased functional ability in patients with rheumatoid and osteoarthritis. These patients may respond well to soft tissue, myofascial and articular techniques in particular. HVLA may be used with caution and often with modification, and is avoided in the case of



acutely inflamed joints.

Congestive Heart Failure

These patients may respond to the use of techniques that would improve respiration and circulation of fluids. Maintaining good biomechanical motion at the cervicothoracic, thoracolumbar and lumbosacral areas will help to maintain good motion at the thoracic inlet, and the abdominal and pelvic diaphragm areas. These diaphragms may be treated directly. Other techniques are available which may assist the movement of fluids throughout the body.

Constipation

OMT to help alleviate this problem should be directed at treating the segmentally related areas including the thoracolumbar and lumbosacral regions. Myofascial release to the abdomen and the abdominal and pelvic diaphragms may also be helpful.

Respiratory Diseases

Any techniques to improve respiratory mechanics and ventilation would be helpful with these problems. Treatment could be directed to the cervical spine to influence Phrenic nerve function, to the thoracic spine and rib cage to improve rib cage mechanics, and to the thoracoabdominal diaphragm. Knoll¹ has shown that OMT to elderly patients with pneumonia can shorten length of hospital stay and decrease the time needed for antibiotic usage.

Some experts in OMM have described improvements in patients with Parkinson's disease with the use of OMT. Reports of decreased tremors and improved functionality have been noted. Wells showed improvement in gait in Parkinson's disease patients.

Summary

The philosophy and principles of osteopathic medicine can provide physicians with some distinctive and useful approaches to health issues affecting the elderly population. Specifically, OMT can be very beneficial for geriatric patients. Most of the commonly used OMT modalities may be used in the elderly population. In some patients, the clinical situation may require alternative treatment position. Some direct techniques, such as HVLA, may require modification for use in geriatric patients, and some clinical conditions may preclude the use of HVLA technique.

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CME QUIZ

The purpose of the quiz found on page 26 is to provide a convenient means of self-assessment for your reading of the scientific content in the "*Osteopathic Medicine and the Geriatric Patient*" by Raymond Hruby, DO, FAAO, MS.

Answer each of the questions listed. The correct answers will be published in the December 2008 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 page 26. 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.

Improvement of L4-L5 disc positioning following treatment with orthotics used to correct gait dysfunction and level the sacral base

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Abstract

Sacral base unleveling and gait dysfunction is a source of asymmetrical posture, possibly causing disc malpositioning over time. We present a patient diagnosed with right on right forward sacral torsion, a short left leg, gait dysfunction and lumbosacral somatic dysfunction, and an MRI work-up showing a disc extrusion and neural foramina narrowing at L4-L5 and L5-S1. Approximately 10 weeks after receiving treatment, and being pain free, she returned because of exacerbation of her back, and was sent for a second MRI, which described an unexpected improvement, namely only a mild protrusion at L4-L5 without mention of neural foramina narrowing. Our objective in presenting this case is to demonstrate the possibility that improving gait and leveling the sacral base with the use of heel lifts and orthotics may improve disc malpositioning. Further studies are needed to determine if proper alignment improves disc positioning and through what mechanism this occurs.

Key Words

Low back pain, orthotics, heel lifts, sacral base unleveling, gait dysfunction, disc herniation

Introduction

Estimates are that 80% of the U.S. population suffers from low back pain at least once in their lives.¹ Back symptoms continue to be the most common cause of disability in patients younger than 45 years old, and low back pain is a very common reason for physician visits.² The majority of back pain sufferers have a degenerative component in the etiology of their discomfort, however; this also occurs in up to 70% of asymptomatic patients.³ Along with the loss of elasticity and hydration of discs with age, degeneration of the intervertebral disc involves changes in the nuclear and annular components including a cascade of cellular remodeling,⁴ which can potentially cause herniation. Herniation at one level can then cause pressure nearby, as well as narrowing of the associated neural

foramina.

In disc herniation, the annulus fibrosis degenerates and allows the nucleus pulposus to push through. There are two components of disc herniation: protrusion and extrusion. Protrusion involves the displacement of the disc beyond the interspace, either focally or in a broad fashion. The distance the disc material protrudes beyond the disc space is normally less than the width of the base in the same plane. When the disc is extruded, the distance of the herniation is greater than the width of the base. Also, continuity between the herniation and the disc space may not exist. If the displaced disc material has completely lost all continuity, then it is defined as a sequestration.⁵

In addition to disc degeneration, somatic dysfunction can indirectly cause disc herniations. In the body are various muscles connecting to the spine, hips, legs, and arms. Asymmetrical contraction can create muscle imbalance from side to side and give rise to gait and postural misalignment. For instance, a unilateral hypercontracted psoas major muscle could potentially misalign the spine via its origin on the corresponding lumbar vertebrae, or misalign gait via insertion on the lesser trochanter. The psoas muscle in this case can cause more forceful flexion of the hip, resulting in a physiologic leg length inequality. The latissimus dorsi muscle is another example of a postural muscle imbalance. The latissimus dorsi connects to the humerus, inferior angle of the scapula, thoracic, lumbar and sacral vertebrae, and the ilium. Thus, a mechanism exists through which gait dysfunction and postural misalignment in the lower body can affect the upper body. After reviewing basic anatomy, one can postulate that muscle imbalance can affect gait and posture. Gait dysfunction and/or muscle imbalance might cause unilateral hypercontracted muscles such as the piriformis to unlevel the sacral base. The subsequent uneven posture might cause an increase in asymmetrical pressure resulting in bulging or even herniated discs.

This case reports an improvement in disc positioning which may have resulted from gait correction and sacral

Non-radiological Assessment of Leg Length Inequality

Points to evaluate in the non-radiological assessment of leg length inequality may stem from various causes which in themselves need to be separately diagnosed to determine proper treatment which may or may not include correction of gait and/or leg length inequality with appropriate heel lifts or custom made orthotics in certain patients.

The patient is lying flat and supine. The examiner places his/her thumbs against the inferior surface of the medial malleoli and assesses length disparity. This alone may be less than 75% accurate and is not recommended as a stand-alone test.

To increase accuracy, the examiner places his/her thumbs inferior to the anterior superior iliac spines and moves superior until stopped by anterior superior iliac spines and assesses symmetry of the anterior superior iliac spines.

Additionally with the patient prone use the examiner's thumbs to assess symmetry of the inferior-lateral sacral angles and the depth of the sacral sulci.

Synthesize this data based on osteopathic principles and practice and treat the ilium, as needed. Reassess the malleoli for the leg length inequality diagnosis.

base leveling. Normally, post-treatment MRI studies are not done to document disc positioning if the patient shows improvement. In this case we were able to do so serendipitously.

Report

A 35-year-old female presented to the office on March 27th, 2007 with the complaint of consistent low back pain from the age of 16, and pain in the right leg and hip region. Her pain severity was stated as moderate to severe with a pain scale of 9/10 at its worst. At the time of visit her pain was at a level of 3/5 with the use of a muscle relaxant and nonsteroidal anti-inflammatory drugs (NSAIDs). The quality of her pain was described as sharp with radiation, parasthesias and numbness in her right leg. She saw a chiropractor and family physician without relief. She achieved mild relief with self-treatment through rest, intermittent ice and heat, and by the use of NSAIDs.

She presented with a radiograph of her lumbosacral spine taken on March 15th, 2007, which showed mild lower lumbar disc degeneration with no acute findings. She denied any past or current medical history and her only allergy was to amoxicillin. She denied the use of tobacco. She had a history of playing tennis, and had a baby in 2000, both of which she thought contributed to her pain. Family history included a father with arthritis, mother with hy-

pertension, two siblings with back surgeries, and one sibling with breast cancer.

On physical exam, vital signs were within normal range. Her gait was full weight bearing and non-antalgic. She hyperpronated in stance phase. Both her straight leg raise and crossed straight leg raise tests were negative. She did not have hip tenderness with internal and external rotation. The patient was found by nonradiologic assessment⁶ to have a right on right forward sacral torsion, an elevated right anterior superior iliac spine, and leg length discrepancy with a short left leg, gait dysfunction, and lumbosacral somatic dysfunction.

The patient was sent to have MRI of her lumbosacral spine April 16th, 2007. The radiologist report described a broad based posterior disc protrusion with a focal right 4-5 mm para-central inferior disc extrusion at L4-L5 with narrowed neural foramen and slightly

Figure 1. MRI of lumbosacral spine, taken on April 16th, 2007.



Figure 1. Magnified view

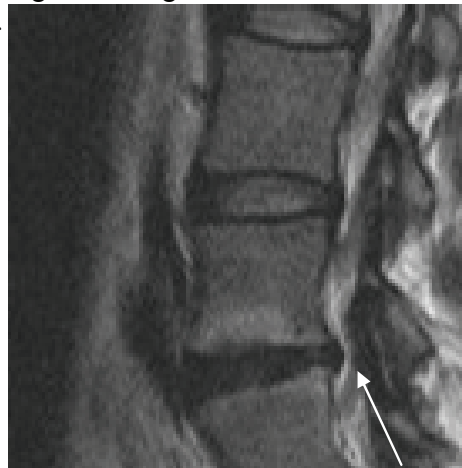
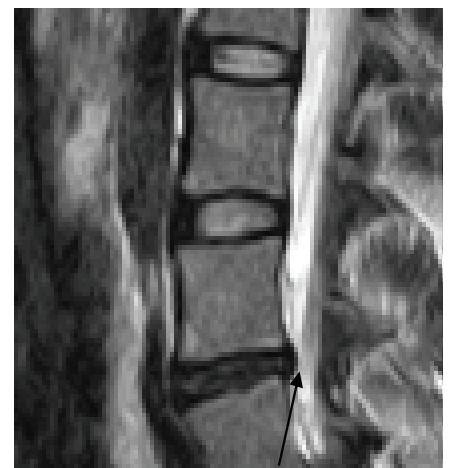


Figure 1. MRI of lumbosacral spine, taken on April 16th, 2007.



Figure 2. Magnified view



displaced exiting right nerve root by the discal component at the right neural foramen (figure 1). The posterior central canal had a triangular configuration from degenerative facet and ligamentum changes with narrowing of the right lateral recess. The L5-S1 level showed a focal posterior disc extrusion with minimal three (3) mm inferior extension, with mild to moderate bilateral facet degenerative changes, ligamentum flavum hypertrophy, and minimal grade 1 spondylolisthesis narrowing the neural foramen and central canal. There was no central canal or foraminal stenosis at this level. The patient returned to the office on April 30th, 2007 and after reevaluation, received a temporary nine (9) mm heel lift to wear in her left shoe to level the sacral base. She was followed up in two weeks to confirm that she could tolerate the lift. The patient stated that her pain was 0/10 after wearing the temporary lift. The temporary lift was replaced with prescription orthotics for correction of her gait dysfunction with the left orthotic having a permanent 9 mm heel lift built in. She started wearing the orthotics June 22nd, 2007. The patient did fine until July 19th, 2007.

On July 19th, 2007, the patient returned to the office because of exacerbation of her low back due to heavy lifting and driving for a long distance. The differential diagnoses included worsening of her herniated discs; therefore the patient was sent for a repeat MRI, and was given methylprednisolone, hydrocodone/acetaminophen and a trans-electrical nerve stimulation (TENS) unit for symptomatic relief. The patient improved within three weeks, and was weaned off the hydrocodone/acetaminophen. Compared to the previous MRI in April 2007, the new report showed improvement of disc malpositioning at L4-L5 and L5-S1. The report described only a mild focal right posterior disc protrusion now only mildly effacing the thecal sac at L4-L5 with no mention of pressure on the nerve root (figure 2), and a small to moderate focal left posterior disc protrusion at L5-S1, effacing the thecal sac and emerging left S1 nerve root. The patient was advised to maintain proper body mechanics, including bearing weight symmetrically, continuing to wear her orthotics everyday, and to use the TENS unit as needed to assist her with short term pain relief. In order to resolve inflammation, the patient received a series of three epidural steroid injections, and has been completely pain-free since her last visit on January 3rd, 2008.

Conclusion

This patient was pain free after only one week of wearing the lift. This may have been due to the fact that her sacral base was now level and her vertebrae were beginning to have proper alignment, causing less impingement and pressure near the nerve root. Studies show that using heel lifts to level the sacral base and correct pelvic obliquity provides statistically significant relief from low-

back pain.^{7,8} The MRI anatomy of the L4-5 disc herniation also improved even after the patient heavy lifted and exacerbated her back. The only intervening treatment was the orthotics that leveled her sacral base and improved her gait dynamics. This is a case demonstrating the possibility that improving gait and leveling the sacral base may improve disc positioning. Further studies are needed to determine if proper alignment improves disc positioning and through what mechanism this occurs.

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CME QUIZ

The purpose of the quiz found on page 27 is to provide a convenient means of self-assessment for your reading of the scientific content in the *"Improvement of L4-L5 disc positioning following treatment with orthotics used to correct gait dysfunction and level the sacral base"* by James A. Lipton and Letitia Carter

Answer each of the questions listed. The correct answers will be published in the December 2008 issue of the *AAOJ*.

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Publication: *Journal of the American Academy of Osteopathy*, Volume 18, No.3, September 2008, pp 16-20

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Complete the quiz below by circling the correct answer and mail to the AAO. The AAO will forward your completed test results to the AOA. You must have a 70% accuracy in order to receive CME credits.

Answer sheet to June 2008 AAOJ CME quiz will appear in the September 2008 issue.

1. Treatment goals for OMT in a geriatric patient include which of the following?
 - A. Diagnosis of malignancy
 - B. Remove arteriosclerotic plaque
 - C. Increase intervertebral disc space
 - D. Prevention of secondary disability
 - E. Heal a compression fracture
2. Soft tissue changes associated with aging include which of the following?
 - A. Increased flexibility
 - B. Tightening of fascial sheaths
 - C. Faster reacting muscle spindles
 - D. Higher levels of actinomycin
 - E. Larger muscle mass
3. The indications for OMT in the geriatric population are:
 - A. Limited to only a few clinical conditions
 - B. Undefined in any literature
 - C. Unknown to any of the healthcare professions
 - D. Not significant enough to consider in formulating a treatment plan
 - E. The same as that of any other adult age group
4. The use of some OMT techniques in geriatric patients may require:
 - A. Alterations in treatment position
 - B. The use of restraints
 - C. High velocity, high amplitude forces
 - D. Local or general anesthesia
 - E. Movement of a joint beyond the anatomical barrier
5. A slowing in the production and circulation of neurotransmitters may contribute to the development of which of the following clinical problems in the geriatric patient?
 - A. Joint destruction
 - B. Anemia
 - C. Depression
 - D. Hyperthyroidism
 - E. Cholelithiasis
6. Maintenance of the strength and mass of bones and muscles in the geriatric patient can be facilitated by:
 - A. Complete rest
 - B. Moderate use of alcohol
 - C. A high calorie diet
 - D. A regular exercise program
 - E. Taking a non-steroidal anti-inflammatory medication

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Author(s): James A. Lipton and Letitia Carter

Publication: *Journal of the American Academy of Osteopathy, Volume 18, No.3, September 2008, pp 21-3.*

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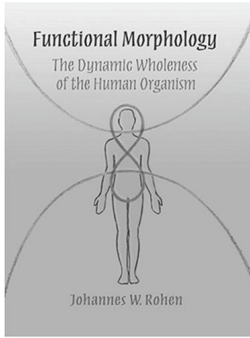
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Answer sheet to June 2008 AAOJ CME quiz will appear in the September 2008 issue.

- | | |
|--|---|
| <p>1) The following area of the body is the most common site of disability in patients under 45 years of age:</p> <ul style="list-style-type: none"> A. neck B. shoulder C. wrist D. back E. none of the above <p>2) Approximately what percent of patients experience back pain at least once in their life?</p> <ul style="list-style-type: none"> A. 10% B. 20% C. 30% D. 70% E. 80% <p>3) Degenerative disease:</p> <ul style="list-style-type: none"> A. has little to do with low back pain B. is rarely the major cause of low back pain C. is involved in symptomatic but not asymptomatic low back pain D. is involved in symptomatic and asymptomatic low back pain patients E. none of the above | <p>4) Degenerative changes in lumbar discs:</p> <ul style="list-style-type: none"> A. involve the nucleus pulposus B. involve the annulus fibrosis C. involve both the annulus and the nucleus D. involve neither the annulus or the nucleus E. none of the above <p>5) A lumbar herniated disc is defined as:</p> <ul style="list-style-type: none"> A. sequestered if it loses continuity with the rest of the disc B. is sequestered only if it maintains continuity with the rest of the disc C. can not be sequestered if it loses continuity D. is only sequestered atraumatically E. none of the above <p>6) With regard to leveling the sacral base in the treatment of low back pain:</p> <ul style="list-style-type: none"> A. no studies have been done showing statistically significant improvement of the pain B. a level sacral base is statistically irrelevant to treatment outcome C. there is no connection from the sacrum to the hips D. there is no connection from the hips to the upper body E. studies show a statistically significant improvement in pain |
|--|---|

Book Reviews



In his text *Functional Morphology the Dynamic Wholeness of the Human Organism* Johannes W. Rohan attempts to bring a spiritual perspective to the growth, development and evolution of the human being. This is a daunting and laudable pursuit. He draws heavily from and quotes often the works of Rudolf Steiner. Though he begins with his own observations of human developmental morphology he draws into the process a spiritual dimension that begins to sound more and more religiously based as he progresses. In the final chapter the religious hints and suggestions become overt assertions. In the end it seems that what Rohan has written is a text to give expression to the theory of intelligent design in the context of human development and evolution. Even though he falls short of being convincing it is an interesting opportunity to observe as Rohan shares with the scientific reader how intelligent design may be applied to explain human development and evolution. He does give insight into the minds of those whose view of science is outside of the mainstream scientific thought.

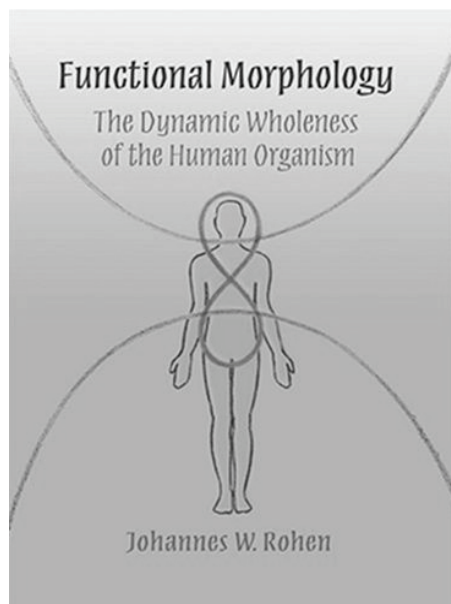
One might ask, "why read this text?" There may be two reasons to do so. First, for the mainstream scientific community member who may be ignorant of the reason and argument behind the intelligent design theory, this book may provide some insight. Second, for those looking for support for their own beliefs in intelligent design, this book may provide some comfort. Either way, though the book does provide intriguing reading, it does not make a compelling case. Before making the decision to purchase this book one should read the final section of the final chapter. Here the religious overtones reach their zenith. Your reaction to this chapter will help you decide whether or not to add this book to your library.

In this book of his lifework, Johannes W. Rohen, one of the world's foremost anatomists, offers penetrating insight into the dynamic principles underlying the human organism. This beautifully illustrated book significantly supplements and expands the concepts of general anatomy and offers a new basis for approaching the interaction of body, mind, and soul. A rich source of inspiration for doctors and therapists, it not only conveys information, but awakens the reader's astonishment and joy at the unique nature of the human being.

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AAO Courses

(For the remainder of 2008)

Brochures all the following workshops can be found by visiting the AAO website at www.academyofosteopathy.org.

October 9-11, 2008 Prolotherapy Weekend
University of New England College of Osteopathic Medicine, Biddeford, ME
Program Chair: Mark S. Cantieri, DO, FAAO
Additional Faculty: George Pasquarello, DO, FAAO
After participating in this educational weekend, physicians will be able to:

1. Understand the basic concepts of prolotherapy, wound healing, degenerative postural cascade, coding and billing.
2. Learn and practice prolotherapy injection techniques.

October 25, 2008 Flu Pandemic Pre-Convention Workshop Las Vegas, NV
Program Chair: Dennis J. Dowling, DO, FAAO
After participating in this interesting and informative pre-convention workshop, physicians will be able to:

1. Understand the osteopathic profession's interventions and research for infection disease.
2. Identify and practice osteopathic manipulative technique modalities and protocols to facilitate patient responsiveness and immunity.
3. Identify standard protocols for pandemic preparedness: hygiene, vaccines, antiviral medications, and isolation.
4. Instruct other physicians and health care providers in flu preparedness and treatment.
5. Participate in data collection and technology resources.

October 26-30 AAO Program at the AOA Convention Las Vegas, NV
More information can be found on page 24

November 6-8, 2008 Muscle Energy: Three Visions
Midwestern University Arizona College of Osteopathic Medicine, Glendale, AZ
During this enlightening and educational course, physicians will be able to:

1. Identify important considerations for the cervical spine and thoracic inlet.
2. Learn by practical experience on how to treat the cervical spine and thoracic inlet.
3. Identify important considerations for the thorax and rib cage.
4. Learn by practical experience on how to treat the thorax and rib cage.
5. Identify important considerations for the sacrum, pelvis, and lumbar spine.
6. Learn by practical experience on how to treat the sacrum, pelvis, and lumbar spine.

December 5-7, 2008 Cranial Nerve Dysfunction
Western University of Health Sciences College of Osteopathic Medicine of the Pacific, Pomona, CA
After participating in this instructional course, physicians will be able to:

1. Diagnose and treat olfactory nerve dysfunction.
2. Diagnose and treat optic nerve and dura dysfunction.
3. Palpate, diagnose, and treat trigeminal nerve dysfunction.
4. Palpate, diagnose, and treat facial nerve dysfunction.
5. Palpate, diagnose, and treat occipital nerve dysfunction.
6. Diagnose and treat the vestibulocochlear nerve.
7. Diagnose and treat vagus nerve dysfunction.
8. Palpate, diagnose, and treat spinal accessory nerve dysfunction.

AAO 2009 Course Offerings (January to May)

The following educational programs are confirmed for the 2009 calendar year.

January 9-11, 2009 – Fundamentals of OMM at NOVA Southeastern University College of Osteopathic Medicine (NSUCOM)

January 23-25, 2009 – Fundamentals of OMM at Midwestern University/ Arizona College of Osteopathic Medicine (AZCOM)

The Fundamentals of OMM courses in January and the Evidenced-Based Medicine course were slated as Certification Review courses for both the ACOFP Board and the NMM/OMM Board. Ann L. Habenicht, DO, FAAO will be the faculty for the Fundamentals of OMM at Nova Southeastern College of Osteopathic Medicine in Fort Lauderdale on January 9-11, 2008. Natalie Nevins, DO, has agreed to be the faculty at the Midwestern University Arizona College of Osteopathic Medicine on January 23-25, 2009. The goals and objectives are:

- Learn the indications, contraindications, documentation and coding for osteopathic manual medicine.
- Learn the indications for treatment, approach to common conditions, integrating OMT into your clinical practice, contraindications, documentation, and coding.
- Learn the principles of and how to treat common clinical problems with the muscle energy approach.
- Learn the principles of and how to treat common clinical problems with the counterstrain approach.
- Learn the principles of and how to treat common clinical problems with the HVLA approach.
- Learn the principles of and how to treat common clinical problems with the myofascial approach.
- Learn to integrate osteopathic approach to problems in the extremities, back, head and neck.
- Learn to integrate osteopathic approach to the pelvic pain and dysfunction.

March 25, 2009 – PINS Workshop at Little Rock, AR

March 25-29, 2009 – AAO Convocation: Basic Mechanisms of Osteopathy: Balancing the Neuroendocrine Immune System

March 29-31, 2009 – Osteopathic Considerations in the Foregut in Little Rock, AR

May 1-3, 2009 – Evidenced-Based Medicine at Western University of Health Sciences College of Osteopathic Medicine of the Pacific (COMP).

Michael Seffinger, DO, will serve as faculty for the Evidenced-Based Medicine: A Problem Oriented Approach course. The goals and objectives are as follows:

- Access the scientific literature in support of a manual approach to common clinical problems.
- Apply knowledge of epidemiology, functional anatomy, biomechanics, pathophysiology and different diagnoses, as supported by basic science and clinical research studies and expert panel recommendations, to guide a manual medicine approach to patients with three common clinical problems: low back pain, neck pain, and cervicogenic headache.
- Perform reliable valid osteopathic diagnostic and manual treatment procedures specifically applicable to these patient populations.
- Learn the indication and contraindications for manual treatment for each clinical condition.

May 15-17, 2009 – The Still Technique at New Jersey School of Osteopathic Medicine (UMDNJ/SOM).

Course offerings will be updated as they become available on the Academy's website:

www.academyofosteopathy.org

Instructions to Authors

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

The AAO Journal welcomes contributions in the following categories:

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

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

Clinical Practice: Articles about practical applications for general practitioners or specialists.

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

Letters to the Editor

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

Book Reviews

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

Note

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

Submission:

Submit all papers (in word format) to:

Robert Clark, DO, Editor-in-Chief
3243 Clayton Road,
Concord, CA 94519.
Email: editoraaoj@yahoo.com

Editorial Review

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

Requirements for manuscript submission:

Manuscript

1. Type all text, references and tabular material using upper and lower case, double-spaced with one-inch margins. Number all pages consecutively.
2. Submit original plus two copies. Retain one copy for your files.
3. Check that all references, tables and figures are cited in the text and in numerical order.
4. Include a cover letter that gives the author's full name and address, telephone number, institution from which work initiated and academic title or position.
5. Manuscripts must be published with the correct name(s) of the author(s). No manuscripts will be published anonymously, or under pseudonyms or pen names.

6. For human or animal experimental investigations, include proof that the project was approved by an appropriate institutional review board, or when no such board is in place, that the manner in which informed consent was obtained from human subjects.
7. Describe the basic study design; define all statistical methods used; list measurement instruments, methods, and tools used for independent and dependent variables.
8. In the "Materials and Methods" section, identify all interventions that are used which do not comply with approved or standard usage.

FLOPPY, CD-ROM or DVD

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

Abstract

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

Illustrations

1. Be sure that illustrations submitted are clearly labeled.
2. Photos and illustrations should be submitted as a 5" x 7" glossy black and white print with high contrast. On the back of each photo, clearly indicate the top of the photo. If photos or illustrations are electronically scanned, they must be scanned in 300 or higher dpi and saved in .jpg format.
3. Include a caption for each figure.

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

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