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The American Academy of Osteopathy is your voice... in teaching, promoting, and researching the science, art, and philosophy of osteopathic medicine, with the goal of integrating osteopathic principles and osteopathic manipulative treatment in patient care.

If you are not already a member of the American Academy of Osteopathy (AAO), the AAO Membership Committee invites you to join the Academy as a 2019-20 member. The AAO is your professional organization. It fosters the core principles that led you to become a doctor of osteopathic medicine.

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• referrals of patients through the “Find a Physician” tool at FindOMM.org.
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AAOJ Call for Submissions

Time is precious and article writing is often triaged for busy physicians. In an effort to help guide the journal and stimulate interest in academic and scholarly activity, we are providing some broad topics that can be “reserved” for you. These are by no means the only topics for the journal, but it helps to eliminate the writer’s block that so many of us may face.

Below are topics available to reserve if you would like to support your portfolio with academic writing:

• Osteopathic approaches to treating patients with pelvic dysfunctions
• Osteopathic approaches for the cardiac patient
• The body triune: osteopathic treatment of mind and spirit for today’s patient
• Beyond Spencer technique: OMT for shoulder overuse
• Using OMT to treat patients with long-term side effects of radiation for cancer treatment

If you are interested in any of these topics, send an email to Lauren Good and reserve your topic today. Manuscripts should be emailed to editoraaoj@gmail.com within three months of reserving a topic. See the AAOJ’s Instructions for Contributors for more information on submitting manuscripts.

In addition, we are asking for peer reviewers to assist us in producing the best journals we can, so please contact AAO Communications Specialist Lauren Good at LGood@academyofosteopathy.org if you can help in this capacity. No experience is required, and training resources will be provided. Peer reviewers are expected to review at least two manuscripts per year.

If you have any questions, please email us at editoraaoj@gmail.com.
Submission Checklist

Manuscript Submission
- Submission emailed to editoraaoj@gmail.com or mailed on a flash drive or CD to the AAOJ managing editor, American Academy of Osteopathy, 3500 DePauw Blvd, Suite 1100, Indianapolis, IN 46268-1136
- Manuscript formatted in Microsoft Word for Windows (.doc, .docx), text document format (.txt), or rich text format (.rtf)

Manuscript Components
- Cover letter addressed to the AAOJ's editor-in-chief with any special requests (eg, rapid review) noted and justified
- Title page, including the authors' full names, financial and other affiliations, and disclosure of financial support related to the original research or other scholarly endeavor described in the manuscript
- “Abstract” (see “Abstract” section in “AAOJ Instructions for Contributors” for additional information)
- “Methods” section
  - the name of the public registry in which the trial is listed, if applicable
  - ethical standards, therapeutic agents or devices, and statistical methods defined
- Four multiple-choice questions for the continuing medical education quiz and brief discussions of the correct answers
- Editorial conventions adhered to
  - terms related to osteopathic medicine used in accordance with the Glossary of Osteopathic Terminology
  - units of measure given with all laboratory values
  - on first mention, all abbreviations other than measurements placed in parentheses after the full names of the terms, as in “American Academy of Osteopathy (AAO)”
- Numbered references, tables, and figures cited sequentially in the text
  - journal articles and other material cited in the “References” section follow the guidelines described in the most current edition of the AMA Manual of Style: A Guide for Authors and Editors
  - references include direct, open-access URLs to posted, full-text versions of the documents, preferably to digital object identifiers (DOIs) or to the original sources
  - photocopies provided for referenced documents not accessible through URLs
- “Acknowledgments” section with a concise, comprehensive list of the contributions made by individuals who do not merit authorship credit, as well as permission from each individual to be named
- For manuscripts based on survey data, a copy of the original validated survey and cover letter

Graphic Elements
- Graphics formatted as specified in the “Graphic Elements” section of “AAOJ Instructions for Contributors”
- Graphics as separate graphic files (eg, jpg, tiff, pdf)
- Each graphic element cited in numerical order (eg, Table 1, Table 2 and Figure 1, Figure 2) with corresponding numerical captions provided in the manuscript
- For reprinted or adapted tables, figures, and illustrations, a full bibliographic citation given, providing appropriate attribution

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- For photographs in which patients are featured, signed and dated patient-model release forms
- For named sources of unpublished data and individuals listed in the “Acknowledgments” section, written permission to publish their names in the AAOJ
- For authors serving in the US military, the armed forces’ written approval of the manuscript, as well as military or other institutional disclaimers

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Publication in the JAOA
Please include permission to forward the manuscript to The Journal of the American Osteopathic Association if the AAOJ's editor-in-chief determines that the manuscript would likely benefit osteopathic medicine more if the JAOA agreed to publish it.

Questions? Contact editoraaoj@gmail.com.
I planted a garden this year, and from its humble beginnings I have enough kale to provide sustenance for a small village. Little did I know that kale, once cut back, continues to grow and comes back even stronger with the second growth. It is a reassurance that I will have kale salad well into December. But why am I talking about kale? I happen to think about the profession and realize there have been many “forced cuttings” in our rich and long heritage, and like kale, with each one our profession has come out stronger for it. We have rallied, made the tough changes, culled and cut out that which was not purposeful to our thriving, and prevailed in the long run.

The first of these challenges was the Flexner report in 1910, which was the first official document to recognize osteopathic education—and to point out its flaws. Due to the report, state licensing boards began to enforce strict requirements of medical schools, increasing the standards and the quality of osteopathic education.\(^1\) While some might think of that as a crisis in itself, what occurred because of it only strengthened the system of osteopathic education.

Another “forced cutting” was the when the California Osteopathic Association tried to merge with the California Medical Association in 1961. This, in essence, eradicated osteopathic education and its heritage in California. The term “Little MD” arose, as for $65 dollars a DO could “buy” an MD degree with just the submission of an application, if they agreed to stop practicing osteopathic manipulation. In this period all osteopathic medical schools were forced to close, and from 1961 to 1964, no DOs were licensed in the state of California. A handful of DOs refused to turn in their licenses and fought the ruling in court. It was overthrown in 1974 as unconstitutional and the rebirth of osteopathy in the west was the result, including new schools to teach young osteopathic physicians.\(^2\) Without these stalwart physicians who held the torch of osteopathy, none of the west coast colleges of osteopathic medicine would be in existence today.

We have another challenge—or dare I say opportunity—to find our grit and pull ourselves up to meet the need. The Accreditation Council for Graduate Medical Education’s single pathway to residency has now eliminated many osteopathic residencies that were weak, small, or lacking in the needed requirements. Our students are going head-to-head with MD students for all the remaining residency slots as of the 2020 residency match. While some might see this as a “David and Goliath” kind of story, I see it as a time for our students to shine—as long as they have the right tools to do so. Even David had a sling shot, right?

Osteopathic education has traditionally chosen to focus on patient care, producing physicians who are humanistic, and on filling the needs of the underserved regions of our country with “Doctors that DO.” In general, academic activity and scholarly research have not been expected of our graduates, unless they were interested in such topics. This must change in order for our graduates to have the best chances possible in the single ACGME match. In order for this to occur, WE as physicians must value it, support it and lead by example. We need to invest in our future and provide the best peer reviewed resources for our students and a platform for them to learn scholarly activity.

At the AAOJ, we are striving to fill that need, and we need your help and support to do so. This arena might be termed the final frontier that has yet to be addressed in our medical education system, and we are behind in this race to the finish. If you are unfamiliar with academic and scholarly activity, educate yourself through the Scholar series. Volunteer to be a peer reviewer for a journal, or join a committee such as the AAO’s Publications Committee or Louisa Burns Osteopathic Research Committee. We need to prepare ourselves and in essence “cut back” so we may thrive.

Every organization needs to take a hard look at itself every once in a while and make the decision to cut what is not working so it may grow towards a promising future, and just like my kale, we will thrive.

In Gratitude,

Janice Blumer, DO, FAAO

References
**AAO Calendar of Events**

Mark your calendar for these upcoming events and deadlines.

**2019**

Sept. 2  Labor Day—AAO office closed
Sept. 5  AAO Publications Committee’s teleconference—7 p.m. Eastern
Oct. 19  Committee on Fellowship in the AAO’s meeting—Indianapolis
Oct. 25-28  AAO at OMED 2019: “Osteopathy for All”—Sarah Jean James-Miner, DO, program chair, and David C. Mason, DO, MBA, FACOFP, program co-chair—Baltimore Convention Center
Nov. 9  AAO Board of Trustees’ meeting—Indianapolis
Nov. 15  Applications for fellowship in the AAO (FAAO) due
Nov. 15-17  “Traditional Osteopathic Techniques of Carl Philip McConnell, DO”—Richard G. Schuster, DO, course director—Ohio University Heritage College of Osteopathic Medicine in Dublin
Nov. 28-29  Thanksgiving holiday—AAO office closed
Nov. 30  Resident of the Year nominations due
Dec. 1  Research grant applications due
Dec. 6-8  “Return to Vitality: Circulation, Respiration”—Kenneth J. Lossing, DO, course director—UNTHSC Texas College of Osteopathic Medicine
Dec. 11  Committee on Fellowship in the AAO’s teleconference—8 p.m. Eastern

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**Continuing Studies: The Nose and Throat**

Andrew Goldman, DO, Course Director
October 4–6, 2019
University of New England COM | Biddeford, Maine

This will be an in-depth exploration of the nose, mouth and throat. We will hear anatomy lectures from Frank Willard, PhD and Mark Schuenke, PhD. There will be special dissections relevant to the course that will be on display for the participants during the extended lunch hour of the second day of the course.

SCTF faculty will present lectures and labs with practical information for treatment of the mid-face, mouth and throat. This course follows *The Eye* in 2016 and *The Ear* in 2017. Both of these courses were excellent and very well received. This course will also keep to that high standard and will be full of useful information and experiences. We’re looking forward to sharing it!

**Prerequisites:** 2 Approved Basic Courses; 1 of which must have been an SCTF Basic Course

**CME:** 18.5 hours 1-A CME Anticipated

**Course Tuition:** $825 before August 3rd | $875 after August 3rd

**Lodging:** Group Lodging at Holiday Inn Express, Saco 45 Barra Rd. | Biddeford, ME
Call 207-294-6464 – Identify Group Code SCTF for group pricing

Contact: Susan — lemastersctf@gmail.com
phone: 971-212-1096 fax: 503-905-6050

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AAO at OMED19: Osteopathy for All

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Attend the AAO’s program at OMED19 to get hands-on instruction incorporating osteopathic principles and practice into daily clinical practice regardless of your specialty.

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Patient Education of Osteopathic Manipulative Medicine as a Gateway to Treatment: A Pilot Study

Simone A. Majetich, DO; Michael W. Majetich, DO; James M. Clegg, OMS IV; and Susan M. Ratay, DO

Abstract

Context
The use of osteopathic manipulative medicine (OMM) continues to decline in medical practice, despite an increasing number of osteopathic physicians.

Objective
This pilot study was designed to determine if a brochure created to increase knowledge about osteopathic medicine and OMM was read by patients, reviewed as being helpful, needed modifications and increased patient understanding of and willingness to receive OMM in preparation for a large scale trial that will assess this in both the hospital and ambulatory settings.

Methods
The study was performed using an educational brochure and 2 closed questionnaires. Twenty-seven patients of either inpatient or observation status aged 18 and above with English literacy were enrolled. Participants first completed a pre-questionnaire with questions regarding understanding of OMM and willingness to receive treatment. They then read the provided educational brochure, which contained a checkbox to verify the material was read in its entirety. Participants completed a post-questionnaire with similar questions. The results were analyzed with Wilcoxon signed rank test with 95% confidence to observe any changes in pre- and post-questionnaire responses.

Results
Of the participants, 48.1% provided verification that they read the brochure. A significant increase in patient willingness to receive OMM as part of their treatment regimen was observed for those who read the brochure (P=.008). No significant change was seen for those who didn't read the brochure (P=.26). Additionally, 100% of participants indicated that the brochure was helpful, and 100% of participants indicated a better understanding of OMM. Cost remained a significant barrier to accepting or pursuing OMM treatment.

Conclusion
This pilot study demonstrated a statistically significant improvement in willingness to receive treatment after reviewing the designed brochure. It also identified a need to convey information regarding cost of OMM treatment to patients and a need to better emphasize the checkbox located within the brochure for verification purposes. The brochure and study design proved feasible and will provide the foundation for a larger scale trial looking to assess if a patient educational handout improves understanding of OMM and willingness to receive treatment in the hospital and ambulatory settings.

Introduction
Many patients in the hospital and ambulatory settings do not appear to have prior knowledge of osteopathic manipulative medicine (OMM) and, therefore, can be hesitant to receive treatment when it is offered. Other perceived barriers such as cost or fear of treatment or pain may create a hindrance to treatment as well.
There is a need to identify barriers to treatment, resolve patient concerns, and educate patients in an effort to promote OMM application in medical practice. Research has shown that there is a diminished use of OMM in the osteopathic profession in the United States,\(^1\)\(^2\) despite the number of osteopathic physicians increasing nearly 250% from the years 1990 to 2017.\(^3\) Encouraging patient-physician discussion of, and patient interest in, OMM may help to increase the effective use of this crucial, noninvasive treatment modality. Currently, there are no studies that identify the impact that patient educational handouts can have on patient understanding of and willingness to receive OMM.

While no research has explored patient educational handouts specifically regarding osteopathic medicine and OMM, several studies have demonstrated the impact of such educational tools. A meta-analysis conducted by Stacy et al found that patients felt more knowledgeable, confident, better informed, had a more accurate perception of risk, and took a more active role in their decision-making process with the use of decision aids and decision contexts.\(^4\) Schulman et al performed a study that showed an increase in the ability of patients to: define osteoporosis, identify female gender as a risk factor, and demonstrate increased understanding that calcium intake should be started at an early age.\(^5\) Additionally, participants significantly increased their daily calcium intake in response to reading a patient educational handout.\(^6\) Similarly, use of an educational handout in randomized controlled trials increased patient recall of information and risks when being prescribed prednisone\(^6\) and increased clarity of benefits versus risks with improved general treatment understanding when considering radiotherapy following lumpectomy for stage I breast cancer.\(^7\) Whether in the medical or surgical fields, educational handouts have helped to improve patient knowledge and understanding of treatment, serving as an effective informational tool.

Patient-physician conversations also have improved with the use of patient educational handouts. A randomized-controlled trial found that a low-literacy handout provided to patients in the waiting room prior to an appointment resulted in a significantly increased discussion about prostate cancer with their physician.\(^8\) Likewise, patients who received an educational handout were 4 times more likely to discuss the pneumococcal vaccine with their provider, and they were 5 times more likely to receive the vaccine.\(^8\) Improved patient acceptance of these tools has further been demonstrated in the setting of using generic drugs in several primary health care clinics after reading a handout.\(^8\) Utilizing a resource like this may help not only promote discussion about OMM, but increase patient willingness to receive such treatment. We believe that by enhancing patient knowledge of OMM with educational materials, they will be more likely to request and accept OMM as an integral part of their prescribed treatment.

This IRB-approved pilot study (UHCMC IRB number: 12-17-32) was designed to compare a patient’s understanding of and willingness to receive OMM before and after reading an educational handout about osteopathic medicine and OMM. Additionally, this pilot study helped to assess how to revise our informational brochure about osteopathic medicine and OMM and how to revise questionnaire items based on patient responses. It also served to assess if our brochure was read by patients and reviewed as being helpful in preparation for a larger scale trial that will assess these in both the hospital and ambulatory settings.

**Methods**

Data was collected from patients aged 18 years and above under inpatient admission or observation status on the general medical floors at University Hospitals (UH) Richmond Medical Center and Bedford Medical Center, community hospitals that are osteopathically recognized residency training sites in Cleveland, Ohio. Data were collected using 2 closed questionnaires and a brochure explaining the philosophy of osteopathic medicine and OMM (Appendix 1). Participants were English literate. Exclusion criteria included unresponsive or intoxicated patients, those with altered mental status (not alert and oriented to person, place and time), patients on contact precautions, and those that did not meet the inclusion criteria of appropriate literacy level and age.

A letter of support was signed by 9 hospitalists at both UH sites, providing consent for their patients to participate in this study (Appendix 2). Verbal consent from each participant was obtained at bedside following the reading of a participant research consent script (Appendix 3), after which time the educational material was provided to the participant. No patient identifiers beyond an age range was collected.

The pre-questionnaire (Appendix 4) was completed prior to reading the educational brochure to obtain baseline knowledge of the osteopathic philosophy and OMM. The post-questionnaire (Appendix 5) was completed after reading the brochure. Pre- and post-questionnaire items included similar questions such as knowledge of osteopathic medicine and OMM, willingness to receive OMM as part of treatment, and perceived barriers to receiving OMM treatment. The questionnaires and corresponding brochures were marked with the same numbers to allow for review of answers and verification that the brochure was read by the participant. A checkbox was placed at the end of the brochure asking the patient to ver-

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ify that they did indeed read the handout. Outcomes were measured by analyzing pre- and post-brochure questionnaire responses and compared between those that marked that they had read the brochure and those that did not utilizing the Wilcoxon signed rank test with 95% confidence using GraphPad Prism 7. Participation in the study was terminated if the questionnaires were not filled out in their entirety.

Results
Of the 27 participants recruited at both sites during May 2018, 44% of participants were between the ages of 18 and 50, and 56% were above age 51. Thirteen participants (48.1%) checked the box on the brochure, thereby providing verification that they had read the handout. Fourteen participants (51.9%) failed to provide such verification, and their responses were analyzed with the understanding that they did not read the handout.

Responses regarding willingness to receive OMM were compared for those that read the brochure to those that did not to assess if the brochure was effective (Figure 1).

No significant change in participant response was seen for those that did not read the brochure ($P=.26$). A significant change was noted for those that did read it ($P=.008$), with 100% reporting the brochure to be helpful and 100% reporting a better understanding of OMM. Only positive changes in willingness to receive OMM was found and is depicted in Figure 2.

Barriers to receiving treatment were surveyed in this study as depicted in Figure 3, with a reduction in unfamiliarity seen after reading the handout.

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Discussion
This pilot study successfully demonstrated that the brochure designed for the study was reviewed as being helpful by participants and created a significant change in understanding of and willingness to receive OMM. Improved willingness to receive treatment was achieved with a measured reduction in unfamiliarity, showing that the use of an educational tool such as a brochure can help to overcome this perceived barrier to receiving treatment. With nearly 50% of participants having read the brochure (1 in 2 people), utilization of a brochure appears to be an appealing and effective form of patient education and is a simple tool that can be handed out in various medical settings such as waiting rooms and examination rooms. This will, hopefully, lead to increased patient-physician discussion about the usefulness of OMM in each patient’s individualized plan. As osteopathic physicians, we are all trained in OMM; however, if a physician is not comfortable performing OMM, it is our hope that referrals may be made to colleagues specializing in neuromusculoskeletal medicine and osteopathic manipulative medicine or to other osteopathic physicians who feel more comfortable performing osteopathic manipulation.

Cost as a perceived barrier to treatment did not improve significantly after reading the brochure (>60%). The handout designed for the study did not provide participants with any details regarding cost of treatment or insurance coverage, something that can be added into the brochure for the larger scale trial. Interestingly, patient perception that OMM would not benefit them increased from 0% to 7.7% after reading the brochure. Without having any additional insight as to why this number increased, accommodations can be made in the large-scale trial to provide information in this regard. The “will not benefit me” question can be followed by a “please explain” section that allows for a write-in answer and additional analysis.

It should be recognized that this study was limited, both in sample size, as well as the population surveyed. Future research will be expanded to survey over 200 participants in both hospital and ambulatory settings. Another issue that should be addressed in the large-scale trial is the checkbox method that was used as a verification for reading the brochure in its entirety. An increased effort to emphasize this checkbox will increase its visibility by those reading the brochure, assuming that some may have read the brochure but simply did not notice the checkbox. The decreased prominence of the checkbox on the current brochure may have contributed to only 48% of patients checking this box. Featuring this checkbox item on the post-brochure questionnaire may increase the likelihood of participants who truly did not read the brochure falsely claiming that they did.

Future research is needed to evaluate if an educational handout such as a brochure leads to any increase of patients being offered OMM, as well as an increase in the practice of OMM. Additionally, research may be conducted to determine if a different form of patient education is more effective at achieving this, such as a video demonstration or email communication. It is recognized that the present study only addresses the patient perspective of OMM. Further studies should address the perspective of osteopathic physicians and how readily they offer OMM as an integral part of their treatment plan for each patient.

Conclusion
Improvement in patient understanding of OMM and willingness to receive treatment was successfully attained using a brochure in the hospital setting. Even with a small sample size, this pilot study demonstrated a statistically significant improvement in willingness to receive treatment with the designed brochure. It also identified a need to convey information regarding cost of OMM treatment to patients, which may contribute to a decrease in patient willingness to receive OMM. Based on the results of this pilot study, the protocol for the large-scale trial will be modified to include: a larger sample size, information regarding cost of treatment, improved design of the questionnaire to allow for write-in answers, and increased emphasis on the checkbox located within the brochure for verification purposes. The brochure and study design proved feasible and will provide the foundation for a large-scale trial to assess if a patient educational handout enhances understanding of OMM and willingness to receive treatment in the hospital and ambulatory settings.

Acknowledgments
We thank the Scholar 7 program for help with the institutional review board process and Brian Peppers, DO, PhD, who provided insight and expertise that greatly assisted the research.

References

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Full-Time, Assistant Professor Faculty Position

Touro University Nevada College of Osteopathic Medicine

Touro University Nevada College of Osteopathic Medicine (TUNCOM) is seeking qualified osteopathic physicians (D.O.) for a full-time assistant professor position in the Department of Osteopathic Manipulative Medicine. Responsibilities include teaching osteopathic medical students the principles of osteopathic manipulative medicine both in the classroom and clinic settings and in providing support for program development.

MINIMUM QUALIFICATIONS:
1. Osteopathic Physician, graduate of an AOA-approved osteopathic medical college;
2. Experience teaching and utilizing a variety of osteopathic manipulative medicine techniques;
3. Licensed or eligible for licensure to practice medicine in the state of Nevada;
4. Proficient in basic communication tools including email, Word and PowerPoint

PREFERRED QUALIFICATIONS:
The ideal candidate is preferred to be certified in Neuromusculoskeletal Medicine / Osteopathic Manipulative Medicine or Special Proficiency in Osteopathic Manipulative Medicine through candidates who have proven experience in providing high level osteopathic manipulative medicine services will be considered.

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Bhume Patel, search consultant at 770-682-2301 or bhumepa@pcom.edu
Abstract

Context
While the Commission on Osteopathic College Accreditation’s standards require osteopathic manipulative medicine (OMM) curriculum throughout all years of osteopathic medical school, providing curriculum to expand student’s OMM knowledge base and osteopathic manipulative treatment (OMT) experiences is challenging. Survey data from our pilot clerkship-years OMM course in 2014 demonstrated elevated levels of confidence in and intent to provide OMT in future practices.

Objective
To determine whether assigned readings—one of the two major components of the clerkship-years OMM course—are perceived as valuable to the osteopathic medical students.

Methods
A mandatory clerkship-years OMM course was implemented in the 2014 third-year curriculum and 2015 fourth-year curriculum. Chapter reading assignments required a passing grade on an online quiz for completion. Following each reading quiz, a survey requested the students to respond whether individual chapter reading assignments were perceived to be of value to them or contributed to their learning.

Results
Of the 223 students in the 2017 third-year class, 220 (99%) responded. Of the 207 students in the 2018 fourth-year class, responses ranged from 193 to 204 (93%-99%). Among the third-year students, responses ranged from 205 to 218 (93%-99%) for students reporting individual chapter reading assignments were perceived to be of value and contributing to their learning, and among fourth-years, their responses ranged from 185 to 201 (91%-99%).

Conclusion
A prior study of our curriculum demonstrated elevated student levels of confidence in and intent to provide OMT in their future practices. As one of the two major components of the curriculum, this study demonstrates that mandatory reading assignments incorporated in an OMM course were overwhelmingly perceived as valuable and contributing to students’ learning.

Introduction
Osteopathic medical students experience significant education and instruction in osteopathic manipulative medicine (OMM) during their pre-clinical years; however, it has been well established that many osteopathic medical students struggle to gain exposure to OMM and osteopathic manipulative treatment (OMT) while in their third and fourth (clerkship) years of medical school. Additionally, Chamberlain and Yates found that osteopathic students 10 months into their third year were deciding not to perform osteopathic structural exams on standardized patients.

With a recognition of the need to support clinical integration of OMM into the third and fourth years of osteopathic medical school, the American Osteopathic Association (AOA) Commission

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on Osteopathic College Accreditation has required all colleges of osteopathic medicine (COMs) to develop longitudinal OMM curriculum through all years of osteopathic medical school.  

We have previously detailed our pilot clerkship-years osteopathic manipulative treatment (OMT) course which sought to further the development of both cognitive and psychomotor skills with implementation of required reading throughout the year and submission of OMM patient encounter notes. With the pilot for the third-year OMM course and later extending into the OMM IV course, the students were required to read select chapters and complete assigned quizzes from Somatic Dysfunction in Osteopathic Family Medicine throughout the clerkship years. The OMM III and IV course readings and quizzes transitioned to the second edition of the Nelson text by fall 2016 as the supplemental materials became available.

The objectives for the third- and fourth-year OMM courses were to increase the students’ OMM knowledge base, exposure to and use of OMT, improve their confidence in their skills, and increase the likelihood of use of OMM in their future practices. Evaluation of the third-year OMM pilot course demonstrated an increase in students’ level of confidence in and intent to provide OMT in the future.

A secondary goal of the course was to bring OMM back into the dialogue between students, precepting physicians, and patients. Our hope is that with each passing year our students not only see more OMT being provided, but also experience more encouragement and less resistance when offering to provide it.

Ongoing survey responses since the OMM in clerkship-years pilot study have continued to demonstrate increased comfort in asking their preceptor to perform OMT and intend to provide OMT in the future. We surmised it was related to both aspects of the course: the reading assignments from Nelson’s text and the OMM encounter notes. Having these two separate components to the OMM clerkship courses, it is difficult to determine which aspect has contributed most to the outcomes. We hypothesized that the readings have been playing a positive role in the students’ OMM knowledge base development and attitudes toward OMM.

**Methods**

As part of our ongoing curricular assessment for the clerkship years course, we have asked for student feedback regarding their perceived value with the individual chapter reading assignments.

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<th>Chapters</th>
<th>True (%)</th>
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<tr>
<td>37</td>
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</table>

*a Survey results from DO class of 2019.

*b Assignments were taken from Somatic Dysfunction in Osteopathic Family Medicine, 2nd edition.*

To accomplish this, we requested individual student responses to a statement following each reading assignment quiz: “The chapter reading assignment (corresponding with this quiz) was of value to you and/or it contributed to your learning.” The students responded with a choice of “True” or “False.” Responses were used to gauge whether the select reading assignments, which may have included one or more specific chapters, were deemed valuable to the student’s learning. Researchers were blinded to individual student responses by only viewing data corresponding with the entire class totals. Descriptive statistics including frequency were used to detail results. The procedures in this study were reviewed and determined to be exempt by the institutional review board at Des Moines University College of Osteopathic Medicine (DMU-COM).

**Results**

Survey results from OMM III included a total of 220 responses on each quiz except one with 219. In the OMM IV course survey, responses varied in the fall course from 193 to 196. The spring course was consistent with 204 responses.

When asked if the chapter reading assignments were of value to them or contributed to their learning, 96% of OMM III students responded “yes.” The chapter reading assignment responses varied
from 93% with the first assignment (Chapters 1, 6, and 7) to 99% with Chapter 24 (Table 1).

With the OMM IV students, the responses varied from 91% with Chapter 41, to 99% with Chapter 15, Chapter 17, Chapter 32, and Chapter 35 (Table 2).

### Discussion

Our findings demonstrate students found the mandatory OMM reading assignments to be of value and contributing to their learning during clinical years. This evidence supports mandatory reading assignments with associated quizzes to be a useful adjunct in education for osteopathic manipulative medicine in clinical years.

The 2014 study by Heineman et al.'s examined the effect of implementing a mandatory OMT curriculum on various factors including greater exposure to OMT, higher confidence levels in practicing

OMT, greater intent to continue developing OMT skills, and planning to provide OMT as practicing physicians.

Our current study sought to look at one individual component of the OMM curriculum by examining student perceptions of the mandatory reading assignments. The findings demonstrate students believed the reading assignments in OMM were of value to them and contributed to their learning during clinical years, ranging per reading assignment from 93% to 99% in OMM III, and 91% to 99% in OMM IV. Teng et al. reported students experienced increased comfort with OMM after undergoing formal OMM education through a didactic session and practical session every week during an OMM rotation. It does not appear reading assignments were incorporated into the curriculum, but students experienced increased comfort with OMM with “formal education.” From our findings, it appears mandatory reading assignments can be included as “formal education” that may contribute to increased comfort with OMM.

The largest limitation of the study was the incorporation of the true/false question into the quizzes. It is possible students may have felt the need to mark true to get the points associated with the question. However, students received the point regardless of the answer they chose so there was no incentive for marking true. In addition, the opportunity for subjective feedback was included, and performing thematic analysis of the subjective feedback from previous years appears to be positive to nearly the same degree as the true/false responses.

Further research should examine the impact of the mandatory SOAP notes portion of the OMM curriculum and delve into the individual chapters currently included to determine which provide the most benefit for osteopathic medical students during their clinical years.

### Conclusion

The ability to incorporate OMT into practice can depend significantly on the students’ comfort, confidence in their skills, and willingness to ask in addition to preceptors’ perceived openness to including OMT in patient care. To combat these obstacles and support education in osteopathic manipulative medicine, the Department of OMM integrated a longitudinal OMM in clerkship-years curriculum consisting of OMT SOAP notes and reading assignments with associated quizzes. Our findings demonstrate the third-year and fourth-year reading assignments were valuable and contributed to the students’ learning. The results would suggest this type of curriculum may be implementable at other colleges of osteopathic medicine.

(continued from page 14)

from 93% with the first assignment (Chapters 1, 6, and 7) to 99% with Chapter 24 (Table 1).

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* Survey results from DO class of 2018.
* Assignments were taken from *Somatic Dysfunction in Osteopathic Family Medicine*, 2nd edition.

(continued on page 16)
osteopathic medicine to enhance learning of OMM and to preserve osteopathic distinctiveness in practice. In addition, the structure of reading assignments may be beneficial in the realm of residents in various fields who are looking for a resource to improve their ability and comfort in providing OMT.

References


Abstract
Iliotibial band friction syndrome (ITBFS) is one of the most common causes of lateral knee pain in athletes.\textsuperscript{1,2} Conservative management has been with ice, modified activity, stretching, non-steroidal anti-inflammatories (NSAIDs), and/or corticosteroid injections.\textsuperscript{3-6} This treatment regimen has been effective in most, but not all.\textsuperscript{3,7}

This report describes a patient with chronic lateral knee pain caused by ITBFS unresolved with both conservative and surgical management. The patient presented with multiple lower extremity dysfunctions, and correcting these dysfunctions resolved the lateral knee pain. Therefore, osteopathic manipulative treatment applied to the lower extremity is a valid consideration for conservative management of lateral knee pain caused by ITBFS.

Introduction
Iliotibial band friction syndrome (ITBFS) is one of the most common causes of lateral knee pain in athletes, especially runners, with an estimated incidence of 8.4%.\textsuperscript{1,2} ITBFS is the result of repetitive friction between the iliotibial band (IT band) and the lateral femoral condyle that leads to inflammation and tightening of the IT band.\textsuperscript{2,8} It typically presents with diffuse lateral knee pain and tenderness just above the lateral joint line.\textsuperscript{9} In addition, tight IT bands have been implicated in patients with patellofemoral pain syndrome (PFPS) and maltracking patella.\textsuperscript{10,11} The generally accepted conservative management of ITBFS includes ice, modified activity, stretching, NSAIDs, and/or corticosteroid injections.\textsuperscript{3-6} While this therapy has been found effective in 94\% of patients,\textsuperscript{3} other studies have found the results inconsistent.\textsuperscript{7} Multiple studies have found biomechanical treatments in addition to the conservative methods beneficial.\textsuperscript{2,11} The anatomical connections of the IT band and knee joint suggest that osteopathic manipulative treatment (OMT) of the entire lower extremity may provide additional relief to patients experiencing ITBFS and resulting lateral knee pain.

Case Report

History of Chief Complaint
A 26-year-old white woman presented with right lateral knee pain. Current symptoms began 1.5 years previously after being treated surgically with a medial-patellofemoral reconstruction with allograft and tibial tubercle osteotomy to correct chronic patella subluxation. Physical therapy rehabilitation with proprioceptive therapy, stretching, and mild strengthening exercises was provided for 6 months. Following 6 months of postoperative physical therapy, an MRI was normal, showing a healed tibial ostomy with realignment of patellar tendon, and she was released from surgical care. Unfortunately, the patient continued to have constant lateral knee pain, self-rated as 2-3/10 on the pain scale.
The pain does not radiate and is located on the right inferolateral patella. After running, the pain is sharper and slightly increased, and after prolonged sitting, the pain is a dull, throbbing sensation. The patient admits to numbness of right shin, which has been constant since the surgery. She denies muscle weakness, tingling, and low back pain. She has tried stretching before and after exercise, which seems to help a little. Her surgeon and physical therapists had no other suggestions besides NSAIDs, ice, and rest. She tried 800 mg ibuprofen as needed after exercise, which helped reduce the pain slightly.

**History**

The patient denies any current medical problems. Patient admits to a chronic history of knee subluxation since 8 years of age, which was treated surgically by medial-patellofemoral reconstruction with allograft and tibial tubercle osteotomy on the right knee in 2014.

The patient’s mother had no known medical problems. The patient’s father had cervical spinal fusion in his 40s.

The patient reported drinking one cup of coffee per day and drinking alcohol once per week. She denies smoking and illicit drug use.

The patient had no known drug allergies, and she was taking 800 mg of ibuprofen every 6 hours as required for knee pain.

**Physical Exam**

Patient was a 26-year-old woman in no acute distress (blood pressure: 118/68 mmHg; heart rate: 70 beats per minute; respiration rate: 16 breaths per minute; height: 5’4”; weight: 135 lbs). No abnormalities were noted upon examination of ear, nose and throat; cardiac; respiratory; or vascular systems.

The patient was alert and oriented to person, place, and time with pleasant affect. A neurologic exam reveals cranial nerves II-XII intact, and deep tendon reflexes were 2/4 in upper and lower extremities bilaterally. Muscle strength was 5/5 in upper and lower extremities bilaterally, negative straight leg raise bilaterally. No gait abnormalities were appreciated.

An osteopathic structural examination revealed right patellar counterstrain point at the 8 o’clock position, right posterior fibular head, right externally rotated tibia, and restriction of right first metatarsal. Patient had a left-on-left sacrum, right anterior innominate, and L2 flexed, rotated and sidebent left. Left psoas was tighter than the right psoas. There was a right quadratus lumborum counterstrain point and there was tightness of the right IT band noted. In addition, bilateral respiratory diaphragm restriction was noted.

The hamstring and quadricep muscle groups showed no restrictions or tightness.

**Assessment**

Lateral knee pain was secondary to IT band friction syndrome, and there were somatic dysfunctions of the rib, lumbar, sacrum, pelvis, and lower extremity.

**Plan**

Osteopathic manipulation treatment (OMT) was performed on the somatic dysfunctions. A percussion hammer was used to correct the sacral dysfunction. Muscle energy along with the percussion hammer was used on the L2 somatic dysfunction. Muscle energy was also used to correct the anterior innominate rotation and psoas hypertonicity. A combination of muscle energy and articulatory techniques was used for the right posterior fibula. Additional articulatory techniques were used for the metatarsal dysfunction. Myofascial release was used on both the IT band and bilateral diaphragm dysfunctions. Lastly, counterstrain was used on the quadratus lumborum and patellar tenderpoints.

A posttreatment exam demonstrated resolution of the somatic dysfunctions listed above. There was also immediate resolution of the patient’s knee pain. The patient was instructed on how to perform counterstrain to address her patellar pain, should it reoccur. In addition, proper stretching of IT band and psoas muscle was taught. The patient was scheduled to follow up in 1 week, at which time the patient reported no reoccurrence of her knee pain. At a 2-year follow-up, the patient reported little to no reoccurrences of the lateral knee pain. She continued to stretch her IT band and psoas 4 to 5 times a week after exercise. She has also increased her physical activities to include water skiing, wakeboarding, and hiking.

**Discussion**

ITBFS is the result of repetitive friction between the IT band and lateral femoral condyle, which causes tightening of the IT band and diffuse lateral knee pain. The IT band originates from the iliac crest and subsequently divides into a central and anterior component. The central component, or iliotibial track, continues down the femur, passes over the greater trochanter and vastus lateralis, terminating at the infra-condylar tubercle of the tibia. The anterior component, known as the iliopatellar band, has been found to insert into the transverse and longitudinal retinaculum of the patella, contributing to the patella’s stability. Consequently, the IT band has attachment sites at the femur, patella, and tibia.
A tight IT band can place additional lateral strain on the knee, producing diffuse lateral knee pain.

ITBFS is a common cause of lateral knee pain in athletes, especially in runners, which can be explained by the motion of the IT band itself. Repetitive flexion and extension of the knee causes the IT band to move anteriorly and posteriorly, respectively, at the lateral femoral condyle resulting in inflammation. This friction peaks at approximately 30º of knee flexion, which occurs just after foot strike in runners. Prolonged friction, such as excessive running or running downhill, has been thought to result in the development of ITBFS. A tight IT band increases friction at the lateral femoral condyle, leading to increased inflammation and lateral knee pain.

The patient in this case had a posterior fibular head and a lateral patellar tenderpoint. The popliteofibular ligament originates from the IT band to move anteriorly and posteriorly, respectively, at the lateral femoral condyle resulting in inflammation. This friction peaks at approximately 30º of knee flexion, which occurs just after foot strike in runners. Prolonged friction, such as excessive running or running downhill, has been thought to result in the development of ITBFS. A tight IT band increases friction at the lateral femoral condyle, leading to increased inflammation and lateral knee pain.

The patient in this case had a posterior fibular head and a lateral patellar tenderpoint. The popliteofibular ligament originates from the musculotendinous junction of the patellar tendon and inserts on the fibular styloid process; therefore, it is reasonable to conclude that a posterior fibular head can place additional lateral strain on the patellar tendon. Consequently, fibular dysfunctions, in addition to an externally rotated tibia and tight IT band, can result in an increased lateral pull on the connecting patellar fascia, resulting in the formation of a patellar tenderpoint and potential maltracking, as demonstrated in this case. ITBFS is known to cause lateral knee pain, patellar maltracking, and patellofemoral pain syndrome. This patient was noted to have a history of both lateral knee pain and patellar maltracking. Using OMT to correct these dysfunctions significantly reduced the lateral pull on the patellar fascia, resolving the lateral knee pain.

Conclusion
Future patients with a history of lateral knee pain caused by ITBFS could benefit from OMT. This recommendation is based on the anatomical connections described above. Using osteopathic manipulative medicine (OMM) to treat the lower extremity dysfunctions in this patient reduced the lateral tension on the patella, resolving the lateral knee pain. Proper stretching of the IT band can be easily taught to patients, who can then perform the exercises at home as needed. This stretching in combination with OMT can be used as adjunctive therapy in the management of lateral knee pain caused by ITBFS.

Acknowledgments
The authors are grateful for the mentoring and support they received from the NYITCOM@ A-State Office of Research.

References

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Osteopathic Manipulative Medicine Faculty Position:
Excellent Opportunity For Growth And Advancement

Liberty University College of Osteopathic Medicine, a faith-based institution, is seeking a qualified candidate to serve in a faculty position. In this role, you will be responsible for instruction of students, residents, and fellows. This is an incredible opportunity for you to participate in the growth process of developing programs in undergraduate and graduate medical education at a dynamic medical school at a major private university. Additionally, you will be part of a large university with Division I sports, theatre, music, and events on a beautiful campus with a vibrant academic community life.

Additional benefits of joining our team:
• You will have access to all university resources, including our remarkable OMM lab, which accommodates more than 80 student-doctors per session with more than 40 OMM tables.
• You will be part of a team in which every individual feels valued and appreciated, and we continually encourage and support one another as we pray together as a staff every week.
• We offer an excellent opportunity for work-life balance, including 20 vacation days, 5 personal days, all holidays off, and an additional week off between the Christmas holiday and New Year’s Day.
• Additionally, we provide 5 CME days and $4,000 per year for CME, licensure, and professional memberships.
• We also offer free college tuition to Liberty University to your family members as well as relocation assistance and an additional financial incentive at the time of hire.

Ideal candidate profile:
The ideal candidate has current board certification or board eligibility with a scheduled date in osteopathic neuromusculoskeletal medicine or osteopathic manipulative medicine and has earned a DO or MD. We encourage applicants of all experience levels and backgrounds to apply, as there are wonderful opportunities for all experience levels. Prior research or teaching experience is not required—you simply need a passion to instruct and mentor students, residents, and fellows.
• We are seeking an individual who will contribute to an uplifting university environment while collaborating with faculty to equip students, residents, and fellows to serve patients locally and around the world.
• Applicants of all ranks and tenures who meet the criteria above are encouraged to apply.

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The moment you step into the beautiful town of Lynchburg, you’ll feel right at home. Our welcoming community offers genuine hospitality and a sense of belonging to residents and visitors alike, allowing you to experience an immediate sense of peace and comfort.
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Please contact Breanna Trimble at medcareers@merritthawkins.com or at (866) 406-0269 and reference OMM-105080.

MERRITT HAWKINS
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The purpose of the continuing medical education quiz is to provide a convenient means of self-assessing your comprehension of the scientific content in the article “An Osteopathic Approach to Uterine-Induced Low Back Pain: A Case Report” by David M. Kanze, DO, FAAO.

To apply for 0.5 credits of AOA Category 2-B continuing medical education, fill out the form on page 27 and submit it to the American Academy of Osteopathy. The AAO will note that you submitted the form and forward your results to the American Osteopathic Association’s Division of Continuing Medical Education for documentation.

Be sure to answer each question in the quiz. You must score a 75% or higher on the quiz to receive CME credit. The correct answers will be published in the next issue of the AAOJ.
An Osteopathic Approach to Uterine-Induced Low Back Pain: A Case Report

David M. Kanze, DO, FAAO

Abstract

Uterine-induced low back pain is primarily caused by pregnancy. More than 50% of women will experience it while pregnant.\(^1\) Many of these changes are postural in nature and can last into the postpartum period.\(^1,3\) There is also increased stress placed about the uterosacral ligaments and sacrum.\(^1,4,6\) Back pain related to intrauterine devices (IUD) is less common than pregnancy-induced back pain, but it is still commonly present and is a common enough adverse reaction that it is listed on the package insert.\(^7\)

An osteopathic approach to uterine-induced low back pain looks at the structural and functional changes caused by changes in the uterus and the resultant changes on the remainder of the body. The present case depicts this approach and possible anatomic reasoning to why and how this pain is present.

Introduction

The uterus is a muscular organ located in the female pelvis. As the gravid uterus grows, it places pressure on the structures of the pelvis, including the muscles, ligaments, and bones. It causes an anterior pelvic tilt, an increased lumbar lordosis, and postural compensation of the thoracic spine, neck, and head. Relaxin and other hormones also contribute to pelvic instability and resultant pelvic and low back pain.\(^3\) The IUD directly irritates the uterus,\(^7,12\) potentially causing facilitation about the thoracolumbar segments (T10-L2) via the inferior hypogastric nerves. These nerves are transmitted via the uterosacral ligaments and therefore could contribute to sacral pain as well.\(^3\) Osteopathic manipulative medicine dictates that structure and function are interrelated and if something is changing the structure, then the function also must be impaired. The present case depicts that an osteopathic approach, including osteopathic manipulative treatment (OMT), for low back pain was helpful for the patient and can be advantageous for future patients.

Case Presentation

A 40-year-old, G2P2002, woman presented to the clinic with 9 years of persistent, mild to moderate, achy, non-radiating, right-sided lower back and right hip pain. It worsened during her pregnancies, after the birth of each child 8 and 5 years previously and more recently after the insertion of an intrauterine device (IUD).

Each child was born via spontaneous vaginal delivery. The patient’s pain somewhat decreased after delivery and then returned. Her symptoms were also temporarily alleviated in the past with stretching and osteopathic manipulation. Associated symptoms were positive for right lateral ankle paresthesias which had been present since an ankle fracture 16 years prior to presentation. She denied any other symptoms, including nocturnal awakening, change in bowel or bladder habits, and increased pain with coughing, sneezing, or defecation. On review of systems, she denied fever, chills, night sweats, vomiting, diarrhea, chest pain, urinary symptoms, and weakness. She acknowledged having abdominal pain, neck pain, and bilateral shoulder pain, however.

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The patient’s medical history is significant for a mild dextroscoliosis, endometriosis, and gestational diabetes with cholestasis and a prolonged labor during her second pregnancy. Her trauma history revealed a concussion, a right ankle fracture, a fall onto left hip, a motor vehicle accident, and multiple falls in sports. She played competitive lacrosse, field hockey, and basketball, and she enjoys skiing and snowboarding. Her surgical history is significant for a laparoscopy for ovarian cysts and endometriosis, in vitro fertilization, and wisdom teeth extraction. She quit smoking in 2002, denied illicit drug use, and drinks alcohol on occasion. She was a full-term, vaginal birth without instrumentation or complication. Her mother has depression, while her father and 2 brothers have hypertension. She has no known allergies to food or medications but does avoid gluten and dairy. She had a Mirena (levonorgestrel-releasing) IUD during her initial consultation, and took fish oil, multivitamins, dehydroepiandrosterone, and a supplement called DIMension 3.

A physical exam revealed a physically fit, 40-year-old, 5’9”, 155-pound, woman in no acute distress. Her blood pressure was 108/76 mmHg with a heart rate of 72 beats per minute and a respiratory rate of 16 breaths per minute. Her neck was supple and displayed a full active range of motion. The cardiac exam showed a regular rate and rhythm without murmurs, rubs, or thrills. The respiratory exam was clear to auscultation bilaterally without rhonchi, rales, or wheezes. Her abdomen was soft, non-tender, and non-distended with positive bowel sounds and without rebound, guarding, or organomegaly. Her gait was normal, and she displayed full active and passive range of motion of the hips bilaterally.

The neurologic exam revealed that cranial nerves II-XII were grossly intact, her L4 and S1 reflexes were 2/4 bilaterally, and her strength in the lower extremities was 5/5 at the hip flexors, adductors, abductors, hamstring, quadriceps, foot dorsiflexors, and plantar flexors. The straight leg raising tests were negative bilaterally, seated and supine.

The osteopathic structural exam depicted an anterior head carriage. A lumbar dextroscoliosis of less than 10° with the apex about L2-3. The patient’s left leg was visually one eighth of an inch shorter than the right at the medial malleoli and tibial tuberosities. She had a right torsion of the sphenobasilar synchondrosis with underlying dural restriction in the right tentorium cerebelli and falx cerebri that pulled to a C2 flexed, rotated and side-bent right, then onto the sacrum at S2. The sternum had an overall fascial restriction with a preference in right side bending. T12 was extended, rotated and side-bent to the right and facilitated; L2-5 neutral, side-bent right, rotated left; a left-on-left sacral torsion; left anterior innominate; fascial restrictions of the uterus and right ovary; tight and tender right psoas; and a right internally rotated tibia. The uterine and ovarian restrictions were diagnosed by feeling a deep pull centrally and then deep and to the right with the left hand on the sacrum and the right hand on the abdomen. There was an overall fascial pull from the right tibia through the sacrum into the lumbar spine and umbilicus.

Treatment
After verbal consent was obtained, treatment commenced with ligamentous articular strain (LAS) to the right psoas and then continued with a variation of the sciatic nerve release of the right leg utilizing acupuncture points (Bladder 25 in the right sacroiliac (SI) joint, Bladder 40 in the right popliteal fossa and Kidney 1 about second and third metatarsals just distal the cuneiforms). These points were treated manually without acupuncture needles. LAS was then applied to the tibial torsion. Next, muscle energy was applied to the left anterior innominate. Much of the lumbar curvature resolved after these treatments, and the remaining lumbar and thoracic dysfunction were treated with LAS.16

Osteopathic cranial manipulative medicine (OCMM) was then directed to the right torsion of the sphenobasilar synchondrosis with balanced membranous tension utilized to balance the dural strains. The sternum and cervical dysfunctions were then balanced with LAS. The abdominal and visceral restrictions were treated via LAS to the abdominal wall and presacral fascia and sacrum while balancing the uterus.

The patient reported decreased back, neck, shoulder, hip, and abdominal pain immediately after her initial treatment. Her short leg was determined to be functional as it visually resolved. The medial malleoli and tibial tuberosities were equal after this treatment. The dextroscoliosis was decreased and the psoas tension was reduced. She was informed that there was a large fascial pull towards her uterus and that removal of the IUD could quite possibly decrease her back pain. She was sent home with instructions to have her IUD removed and to return after removal.

The patient had her IUD removed prior to her next appointment, 1 month after her initial visit. At the time, she reported that since her first treatment with OMT and the removal of her IUD, her right sacral and hip pain were greatly decreased. She began hamstring stretches on her own and noted these alleviated her pain as well. The second visit revealed a normal gait with anterior head carriage. The dextroscoliosis was no longer present. The right torsions of the SBS had recurred as had the dural tug to C2 and S2. T12 extended, rotated and side-bent right once again was present and was thought to be due to facilitation from the uterus. The right SI joint was ten-
der to palpation and had a fascial pull anteriorly towards the uterus. There was a right inguinal ligament tender point. The right psoas was again tight but looser than the initial visit. The overall fascial pull in the body resided about the right psoas and ascended thru the uterus, sternum, T12, then superiorly into the cranium. This was similar to the pull at the first visit and was thought to be secondary to uterine irritation. Treatment, once again, commenced at the right psoas with LAS, then counterstrain to the inguinal tender point, followed by LAS and OCMM for the remaining dysfunctions. She noted feeling better during her supine treatment but had pain in the right SI upon sitting. A seated, long lever LAS was then applied to the right SI with resolution of her pain. She noted “feeling great” after this treatment and was sent home with instructions based on Phillip Greenman DO, FAAO’s “exercise prescription for the lower quarter” including the pelvic clock and stretches for her piriformis, psoas, hamstring, and shoulders. She was instructed to perform these at least twice per day and follow up in 4 to 6 weeks or sooner if not doing better.

The patient returned to the office twice more over the following 2 months reporting that the pain had been steadily decreasing during that time until starting a new aggressive yoga program. She still said, however, that she felt better overall. At visit 3, the majority of her previous dysfunctions had recurred but were not causing her extreme discomfort to the point where “she felt like she could cancel but didn’t.” At the following visit (visit 4), most of her chronic dysfunctions were no longer present. Her right SBS torsion had returned, and she was noted to have L3-L5 neutral side-bent right, rotated left; a right-on-right sacral torsion; a right anterior innominate; and a large compressed feeling from her right tibia at the ankle through the tibialis muscles in the knee and ascending into the right hip and sacroiliac joint. The central fascial pull to her uterus had resolved. Facilitated segments were absent as well. Treatment was initiated to her ankle with a percussion hammer, and as the tissues released in this area, the tissue in the pelvis and sacrum also relaxed. These areas were then balanced with LAS, and OCMM was directed to her cranial dysfunction. Due to the nature of her aggressive yoga routine, she was instructed to come back in 2 to 4 weeks if symptoms were still present. She returned 2 months later noting that her low back and hip pain were completely resolved.

Discussion

The patient presented to the office with long standing right-sided low back and hip pain that was greatly increased during her pregnancies and after the insertion of an intrauterine device (IUD). Both scenarios result in changes to the uterus and have been known to cause low back pain.

Pregnancy-induced back pain is quite common as over 50% of women will experience it while pregnant. In pregnancy, the majority of back pain is a result of the increasing size of the uterus and the subsequent increased lumbar lordosis and the hormone relaxin. These postural changes, in turn, affect the ligaments, nerves, and joints of the surrounding areas and can persist for years postpartum. In addition, there is increased stretch and weight placed on the sacrogenital (rectouterine) folds, specifically the reinforced uterosacral ligaments, and these too can cause pain. These folds and ligaments are partially responsible for the stabilization of the uterus, and any alteration to the uterus would, therefore, alter these ligaments. Structurally, they also cause a “relatively fixed point” or fulcrum, around which the uterus can rotate and antevert.

These uterosacral ligaments attach to the isthmus of the uterus, the cervix, the rectum, and the anterior portion of the sacrum (S2-S4) and contain smooth muscle, nerve fibers, and fibrous tissue. Pain signaling from the myometrium is primarily via the embedded inferior hypogastric (pelvic plexus) nerves in the uterosacral ligaments and commonly refers to the back. The inferior hypogastric (pelvic) plexus nerves originate from the spinal segments of T10-L2. The parasymptathetic innervation to the uterus is from the spinal segments of S2-S4. The uterosacral ligaments attach to the anterior portion of the sacrum from S2-S4 and can “fix the sacrum” anteriorly. This fixation most likely places a force upon the nerves producing neural as well as sacral dysfunction, both of which can result in lower back pain.

IUD-related back pain is less common, although it is listed on the package inserts as a side effect. This patient’s history and osteopathic exam revealed that in addition to her sports-related and postpartum mechanical somatic dysfunction, the presence of an IUD was a major contributor for her current back pain. She had a large fascial pull towards the midline of her pelvis that did not dissipate despite treating her somatic dysfunctions in the area. This could be directly caused by one of the primary functions of the IUD, namely irritation of the uterus. The device is inserted into the uterine fundus and therefore can irritate the fundus itself. Another function of hormone secreting IUDs is continuously releasing hormones into the uterus. This thickens cervical mucus, thereby preventing passage of the sperm into the uterus.

Uterine irritation, either by pregnancy or in this case the IUD, can cause facilitation of the thoracolumbar (T12-L2) segments via the inferior hypogastric nerves. As these nerves are transmitted via the
uterosacral ligaments, irritation of these ligaments either directly or from uterine irritation could prove how facilitation of the thoracolumbar segments occurs with uterine irritation. These ligaments could also help prove why pelvic rock technique helps with premenstrual syndrome and heavy periods as there is a direct ligamentous connection as well as a parasympathetic connection.

Conclusion
In this case, irritation of the uterus by both pregnancies and usage of an IUD, caused significant back and hip pain. After the birth of each child and again after the removal of the IUD, the pain decreased. The second tenet of osteopathic medicine clearly states that structure and function are interrelated and that impaired structure can alter function and altered function can cause symptomatology. This case illustrates this, as removal of the device was the impetus for decreased pain that was further reduced with osteopathic manipulative treatment.

Treatment is based on the fact that the body is a unit; the body has self-healing and self-regulating mechanisms; and structure and function are interrelated. Therefore, the fourth tenet of osteopathic medicine, specifically, rational treatment, which is based upon the above 3 tenets, dictated this patient’s successful treatment. Future studies are required to confirm that OMT can prevent and treat uterine-induced low back pain.

Acknowledgements
I would like to acknowledge Wm. Thomas Crow, DO, FAAO, for his assistance with the FAAO project and Kylie Ann Kanze, DO, for being my editor.

References
CONTINUING MEDICAL EDUCATION

This CME Certification of Home Study is intended to document your review of the CME article in this issue of The AAO Journal under the criteria for AOA Category 2-B continuing medical education credit.

CME Certification of Home Study

This is to certify that I, ____________________________,
(type or print name)
read the following article for AOA CME credit.

Name of article: “An Osteopathic Approach to Uterine-Induced Low Back Pain: A Case Report”

Authors: David M. Kanze, DO, FAAO


AOA Category 2-B credit may be granted for this article.

00____________
(AOA number)

Full name: ________________________________
(type or print name)

Street address: ________________________________

City: ___________________________________________________________________

State and ZIP code: ________________________________

Signature: ___________________________________________________________________

Complete the quiz to the right by circling the correct answers. Send your completed answer sheet to the American Academy of Osteopathy. The AAO will forward your results to the American Osteopathic Association. You must answer 75% of the quiz questions correctly to receive CME credit.

Below are the answers to The AAO Journal’s June 2019 quiz on the article titled “The Combined Shoulder Technique: A Novel Approach in the Treatment of Scapular Dysfunction—A Case Report” David M. Kanze, DO, FAAO.

1. Which of the following compensatory findings is not generally present in pregnant women?
   a. Increased thoracic lordosis
   b. Increased lumbar lordosis
   c. Anterior pelvic tilt
   d. Anterior head carriage

2. Which of the following mechanisms of action of an IUD was most likely contributing to her pain?
   a. Thickening of the cervical mucous
   b. Irritation of the uterus
   c. Inhibition or sperm function
   d. Hormone release

3. Which of the following ligaments transmit the nerves of the hypogastic (pelvic) plexus to the uterus?
   a. Sacrotuberous
   b. Iliolumbar
   c. Uterosacral
   d. Sacroiliac

4. Which of the following somatic dysfunction would most likely be found with irritation of the uterus?
   a. T12 extended, rotated and side-bent right
   b. L1-3 neutral, side-bent right, rotated left
   c. T9 flexed, rotated and side-bent left
   d. L4-5 neutral, side-bent left, rotated right

Send this page to:
American Academy of Osteopathy
3500 DePauw Blvd, Suite 1100
Indianapolis, IN 46268-1136
LGood@academystfosteopathy.org
Fax (317) 879-0563
Based on his experiences as a patient, physician, and educator, Stephen I. Goldman, DO, FAAO, FAOASM, helps bridge the communication gap between doctors and patients. With both heartfelt personal stories and practical advice, Dr. Goldman offers overwhelmed physicians real-world understanding of the problems they face taking care of patients and advice on how they can learn to meet patients “where they are.” In talking to physicians, he also demonstrates how patients can get through to their doctor in order to be “heard” and taken seriously. Shut Up and Listen! shares the perspectives of both doctors and patients, providing profound insight, useful ideas, and helpful strategies to help physicians and patients find a better way to understand each other and meet their health care goals. This book is for everyone!
Course Description
This course will explore the traditional osteopathic thought, approach and technique of Carl McConnell, DO, a premier osteopathic clinician who, at the time of his death, was thought to have best understood Dr. Still’s teaching. The course is designed to lead participants through approaches requiring increasing palpatory appreciation for precision, specificity and anatomical localization. McConnell understood the osteopathic lesion differently than we currently understand it, which greatly influenced his application and choice of technique. Central to his thought was identifying and treating the “key lesion.” These concepts will be explored in this experientially driven course. This is an intermediate to advanced course intended for experienced clinicians, but all skill levels will benefit from the principles of palpatory precision and discussion of osteopathic philosophy and art.

Prerequisite
Registrants must have an understanding of osteopathic manipulative medicine.

Course Times
Friday and Saturday from 8 a.m. to 5:30 p.m.
Sunday from 8 a.m. to noon.

Continuing Medical Education
20 credits of AOA Category 1-A CME anticipated.

Meal Information
Morning coffee and tea will be provided Friday through Sunday. Lunch will be provided Friday and Saturday.

Course Location
Ohio University Heritage College of Osteopathic Medicine
6775 Bobcat Way
Medical Education Bldg. 1, Floor 2
Dublin, OH 43016 (see campus map)

Travel Arrangements
Contact Tina Callahan of Globally Yours Travel at (480) 816-3200 or globallyyourstravel@cox.net.

Course Director
Richard G. Schuster, DO, is in solo private practice in Indianapolis, doing direct primary care and osteopathic manual medicine.

Dr. Schuster graduated from the Ohio University Heritage College of Osteopathic Medicine in 1994 after completing an undergraduate fellowship in osteopathic principles and practice. He completed a family medicine residency at the Firelands Regional Medical Center in Sandusky, Ohio, and a postdoctoral fellowship in sports medicine at the Toledo Hospital in Ohio.

The chair of the AAO’s 2015 Convocation, Dr. Schuster is a member of the AAO’s Board of Trustees and the AAO’s Education Committee.

Dr. Schuster has a strong interest in medical education, and his academic interests include musculoskeletal medicine, biomechanics and functional anatomy, with an emphasis on how the body transmits and organizes information to coordinate movement.

Registration Fees

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* The AAO's associate members, international affiliates and supporter members are entitled to register at the same fees as full members.

Registration Form

Traditional Osteopathic Techniques of Carl Philip McConnell, DO
Nov. 15-17, 2019

Name: ___________________________ AOA No.: ____________

Nickname for badge: _____________________________

Street address: _____________________________

City: _____________________________ State: ______ ZIP: ____________

Phone: _____________________________ Fax: _____________________________

Email: _____________________________

Credit card No.: _____________________________

Cardholder’s name: _____________________________

Expiration date: _____________________________ 3-digit CVV No.: ____________

Billing address (if different): _____________________________

I hereby authorize the American Academy of Osteopathy to charge the above credit card for the amount of the course registration.

Signature: _____________________________

☐ I am a practicing health care professional.
☐ I am a resident or intern.
☐ I am an osteopathic or allopathic medical student.

The AAO accepts check, Visa, MasterCard and Discover payments in U.S. dollars. The AAO does not accept American Express.

Register online at www.academyofosteopathy.org, or submit this registration form and your payment by email to GWatts@academyofosteopathy.org; by mail to the American Academy of Osteopathy, 3500 DePauw Blvd., Suite 1100, Indianapolis, IN 46268-1136; or by fax at (317) 879-0563.

By registering for this course, you agree to abide by the AAO’s code of conduct, photo and video release, and cancellation policy.
Course Description
Vitality is something we experience on a daily basis. We see it in newborns, young children, plants and other living things, yet we have no way to measure it other than comparing it to itself: youth vs. aging, healthy vs. ill, etc.

In this three-day class, attendees will explore the most current scientific research, osteopathic research and clinical practice concerning the respiratory and circulatory functions, which are vital functions and contain vital forces, or vitality. The functions interact and are interdependent, and they feed each other. For instance, over 50% of venous blood flow in the inferior vena cava is respiration dependent. According to Doppler imaging, the pulse of the inferior vena cava moves at the respiratory rate, not the heart rate.

Attendees also will explore the use of “vital forces” as “activating forces” in treatment. Dr. Fulford’s idea of shock in the nervous system will be expanded to include the use of vital forces to treat the shock and expand the concept to the vascular system. Did you know shock is a codeable diagnosis? Dr. Lossing will discuss principles of Dr. Sutherland and Barral along with ideas from traditional Chinese medicine to teach attendees exactly how vitality can be palpated, used in treatment and verified.

Course Director
A 1994 graduate of what is now the A.T. Still University–Kirkville College of Osteopathic Medicine, Kenneth J. Lossing, DO, served an internship and combined residency in neuromusculoskeletal medicine and family practice through the Ohio University Heritage College of Osteopathic Medicine in Athens. He is board certified in both neuromusculoskeletal medicine and family medicine.

Dr. Lossing studied visceral manipulation with Jean-Pierre Barral, DO (France). An internationally recognized lecturer, Dr. Lossing contributed to the second through fourth editions of the American Osteopathic Association’s Foundations of Osteopathic Medicine textbook.

As the AAO’s 2014-15 president, Dr. Lossing was featured in a segment of “American Health Front!” that focused on osteopathic manipulative medicine.

Dr. Lossing and his wife, Margret Klein, OA, run a private practice in San Rafael, California.

Registration Fees

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* The AAO’s associate members, international affiliates and supporter members are entitled to register at the same fees as full members.

Registration Form
Return to Vitality: Circulation, Respiration
Dec. 6-8, 2019

Name: ___________________________ AOA No.: _________

Nickname for badge: __________________________

Street address: __________________________

City: ___________________________ State: _______ ZIP: __________

Phone: ___________________________ Fax: __________________________

Email: ___________________________

I hereby authorize the American Academy of Osteopathy to charge the above credit card for the amount of the course registration.

Signature: ___________________________

I am a practicing health care professional.
I am a resident or intern.
I am an osteopathic or allopathic medical student.

The AAO accepts check, Visa, MasterCard and Discover payments in U.S. dollars. The AAO does not accept American Express.

Register online at www.academyofosteopathy.org, or submit this registration form and your payment by email to GWatts@academyofosteopathy.org; by mail to the American Academy of Osteopathy, 3500 DePauw Blvd., Suite 1100, Indianapolis, IN 46268-1136; or by fax at (317) 879-0563.
Course Description
The Motor Nerve Reflex Testing (MNRT) course is the only course currently available that will teach you how to identify the true cause of your patients’ symptoms. MNRT gives you the priority of injuries for each individual based on survival instincts. There are many ways to evaluate, but only MNRT gives you the order in which to treat. Proper Diagnosis is 95% of effective treatment and any medical professional looking to elevate their diagnostic skills should take this course. After this course you will be able to help more of your patients get the relief they are seeking.

Course Times
Friday from 8 a.m. to 5 p.m.
Saturday from 7:30 a.m. to 4:30 p.m.

Continuing Medical Education
15 credits of AOA Category 1-A CME anticipated.

Meal Information
Continental breakfast and lunch will be provided each day.

Course Faculty
Course director Steven Olmos, DDS, an internationally recognized lecturer and researcher, has dedicated the past 30 years to the fields of craniofacial pain, temporomandibular disorder and sleep disordered breathing. He is board certified in craniofacial pain and sleep medicine. He founded the TMJ & Sleep Therapy Centres International and directs research in craniofacial pain and sleep medicine through data collection at 51 centers spanning seven countries.

Mark S. Cantieri, DO, FAAO, of Mishawaka, Indiana, is an AOA board-certified osteopathic manipulative medicine specialist and a fellow of the American Academy of Osteopathy (AAO). He is the chief executive officer of Corrective Care, PC, in Mishawaka. A clinical assistant professor at the Marian University College of Osteopathic Medicine in Indianapolis, Dr. Cantieri has served the osteopathic medical profession in many capacities, including as president of the AAO, as a member of the American Osteopathic Association’s Commission on Osteopathic College Accreditation and as a member of the AOA’s Strategic Planning Committee.

Course Location
The Pyramids, Building Three
3500 DePauw Blvd., Lower Level, Conference Rooms A and B
Indianapolis, IN 46268

Travel Arrangements
Contact Tina Callahan of Globally Yours Travel at (480) 816-3200 or globallyyourstravel@cox.net.

Registration Fees

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* The AAO’s associate members, international affiliates and supporter members are entitled to register at the same fees as full members.

Registration Form
Motor Nerve Reflex Testing
April 17-18, 2020

Name: ___________________________ AOA No.: ___________

Nickname for badge: ___________________________

Street address: __________________________________________

________________________________________________________________________

City: ___________________________ State: _____ ZIP: ______

Phone: __________________________ Fax: __________________________

Email: __________________________

☐ I am a practicing health care professional.
☐ I am a resident or intern.

The AAO accepts check, Visa, MasterCard and Discover payments in U.S. dollars. The AAO does not accept American Express.

Credit card No.: __________________________

Cardholder’s name: __________________________

Expiration date: ___________ 3-digit CVV No.: __________

Billing address (if different): __________________________________________

I hereby authorize the American Academy of Osteopathy to charge the above credit card for the amount of the course registration.

Signature: __________________________

By registering for this course, you agree to abide by the AAO’s code of conduct, photo and video release, and cancellation policy.

Register online at www.academyofosteopathy.org, or submit this registration form and your payment by email to GWatts@academyofosteopathy.org; by mail to the American Academy of Osteopathy, 3500 DePauw Blvd., Suite 1100, Indianapolis, IN 46268-1136; or by fax at (317) 879-0563.
September 7, 2019
Osteopathy's Promise to Children
**OMT for Systemic Disorders and Physiological Functions: Cardiopulmonary & Immune Systems**
Course director: Hollis H. King, DO, PhD, FAAO
Osteopathic Center San Diego
8 credits of AOA Category 1-A CME anticipated
Learn more and register at the-promise.org/cme/.

October 4-6, 2019
The Northern California Academy of Osteopathy
**The Cranial Approach of Beryl Arbuckle**
Course director: Kenneth J. Lossing, DO
San Rafael, California
22.5 credits of AOA Category 1-A CME anticipated
Learn more at kennethlossing.com/classes.

October 5, 2019
Osteopathy’s Promise to Children
**OMT for Systemic Disorders and Physiological Functions: Gastrointestinal & Nervous Systems**
Course director: Hollis H. King, DO, PhD, FAAO
Osteopathic Center San Diego
8 credits of AOA Category 1-A CME anticipated
Learn more and register at the-promise.org/cme/.

October 11-13, 2019
Rocky Mountain American Academy of Osteopathy
**Osteopathy: From Head to Toe II**
Course director: R. Paul Lee, DO, FAAO, FCA
Rocky Vista University College of Osteopathic Medicine
Parker, Colorado
21 credits of AOA Category 1-A CME anticipated
Learn more and register at ColoradoDO.org.
Prerequisites: 2 cranial courses or 1 cranial course + 5 years’ experience.

October 24-26, 2019
International Federation for Manual/Musculoskeletal Medicine
**18th FIMM International Scientific Conference**
Huerto del Cura Hotel
Elche, Alicante, Spain
Learn more and register at fimm-online.com.

Nov. 8-10, 2019
The Osteopathic Cranial Academy
**Visual Somatic Dysfunction: Diagnosis and Management**
Course director: Paul Dart, MD, FCA
Eugene, Oregon
Learn more and register at www.cranialacademy.org.

Nov. 14-17, 2019
Osteopathy’s Promise to Children
**Brain-Gut Biome Axis Course: Disturbances in the Immune System**
Course director: J. Yusuf Q. Erskine, DO
Osteopathic Center San Diego
32 credits of AOA Category 1-A CME anticipated
Learn more and register at the-promise.org/cme/.

Jan. 10-12, 2020
Osteopathy’s Promise to Children
**First Steps in Osteopathic Manipulative Medicine**
Course director: Raymond J. Hruby, DO, MS, FAAODist
Osteopathic Center San Diego
24 credits of AOA Category 1-A CME anticipated
Learn more and register at the-promise.org/cme/.

Jan. 23-26, 2020
Osteopathy’s Promise to Children
**Fluid Flow and the Healing Process**
Course director: Philippe Druelle, DO (F-Qc)
Osteopathic Center San Diego
Learn more and register at the-promise.org/cme/.

Feb. 15-19, 2020
The Osteopathic Cranial Academy
**Midwinter Introductory Course in Osteopathy in the Cranial Field**
Course director: Zinaida Pelkey, DO, FCA
Associate director: Therese M. Scott, DO
Hilton Norfolk The Main in Virginia
Learn more and register at www.cranialacademy.org.

Feb. 21-23, 2020
The Osteopathic Cranial Academy
**Orofacial Development: Merging OCF and Functional Dentistry**
Course director: Eric Dolgin, DO, FCA
Assistant director: Jose Camacho, DO
Hilton Norfolk The Main in Virginia
Learn more and register at www.cranialacademy.org.

Visit www.academyofosteopathy.org/affiliate-cme for additional listings.