SPECIAL COMMUNICATION

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Thomas L. Northup Lecture: Integrating Osteopathic Principles into Patient Care: An Approach for All Specialties

Introduction

From the very beginning of our profession, A.T. Still, MD, DO said "it is the object of a physician to find health; anyone can find disease."[1] It is still the osteopathic approach today to work with the patient to restore health, not just manage symptoms.

This approach is summarized in the osteopathic tenets.[2] The first three, mind-body-spirit, health maintenance, and structure and function are the physiological principles by which we understand how the body works. The fourth tenet defines osteopathic practice as considering these principles when we develop a treatment plan.

Understanding osteopathic principles requires an in-depth knowledge of how the body works, and how all the systems of the body are interrelated. Each system in the body has self-healing, self-regulating homeostatic mechanisms. In this example, the heart muscle relies on its anatomy and physiologies. That's the valves, muscles, electrical conductions, and local vasculature and biochemistry. In order to regulate the heart function, these self-healing and self-regulating mechanisms are the homeostatic mechanisms inherent to the heart muscle. They allow it to alter its structure and function to response to stressors. The total amount of stressors is what we refer to as the allostatic load.[3]

Each system is affected by all the other organ systems self-healing and self-regulating mechanisms. The three primary mechanisms that the organs system communicate and interact with are the nervous system, particularly the autonomic nervous system, the vascular system, and the lymphatic system. Through these three systems, all organ systems are interconnected to provide homeostasis in the body.

The allostatic load on a structure such as this heart can come from many sources. But if there are too many stressors, the homeostatic mechanisms can become overwhelmed, leading to abnormal structure and function.

So let take a closer look as this heart. Let's adds some stressors. Poor diet, job stress, recent COVID, no exercise; the more the allostatic load, the less functional reserve is left to maintain normal function without becoming symptomatic. Let's add more stressors until eventually the homeostatic mechanisms become overwhelmed and symptoms develop. Then, your beautiful healthy heart now has a dilated cardiomyopathy or some other pathological process

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Editor Note

Thomas L. Northup, DO, was considered the founding father of the American Academy of Osteopathy. To be named a Thomas L. Northup Lecturer, an individual must reflect the stature of Dr. Northup in fields such as education, research, clinical practice, professional management or allied categories of activity. The lecture is delivered during the Academy's program at the American Osteopathic Association's annual Osteopathic Medical Conference and Exposition. Karen Snider, DO, FAAO, FNAOME received the 2021 Thomas L. Northup Lecturer Award. and it has been edited to conform to the *AAOJ*'s style guidelines.

that now is causing signs and symptoms in a person.

COVID-19 has shown us this process at warp speed. If you spend any time working in ICU like I do, then you will have seen those patients with compromised homeostatic mechanisms succumb time and time again.

In the osteopathic philosophical approach to patient management, intervention is indicated to treat (or prevent) overwhelmed homeostatic mechanisms. In the United States, osteopathic physicians possess an unrestricted license to practice medicine. So interventions can include pharmacology, surgery, OMT, and lifestyle, behavioral and spiritual counseling. But too often, treatment is frequently directed to a single stressor or single organ system, usually with a medication. But the homeostatic mechanisms of the heart do not function in isolation. All of the organ systems are interrelated. Each organ system has independent homeostatic mechanisms that contribute to the body total ability to heal and self-regulate. The other organ systems can support the heart and help prevent it from becoming overwhelmed, but other organ systems can also be affected by the heart as it becomes overwhelmed.

Using the osteopathic approach, treatment should be directed to reduce the multitude of the stressors, such as encouraging your patients to be vaccinated, because the goal is to restore health, not just manage systems. We need to work with the patient to restore health, and prevent future disease, not just provide medications to enable them to live unhealthy lifestyles.

Taken collectively, homeostasis in the body is extremely complex. As an osteopathic physician, this is what I see in my head when a patient reports a symptom. What are all the possible ways that that symptom can develop? What organ systems can contribute to the problem? Once I figure out what the problem is, I look for all possible ways to treat that problem. Osteopathic physicians need to understand the interconnectedness of all organ systems and the homeostatic mechanisms provided by each organ system. Then, our treatment plan needs to consider how each organ system can contribute to normalizing homeostasis in the body.

Here is a simple example on how to help patients restore their health by supporting the patient's homeostatic mechanisms.

In Type I Insulin-dependent Diabetes, the pancreas has lost ability to produce insulin. Because the body has lost a major homeostatic mechanism—the pancreatic islet cells—and is unlikely to get that mechanism back with our current technology, the goal of treatment is give the patient insulin in order to support the body's remaining homeostatic mechanisms.

But in the case of Type 2 Non-Insulin dependent Diabetes, the body either has become resistant to insulin or pancreas cannot produce enough insulin to keep up. Because the homeostatic mechanisms have been overwhelmed in this patient, the treatment goal is to use prescriptions to manage the symptoms of the condition, while working to restore homeostasis within the body. In this case, diet, exercise, and lifestyle management has been shown to be able to restore homeostasis in type 2 diabetes.

So, how does OMT fit into the care plan? For musculoskeletal dysfunction, directly normalizing structure function relationships is an obvious goal for OMT. But with systemic dysfunction such as diabetes, we believe that OMT affects organ systems via reducing allostatic load coming from the musculoskeletal system to affect the autonomic, vascular, and lymphatic systems. It is likely much more complicated than this. A recent publication found that OMT can help with health restoration even in diabetes by reducing inflammatory chemicals in the body. Specifically, this study, showed OMT reduced tubernecrosis factor (TNF).[4]

Keep in mind that OMT as a manual treatment is not unique. There is overlap in techniques with chiropractic, massage, and physical therapy to name a few. What is unique is the integration of OMM as part of a full-scope patient management. And this integration is what makes osteopathic medicine a very powerful approach. Unfortunately, what is also unique is our language of somatic dysfunction. This language, in my opinion, has been one of the greatest limitations to spreading our approach and keeping DOs osteopathic.

Today, most practicing osteopathic physicians do not use OMM in the clinical setting, though it is very difficult to get an exact count.

In 2002, 2300 DOs in OH were surveyed on their OMT use. Of those that responded, 44% used No OMT clinically. 30% at least 1x week . But 17 specialties used No OMT, ever. 46% FP who responded used OMT at least 1x week.[5]

Spring forward 20 years. Healy surveyed 10,000 DO recently. Less than 1700 responded, but of those that

responded 78% use OMT on less than 5% of patients, and 57% never used OMT in a clinical setting.[6] As an OMM educator this is quite depressing.

Because we know that those DOs whose choose to include OMM get to spend more time with each patient and learn more about the patient. They potentially even establish better rapport with the patient. They are providing a treatment that has minimal side effects and can potentially have the patients leave the clinic with the problem resolved.

The evidence base that supports the use of manual medicine as part of patient care is very large. This is a list for just the use of manual medicine as part of the care of cardiopulmonary conditions (Appendix A). I have similar lists for GI and neuro and peds and OB, as well as musculoskeletal conditions.

Because manual medicine is beneficial for our patients for a wide variety of clinical conditions above and beyond musculoskeletal conditions, then OMM can be included as part of the care for basically all direct patient care specialties. While I do not consider radiology a direct patient care specialty, I must share a story about one of my hospital consults. I had been consulted to see a hospitalized patient with pneumonia for very basic OMM to improve homeostasis. The patient was a retired DO radiologist. He was so excited the NMM resident and I had come to work on him that after he was treated, he hopped up out of the bed and started demonstrating his favorite OMT techniques on my resident. It was a priceless experience.

Anyone who does OMM can recall cases where the patient's problem was resolved by OMM. These are the times that keep us going with all the patients for whom the symptoms are just improved. So here is a case of an 80-year-old woman presented to my clinic with 4-day history of sudden onset right foot pain. The pain began a day after doing some yard work. The pain at presentation was sharp and located on dorsal arch with weight-bearing. She came in using a walker for ambulation support; she did not normally use any assistive devices. Physical exam revealed no bruising or bony tenderness, but she did have pain with range of motion. She also had an inverted navicular bone, cuneiform dysfunction, and a posterior fibular head. I treated her with OMT including muscle energy, articular, and myofascial release techniques to correct the somatic dysfunctions. The navicular corrected with audible clunk. And suddenly her pain was gone. So the outcome was a very happy patient. I gave her some easy range-of-motion exercises to try to prevent recurrence and she left carrying her walker.

So what would have happened to this patient if I had not done OMT? Well first, she met Ottawa ankle rules for an xray.[7] While there was not bony tenderness beyond ordinary counterstrain points, she was not able to bear full weight without the walker. An x-ray would have likely seen osteoarthritis, because she is 80 years old.

She also would have gotten a prescription for an NSAID. Now, NSAID are used frequently for pain, but we must always keep in mind that they are not risk free. NSAIDs would have put her at an elevated risk for an MI, and upper GI bleed, and acute kidney injury, and even death.[8-11] If the pain persisted with the NSAID until a second visit, she would have likely been sent to physical therapy and potentially have been given a steroid injection.

But in the fall of 2019 the Radiological Society Of North America reported evidence that intraarticular steroid injections were associated with tendon degeneration, accelerated osteoarthritis progression with loss of the joint space, subchondral insufficiency fractures (stress fractures that occur beneath the cartilage), complications from osteonecrosis, and rapid joint destruction including bone loss.[12,13] Something to think about.

If you recall the Hippocratic Oath states "I will do no harm." The Osteopathic Oath states that "I will be mindful always of my great responsibility to preserve the health and the life of my patients."[14] So when you develop a treatment plan, you need to always be mindful of the risks as well as the benefits of each part of your treatment plan.

I love OMM. It is why I do it as a specialist. For me, nothing else can provide the instant gratification that you get when you feel a key somatic dysfunction clunk in place and feel the rippling effect throughout the body.

OMM can resolve some complaints with 1 treatment. It helps many acute and chronic problems. Some conditions are not helped at all like an acute intracranial bleed or a dissecting aneurysm; for these conditions a hands-off approach is best during the acute period. But OMM can also mask symptoms that are best treated with other interventions particularly in obstructing cancers. I have seen this personally multiple times over the past 20 years. So when a symptom keeps recurring, work it up. Fortunately, when OMM works, it makes patients very happy and they will call you their favorite doctor.

The Healy article I previously spoke of cited many of the most common excuses why many DOs do use OMT in a clinical setting.[6] Two of these refer to time and money. Having done my postgraduate training in Kirksville, Missouri, I had the good fortune to interact with an older generation of osteopathic physicians of all specialties from an era when all patients of osteopathic physicians received OMM. But most of those treatments were just a few techniques and lasted only 3-5 minutes. So when you teach physicians to integrate OMT into a busy practice, focus on quick, high-yield techniques.

The excuse about not getting paid for OMT is a real issue. But if you are a member of the AAO, the AOA, and your state osteopathic association, then together those national organizations can assist you. AOA, under their new administration, has begun advocating for its members again, so encourage physicians who are members of the AOA to contact them if they are having payment issues.

The lack of competency in any psycho-motor skill is overcome through practice. Members of our organization are often the OMM experts within their geographic regions. So we can help our colleagues and future colleagues get practice by volunteering to teach. Volunteer to host clerkship students in their third and fourth years, and to teach at residency programs, state associations, and even specialty conferences. When you teach include some of the evidence base for specialty-specific conditions, because as I mentioned there is a ton of evidence to support OMM. Teach them what somatic dysfunctions to look for with various clinical conditions and then teach fast, simple techniques that can be used in inpatient and outpatient settings. Save the subtle intricacies of the techniques for learners that are seeking to diver deeper. I teach at a lot of family practice updates, and if I spent all my time trying to explain the subtleties of inherent visceral motility, then they would never invite me back. So instead, I show them fast, easy, high-yield techniques like the colon release. You do not need to be able to palpate or even understand visceral inspire and expire to be successful with this technique.

All of the different technique modalities have fast and easy techniques, even cranial. Cranial techniques that focus on enhancing primary respiratory motion are very relaxing for both the physician and the patient. But many cranial techniques, such as the venous sinus drainage technique, can be effective even if the physician performing the technique cannot feel the CRI. Many osteopathic students get this idea that if they cannot feel the CRI, then they cannot use cranial techniques. But this is not true, and we want to encourage all physicians to use OMT that can benefit their patients, even if their OMT is not at the level of an NMM specialist.

Also, when you teach, be sure to include how to modify the techniques for different sizes and shapes of patients and physicians. This very tall physician is Paul Kimberly, DO (Figure 1) and most of his patient were smaller than he was. As a result, he could do techniques in ways that are mechanically very challenging for smaller practitioners. I remember learning this technique and I remember the pain it caused my back to do it. Dr. Kimberly had very large hands; one of his hands is a third of the size of the patient's back. Now compare his large hands to the smaller hands of this student who will need slightly different mechanics to be both successful and

Figure 1. *Paul Kimberly, DO demonstrating OMT technique.*

Figure 2. *Modification to Seven Stages of Spencer by standing behind the patient and grasping at the elbow to apply traction.*

comfortable performing the technique. Dr. Kimberly also had long arms and was quite strong and could easily hold his patients arm under traction during the traction stage of the Seven Stages of Spencer. But smaller physicians will need to be trained how to modify techniques to suit their size when the patient is bigger than they are. Simple modifications such as standing behind the patient for the Seven Stages of Spencer and grasping at the elbow to apply traction, as shown in Figure 2, can make a huge difference to the mechanical demands placed on the physician. And the better the physician's mechanics, the better their palpatory proprioception. A physician who is uncomfortable using a technique because the mechanics do not match their size is not going to use that technique in the future.

So set up our colleagues for success when they use OMM. The instant gratification that many of us experience is very addictive. Here is another example: I use sacral rocking in the hospital for constipated patients and I assure you it can improve bowel function even without timing it to the CRI. Notice how easy this lateral recumbent version of sacral rocking looks. If the goal is to get physicians using OMM in a clinical setting, then allow them to use techniques in a fast, easy way without worrying about the subtle details.

In lectures across OMED, physicians want to know what to do and when. Understanding the basic science of what we do is very helpful, and we will likely do our jobs better if we fully understand what we are doing. But if we were required to understand the mechanism of action for every therapeutic measure, then most medications would not even be allowed on the market. That is because much of the evidence base for what we do in medicine is poorly understood and most is just an educated guess, but we still use a wide variety of therapeutic interventions because the evidence supports patient improvement. Our evidence base supports the therapeutic efficacy of OMM, even though we do not fully understand the mechanism of action for what we are doing. So when you teach OMM, highlight the efficacy of what we do.

Remember when you teach OMM that osteopathic principles and practice is more than just OMM. Osteopathy is a different way of approaching a patient in diagnosis and treatment. The holistic approach of an osteopathic physician can be summarized in the 5 osteopathic treatment models: biomechanical, respiratory/circulatory, metabolic/energetic, neurologic, and behavioral models of diagnosis and treatment.[15,16] These represent 5 different ways of looking at a single patient. OMM can be part of each model, but so can each of our therapeutic options such as pharmacology, surgery, lifestyle management, and counseling.

Biomechanical

Let's look closer at each model and how we can classify different interventions. The biomechanical treatment model aims to optimize structure and function relationships as they relate to posture and balance within the body and their impact on the body's homeostatic mechanisms. OMT can be used to correct somatic dysfunction and restore structure-function relationships. But there's also other treatments.

Let's look at treatment for an adolescent with 30° scoliosis. We can use a brace that over-corrects the thoracic curve. This brace will stretch the tight muscles and ligaments that develop on the inside of the scoliotic curve and prevent elongation of the ligaments on the outside of the curve.

In another example, we can teach a patient with chronic low back pain to stretch their hamstrings to improve a muscular imbalance that is contributing to their back pain.

In a patient with advanced knee osteoarthritis, the altered structure affects the walking biomechanics and postural balance. Because the articular structure is no longer functioning, we can replace the knee joint to restore the alignment of the structures in order to restore normal (or mostly normal) function.

Figure 3. *The Still Technique for Inhaled First Rib Step 1. Image: ATSU*

Figure 4. *The Still Technique for Inhaled First Rib Step 2. Image: ATSU*

Figure 5. *The Still Technique for Inhaled First Rib Step 3. Image: ATSU*

In the hospital, we can use the biomechanical model to maximize homeostasis of an acutely ill patient. We can have a physical therapist come by to walk the patient three times per day. We can have the nurse assist with range of motion exercises for arms and chest. We can provide OMT to correct biomechanical dysfunction impacting their disease process.

A super easy technique to improve the biomechanical function of the first rib is the Still technique. This is an excellent technique for both inpatient and outpatient settings and it is easy to teach our colleagues.

The Still Technique for Inhaled First Rib

Diagnosis first ribs. With the patient supine, the operator monitors the affected rib head with one hand. Position the ipsilateral arm so the patient's arm is at their side with their elbow flexed. Bring the elbow superior and medially until the elbow is in line with the head of the affected rib (Figure 3). Add compressive force through the elbow toward the head of the affected first rib. While maintaining compression, take the shoulder of the affected side through a circumduction range of motion by first bringing the elbow towards the ear of the affected side, then continuing laterally (Figures 4 and 5). Return patient to neutral and recheck. This is a quick technique.

Respiratory Circulatory Model

The respiratory circulatory model focuses treatment on optimization of respiratory and circulatory components of homeostatic responses. When we do OMT as part of this model, its focus is to improve of respiratory biomechanical function and remove myofascial tissue stress affecting vascular and lymphatic flow. Examples of interventions using the respiratory circulatory model include treating an:

- Asthmatic patient suffering from acute bronchospasm with a beta-agonists. Beta-agonists induce bronchodilation and thus improve respiratory function by allowing better aeration.
- In a patient suffering from acute sinusitis, we can treat somatic dysfunction of thoracic inlet with OMT to improve lymphatic drainage from the head and neck.
- In a patient with right arm swelling due to axillary lipoma, we can surgically remove the lipoma to remove the mechanical impingement of the venous and lymphatic vessels and hopefully restore normal flow.
- In the hospital, we can optimize respiratory function and vascular/lymphatic drainage by providing oxygen supplementation and intravenous fluids. The incentive spirometer is a good way to encourage breathing exercises. Nebulizer treatments are great for bronchodilation medications. Mechanical ventilation also supports respiration. As mentioned before, correction of thoracic inlet somatic dysfunction using OMT to improve lymphatic drainage both as inpatients and outpatients.

Indirect Myofascial Release

We will briefly review the indirect myofascial release of the thoracic inlet (Figure 6). With the patient supine, the physician places their fingers over the thoracic inlet with thumbs posterior. Assess for motion preference. Carry the fascia to the indirect physiological fascial barrier in the following planes: rotation, sidebending, flexion/extension (exaggerate the position of ease). Maintain tissue tension at indirect physiological barrier but allow

Figure 6. *Indirect myofascial release of the thoracic inlet. Image: ATSU*

Figure 7. *Direct myofascial release of the thoracic inlet. Image: ATSU*

myofascial unwinding to occur. When tissues stop, reassess and repeat as needed.

The direct myofascial release version is just like the indirect version except we are going to setup all three planes at the direct motion barrier (Figure 7). This is a great technique for use in hospital patients. So how do I know which technique to direct versus indirect? While if the patient is well enough for direct techniques, then I start direct and if the patient starts tightening up everywhere throughout their body, then I switch to indirect myofascial release.

If the patient is not well enough for a direct myofascial release, then I will usually start by treating at a balanced ligamentous tension version of the thoracic inlet release. In this case, we'll set up all three planes at the shifted neutral position. My hand position for this technique will depend upon where the patient is. In the hospital I will typically stand beside the patient rather than behind and I will use the hand position with one hand at the cervicothoracic junction and one hand over both first ribs and the manubrium (Figure 7).

Venous Sinus Drainage

As I mentioned earlier, the Venous Sinus drainage technique is a wonderful technique for a beginner to learn. It is essentially just inhibitory pressure along the occipital and transverse sinuses and a V-spread along the sagittal sinus and old metopic suture. With its goal of improving vascular flow in the head and reducing muscular tension, it's great on its own for headaches and sinus congestion.

Figure 8 is a demonstration on the version of this technique that we teach at KCOM. First begin at the inion with inhibitory pressure, making a square with your middle fingers, and apply the inion directly to that square. Maintain pressure at this location until the tissues feel like they soften.

Next we'll go to the occipital sinus. Form a line with your fingers along the occipital sinus inferior to the inion. Let your patient's head rest on your fingertips. Maintain the inhibitory pressure until the tissue softens.

Next, occipital condylar decompression. Slide your hands in the condyles, and by bringing your elbows together, slide posterior and lateral traction on the occipital condyles. Maintain the traction until the tissue softens.

Figure 8. *Venous sinus drainage (left to right): inion, occipital sinus, occipital condylar decompression, transverse sinnus, inion, saggital sinus, metopic suture. Image: ATSU*

Apply your fingertips in a row along the transverse sinus extending out from either side of the inion. Apply inhibitory pressure along the transverse sinus until the tissues feel like they soften.

Then we'll go back to the inion, placing your fingers in the square position. Allow your patient's head to rest on the inion until the tissues soften again.

Then we're going to work up the sagittal sinus, first with our fingers together, just superior to the inion. Then we're going to do a gentle v-spread along the sagittal sinus along the sagittal suture by letting our thumbs cross and applying some lateral pressure all along the sagittal suture. So, beginning at the lambda, allow your fingers to cross, with the weight of the patient's head pushing your thumbs apart. If there's no tension in an area, move on to the next more anterior point on the sagittal suture. Work up along the sagittal suture, applying that lateral traction with your thumbs, until you reach the metopic suture. Once you reach the metopic suture, bring your fingers together in a line along the metopic suture, and apply lateral traction to the metopic suture. Apply lateral traction to the frontal bone along what in most people used to be the metopic suture.

The Neurological Model

The neurological model focuses on normalization of nervous function including somatic and autonomic nerves. Treatment can impact spinal facilitation, proprioceptive function, autonomic nervous system, and even nociception. OMT is typically about reducing the mechanical stressors on neural elements, especially those stressors that can cause nociception that can lead to spinal segmental facilitation.

Examples of interventions within the neurologic model include:

- Managing a diabetic patient who complains of persistent burning in feet due to diabetic neuropathy with oral gabapentin which will decrease the irritability of peripheral nerves that have been damaged by long-term, sustained hyperglycemia.
- In a patient who complains of diarrhea after eating due to irritable bowel syndrome; we can treat the thoracic somatic dysfunction in order to decease spinal facilitation that may contribute to the allostatic load on the gut via shared sympathetic innervation.
- In a patient with persistent arm pain and numbness after cervical disc extrusion; we can perform a cervical laminectomy to decompress nerve, thereby restoring normal neural function.
- In the hospitalized pneumonia patient, treatments within the neurological model include using Sympathetic agonist medications for bronchodilation, suboccipital release to normalize parasympathetic tone, and OMT to thoracic somatic dysfunction in order to decease spinal facilitation that may contribute to the allostatic load on the lungs.

Suboccipital Inhibition Technique

Suboccipital inhibition is a super simple technique to normalize vagal parasympathetic tone and reduce the resting tone of the suboccipital muscles by applying inhibitory pressure to the suboccipital musculature.

To inhibit tight suboccipital musculature, gently apply anterior pressure along the superior or inferior nuchal line. Allow the patient's head to rest on your fingertips so as to apply steady pressure to the suboccipital musculature until the tissue softens (Figure 9). This technique can also be performed in the seated position (Figure 10).

The Metabolic Energetic Model

The metabolic energetic model focuses treatment on optimization the body's biochemical processes, cellular functions, and energy consumption. This includes hormones,

Figure 9. *Suboccipital Inhibiton Technique, supine technique. Image: ATSU*

Figure 10. *Suboccipital Inhibiton Technique, seated technique. Image: ATSU*

enzymes, co-factors, neurotransmitters, and all the biochemical and physiological homeostatic processes. The goal of treatment is to restore balance between energy production, distribution, and expenditure.

Examples of interventions within the metabolic energetic model include:

- Diuresing a patient in acute congestive heart failure in order to decrease intravascular volume and thereby decrease the energetic demand on the heart muscle to contract against all of that extra intravascular volume.
- In a patient with ankle pain and swelling after an acute sprain there is typically somatic dysfunction present such as an inverted talocalcaneal joint, which can maintain the injured ligaments in a state of stretch. Correction of this ankle somatic dysfunction can reduce the stretch on the injured tissue, thereby decreasing the energetic demand on the injured tissue during the healing process.
- In a patient who has pernicious anemia due to loss of ability to produce intrinsic factor, we can administer monthly intramuscular vitamin B12 injections. Because the patient's stomach can no longer produce intrinsic factor, these monthly injections allow for maintenance of metabolic balance in the body even though the body has lost a homeostatic mechanism.

In the hospital with a patient with pneumonia, we have a variety of ways to decrease the energetic demands on the body:

- Antibiotics/antivirals decreases the workload of lymphatic system
- Mechanical ventilation decreases the workload of respiratory muscles
- Diuretics decrease intravascular volume to decrease the energetic demand on the heart muscle
- Correction of rib somatic dysfunction decreases the energetic work of breathing

Rib Raising Technique

Another super simple OMT technique that is great for both inpatient and outpatient settings is rib raising. Rib raising is a great multitasking technique. It can be used to improve respiratory biomechanics and lymphatic drainage and normalize sympathetic tone to the lungs. There are probably at least 10 different version of rib raising you can perform or teach to learners.

To perform supine rib raising, apply anterior lateral traction to the posterior rib angles until movement of the lateral ribcage can be seen. Maintain traction until the tissues soften (Figure 11). This technique can be performed to each side of the ribcage unilaterally, or to both sides simultaneously by contacting the rib angles bilaterally. This technique may be applied once to each rib group or rhythmically to each group for several cycles. Work all areas of the rib cage until the chest cage becomes supple and breathing motion becomes deeper. This technique can also be performed with two people, each performing unilateral rib raising in unison (Figure 12). With one person standing on each side of the patient, treat each area of the rib cage at the same time until the entire chest cage is treated.

Colon Release Technique

I need to include at least 1 easy visceral technique. Both the mesenteric release and the colon release fit this criteria. They are super easy and can work from the vascular and lymphatic approach and can work from an energetic approach by stimulating peristalsis. If you are curious about the differences between the mesenteric release and the colon release, I have included both techniques here for your review. The biggest difference is that the mesenteric release begins proximally at the small bowel and then works distally throughout the intestines down to the sigmoid. The colon release begins distally at the sigmoid

Figure 11. *Rib Raising Technique. Image: ATSU*

Figure 12. *Two-Person rib raising technique. Image: ATSU*

Figure 13. *Colon release technique. Image: ATSU*

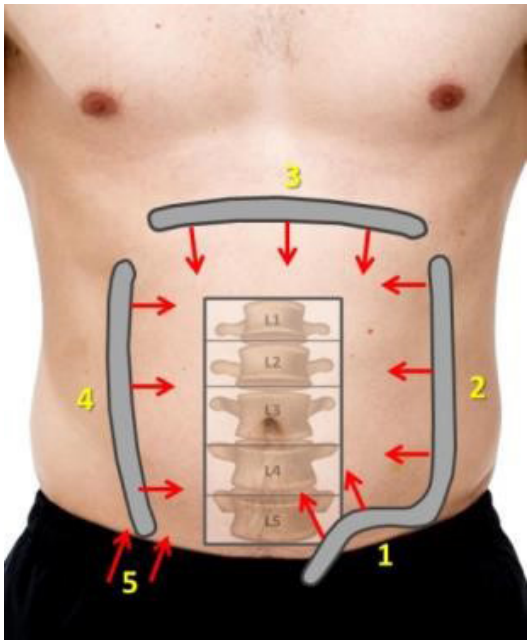

Figure 14. *Treatment of ascending colon region for both colon release and mesenteric release techniques. Image: ATSU*

and works all the way around the colon to the cecum. I tend to use the colon release for constipation and the mesenteric release for a bowel ileus. Today we are going to focus on the colon release.

This technique is performed by gently working the colon from distal to proximal (Figure 13). Begin at the sigmoid, gently cup the bowel and apply medial traction force towards the umbilicus until resistance to the motion is felt. The medial traction is held until the tissues soften. The patient may take a small breath in and hold it to facilitate the release. As the patient exhales, the operator applies further stretch to the tissues. Work each area of the colon until the abdominal tissues have softened. Gradually work from sigmoid to the descending colon to the transverse colon to the ascending colon and around to the cecum by applying a gentle lateral to medial force on the outer margin of the tissues until softening occurs (Figure 14).

Just a reminder the evidence base for the inclusion of manual medicine techniques as part of the management of GI conditions is quite robust.

The Behavioral Model

The behavioral model focuses on mental, emotional, and spiritual influencers of health. Interventions focus on lifestyle choices and biopsychosocial stressors to improve physical and mental coping mechanisms.

Examples of interventions within the behavioral model include providing nutritional counseling to alter an obese patient's dietary choices. Many patients with anxiety report improve sleep and anxiety symptoms after receiving cranial osteopathic manipulation. While we do not know how it works, OMT appears to promote relaxation and increase the body's ability to handle stress. In a patient with COPD, we can provide smoking cessation counseling to stop the smoking behavior which causes an ongoing insult to the lung tissue. Even in the hospital we can provide smoking cessation counseling to our patient with pneumonia before they are discharged to home. We can help our patients feel they are important by speaking directly to a patient. I recently heard one of my own patients complain that during a hospitalization, their doctor only seemed to talk to the patient's family.

Many of my own patients have reported improved sleep and anxiety symptoms after receiving osteopathic manipulation while they were hospitalized.

Cervical soft tissue techniques are super easy and always seem to relax the patients. Like the rib raising technique, it is a high-yield multipurpose technique that can help normalize parasympathetic tone to most organs, impacts the sympathetic superior cervical ganglion to the head, and remove cervical somatic dysfunction that may affect the innervation of the abdominal diaphragm arising from C3-5. And most patients love this technique.

Cervical Soft Tissue Technique

Assess the paraspinal musculature for excessive tension

Figure 15. *Cervical soft tissue technique. Image: ATSU*

or hypertonicity. Then apply a gentle, slow, rhythmic, kneading force to the muscle fibers by first applying an anterior force, then a superior traction and lateral traction (Figure 15). Treat from cervicothoracic to occipitocervical junctions. Repeat kneading and stretching until a maximal muscular relaxation is obtained.

The Five Models

The five models of osteopathic treatment overlap both in purpose and practice. Let's take the example of patient hospitalized with COVID pneumonia who is receiving oxygen supplementation, IV fluid with monoclonal antibodies, and rib raising OMT technique.

Oxygen Supplementation

- Improve respiratory efficiency
- Decrease energetic work to maintain blood oxygen saturation

IV Fluid with Monoclonal Antibodies

- Maintain circulatory volume and hydration
- Improve lymphatic efficiency
- Decrease energetic demand on lymphatic system

Rib Raising

- Improves biomechanical functioning of rib cage
- Larger chest cage excursion improves gas exchange of respiration
- Decreases energetic work of breathing to maintain oxygenation
- Decreases musculoskeletal stressors affecting local sympathetic neural input into the lung
- Touch relaxes patient to decrease behavioral stressors

Remember, osteopathic principles can be integrated into any specialty. It is the easiest for specialties that provide direct patient care, but the culture of some specialties can make it a challenge.

The emergency room is a place where many people with acute somatic dysfunction will go first. This article published by Dr. Eisenhart in the *Journal of American Osteopathic Association* details how OMM when used in the emergency room had a significant impact of the management of ankle sprains.[17] Those that received OMT in the ER had significantly reduced pain and edema immediately after the OMT compared to those that did not. This is fabulous. However, many ER encounters are not about acute issues. And many of the patients seen are not impacted by the cost of emergency room care, either because they have Medicaid or just won't pay their bill. But the ER is legally obligated to see the patients. As a result, many ER physicians fear that chronic pain patients will overwhelm the ER for free OMM any time the patient feels like they need it. This could be a real problem.

But emergency rooms are still a common place to receive an opioid prescription.[18] And we are still experiencing an national opioid epidemic.

In the ER, most of those opioid prescriptions will be for musculoskeletal pain. So if I may recommend a compromise, consider providing OMM before writing for opioids and sending the patient home. At my local ER, referrals to our OMM outpatient clinic are common. What is interesting is that many of those referrals don't show to their appointments.

An interesting study would be to correlate the rate of no shows to whether the patient received opioids in the ER.

Another specialty with challenges is psychiatry. In the Still-Hildreth Osteopathic Sanatorium, OMM was once used in the daily care of psychiatric disease. Unfortunately, the modern hands-off culture of psychiatry eventually prevailed. But many osteopathic psychiatrists are convinced that OMT greatly helps with conditions such as anxiety, insomnia, and PTSD. But their specialty has developed strict rules about boundaries that require them not to touch their patients. As a compromise, they are happy to refer their patients out so that OMM can be part of a holistic management plan for their patients.

This is just a sampling of the evidence base to support the use of OMM for psychiatric conditions. The evidence base is on our side for integration of OMM into most direct patient care specialties.

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Despite the evidence base for the use of OMM, many specialties still face challenges. Many very high paying, procedure-based specialists, generally do not want to be bothered with low paying procedures such as OMM. So, for these specialties we hope that they consider the patient first and consider making referrals to OMM providers for those patients who do not need surgery.

So let's review how to integrate OMM into patient case across specialties:

1. Teach and learn fast easy techniques that can be integrated into a variety of clinical practices and are useful for a multitude of clinical conditions.
2. For employed physicians who want to integrate, remind them to negotiate for a little extra time in their schedule. Some providers will even set aside a half day per week for just OMM visits.
3. If payment is the issue, remind our colleagues that the AOA is back on the job assisting its members with payment disputes.
4. And lastly our profession needs you to help train our colleagues in their 3rd and 4th years, in residency and once they are out in practice.

I would ask OMM providers to budget time into your schedule to serve on committees, nationally, or regionally. Present at continuing medical education opportunities. OMM researchers need to publish their research. Unfortunately, most OMM research is not published for a variety of reason. I know the peer review process is painful, but we need the evidence to not just support OMM, but be overwhelming.

So, help physicians everywhere integrate osteopathic principles throughout their education by volunteering to teach and serving as a voice at national and regional committees. Help our profession identify as osteopathic and invite the MDs to join us. I believe healthcare delivery would be very different if every physician integrated osteopathic principles into clinical practice.

The evidence base is on our side to integrate osteopathic principles into patient care.

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Appendix A

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