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The OSTEOPATHYST

Canadian Journal of Osteopathy

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By Robert Johnston

CLOSE TO THE BONE

Safety First

As a form of manual manipulative therapy, Osteopathy must be performed in a safe and effective manner. Safety is something that the Canadian Academy of Osteopathy stresses to its students from day one. Because we are speaking about safety here, it is important to review the concepts and principles that will guide an Osteopathic Operator in working safely and effectively.

When a patient presents, Operators will consider the patient history to begin their investigation. Once the patient history is evaluated, the Operator needs to screen the patient for red flags that would immediately indicate the need for emergent care or medical examination. It is best practice to recognize when a patient displays an issue that requires either emergent care or further medical examination that exceeds the Operator's expertise. Operators should never place their dogma or ego above the safety and well-being of the patient.

When a patient has been screened and no red flags have been found, the Operator needs to perform a thorough Osteopathic Structural Assessment. It is through the Osteopathic Structural Assessment that issues not reported subjectively by the patient may be identified through rational motion testing. (Readers with questions about the process or concepts underlying an Osteopathic Structural Assessment can refer to the Rule of 9 in issue 4 of this journal.) By examining the patient through an objective Osteopathic Structural Assessment, the Operator mobilizes another layer of safety by identifying any issues that may have been unreported. The key to assessment is discipline; we must be meticulous in order to avoid negligence in examination.

A key concept with respect to safety is often highlighted in discussions with students: contraindications. The challenge with lists of contraindications is that it is far too easy to believe it is only those items in the list that are unsafe and, by extension, that everything else is safe. Realistically, we need to be far more objective with respect to contraindications. The best way to start: approach everything as contraindicated and consider it safe only when it has been assessed and proven to be safe in that moment with that patient. This is why a strong

and disciplined Osteopathic Structural Assessment must be performed; the Operator can then determine what may or may not be safe for that patient.

Now that we have an understanding of the importance of an Osteopathic Structural Assessment and how it relates to safety and contraindications, we can turn our attention to the key to safety in actual treatment delivery: the barrier concept. The barrier concept was analyzed in the previous issue with respect to treatment dosage; presently, it is best to highlight how it helps with safety in Osteopathic practice. If we ponder the barrier concept (direct, balanced, and indirect) we are able to assign a theoretical measurement on a scale from +10 (very hard on the direct barrier) to 0 (balanced) to -10 (very hard on the indirect barrier). The further from 0 (balanced) an Operator engages (either the direct or indirect barrier), the more risk exists. If the Operator works slowly and intelligently from +1 or -1 on the barrier scale, and then further within a single treatment or between treatments, the safer the treatment will be. At the CAO we often say that the barrier is the safety valve in treatment.

Further to utilizing the barrier concept as a safety valve in treatment, it is wise to consider dosing in treatment (as was discussed in issue 8 of this journal). The following list highlights the key points of safety:

1. screen for red flags and direct a patient to the appropriate treatment if any are found;
2. perform a disciplined Osteopathic Structural Assessment to identify issues that were unreported and use the diagnosis to objectively prove what is and is not safe for that patient in that moment;
3. engage the barrier cautiously—it is your safety valve in everything you do, and the further you engage barrier the more potential danger is present.

Osteopathy must be performed rationally, reasonably, and responsibly for the safety and health of our patients as well as the health of the profession.

A FEET OF ENGINEERING



By Paul McQuade,
BSc., Ost., M.ed.

What do evolution and footwear have in common? The answer: Nothing.

A brief history: it wasn't until the 15/16th century in France that footwear changed with the introduction of a raised heel on shoes, a way to demarcate the aristocracy and nobility from everyone else. The higher the heel, the wealthier and more noble the wearer. And the wearer was exclusively male. That's right. High heels were originally made for men, and by royal decree no less. Another, albeit more American, example of this is cowboy boots, in which the heel was used to secure the rider's foot in the stirrups.

From the humble house slipper and flip flop to running shoes and staggeringly high stilettos, virtually all of the footwear we could possibly own puts our foot in a constant position of planter flexion. Upon review, there seems to be no apparent mechanical advantage to having the foot in planter flexion. There are no positive effects other than aesthetics; conversely, there is a significant list of negative effects ranging from increased risk of ankle/foot injury to low back pain.

Consider how you walk when wearing shoes and when barefoot. Have you tried walking "normal" when barefoot? Our foot is designed to bear weight through the metatarsal heads, thereby putting the tough, fibrous longitudinal ligaments on tension, which allocates energy to bring the leg forward. This way, our foot functions as nature intended: it is both mechanically and energy efficient.

Bunions are a common manifestation of Wolff's Law. They are generally seen in females who frequently wear heels. This means their primary contact with the ground is predominantly through the ball of the foot or metatarsal head, which leads to new bone formation in the direction of force. In severe cases, there can be lateral deviation of the great toe (known as Hallux Valgus), significant strain directed at the intra-metatarsal ligaments between the first and second metatarsals, and ultimately mechanical alteration

to the foot. The bunion growth and valgus strain of the big toe puts the abductor hallucis muscle, which over decades of wearing shoes has been inhibited, on tension. This tension can lead to strangulation of the tibialis posterior artery and vein, potentially causing a necrotizing condition on the posteromedial aspect of the sole of the foot.

The planter flexion, which occurs at the ankle, tends to restrict movement at the subtalar joint. Because this joint is wider at the front than the back, it causes the multiple planer-type joints and their supporting ligamentous structures to work under oppositional stresses. We know the foot is made up of more than 100 muscles, ligaments, tendons and bones. We can further divide the foot into fore-foot, mid-foot and hind-foot. The hind-foot and mid-foot are separated by a transverse line known as Chopart's Line and the mid-foot and fore-foot are separated by another transverse line known as Lisfranc's Line.

Functions of the foot (our terminal point of contact with the ground) include locomotion and balance. Since our feet are at a constant mechanical disadvantage of planter flexion, our patient's feet must be considered as part of our differential picture. In edition 6 of this journal, Sam Jarman's article "Simplicity in Principles" characterizes osteopathy as the "science of relationships." Jarman goes on to state that "when assessing or treating the movement of a structure the operator must steady/fix a related structure and move the structure being assessed or treated in relation to the one that is fixed. More directly stated, one landmark point remains stationary while the other moves in relation to it" (pp. 6-7). This statement highlights the importance of specificity; given that the foot has 26 bones in a relatively small area, being able to identify each bone and articulation (and what movement occurs at those articulations) aids our understanding of the science of relationships, diagnosis, and treatment of the foot.



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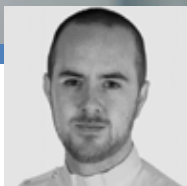
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The OOA is a voluntary, not for profit, professional association in Ontario that aims to establish and maintain standards for safe and effective treatment for patients.

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SENSOR DEPLOYMENT:

Basic Concepts in Hand Posture to Win With Palpation



By Sam Jarman

The root concept of this article relates directly to the concepts found in the Rule of 9 (CJO Issue 4, p. 16). The primary concept analyzed here is Global/Local/Focal. If clarification of the concept is needed, please refer to the abovementioned Rule of 9 article.

With respect to hand postures, it is important to consider the nature of varying anatomy between patients. There is a basic blueprint for human anatomy and, within that blueprint, it is accepted that there is a high amount of variation between individuals. This variation makes it impossible to have a one-size-fits-all approach for identification of structures, unless that approach acknowledges the reality of anatomy in its basic tenets. Knowledge of the blueprint of anatomy helps operators to know where to put their sensor (generally the hand) in a Global sense to affect the region of anatomy in which they are interested. Once the sensor is in the Global area the operator then has the capacity to move his attention to a Local and Focal point to locate real anatomy. Now that there has been a general preamble about the concept of moving from Global to Local to Focal with palpation, what follows are examples of what the hand actually looks like when undertaking this process.

The Global Hand

The Global hand is best described as a full hand with no space between the fingers and in full contact with the region of anatomy under investigation. "In full contact" means that the hand is "moulding" or "wrapping" in response to the anatomy's topography. The difference between having space and no space between fingers may be the difference in an accurate or erroneous palpation. Viewed another way, space between the fingers is space that your sensor has not been deployed in. The Global hand is used to sense any and all points it is in contact with such that, if anything is of note, the hand may be repositioned/reoriented to a more Local and then Focal region.



The above illustrations show poor deployment of the Global hand as there is space between the fingers which represents lost/missing information.



The previous images show the Global hand being used without spaces between the fingers such that the information gathered is more complete. The picture on the left is the Global hand generally palpating the posterior pelvis while the picture on the right is the Global hand generally palpating the ribs on the left. (Note that some structures are not accurately represented—i.e., the scapula—as the purpose of the image is to illustrate the concept.)

The Local Hand

The purpose of the Local hand, as a concept, is to identify the point of dysfunction as noted with the Global hand. Generally, the Global hand is used in the region the operator is investigating and, if the Global hand is in full contact with the region with no space between the fingers, then the dysfunctional area can be detected underneath any point of the hand. The detection of the area under the Global hand is the Local hand (that is, localizing the sensation of dysfunction under the Global hand).



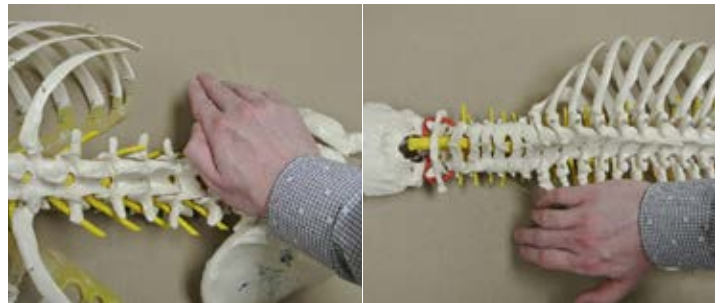
The picture on the left uses an arrow to demonstrate the point found with the Global hand on the posterior pelvis, which is the Local hand. The picture on the right uses the circle to show the region of dysfunction found on the left side of the thorax, which is also the Local hand.



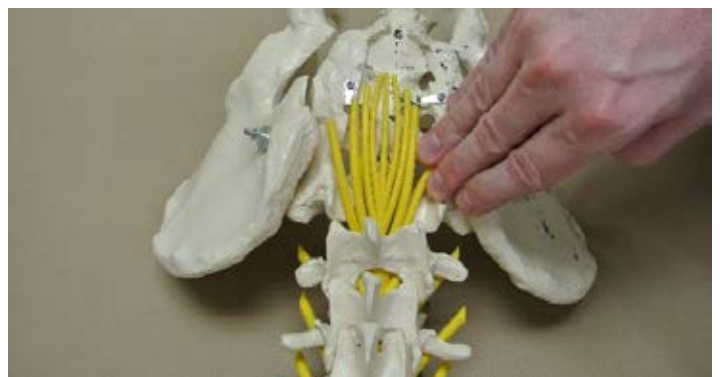
The picture on the left shows how the operator has moved his fingertips to the side of dysfunction to further assess what was noted with the Global hand. The picture on the right shows how the operator has moved the entire hand over to focus on the region of dysfunction found with the Global hand. Please note that any part of the hand—and not merely the fingertips—may be used to contact the Local area of interest. The aim is always to use the portion of the hand best suited to mould to the topography of the anatomy.

The Focal Hand

At such a point that the Local hand has been deployed, the operator is now able to further pinpoint the area of dysfunction by again motion testing the region and further adjusting the hand so that the portion of the hand best suited to the topography is placed upon the dysfunction/lesion. At this point, when the Focal hand is deployed, it is now a very Focal fixed point to address the most restricted point of dysfunction/lesion.



The picture on the right displays the thenar portion of the operator's hand at the Focal point that was found through investigation with the Local hand. Moreover, the portion of the hand best suited to the topography of the anatomy was used to facilitate a fixed point. The picture on the left again displays the Focal hand on the area found with the Local hand as is best suited for the topography of the area. Again, it is noted that the skeletal model being used is not complete and, with other structures present, the hand may change orientation to better mould to the anatomical topography.



The above picture shows the region of Focal dysfunction being assessed with fingertips instead of the thenar portion of the hand. The aim is to further display the concept of a Global/Local/Focal deployment of the hand as a sensor so that the reader does not explicitly think the pictures previously displayed are the only ways to apply this concept.

An Alternate Example of the Global Hand

The purpose of the Global hand is to gather complete information with respect to the anatomy being investigated. Displayed in the following picture is an option for assessing ribs and intercostal spaces. It should be clearly understood that all parts of the hand and body have sensory fibers. Because all parts of the hand have sensory capacity, the hand (as displayed below) can sense the ribs on either side of the fingers in the intercostal spaces.



The four fingers are placed between the ribs so that each rib is felt on either side of the finger while the palm of the hand also gathers information. This deployment of the Global hand displays the concept of moulding to the topography of the anatomy with the understanding that the operator is assessing the intercostal space and relational movement of the ribs on the sides of the fingers.

An Alternate Example of Deployment of the Global/Local/Focal Hand

What follows will be a demonstration of a Global to Local to Focal hand placement while using sight to help identify lesioning in the thoracic and lumbar regions. Sight is quite beneficial to augment palpation. The base concept of using the eyes and the hands is multi-sensory organization, which suggests that the stimulus from one sense is better understood—or further strengthened—when combined with another sense (in this case, palpation and vision).



This picture displays the operator with a Global hand at either end of the thoracic and lumbar region. The operator will have the patient breathe deeply to generate movement of the vertebral column in order to identify, through vision and palpation, the Local region for further investigation.



This picture displays the operator having moved his hands together to monitor the spinous processes in the region that were identified as the Local area of dysfunction (accomplished with sight verification). The patient will again breathe deeply and the operator may again proceed down to the Focal level.



Here we see the thumb of the operator on the Focal point of dysfunction/lesioning. The aim here is to display an example of a search pattern that runs from Global to Local to Focal.

Primary Points

In order to tie together all descriptions and visual depictions found in this article, what follows is a list that highlights a potential pattern so that practitioners can work efficiency. This pattern may be applied to all structures that are reasonably palpable on any patient.

1. Regardless of scale or structure, operators should mould their hand to the topography of the patient's anatomy to get as much information as possible while not having any unintended gaps in their palpation. To put it colloquially, the author suggests that you "get as much as you can touch."

2. Deploy a broad contact that may be referred to as a Global hand.

3. Identify the area(s) of dysfunction under that hand through motion testing in order to find the Local dysfunction/lesion.

4. Move the hand as needed to the area of Local dysfunction/lesion while still remembering to mould to the topography of the anatomy to "get as much as you can touch."

5. Further use the hand to identify the Focal dysfunction/lesion.

6. Unite visual and palpatory stimuli as often as possible to enhance information from both senses.

As an addendum to the above list, please note that operators may utilize for control purposes all parts of their arms and torso in contact with the patient. As an example, when the operator is standing behind a seated patient with the torso supporting the patient, the operator's torso behaves like the Global hand whereby sensation will allow the operator to (possibly) identify a more Local dysfunction/lesion.

As with all articles this author writes, please take the information here for what it is worth to you. None of the specific examples should be considered exhaustively defined paths or the only way to proceed. The concept of following a Global/Local/Focal search pattern is the key takeaway message here. As always, dig on!



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THE POSITIONAL PARTICULARITY OF MUSCULAR PULL



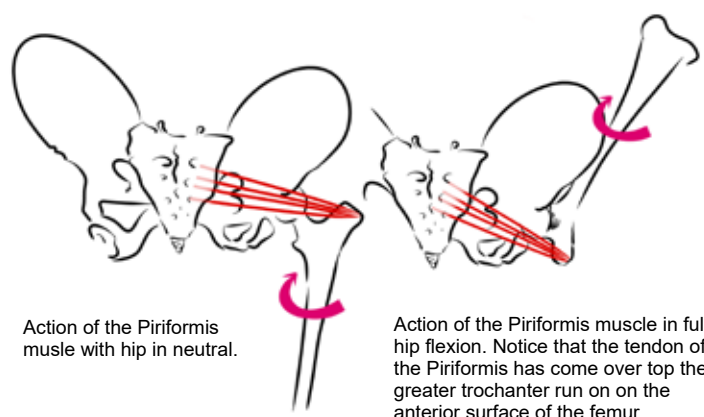
By Lee Jarvis

It can be said that the muscular system and its bony attachments are complex when considered in its entirety. Thankfully, when viewing the muscles individually they tend to pull in simple straight lines. Because of the linearity of the muscle fibres, we have a rigid definition of origin and insertion that does not effectively serve us as Osteopathic Manual Therapists. When we see one attachment of a muscle as static and one as moving we lose sight of the dynamic compensation of which the human body is capable. In the same way, the action created by a muscle is often regarded as just as rigid because its movements are compartmentalized as singular in function.

The following article illustrates how the position of a muscle attachment can significantly change its action. Structural mechanics, based on simple straight lines of pull that can be applied throughout the body, will also be explained. We will commence with a commonly known example of alternate function in the piriformis muscle and then offer an example of the lesser known changing function of the psoas.

The piriformis muscle in full hip flexion

The piriformis is an infamous muscle as it is often blamed for sciatic nerve disturbances. Though the author feels that the blame placed on the piriformis is often unfounded (because much larger muscles also cover the sciatic), the relative medial-superior to lateral-inferior course the piriformis covers is of great interest. The piriformis has a well-known function of external rotation and some slight abduction of the hip joint—what would be considered its standard function, taking into account origin and insertion. The piriformis attaches in the midline to the anterior sacrum and will run laterally along the



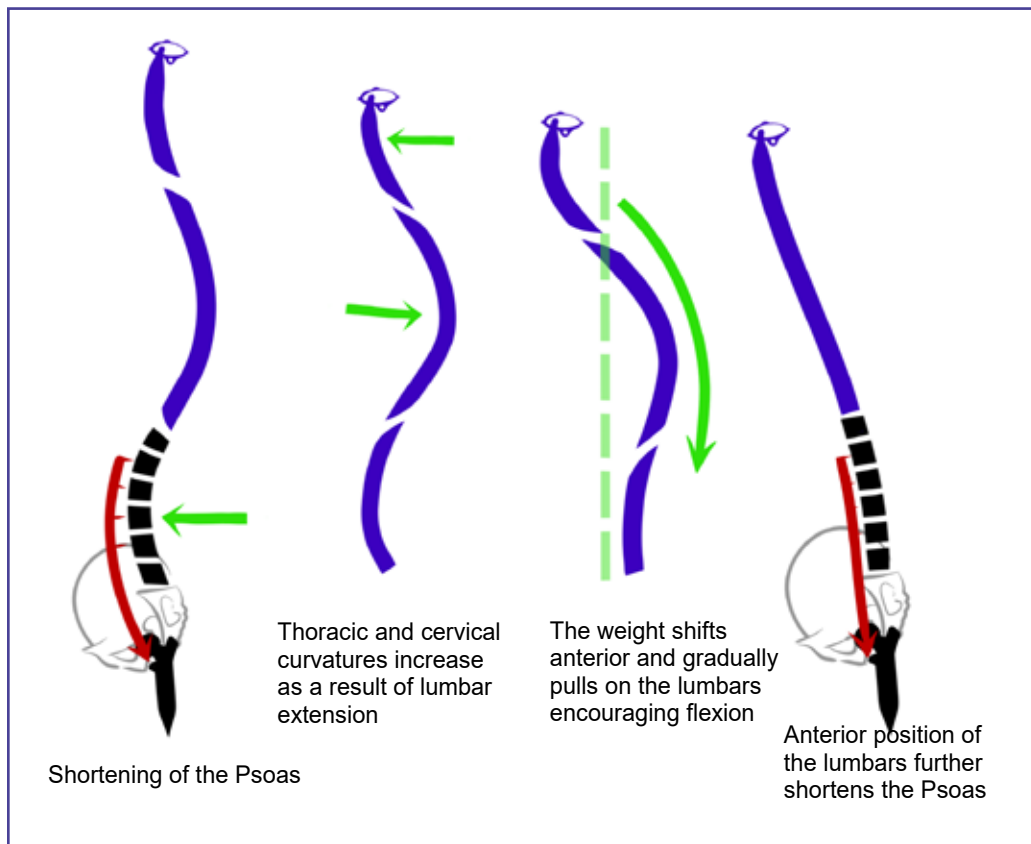
posterior side of the greater trochanter of the femur to connect at the lateral and superior part of the greater trochanter. If these attachments can be conjured in the mind's eye (or you have the ability to purchase a model skeleton), it is obvious that a medial superior pull placed on the lateral part of the greater trochanter would create external rotation and abduction at the hip joint. On the other hand, the change of piriformis action from external to internal rotation with hip flexion is much harder to visualize.

Even though the piriformis lies over the most superior portion of the greater trochanter, it is not attached to it and thus has the capacity to glide over the trochanter. This means that in full flexion of the hip the tendinous part of the piriformis is free moving and the greater trochanter will actually slide past the piriformis tendon so that it now runs across the anterior surface of the greater trochanter. The attachments of the piriformis have not changed in full flexion of the hip, but now because the piriformis is on the anterior side of the femur, its shortening will result in internal rotation of the hip. This change in function can be difficult to comprehend, but it illustrates another frequent occurrence, which we will further demonstrate in our next example.

Psoas and the Lumbar Extension/Flexion

For the next section the typical action of the psoas muscle (and a variation of it) will be explained in a step-by-step manner. The author does not claim this sequence of events as an absolute; in fact, some of the steps could be occurring simultaneously and repeatedly over a long period of time. Further explanation of the process will follow each step to clarify specific mechanics and resultants.

For this explanation we begin with a normal person in anatomic position:



1. The Psoas muscles are made to be short bilaterally

To start, the reader should envision that the psoas muscles have become shortened and are now fixed in this shorter position. As to why the psoas muscles have shortened, there are numerous possibilities that would complicate an otherwise simple article. We ask that the reader simply regard the shortened psoas muscles as a chronic element of the osteopathic lesion.

2. Lumbar Extension leads to thoracic flexion

If we have begun from a neutral anatomic position, when the psoas muscle shortens the lumbar spine must be in extended position. If the lumbar spine were to extend significantly while the thorax, neck, and head positions remain the same, we should be looking up at the ceiling at all times. To keep the eyes level and forward facing, the thoracic spine must flex and the

cervical spine must extend. To compensate for an extended lumbar spine by flexing other regions is normal; however, we should also be able to move in and out of these positions with no resistance. If the short psoas is fixed (static) as part of the lesion, we are unable to move out of this lumbar extension position and, over time, the flexed thoracic and extended cervical spine becomes chronic.

3. COG anterior

When the neck extends and the thorax is flexed the weight of the upper body is now anterior relative to neutral. An

anterior position of the overall body weight places the center of gravity anterior and off the spine. With an anterior center of gravity the weight of the body—as influenced by gravity—begins to pull the thorax downward and further forward as there are no hard tissue structures in the abdomen to prevent the collapse. The anterior and downward collapse occurs gradually over time with normal activity (seen especially in gait) as the weight increasingly overcomes the strength of the erector spinae muscles whose primary function is to resist flexion.

4. Lumbar flexion

As the thoracic spine is rounded down, the lumbar spine will also be pulled anterior and down through muscular and ligamentous attachments. It is important to note that this “rounding” will occur from the top down. Typically extension of

the lumbar spine occurs at the L3 vertebrae as it is the apex of the curve. If the psoas is shortened when the spinal rounding occurs, L3 is already in an anterior position. By comparison, in an extended lumbar spine the L1 and L2 vertebrae are relatively posterior to L3. As the spine rounds down from the top, the L1 and L2 are now pulled into an anterior position, which then brings the L1 and L2 closer to the hip and therefore shortens the psoas muscle even more. If this process continues, the L4 and L5 will follow suit: the result is a flexed lumbar spine and a completely shortened psoas, which are two findings that should not, according to standard function, be seen together.

The author hopes that the above steps demonstrate a simple clinical application: just because a joint is in a certain position, does not mean that the primary antagonist muscle for that action is on stretch.

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COLLABORATIVE EXCHANGE REVIEW



Sheryl Crotta MOMSc.

This past winter, the Ontario Osteopathic Association (OOA) held its first Collaborative Exchange. This forum to share and exchange ideas came about after a spontaneous dialogue was sparked among a few members one afternoon. What I really enjoyed about this conversation was the discovery that we all have the potential to be amazing teachers and are, moreover, a valuable resource to our osteopathic community. From this, the Collaborative Exchange was born.

The inaugural workshop on Saturday, February 25, 2017, was designed without a structured agenda, but rather an organic discussion format and/or treatment exchange. The floor was opened to everyone by introducing themselves and sharing our past and current experiences as osteopathic manual practitioners. There were 18 participants at the workshop with professional experience ranging from 6 months to 10 years.

In no time at all, a lively discussion and exchange of ideas emerged; it was difficult to get a word in edgewise at times. We debated a wide range of topics from effective communication with patients to the perception of what we are communicating.

We focused on building confidence in newer practitioners and in managing patients' expectations. We examined pitfalls such as feeling that we must "do it all" and solve all the problems of our

patients. We discussed the merits of failure and what is perceived as success. We were also reminded that patients must take responsibility for their health: it is a futile task to assume all of the responsibility of patient results. Another topic raised in the meeting: when it is a good idea to refer out.

As the morning progressed, we examined the principle of the body/mind/spirit connection and how disharmony might interfere with the resolution of patient dysfunction. This ignited the discussion about active listening. We recognized that the art of listening to our patients with real attention enriches the treatment. With attentive active listening, patients feel cared for, patients feel understood and we, in turn, understand our patients.

In their own way, participants of the exchange became a great sounding board for each other by providing honest, genuine advice grounded in real experience. Those in attendance expressed hopefulness and felt inspired to tackle their practice's challenges with a brighter and more enthusiastic outlook. Great advice was offered by newer practitioners as they were able to share practical strategies to overcome issues in dealing with patient expectations.

The forum also allowed the opportunity for participants to share interesting clinical cases and outcomes that demonstrated structure, function, and effective

interrelationships that emphasized how mechanical patterns found in the anatomy do in fact lead to physiological dis-ease.

As we were wrapping up, the question was posed whether we, as a professional community, would like to prove why osteopathy works to the world. A resounding "YES" was the answer, and so the old problem of research and communication in osteopathy was on the table. We discussed the potential for revolutionizing the way research is done in osteopathy. It was recognized that osteopathy cannot—and will never—fit into the standard medical research model and that there are many obstacles in the pursuit of "proof." However, the nature of osteopathy demands that it be viewed through a different lens than that of the standard medical research protocol. Education about osteopathy is crucial to initiate the paradigm shift. The fact of the matter is that osteopathy WORKS in the right hands. The OOA is a successful, growing association and is becoming a force to be reckoned with.

And at the stroke of noon, our time had to come to an end. The enthusiasm and participation was inspiring; I hope that this will be a catalyst for building real community in the OOA. We all bring unique experiences and intelligence to the table, and it was a privilege to have been a participant. Thanks to all for your contributions in this first Collaborative Exchange.

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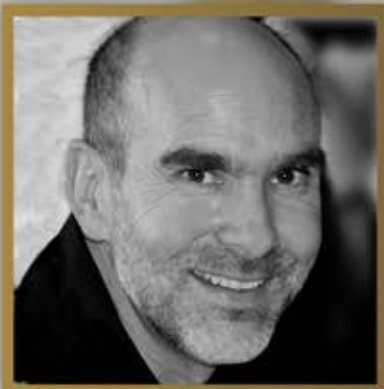
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INTERVIEW

Dr. Foster



By Adam Houston

1 To start, can you please tell us what you spoke about at the CAO's 2016 Spring Symposium?

The title of the lecture is "Anatomy, a Greater Perspective." We talked about gross anatomy and the mind-body-spirit aspects of what most medical students think is just studying the human body and all of its components. We then moved to a microscopic level, looking at tensegrity as a concept. Tensegrity, because it is the way the universe ties everything together, is a very important system to understand. We looked at some live video of tensegrity, and what I hope students got out of it was the "life force" that is going on within a living human participant. The fiber optics observe the dynamics of moving, living, tissues, and how they relate to the blood vessels, lymphatics, nerves, etc. It's a very alive system. Death is when that life force, whatever it is, and however it works, departs and movement ceases. It is a fun, living anatomy lecture with the gross (macro) and microscopic levels discussed and the presence of a "life force". Then I went into spirituality because the spiritual connection with Creator is very much where life force comes from and A.T. Still talked about that very thing. Spirituality affects the anatomy and the functioning of the living organism so that the mind, body and spirit are not a separate three pieces; they are a continuum that goes on until the spirit has departed. So we talked about spirituality in health and healing in medicine and finally, we

talked about nutrition and the dynamics of the mind-body-spirit in nutrition. Then we looked at what current research in nutrition is doing and saying and how that goes to the things John Lewis talked about in the use of antibiotics etc. Also, how a particular system called macrobiotics looked for thousands of years at the energy of food and the life force in food that feeds our physical, emotional, and spiritual body.

2 In regards to tensegrity, is it purely physical or can you also have an energetic element to tensegrity?

There is definitely an energetic component to it. One brief clip that I've got shows it works with the electromagnetic fields and the electrical impulses that goes on as part of what causes these dynamics. You can look at tensegrity as it was first described by an architect that saw this system of putting triangles together that would take force and motion and give with it but not fall apart. Looking at the wheel on a bicycle, that's a tensegrity system. It is solid and firm, but it gives continuity to the system so that the strength is within the system itself. Tensegrity holds the body from pulling apart with trauma and insults to it. What keeps it alive and moving is the life force and much of that is described in photography with electromagnetic fields. We know that bees use the electromagnetic field of plants to identify them. So it is alive and moving. It appears that the universe is really designed in the concept of tensegrity.

3 In terms of mind-body-spirit, clearly there is a connection between the practitioner and the patient, would treatment rendered without the soul of the practitioner still be as effective as with a soul?

It is very simple to do a purely mechanical treatment with no emotional or spiritual connection with the patient. You can move tissue in a purely physical sort of realm but it has limited efficacy. It is much more efficacious if there is an emotional connection, what patients might call a bedside manner. This embraces a sense of trust, and a fact that there is a bond between physician and patient. The confidence of patients is not just about skill, but “did she care about me”, and was “he interested in me”. That is much more therapeutic and leads to a better result doing the treatment. When you add the spiritual component to it, a universal connectedness then, the vibrations are that much more harmonious.

4 Do you think, in terms of modern science, with all the technology now; are we going further away from this mind-body-spirit dichotomy, or is modern science coming closer to it?

It probably depends on what you’re looking for as a scientist. There are scientists that would like to understand and gain the complete knowledge of how things work and how the body functions and fixes itself, those self healing properties of all living things, not just human bodies. I think human nature has a need for knowing that Creator exists and that there is

a relationship that humanity wants to preserve and enhance. Our patients are going to drive us to look for the confirmation of a lot of Still’s work and his philosophy. This generation of medical students, in our Osteopathic Medical schools are much more open to considering more than simply “science” and technology. Technology, will continue to grow, it’ll benefit us, and be beneficial, just as antibiotics have some use, but I think we are less likely to go as far out in the wrong direction as we have with antibiotics as John Lewis talked about this morning. To say yes this [antibiotics] is a good thing but we have used it to excess, which is now taking us to an imbalance, and we have to work back towards a balance. But, I think people understand and will demand that we look for that balance that nature has naturally put into a Divine relationship. Still said, God was the great architect. Well, the “great architect” was building machines that actually were alive and self-repairing.

5 It is interesting that you described the patient as a sort of customer; we all know that industry is driven by what the costumer wants. So as the greater consciousness changes, will what the patient asks for and are looking for out of their practitioner and health care provider change as well?

It is already changing. The growth of Osteopathic Medical schools use of herbs, and use of acupuncture, among other things has been the result of patients wanting and asking for them. This is a much more savvy era of consumer patients. We see ones who want to be empowered and active participants in their health care.





6 We know from his writings that A.T. Still was very spiritual, there is a D.O., Dr. Huls, and he is the one who said, D.O.'s are "Gods mechanic". I think that being Gods mechanics requires both a physical and energetic approach, can you comment on this spiritual component?

Well, I am not sure I would call us the mechanics or those who repair and fix, because none of us are healers. Healing comes from the Creator and it comes from within each individual. We are the agents and are given the opportunity to share in the healing of patients, by being present, and as a reference, or as a participant, but I wouldn't call us mechanics. If it works for Dr. Huls in his perspective and his philosophy then, that's fine for him.

7 Tie together the osteopathy and spirituality for us.

John Lewis' biography of A.T. Still has become a very popular book because a good portion is on Still's spiritual journey, his connection to Creator and how that influenced his look at healing. He [Still] was unhappy with what was going on with medicine of the day, his father was a preacher, so he had a spiritual orientation, but he was even dissatisfied with religion at that time. He found some of his spirituality through nature while working with Native Americans. His philosophy then grew around this spiritual center, because he saw that the Creator built the system that can fix itself, that can heal itself, that can actually repair, and not provide just a back up system like in our scientific world. He realized that there was a single wisdom from the creator, and that was what he built this Osteopathic philosophy of medicine around. It is different then the scientific, external interventions, of drugs and surgery that was conventional medicine of his time, and still is to a large part. He went to the spiritual as being the core and probably the source of life, the breath of life that comes from our relationship with the Creator. This means that once this physical body is gone we still have that Creator connection.

8 In terms of a new Osteopathic student, and considering what we have spoken about here today, how would you advise a new student in making this mind-body connection and not just learning the manual techniques?

It really comes with knowing as they arrive at Osteopathy as their career choice, that this is a career that involves their own journey, an understanding of their own mortality, and their own relationship to Creator, their own emotional health and the triad of mind-body-spirit. So reading about Still's philosophy and working with practitioners that are following that journey are important parts of becoming an Osteopath. They should realize that Osteopathy is not about techniques it is not about mechanics. Those are some tools to help the body fix itself. This is part of the reason Still didn't teach techniques. He didn't want us to say, okay, here's the one that fixes this pain, or this problem, or this limitation. So they should spend time learning about their relationship with the universe and being a part of it.

9 Do you think this greater consciousness needs to be something that is already inside of the student Osteopath? Can a student be taught how to have this kind of connection, or does it need to be inherent within them?

There is no question in my mind that awareness of mind-body-spirit is something that is innate. Having people as examples and mentors and reading about Still and others on this journey is also important to personal growth. Your work with patients will teach you and your work with other practitioners that have had more time and experience may resonate with your particular journey as well.

10 One last questions regarding obstetric patients and new graduates- at what point should a new graduate of Manual Osteopathy treat a pregnant patient?

your only motivation is an unconditional love, then it is perfectly safe to put your hands on anyone. But if you've got ego there, or financial gain in the encounter then you need to step back.

Direct treatment should be used cautiously in the 3rd trimester. Don't try to treat the baby in utero. Otherwise go ahead and help the mother with the biomechanics and support of the homeostatic properties.

MATTER MOTION MIND

FIRST PRINCIPLES: A VISUALIZATION TOOL



By Meagan Henrich

Occam's Razor: Keep it Simple

Osteopathy is inherently complex and yet fundamentally simple in theory and practice. Unification of these polar traits with respect to the experimental expression of theoretical science (such as Osteopathic treatment) is the hallmark of Occam's razor. As a problem solving principle, Occam's razor prefers simplicity as the backbone of formulating theoretical models to negate false or inconsequential/untestable components of a theory. In other words, the simplest explanation is most likely correct. Creating a theory utilizing primary principles is favoured over steps that are convoluted, mystic, or untestable. In essence, keep it simple!

The study of mechanics, physiology, and anatomy is a difficult and massive task. We as students and practitioners may draw similarities between physical phenomena and ordinary life to successfully utilize Occam's razor to aid in our understanding of the fundamental sciences. This is a demonstration of fractal thinking: scaling out of levels of complexity in the components of a theory or model to the large-scale output, which is governed by an underlying principle (CJO issue 8, p. 25).

First Principles: A Tool of Logic

When initially studying calculus, students are introduced to "First Principles" in derivatives. These hand calculations on paper are cumbersome and inefficient when analyzing mathematical functions. However, as First Principles and calculus evolved through my education I observed its application outside of the classroom.

A simple question has stuck with me for nearly a decade which allows me to distill large amounts of information quickly and accurately. I found recently I would apply this question to anatomy and mechanics by asking myself: "What is the limit of the function as it approaches infinity?" This is the purest form of the tool, but in a similar sentiment I was asking: "What happens if I grossly exaggerate this event? What is the fundamental truth or outcome?" The limit approaching infinity simply considers the function "f(x)" and determines when the input variable "x" is

extremely large, if the output would become limited to a single value, "L."

Mathematically, an expression of this concept may look like this:

$$\lim_{x \rightarrow \infty} f(x) = L$$

Discussing first principles, functions, quotients, etc., is of little value in this article, especially in the spirit of Occam's razor. Including the original inspiration for this idea allows readers the opportunity to seek alternate applications. For our purposes, we will move past the definition of "infinity" and focus on the idea of enhancement: faster, stronger, heavier, larger, longer, further, thicker. My goal in sharing this information is to provide a visualization tool to quickly and accurately deduce answers (which is of great use when put on the spot).

The Algorithm for Rapid and Accurate Problem Solving

The algorithm to find a solution with this method is to first seek and understand the principle(s) or definition(s) governing the situation. Understanding the fundamental principle is critical to implement the algorithm successfully. Next, inflate the process/geometry/system/function that you are applying the principle to, essentially taking it a step further and further to generate a clear picture of the ultimate output, which is your solution.

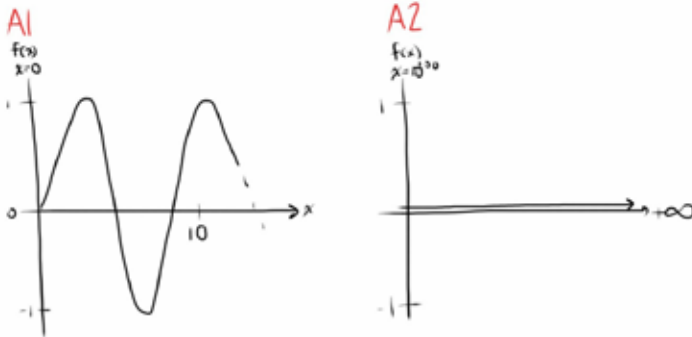
This process may manifest by asking, "*what ultimately* happens if I enhance or enlarge the issue?" Implementing visualization to exaggerate the function (which may be related to anatomy and mechanics), to increasingly larger scales to digest the effects of the thing being questioned.

N.A.V.L.

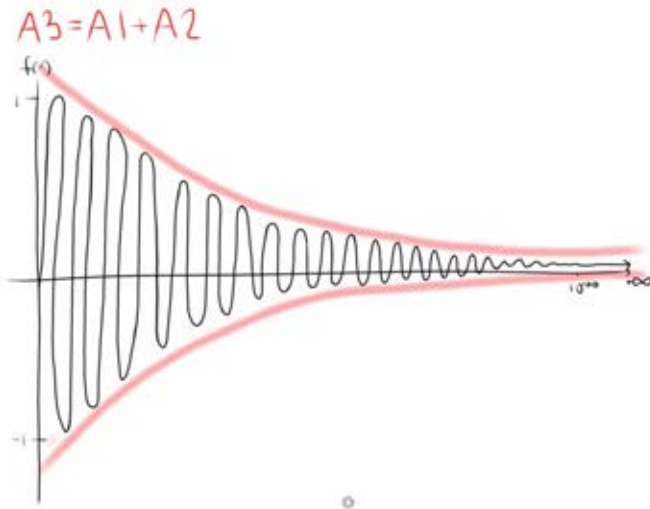
Nerve - Artery - Vein - Lymphatic

Experiment 1: Understanding the Principle Governing the Situation

To demonstrate this idea in its most pure sense (and the original inspiration for this tool), please consider the following graphs, A1 and A2.



Despite these graphs appearing to represent two different functions or processes, they are unified, distal components of one graph as pictured below in A3.



Drawing your attention to the scale on the horizontal axis, you may notice that A1 is a snapshot of the graph close to $x=0$, and A2 is a snapshot at $x=10100$, while some natural law governs the geometric behaviour unifying A1 and A2.

When asked “what is ultimately occurring with A1,” apply the algorithm by first seeking out and understanding the principle that governs the depicted event/function/geometry (this graph is displaying damped harmonic oscillation), then exaggerate the scale to extremely large values while applying the principle to determine a solution.

The principle that governed the above function was that each oscillation had microscopically less amplitude, or vertical displacement on the graph, than the previous oscillation (which was represented by the red outlines). As each iteration of oscillation was minutely reduced in amplitude than the

previous, the graph gradually leveled out (yet was still oscillating) to approximate a single value as it approached extremely large values along the horizontal axis. By first providing the principle of dampening, then enhancing the length of the graph, this oscillating function approximates to a single value distally.

Experiment 2: Visualizing Extreme Conditions to Determine a Solution

Consider the following two lines in B1:



A quick observation at this scale may lead to the conclusion that the lines are parallel—yet they are not. Distally they converge either to the right or left. If you mentally zoomed out from this scale and extended the lines laterally, you would visualize the following (B2).



Implementing our tool of visualization through extreme enhancement, there are many ways to determine the right-convergence of B1. One method would be to visualize the lines becoming thicker and until they begin to approximate. Alternatively, if the observer significantly alters their point of view and rotates this surface the right-biased approximation becomes clear. A principle may not have governed this situation aside from guaranteeing convergence laterally, but the idea of enhancement (mentally, as well as altering perspective) aided in finding a solution.

First Principles and Geometric Visualization in Osteopathy

When working through the geometry of functional anatomy with respect to treatment, mechanics, and physiology, the idea of enhancement through First Principles can be rephrased as “what is the distal expression” of the function/process to answer the question at hand. The distal expression could manifest as alterations in mass, space, or time in relation to Wolff’s Law, strain, force, or geometry (such as in experiment 2), etc. Currently, I apply this concept with respect to joint angles, analyzing T-lines, and joint/bony variance (valgus, varus, anteversion, retroversion, concavity, convexity).

The principle I am working from is that the appendicular skeleton is the distal expression of the axial skeleton, as the body is a unit. For example, the position of the hand is the distal expression of the upper T-Line. Miniscule angular displacements (declinations/shear/rotations) off the axial skeleton’s neutral anatomical planes/axes, and deviations in the girdles, distally enhance with distance and can be expressed in the limbs.

I will not deny that the hand is also the distal expression of the lower T-line, feet, or cranium, again because the body is a unit. A limitation of this tool is confounding lesioning expressed intersegmentally (where a segment here is defined as the structural unit between any combination of articulations, whether they be bony or soft tissues) because of the segmental interdependence of contiguous longitudinal anatomy. Therefore understanding the magnitude of influence of anatomical structures and their function/mechanics (distribution of attachment points, physiological cross-sectional area for force development, fiber type, muscle shape, etc.) would be of great value to determine the possible influence of confounding lesioning. In other words, elbow lesioning may have confounding input for distal expression of the upper T-line, which may enhance, diminish, or have no effect on the hand position. But again, we are reminded of Occam’s razor, where the simplest explanation is often the most correct and may provide direction to the logic of treatment. The upper T-line axially has a greater magnitude of influence over hand displacement than the elbow, and suits the principle of Occam’s razor.

A prudent operator would be wise to keep this reality in mind: the accuracy of distal expression can diminish with increased distance from the point of focus in the body, as there is opportunity for confounding intermediate variables to affect direct distal expression. Incidentally, this weakness allows the principle to be applied to larger scales as a form of abductive reasoning with Occam’s razor from the foot to the hand. Despite this, I guarantee this visualization tool has proven very efficient and accurate in the spirit of simplicity for assessing problems in real-time in a clinical setting.

Another application of this tool is in valgus and varus forces with respect to spatial geometry. I experienced frequent

confusion of visualizing coxa valgus since it did not seem to follow the pattern of genu valgus. After seeking the principle of valgus, I understood that the distal expression of the joint (distal component of the long bone) travels away from midline. Despite trying to understand what angulation is occurring at the hip, I first know the distal femur at the knee would be further from midline than normal, then I work back up and understand that the angle of inclination has increased to create the geometric arrangement I’d see in a textbook. The reciprocal, optically confusing difference between genu and coxa valgus, and their inter-compensation, is now easier for me to recall and comprehend quickly since I understand the principle of valgus.

Other examples of the anatomical questions this tool can answer are with respect to joint rotations, tissue tension, leverage, and prominences.

This visualization tool is also very helpful with self-correcting operator mechanics for safety. Ask yourself: What if the leg was 50 kg heavier while you were treating it in the posture you are currently exhibiting? What if the operator was closer or further from joint of interest for treatment (leverage capacity/potential), or even the table? What are the effects of exaggerated extrapolation of the question at hand?

Conclusion

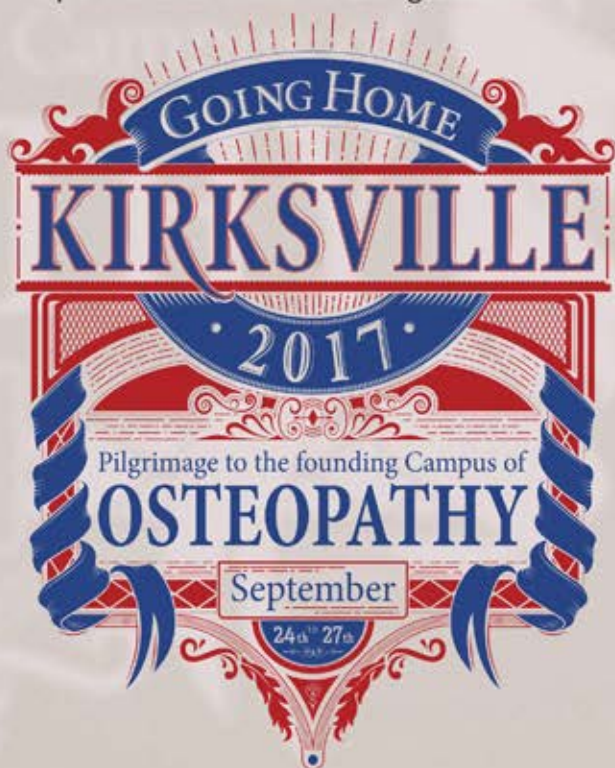
To successfully apply this tool and First Principles you must have a clear grasp of the principle you are utilizing, as well as others that may be confounding your thought process. Avoid being preferentially biased by ignoring other principles as the body is a unit. Zoom out from the proximal small scale in question to the distal expression that exaggerates the answer. Using the Rule of 9, this tool considers the focal information in the context of a global scale. This tool is applicable to many forms of visualization of space, decision making, prioritization, time management, causation analysis, and so on. But I reiterate: you must be absolutely clear of the principle you are implementing. The Osteopath cannot escape the complexity of the human body. In the spirit of Occam’s razor, the principle of infinity, and the principles that we employ in Osteopathy, I urge you to challenge yourself to spiral in and out of complexity to become a safe, effective, and efficient student and Operator.

KIRKSVILLE TRIP 2017

Pilgrimage to the Founding Campus of Osteopathy

Every other year the CAO, in partnership with the CICO, organizes a trip to Kirksville Missouri to visit Andrew Taylor Still University and the historic sites of Osteopathy's roots.

- Tour the campus of Andrew Taylor Still University
- Tour the Museum of Osteopathic Medicine
- Observe OMM lab instruction
- Visit the Still Gravesite and Homestead
- Opportunity to visit and treat the local Amish community
- Research time with reserved materials at the museum
- Open to CAO students and graduates



THE FOUR BASIC OSTEOPATHIC PRINCIPLES IN RELATION TO GENERAL TREATMENT



By Jeffrey Parker

Osteopathy is a science based on principles. It was established in this way so that it would continue to evolve to ensure that patients receive the most suitable treatment for their particular needs. These principles guide operators through diagnosis and treatment in a well-organized manner that ensures the patient is properly assessed, treated, and set on a path to restore health to the body. Through the advancement of osteopathy, different tools have been identified that operators can use to help diagnose and treat their patients effectively and appropriately. General treatment is a tool utilized by the earliest osteopaths; though more involved with the diagnostic process of treatment, it can be an effective way to treat dysfunction. This paper seeks to explore general treatment and its relationship to the four basic osteopathic principles.

The ultimate goal of osteopathic treatment is to rid the body of somatic dysfunction by encouraging the inherent self-healing and regulating mechanisms of the body. Somatic dysfunction is defined as “impaired or altered function of related components of the somatic (body framework) system: skeletal, arthrodial, myofascial structures, and related vascular, lymphatic, and neural elements” (AOA, 1995) and may also be referred to as an osteopathic lesion. With that said, what is general treatment and how does it apply to osteopathic theory? Often in our fast-paced society with so much to do and little time for ourselves, it is easy for pain and discomfort to be pushed aside in the hope that it will heal on its own. If enough health is present we are able to compensate for this pain and keep on with our lives without properly addressing the problem. Given enough time these problems compile and present themselves in one or many areas of the body. As Rob

Johnston states in *General Osteopathic Treatment* (2015), “By addressing the body through a general treatment methodology that takes into consideration any mechanical or neural compressions on circulation, the operator can encourage the movement of arterial blood to restore the body’s constitution and vitality.” By treating generally upon initial examination, this allows the body to start healing and eliminate dysfunction that may not be the root cause of the patient’s symptoms. It must be noted that this form of treatment should not be used as a way to treat all patients that walk through the door. “If we use general treatment as a way of treating anything and everything in the body,” Johnston (2015) argues, “we have diverged from the foundation of osteopathic thinking.” It must be applied correctly and not overused so that what operators are giving to patients is truly osteopathic in nature. “A general treatment, broadly speaking, should be given only under three conditions: (1) Constitutional diseases that are to be treated symptomatically. (2) Anemic cases. (3) When one is ignorant to the real cause of the disease” (McConnell, 1920). It is the operator’s job to know both how and when to properly apply general treatment, and when to use specific treatment to make the results permanent and eliminate the dysfunction.

The body is a unit. This is the foremost osteopathic principle. As W.A. Kuchera (1994) proposes, “Although there are many parts in this body, each body part works for the benefit of the others even though each has its own problems and own job to do.” The complexity of our body makes it easy for anyone to understand this first principle. If one body part fails to perform its job it will affect not only what is directly surrounding it but also everything that exists within our framework.

What we may be feeling could be the result of dysfunction at a completely different point within the body. Performing general treatment is a great way to influence all structures within the body and bring them toward health. “By going through the body in a collective but sequential way, the treatment can stir circulation and improve nourishment to and from all tissues, thus improving overall health” (Johnston, 2015). Once we have performed the treatment and helped to reduce restrictions throughout the body globally, the stage is set for the second principle to take action.

The body is self-healing and self-regulating. This is the second basic osteopathic principle: “In order for the body to sail smoothly through life it needs to have a way of protecting, repairing and regulating itself. These ‘mechanisms’ allow the body to make adjustments to stresses caused by the environment and still maintain body homeostasis” (Kuchera, 1994). In most cases, dysfunction present within the body will inhibit these self-regulating mechanisms and patients will require specific treatment in order to completely resolve them of their dysfunction. However, knowing where the primary cause of their symptoms is located is no easy task: “For the purposes of diagnosis, general treatment has its most optimal effect when we are trying to reduce clutter, for it is ideal for practitioners to clear the smoke in order to have something firm upon which to base their work” (Johnston, 2015). This will help

the operator to locate the problem and develop a treatment plan in order to remove it, which will allow for the body to return to optimal functioning and self-healing.

Structure and function are reciprocally interrelated. This is the third basic osteopathic principle. “Reciprocally,’ as used in this concept, means that structure can affect function and function can affect structure” (Kuchera, 1994). Motion, or lack of it, is a clue used by the operators to locate dysfunction and link it back to the symptoms that a patient is experiencing. Lack of motion in the musculoskeletal structure will restrict and inhibit the neurovascular structures that are passing through the area, which will in turn affect the physiology of the patient. “In other words, a mechanical lesion will generate a physiological response, producing signs and symptoms that indicate where operators should focus their efforts” (Johnston, 2015). With that said, dysfunction can also derive from altered physiological functioning to affect the musculoskeletal structures. In such cases one has weakened neurovascular structures or viscera that ultimately cause mechanical discord among musculoskeletal tissues. It takes a well-trained osteopath to discover the problem and determine which direction the dysfunction is progressing.

Rational treatment is based on the other three points of the osteopathic philosophy. This is the fourth basic osteopathic principle. It implies that every move the operator makes during treatment must be done with a purpose and a rationale behind it. Nothing is done without intention to ensure your patient’s recovery and safety. “Osteopathy incorporates a customizable approach to treating a patient because it understands that no two lesions are the same; for this reason, no two treatments can be the same” (Johnson, 2015). What this means is that the treatment you provide can be very different between two individuals of the same build having a very similar injury. Though the individuals may present with comparable injuries, other factors such as their careers, hobbies, activities, health and family history may dictate very different approaches in their treatment. “From this initial diagnosis, the operator can use the wide variety of tools available to deliver treatment in the most safe, effective, and efficient manner according to the particular case” (Johnston, 2015).

As students progress to different years within the Canadian Academy of Osteopathy, the excitement of learning new ways to deliver treatment can sometimes cause us to overlook the importance of general treatment. While it is important to concern ourselves with specific treatments that ensure lasting results, we must never ignore the benefits of a good general treatment. General treatments can help to clear the air when we are having trouble making a correct diagnosis, by improving the structure and function relationship. This will help to activate the self-regulating processes within the body and will allow the body to function as a unit, pointing to the true cause of the patient’s symptoms. All of this will set the stage for your treatment plan and guarantee that your patient quickly receives astonishing results. General treatment is based on the four basic principles of osteopathy and is an important tool for osteopathic treatment.



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