Somatic Dysfunction?
A Neurologist’s Musings of Osteopathic Philosophy, Principles & Practice

Joseph R. Carcione, Jr., DO, MBA
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Name of CME Activity: ACOFP 55th Annual Convention and Scientific Seminars
Dates and Location of CME Activity: March 22-25, 2018 – JW Marriott

Name of Faculty/Moderator: Joseph R. Carcione, Jr., DO, MBA

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Joseph R. Carcione, Jr., DO, MBA

Please email this form to joank@acofp.org or fax to 847-952-5116

NO LATER THAN JANUARY 19, 2018
Osteopathic Medicine: Where are we today? Proposal for our discussion

- D.O. vs. M.D. – there still is a need to educate
- Enhancement of the public’s knowledge
- Physician M.D. & others understanding
- Federal, State & Private Payors
- Workers’ Compensation & its adjustors + ALJs
- Auto insurance and Personal Injury
- Third Party Administrators
- Preauthorization providers
- Revisiting Osteopathic Philosophy
- Revisiting Osteopathic Principles & Practice
- Redefine Osteopathic Manipulative Medicine
- Rebrand Osteopathic Manipulative Therapy
Preauthorization Forms in 2018:

You're here because you know something. What you know, you can't explain. But you feel it. You've felt it your entire life.

That there's something wrong with the world. You don't know what it is, but it's there...like a splinter in your mind, driving you mad.

This is your last chance. After this, there is no turning back.....You take the blue pill, the story ends. You wake up and believe...whatever you want to believe. You take the red pill.....you stay in wonderland...and I show you just how deep the rabbit hole goes.... Morpheus to Neo, in The Matrix, Released 1999
Vignette: The Red Pill of my Osteopathic Epiphany

37 y/o right handed firefighter with no past med hx presenting with right hand & lateral arm numbness associated with weakness of his upper arm muscles. Reportedly injured on the job carrying a woman down a ladder, when handing her off to his team to place the woman on a stretcher, he slipped and fell backward hitting his head on the bottom of the ladder. He felt something “pop” in his neck and noted tingling along his right arm. ED evaluation was negative for cervical fracture. Over the last two weeks, the tingling has progressed as noted with the associated weakness. Exam noted right biceps & deltoid weakness at 4-5/5 with attenuation of the right biceps jerk to trace; diminished sensation along the upper arm and (+) Hoffman’s sign on the right. Imaging was performed noting a disc herniation at C4/5 centrally with propensity to the right. Noting the UMN findings and clinical progression, the patient was sent to neurosurgery for surgical consultation.

The patient wished to discuss cervical epidural steroid injections. He was counselled against such.

Laminectomy and fusion were performed after neurosurgical consultation.

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Surgical Alternative: Cervical Epidural Injections

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The distribution of epidurally injected morphine occurs by diffusion across the dura mater into the CSF, by transfer across the arachnoid granulation, and by vascular uptake (Figure 9-11).

FIGURE 9-11: Pharmacokinetic model of an epidural injection of a hydrophilic opioid such as morphine.

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An epidural needle is shown delivering drug to the epidural space. The role of diffusion by way of the intradural arachnoid granulations is demonstrated. Apoplastic spread appears not to occur specifically lacrinating, some diffusion is noted of drug, diffusion is facilitated by CSF and vascular uptake. (From: Higgins C, Geerts W. Cereb Med 92; 11: 173-190, 2001. Reprinted with permission from Elsevier Science & Technology Books, an imprint of Elsevier, Inc.)
Post-op Course

The patient has an uneventful surgery. Instrumentation was performed at C4/5 and C5/6 as the surgeon felt there was instability. A course of PT was received and the patient returned to work as a firefighter on a full time basis.

Seven months later, the patient was seen by neurosurgery for persistent neck pain involving the upper cervical area on the right and pain between both shoulders. There were no reports of numbness or weakness; sphincter function was normal. The neurological examination was “unremarkable” but as the neurosurgeon was concerned about a new herniation above the fusion site, a CT myelogram was performed and reported as negative. The neurosurgeon felt there was nothing more he could offer and suggested more PT. The patient attended for about 3 months and then returned back for neurological consultation. Repeat neurological examination was normal. The patient was now reporting severe pain at the right upper neck and mid-thoracic spine as well as his right shoulder.

Osteopathich Examination

Multiple osteopathic areas of somatic dysfunction were appreciated:

C2/3 F RrSr
Marked tenderness along the incision site without signs of dehiscence.

C6/7 E RrSr with elevated 1st rib; tight scalenes with triggers noted in the right traps (at the motor point), rhomboid and levator muscles.

T4/5 E RrSr
Right clavicular somatic dysfunction, right shoulder/scapular adhesions with Spencer and unwinding techniques performed to the right arm.
Who “owns” “what”?  

- Radiology: plain films, sonography
- Diagnostic Neuroradioskeletal Ultrasound
- Osteopathic Manipulative Medicine (OMM)
- Osteopathic Manipulative Therapy (OMT)
- Osteopathic Principles, Practice & Philosophy
- M.D.’s may receive OMT training
- P.T. & D.P.T. Trainings – mobilization manipulation
- Chiropractic & Chiropractic Manipulation
- Lay Acupuncture, Medical Acupuncture & “Dry Needling”
- “Manual Medicine”, manipulation, spinal manipulation, manual “therapy”
- 97140: Manual therapy techniques (e.g., connective tissue massage, joint mobilization and manipulation, and manual traction) (15 minutes)
- OMM & OMT Billing

Osteopathy

“To find health should be the object of the physician. Anyone can find disease.”

Dr. Andrew Taylor Still
Founder of Osteopathy

“Turn the waters of life loose at the brain, remove all hindrances and the work will be done, and give us the eternal legacy, longevity.”

– A.T. Still MD, DO, Philosophy of Osteopathy

“The rule of the artery must be absolute, universal and unobstructed, or disease will be the result.”

“An osteopath is only a human engineer, who should understand all the laws governing his engine and thereby master disease.”

- A.T. Still MD, DO, Autobiography
Osteopathy: Progression of Thought

What was Dr. Still thinking?


A person is the product of dynamic interaction between body, mind and spirit.
An inherent property of this dynamic interaction is the capacity of the individual for the maintenance of health and recovery from disease.
Many forces, both intrinsic and extrinsic to the person, can challenge this inherent capacity and contribute to the onset of illness.
The musculoskeletal system significantly influences the individual’s ability to restore this inherent capacity and therefore to resist disease processes.

Osteopathy: Development of Thought

“The arterial stream is supreme but the cerebrospinal fluid is in command . . .”
– W. G. Sutherland DO


The 4 books known to be released by Still are the following:
• Autobiography of Andrew T. Still with a History of the Discovery and Development of the Science of Osteopathy (1897, revised 1908)
• Philosophy of Osteopathy (1899)
• The Philosophy and Mechanical Principles of Osteopathy (1902)
• Osteopathy Research and Practice (1910)
“The human body is a machine run by the unseen force called life, and that it may be run harmoniously it is necessary that there be liberty of blood, nerves, and arteries from their generating point to their destination.” — Dr. Andrew Taylor Still

1. **The body is completely united; the person is a fully integrated being of body, mind and spirit.** No single part of the body functions independently, each organ or part is interconnected with all others and senses to and from the brain. Mental and spiritual health, including a close relationship to God, affect the function of the body as a whole and all other parts therein.

2. **The body is capable of self-regulation, self-healing, and health-maintenance.** Health is the proper state of the body, and the body possesses complex, self-regulatory mechanisms that it uses to heal itself from injury. In times of disease, when a part of the body is functioning sub-optimally, other parts of the body come out of their natural state of health in order to compensate for the dysfunction. During this compensatory process, however, new dysfunctions may arise. Osteopathic physicians must work to adjust the body so that none of its parts is functioning sub-optimally.

3. **Structure and function are reciprocally interrelated.** The structure of a body part governs its function, and thus, abnormal structure manifests as dysfunction. Function also governs structure. In addition, if the body's overall structure is suboptimal, its functioning and capacity for self-healing will be inhibited as well.

4. **Rational treatment is based on an understanding of these three aforementioned principles.** These basic osteopathic tenets permeate all aspects of health maintenance and disease prevention and treatment. The osteopathic physician examines, diagnoses, and treats patients according to these principles.

**Proposal: Osteopathic Principles & Practice (OPP) is based upon Osteopathic Philosophy and has within its understanding the judicious use of Osteopathic Manipulative Medicine (OMM) & Osteopathic Manipulative Therapy (OMT). OMM is that body of knowledge that encompasses the anatomy, physiology, biomechanics, kinesiology and pathology of the neuromusculoskeletal systems. OMT is the technique(s) by which both extrinsic and intrinsic forces are applied to the person to enable mobility of fluids and structures toward a movement to health.**

Maybe the “rule of the artery” is not supreme?
What was the concept of the Osteopathic Lesion?

- Hulett’s Classification of the Osteopathic Lesion
- A structural change producing functional disorder leading to “perverted function”
- Long term effects: inflammatory and degenerative
- Osteopathic lesion = Spinal Lesion – conceptually that the spinal segments played some role in facilitation and propagation of dysfunction, disorder and disease.
- BUT: inherent to a “spinal lesion” is an artery truly impaired? Are osteopathic lesions solely spinal articular impairments? OMT does not always treat spinal articular dysfunction.

The Osteopathic Lesion

This article is only available in the PDF format. Download the PDF to view the article, as well as its associated figures and tables.

Abstract

This was intended by the authors, one of whom is both a Bachelor of Medicine and a Doctor of Osteopathy, as a defense of the practice of osteopathy. Even after reading it, one cannot obtain an entirely clear understanding of just what the authors mean by the “osteopathic lesion.” The authors emphasize that osteopathy is not a process of manipulation or a procedure that is useful in every condition of ill health. They briefly discuss the anatomy of the spine, the physiologic considerations which they consider to be of osteopathic importance, the osteopathic lesion itself, which they consider to be a result of trauma initiating the somatic visceral reflex, and the effects of repeated trauma, usually on a spinal joint with associated changes in ligaments and soft tissue structure. The effect of the lesion may be localized, peripheral, visceral or general. In the final chapter an attempt is made to describe
Normal bones hindered in their proper function constitute an osteopathic lesion – E.L. Shepler, D.O., Mount Vernon, WA

There is no such thing as an osteopathic lesion – there are only musculoskeletal lesions! – Floyd A. Jones, D.O., Des Moines, IA

The osteopathic lesion is any malalignment or impaired motion of an articulation, which will cause an interference in normal circulation of the blood – Walter R. O’Neal, D.O., Clarks Summit, PA

The osteopathic lesion is anything that disturbs bodily function, either physically or mentally – Lillian W. Noble, D.O., San Diego, CA

Alteration in mechanics of musculoskeletal system, which results in clinical symptoms (Not signed)

It hurts! (Not signed)

Loss of normal physiological movement (Not signed)

The osteopathic profession is the lesion. Political manipulation will reduce the pain, and public education will prevent recurrence – John J. Qualter, D.O., Maplewood, N.J.

I have given this a great deal of thought but have been unable to come up with what I consider a good definition – B.J. Duncan, D.O., Portland, Oregon

In 1933 the AOA House of Delegates approved a system of osteopathic nomenclature developed by a specialty selected committee. In the list of terminology was this definition: “An osteopathic articular lesion is any alteration in the anatomical or physiological relationships of the articular structures resulting in local or remote functional disturbance.”

An osteopathic lesion is a spasm and inflammation of muscles and ligaments that control articular surfaces, which restrict motion in the area. The nerves and arteries passing through or adjacent to the area of inflammation and spasm are irritated.

One or several areas of articulation may be involved – Frank I. Kendall, D.O., Riverton, Wyoming
“How would you define the osteopathic lesion?”
Journal AOA, Vol.72, September 1972 pp 16-20

In 1968 the Hospital Assistance Committee of the Academy of Applied Osteopathy chose the term “somatic dysfunction” as a replacement for the term “osteopathic lesion”. Somatic dysfunction was defined as follows: “Impaired or altered function of related components of the somatic (body framework) system: skeletal, arthrodial and myofascial structures, and related vascular, lymphatic and neural elements”.

The definition by the AOA Committee on Nomenclature is excellent – B.E. Laycock, D.O., Des Moines, Iowa

A model for the Clinical Signs attributed to intervertebral somatic dysfunction (Fryer 2003)


Fig. 1. A model for the clinical signs attributed to intervertebral somatic dysfunction (modified from Fryer 2003). The clinical signs of tenderness, range of motion change, and tissue texture change are accounted for in this model. The clinical sign of asymmetry will be evident if the above tissue factors affect one side of the intervertebral segment more than the other side.

Pain Perception & Processing

The older gating model of pain has been replaced by the neuromatrix model, in which the pain experience is a matrix of perception created by ascending modulation within the spinal cord, central processing, and descending inhibition (Figure 9–1).

FIGURE 9–1. The circuitous, mutually reinforcing nature of the pain experience.
Central & Neurocognitive Processing in the Neuromatrix Model

Getting the pain you expect: mechanisms of placebo, nocebo and reappraisal effects in humans
doi:10.1038/nm.2229

Neurocognitive processing of the Self’s perception and experience of “pain”

12/14/2018
From the unity of mind, body & spirit the Person evolves. The Self, is that part of the Person which is self aware, reflective and interacts socially.

1. The somatic self: infant’s developing physiology shapes bodily self responsiveness to experience
2. The emotional self: bodily sensations take the form of emotions and spark action tendencies
3. The representational self: grounded in emotional experience, often of a highly charged nature
4. The reflective self: the experience of others who have “out mind in mind” makes possible awareness of internal experience
5. The mindful self: the conscious awareness of experience

Somatic and Emotional Self States – the Five Domains

References and further reading:

Osteopathic Manipulative Therapy is NOT spinal manipulation.

What is Osteopathic Manipulative Therapy?

Types of Osteopathic Manipulative Therapy
Direct Treatment Modalities

Indirect Treatment Modalities

Both Direct and/or Indirect Treatment Modalities

Treatment Modalities that are Neither Direct nor Indirect

Classification of Osteopathic Manipulative Therapy

Direct Treatment Modalities

Soft Tissue Techniques – direct lateral or linear stretching of muscle and fascia (connective tissue that surrounds the muscles, organs and other structures), frequently used to prepare for or conclude overall treatment.

Articulatory Treatment System – low velocity, moderate-to-high amplitude springing focused on joint functioning.

High Velocity Low Amplitude (HVLA) – use of fast, short thrusts through restrictive articulatory barriers; a technique with which most people are familiar (also known as the "cracking" or "popping" technique).

Muscle Energy – uses post-isometric relaxation to stretch muscles and increase range of motion. With the targeted muscle stretched to its barrier, the patient is instructed to move toward ease (away from restriction) while the physician resists by using an isometric counterforce.

Inhibition – slow, direct application of steady pressure to relax muscles or reduce muscle contraction.

Classification of Osteopathic Manipulative Therapy 1
Indirect Treatment Modalities

Strain/Counterstrain – focused on specific tender points on the body that are held in a position of ease for 90 seconds, after which the tenderness is relieved.

Facilitated Positional Release – patient’s spine is placed at neutral position while the isolated segment for treatment is placed at ease. Compression or traction is then added to release muscle, fascia, and/or joints.

Both Direct and/or Indirect Treatment Modalities

Myofascial Release – encompasses many of the modalities mentioned above and is used to treat restrictions of muscle and fascia. This technique is generally not as aggressive as others and can thus be applied to a wider population.

Osteopathy in the Cranial Field – a system of treatment that utilizes the intrinsic motion of the cranial and neurological system to treat the whole body; one of the most difficult techniques for physicians to master, and for this reason, one of the more controversial within the medical field.

Ligamentous Articulatory Release – ligaments or joints are placed into a state of balanced tension until a release is felt.

Still Technique – patient held at position of ease until release, then passively moved through the barrier quickly.
What are the biological effects of Articular OMT?

- Biomechanical effect
  - Vertebral bodies
  - Facet joints
  - Intervertebral discs
  - Paraspinal muscles
  - Fluid motion
    - Blood flow
    - Lymph
    - Interstitial fluids

- Myoreflex effect
- Neurophysiological effect
- Placebo – “Laying on of Hands”
Non-Articular OMT Effects

If we inspect man as a machine, we find a complete building, a machine that courts inspection and criticism. The mind is asked to see or find the connection between the physical and the spiritual. By nature you can reason on the roads that the power of life are arranged to suit its system of motion.

If life is an individualized personage, as we might express that mysterious something, and it must have definite arrangements by which it can be united and act with matter, then we are admonished to acquaint ourselves with the arrangements of those natural connections, the one or many, as they are connected to all parts of the completed being.

As motion is the first and only evidence of life, by this thought we are conducted to the machinery through which life works to accomplish these results – A.T. Still, MD, DO, The Philosophy of Osteopathy

Highlighted areas mine
“The human body is a machine run by the unseen force called life, and that it may be run harmoniously it is necessary that there be liberty of blood, nerves, and arteries from their generating point to their destination.” — Dr. Andrew Taylor Still

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The Progression of Osteopathic Philosophy

Osteopathic Principles & Practices is based upon Osteopathic Philosophy, and has within its development and understanding the judicious use of Osteopathic Manipulative Medicine & Osteopathic Manipulative Therapy — both extrinsic and intrinsic forces applied to the person to enable mobility.

A New Tenant is Proposed

**The neuromusculoskeletal system is the means of expression of the individuality and humanity of the Person, the Self. It is the integration of the neuromusculoskeletal system that allows for a person to become capable of self-awareness, self-reflection, the development of the self and its interaction with other persons in society.** The neuromusculoskeletal system is the driver of the interactions of persons toward the growth of global communal health. We are dynamic social beings with the fundamental basis for all of our interactions inherent within the neuromusculoskeletal system. A person without movement defined within their limits, does not reach full potential and impedes one’s global self health & the global health of the community — Joseph R. Carcione, Jr DO, MBA (2018)