

Introduction to OMM for MDs and DOs

- May 19, 2025 May 22, 2025, Kirksville, MO
- NCOPPE & KCOM



ATSU

National Center for Osteopathic Principles and Practice Education

Introduction to Osteopathic Principles and Practices

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- Presentation Preparation

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Goals objectives

- Describe the Four Tenets of Osteopathic Medicine.
- Define Osteopathic Manipulative Treatment (OMT).
- Define somatic dysfunction.
- Describe the characteristics of <u>direct</u> OMT techniques.
- Describe the characteristics of <u>indirect</u> OMT techniques.
- Begin to palpate somatic dysfunction using the T.A.R.T. format

Four Tenets of Osteopathic Medicine

- 1. The mind, body & spirit are a unit.
- 2. The body is capable of self-regulation, self-healing, and health maintenance.
- 3. Structure and function are reciprocally interrelated.
- Rational treatment is based upon understanding & implementing the other 3 tenets.





Rogers F, D'Alonzo G, Glover J, Korr I, Osborn G, Patterson M, Seffinger M, Taylor T, Willard F. Proposed tenets of osteopathic medicine and principles for patient care. J Am Osteopath Assoc 2002;102(2):63–65.

OMT – Osteopathic Manipulative Treatment

• The therapeutic application of <u>manually guided forces</u> by an osteopathic physician to <u>improve physiologic function</u> and/or <u>support homeostasis</u> that have been altered by <u>somatic dysfunction</u>.



Osteopathic manipulative medicine: Goals

- Improve function and efficiency of movement through our environment.
- Reduce pain and discomfort.
- "The most any physician can do for a patient is to render operative, the forces within the body itself."
 - A. T. Still

Osteopathic manipulative medicine: Goals

- "Any variation from health has a cause, and the cause has a location. It is the business of the osteopath to locate and remove the cause, doing away with the disease and getting health instead."
 - A. T. Still



Definition: Somatic Dysfunction

- Impaired or altered function of related components of the somatic (body framework) system: skeletal, arthrodial, and myofascial structures, and their related vascular, lymphatic, and neural elements.
- Historically: Called, a Lesion, Still Lesion, Osteopathic Lesion.



Dr. Andrew Taylor Still on Cause of Somatic Dysfunction

- "If we have observed the perfect, harmonious work of health, we are now prepared to adjust the machinery of life by taking all <u>embarrassments from blood- and nerve-supply</u> that are caused or could be <u>caused by strains</u>, jars, and nervous shocks or wounds that are produced by change of season, climate, and physical injuries of all kinds, <u>be they great or small</u>.
- Your work is completed when you have adjusted the human body to the degree of perfection in which the God of Nature left it.
- This is the limit of your usefulness; do your work well and you will get the results sought.
- Never grow weary in well-doing; we have proven that God is true."

Page 207. Still, A. T.: The Philosophy and Mechanical Principles of Osteopathy. Reprinted, Osteopathic Enterprise, Kirksville, MO, 1986.

Necessity of knowing normal

- If you know normal, you can find abnormal.
- "As osteopathic machinists we go no further than to adjust the abnormal conditions back to the normal. Nature will do the rest."

Dr. A. T. Still, The Philosophy and Mechanical Principles of Osteopathy, p. 33.

Diagnostic Criteria for Somatic Dysfunction

T.A.R.T. Criteria

<u>T</u>issue texture abnormalities <u>A</u>symmetry of structure <u>Restriction of motion</u> <u>T</u>enderness

Any one of which must be present for the diagnosis of somatic dysfunction



Indications for OMT

- Somatic Dysfunction is <u>the</u> indication for OMT
- OMT, is directed specifically at the treatment of somatic dysfunctions
- To enhance homeostatic mechanisms.
- The musculoskeletal system can be a major factor in maintaining homeostasis.
- Influence on Autonomic Nervous System, Sympathetic & Parasympathetic systems.

Absolute & Relative Contraindications to OMT

- Absolute: OMT carries significant risk of a serious adverse event that exceeds the expected benefit and should not be used.
- **Relative:** Caution should be used when OMT is performed because there may be a greater than usual risk of an adverse event.
 - May need to exclude treatment of specific body regions
 - May need to exclude certain types of techniques
 - Shared decision making with patient
 - One must understand of benefits vs risks
- Most absolute and relative contraindications to OMT are based on an understanding of anatomy, physiology, and pathophysiology and on the forces applied with a particular type of technique.

Cook CE. Orthopedic Manual Therapy: An Evidence-Based Approach. 2nd ed. New York, NY: Pearson; 2010. Dagenais S, Haldeman S. Evidence-Based Management of Low Back Pain. London, UK: Mosby; 2011.

General Contraindications for OMT

- Lack of Consent, (verbal or written).
- Unstable condition that involves rapid life-threatening deterioration
- If performing OMT will delay definitive diagnosis and treatment of an urgent or emergent condition.
- Without performing an appropriate history and physical evaluation, including evaluation for somatic dysfunction.
- OMT should not be specifically applied to sites of <u>unstable anatomy</u> if the application of forces used with the technique presents a high risk of a deleterious consequence.
- OMT should not be used when the physician's skill level makes it likely they will apply a <u>force that overwhelms the integrity of the tissues.</u>
- Making changes that exceed the metabolic capacity of the patient's system to adapt (dosing).

Building Rapport While Evaluating and Treating Sensitive Areas

- Chaperone in the room as appropriate.
- Explain what you are going to do and why you are doing it before examining.
- Ask them to let you know if it is too uncomfortable or if they need you to stop.
- Tell them the names of the anatomy you are palpating:
 - Sometimes before you palpate it
 - Sometimes as you palpate it
- Tell them what you are finding throughout the exam.
- Communicate with the patient.

Adverse Event

Is any <u>unfavorable and unintended sign (including an abnormal</u> laboratory finding), symptom, or disease <u>temporally associated</u> with the use of a medical treatment or procedure that <u>may or</u> <u>may not be</u> considered <u>related</u> to the medical treatment or procedure.

Side effect – unintended, secondary effect of the intended effect; may be beneficial or harmful.

Side effect is no longer a recommended term.

NCI Thesaurus. Side effect (code C2861). National Cancer Institute. https://nciterms.nci.nih.gov/ncitbrowser/ConceptReport.jsp?dictionary=NCI_Thesaurus&ns=ncit&code=C2861. Updated June 26, 2023. Accessed August 10, 2023.

Adverse Events					
Grade	Level	Classification	Description		
1	Mild	Nonserious	The event is usually transient, does not typically interfere with activities of daily living, and requires no special treatment or intervention.		
2	Moderate	Nonserious	The event impacts usual daily activities but is alleviated with simple noninvasive, therapeutic treatments. Laboratory evaluation indicates injury but without long-term risk or permanent harm.		
3	Severe	Nonserious	The event requires intensive therapeutic intervention and interrupts usual daily activities. It may require brief hospitalization or prolong an existing hospitalization but does not result in a persistent or significant disability or incapacity.		
4	Life- threatening or disabling	Serious	A medically significant event or its immediate sequelae, which places the patient at imminent risk of death or is associated with physical or mental disabilities that affect or limit the ability of a person to perform activities of daily living. The event may result in inpatient hospitalization or prolong an existing hospitalization.		
5	Death	Serious	The event is associated with termination of life.		

<u>https://nciterms.nci.nih.gov/ncitbrowser/pages/multiple_search.jsf?nav_type=terminologies</u> See references at end of presentation. OMT = Osteopathic Manipulative Treatment SM = Spinal manipulation n/d = Not Defined CVA = Cerebrovascular Accident

CATEGORY	WHAT	INCIDENCE		
Treatment-emerging transient	Headache	Licciardone et al (2002): 8.6% of patients surveyed (n = 459)		
adverse events ^{1, 2, 3, 4}	Stiffness / soreness	reported and attributed adverse reactions to OMT.		
	Local discomfort in area treated	Caigne et al (2004): 60.9% (n = 283) of patients surveyed (n =		
Ra Non-serious	Radiating pain / discomfort	465) reported at least one post-manipulative reaction following		
Mild to moderate	Fatigue / tiredness	manual therapy.		
Grade 1 and Grade 2	Nausea / vomiting	Senstad et al (1997): At least one reaction was reported by 55%		
	Dizziness / imbalance	of the patients sometimes during a course of treatments (SM)		
	Arm or leg weakness	Leboeuf-Yde et al (1997): At least one reaction was reported by		
		44% of the patients during their treatment (SM)		
		Hurwitz et al (2005): 30.4% (n = 85) of patients surveyed in the		
		UCLA Neck Pain Study reported 212 adverse reactions following		
		chiropractic care.		

Onset and duration of reported adverse reactions	¹ Caigne et al (2004)	² Senstad et al (1997)	³ Leboeuf-Yde et al (1997)	⁴ Hurwitz et al (2005)	
¹ Transient effects usually begins within 4 h of receiving treatment and typically resolve within the next 24 h (Caigne et al, 2004)					
² Onset: within 10 min (17%), between 10 min and 4 h (47%), after 4 h (32%). Resolved: during day of treatment (72%), during day 2 (16%), during day 3 or later (7%)					
³ Onset: same day (58%), day 2 (32%). Resolved post-treatment: few hours after (21%), up to 24 h after (34%), between 24 h and 48 h (19%), more than 48 h (19%)					
⁴ Majority of symptoms began within 24 h of treatment, disappeared within 24 j of onset, and did not highly impact activities of daily living					

Substantive complications:	Disc herniation or prolapse	Oliphant (2004): SM in treatment of lumbar disc herniation –		
Reversible ⁵	Nerve root compression	clinically worsened herniation or cauda equine syndrome		
Grade 3, if reversible	Fracture	following SM estimated to be 1 in 3.7 million		
Substantive complications:	Death	Rivett and Milburn (1996): incidence of neurovascular comprom-		
Non-reversible ⁶	Cerebrovascular accident	ise within the range 1 in 50,000 to 1 in 5 million		
Crede 4 and 5	Spinal cord compression	Dvorak and Orelli (1985): 1 in 400,000 (complications n/d)		
Grade 4 and 5	Cauda equina syndrome	Patijn (1991): overall (n/d) rate 1 in 518,886		
2		Klougart et al (1996): 1 in 0.9 to 1.3 million (CVA)		

⁵no actual data on incidence do exist; these reversible complications has been published as case-reports in the indexed literature ⁶the true incidence of serious complications is not known as lack of treatment data (SM and patients) makes accurate statistics impossible

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Caigne B et al. How common are side effects of spinal manipulation and can these side effects be predicted? *Manual Therapy* 9 (2004) 151 - 156 Dvorak J, Orelli F. How dangerous is manipulation to the cervical spine? *J Manual Med* 1985; 2: 1 - 4

Hurwitz E et al. Frequency and clinical predictors of adverse reactions to chiropractic care in the UCLA neck pain study. Spine 2005; 30: 1477-1484 Klougart N et al. Safety in chiropractic practice, part 1: the occurrence of cerebrovascular accidents after manipulation to the neck in Denmark from 1978 to 1988. J Manipulative Physiol 1996; 19: 371 - 7

Lebeouf-Yde C, Hennius B, Rudberg E et al. Side effects of chiropractic treatment: a prospective study. *J Manipulative Physiol Ther* 1997 (Oct); 20(8): 511-5 Licciardone J et al. Patient satisfaction and clinical outcomes associated with osteopathic manipulative treatment. *J Am Osteopath Assoc* 2002; 102: 13 - 20 Oliphant D. Safety of spinal manipulation in the treatment of lumbar disc herniations: a systematic review and risk assessment. *J Manipulative Physiol Ther*

2004; 27: 197 - 210

Patijn J. Complications in manual medicine. J Manual Med 1991; 6: 89 - 92

Rivett D, Milburn P. A prospective study of cervical spine manipulation. J Manual & Manipulative Therapy 1996; 4: 166 - 170

Senstad O, Leboeuf-Yde C, Borchgrevink C. Frequency and characteristics of side effects of spinal manipulative therapy. Spine 1997; 22: 435 - 440

Adverse Events Immediately After OMT



Patient-reported responses immediately after osteopathic manipulative treatment (N=1847 office visits)

Degenhardt BF, Johnson JC, Brooks WJ, Norman L. Characterizing Adverse Events Reported Immediately After Osteopathic Manipulative Treatment. *The Journal of the American Osteopathic Association*. 2018;118(3):141-149. doi:10.7556/jaoa.2018.033

Incidence of Reported Adverse Events Associated with Manual Therapies

- Most adverse events are nonserious mild to moderate
 2.5% to 60.9%
 - Most begin within 24 hours
 - Most resolve within 48 hours

- Mild to moderate local pain and discomfort in the area of treatment.
- Aggravation of presenting complaint:
- Stiffness, headache, muscle spasm, radiating pain, tiredness and fatigue.
- Pain outside the area of treatment
- Lightheadedness, nausea, vomiting numbness and tingling.

General Considerations for OMT

- The ability to perform OMT <u>well</u> requires <u>continuous</u> feedback to the physician's hands from the tissues of the patient
- During the OMT, the physician must remain alert to palpatory sensations that indicate where the problem is located and <u>how the</u> <u>tissues are responding</u> to the treatment <u>while</u> it is being performed.
- Let your fingers do the walking, let your fingers do the talking.

General Considerations for OMT

- One technique may treat more than one type of dysfunction.
- More than one type of technique may be required to treat a single type of dysfunction.
- During OMT, many different types of techniques may be employed.

Dosing

- Is more always better?
- The dose of treatment is limited by the patient's ability to respond to treatment.
- The physician may want to do more and go faster; however, the patient's body must have time to make the necessary changes toward health and recovery.

Dosing Guidelines

- "Find it, fix it, and leave it alone."
 A.T. Still
- Allow the patient, time to respond.
- The ability of patients to respond is variable.



Dosing Guidelines

- The sicker the patient, the less the dose.
- Caring compassionate novices, often err on the side of overdose.
- Allow time for the patient to respond to treatment.
- Do not waste the dose on insignificant areas. Concentrate on key areas needing treatment.
- Chronic disease requires chronic treatment.
- Acute cases should have a shorter interval between treatments; as they respond, the interval is increased.

Dosing Guidelines

- Pediatric cases can be treated more frequently.
- Children get sick faster, get better faster, most of the time
- Geriatric patients need a longer interval to respond to treatment.



Two Major Factors Determine Technique Choice

- The ability of the physician to execute a technique.
- The ability of the patient to respond to the type of technique.



Physician's Ability

- Physician's knowledge and skill with the various techniques.
- Physician's age, strength and body habitus.
- Availability of a treatment table.
- Hospital, home or office setting.



Skill/mastery over time

Patient's Ability To Respond

- The patient's physical condition and stamina.
- The Patient's age.
- Acuteness or chronicity of problem / problems.
- Ability of patient to move into certain positions.
- Location of dysfunction or injury.
- Effectiveness of previous techniques used.
- Contraindications to certain techniques in specific patients.
A. T. Still on Technique Selection

- "Every operator should use his own judgment and choose his own method of adjusting all bones of the body.
- It is not a matter of imitation and doing just as some successful operator does, but <u>the bringing of</u> <u>the bone from the abnormal to</u> <u>the normal.</u>"



Plan of Intervention

- Decisions made based on answering the following questions:
 - What doesn't move?
 - What direction will it move?
 - Consider all 3 planes of motion!
 - In which direction doesn't it move?
- GOAL: Restore lost motion in order to improve physiologic function and/or support homeostasis



Joint Or Tissue Motion



- 1. Active motion
- 2. Physiologic barrier
 - 3. Passive motion
 - 4. Anatomic Barrier

Joint or Tissue Tension

- Neutral position: Balanced ligamentous tension.
- Physiologic barrier: Tension increases to here.
- Anatomic barrier: Maximum tension here.



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Normal Physiologic Motion



- AROM motion permitted during use of muscles
- **PROM** motion permitted with passive movement

Somatic Dysfunction

• Restrictive Barrier: Minor or major motion loss depending on the severity of the restriction.



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Somatic Dysfunction

 Restrictive Barrier: Minor or major motion loss depending on the severity of the restriction.



Two Primary Divisions of Osteopathic Techniques

- Direct Techniques
- Indirect Techniques
- (Combined)
 - A planned sequence
 - Part of the technique is indirect and then a direct component is added (e.g. Still Technique).
 - Part of the technique is direct and then an indirect component is added (less common).
- The two treatment methods determine how the physician initially positions the patient relative to the restrictive barrier.

Direct Technique/Method

 An osteopathic treatment strategy by which the restrictive barrier is engaged, and a final activating force is applied to correct somatic dysfunction.



Direct Techniques

- From its resting position, the restricted joint or tissue is taken toward the restrictive barrier.
- Generally, the restricted part is carried to the barrier in one or more planes of motion at the beginning of the technique.
- Activating forces are used to carry the dysfunctional component through the restrictive barrier.
- Usually involves a greater amount of force than indirect techniques.

Direct Techniques



For example:

Soft tissue, Articular, Springing (LVMA), Myofascial Release, Muscle Energy, Thrust techniques (HVLA)

Indirect Technique/Method

• A manipulative technique where the restrictive barrier is disengaged, and the dysfunctional body part is moved away from the restrictive barrier until tissue tension is equal in one or all planes and directions.



Indirect Techniques

- Move the involved joint or tissues, <u>away from the restrictive barrier</u>.
- Joint or tissues of interest are moved in the direction of ease (decreasing tension).

-Until tissue tension is equal in one or all planes.

- Joint or tissue is maintained in the position of ease,
 5 seconds to several minutes depending on technique type.
- Release is due to inherent forces rather than physician forces.
- Tensions gradually relax and enhanced mobility occurs.
- Usually comfortable for the patient during the technique.

Indirect Techniques



Indirect Techniques

- May focus on balancing different tissues
- Muscle <u>Counter strain</u>
- Fascia
- Bone
- Joint capsule and associated ligamentous structures
 - Balanced ligamentous tension technique
 - Functional technique

Ease and Bind

- Direction of Bind: Palpable resistance to motion of an articulation or tissue
 - Synonym: Resistance
- Direction of Ease: Relative palpable freedom of motion of an articulation or tissue
 - From the structure's resting position, this will usually be away from the restrictive barrier
 - Synonyms: compliance, resilience, balance, breathing, freedom of motion

Diagnostic Criteria for Somatic Dysfunction

T.A.R.T. Criteria

<u>T</u>issue texture abnormalities <u>A</u>symmetry of structure <u>Restriction of motion</u> <u>T</u>enderness

Any one of which must be present for the diagnosis of somatic dysfunction



Dominant Eye

 Clinically, it is useful to know which of your eyes is your dominant eye so that you can place it towards the middle of whatever you are observing and/or palpating.

Dominant Eye towards center of table

Left eye dominant



Right eye dominant



Sighting Dominance Modified Hole-in-the-Card test

- Hold a card that has a 3-cm hole in the center, with both hands at arm's length
- View a target 6m away through the hole with both eyes open.
- Close one eye then the other to identify the dominant one.
- When the dominant eye is closed, the target will disappear.
- When the non-dominant eye is closed, the target will not disappear.



PLANES & AXES OF MOTION (summary)

• Coronal Plane:

Side bending around an <u>AP axis.</u>

• Sagittal Plane:

Flexion/extension around a <u>transverse</u> (horizontal) axis.

• Transverse (horizontal) Plane:

Rotation around a <u>Superior/inferior</u> (vertical) axis.



INSPECTION: Gait

DYNAMIC (MOTION)

Observe and assess a patient's gait:

For example, a limp, lean, one leg or foot turns out, space of arm from body, etc. Any area not moving?



Department of Osteopathic Manipulative Medicine

Kirksville College of Osteopathic Medicine, Kirksville

Osteopathic Theory and Methods	
OMS1 Palpatory Lab	Date:
Name	

VISUAL and PROPRIOCEPTIVE EVALUATION

Iliac crests

Popliteal folds

Iliac crests

Knees



Lateral Malleolus

Body of L3 (X-ray)

Palpation

 "The art of palpation is one that must be developed. The ability to evaluate the 'feel' of the tissues can be developed only by practice and conscientious application to an extraordinary degree."

Dr. Thomas L. Northrup, Reflex Diagnosis. The Journal of Osteopathy, Dec, 1961, pp. 18-26.

Tissue Texture Abnormality Findings

<u>Acute</u>

- <u>Skin</u>; hot, erythemic, moist (Sudomotor)
- <u>Tissue</u>; swollen, increased turgor
- <u>Muscle</u>; hypertonic, tender, spasm
- Pain; severe, sharp

Chronic

- <u>Skin</u>; cold, pale, dry, increased drag
- <u>Tissue</u>; fibrotic, atrophy, ropey
- <u>Muscle</u>; hypotonicity, flaccid
- <u>Pain</u>; achy and dull

Red Reflex

<u>A Red Response</u>

- Drag fingers along paraspinal muscles.
- $\circ~$ Watch for red response.
- Note areas that remain red long after other areas resolve.



Red Reflex

- *Reactive hyperemia,* is greater in degree and duration in an area of acute somatic dysfunction as compared to an area of chronic somatic dysfunction.
 - Reflection of the segmentally related sympathicotonia commonly observed in the paraspinal area







Sympathetic Nervous System

- Primary purpose is to stimulate the body's fight-or-flight response.
- Preferentially will shunt blood from the viscera to the musculoskeletal system, heart and brain
- Sympathetic chain (paravertebral) ganglia (T1 - L2,3) and prevertebral ganglia (celiac, superior and inferior mesenteric)
- Primarily innervates viscera and the entire body's vasculature

Sympathetic division of peripheral autonomic system. CG, celiac ganglion; SMG, superior mesenteric ganglion; IMG, inferior mesenteric ganglion. (From Chusid JG. Correlative Neuroanatomy and Functional Neurology, Los Altos, CA: Lange Medical Publishers, 1985, with permission.)

Somatotopic Relationships to Sympathetic Function



Lab Exercise #2

• Appreciate the texture of your partners back, identify areas of the paraspinal regions that are:

-Warm vs. Cool (dorsum of hand)

- -Moist vs. Dry (light, surface skin drag)
- -Boggy vs. Firm (region between dermis and musculature
- –Ropey vs. Hypotonic vs. Hypertonic (deeper palpation into musculature)

–Red Reflex – present vs absent (deeper skin drag)

• When possible, simultaneously compare left vs right using the pads of digits 2-4

Motion Restriction: Barrier "end feel" characteristics

- Bony: Hard
- Tendinous: Elastic
- Ligamentous: Firm and abrupt
- Soft tissue: Soft
- Guarding: Empty
 - Patient voluntarily limits the motion secondary to pain



Lab Exercise #3: expected barrier end feel

- Soft Tissue Barrier
 - Elbow flexion
 - Knee flexion
 - Hip flexion (?)
- Boney Barrier
 - Elbow extension
- Guarding/Empty Barrier
 - Be creative

- Tendinous Barrier
 - Wrist flexion/extension
 - Ankle dorsiflexion/plantar flexion
 - Elbow flexion coupled with shoulder flexion
- Ligamentous Barrier
 - Ankle plantar flexion
 - Knee extension
 - Drawer testing of knee and ankle

Side bending and Translation

- Translation is motion of a body part along an axis.
- Left translation and right translation in the context of positioning a patient's spine refer to movement along an axis that is transverse to the spine
 - Left translation will induce right side bending of the spine at the level where the translation is introduced
 - Right translation will induce left side bending of the spine at the level where the translation is introduced

Side bending and Translation

- At the level of the somatic dysfunction:
 - Right translation = left sidebending
 - Concave left = left sidebending
 - Convex right = left sidebending



Left Spine Right

Side bending and Translation

Lowering

right shoulder

- Markedly above or below the level of the somatic dysfunction (X):
 - Right translation may create right sidebending
 - E.g. pulling shoulder to the right
 - E.g. pulling pelvis to the right
Extension and Anterior Translation

- Translation is motion of a body part along an axis.
- Anterior translation in the context of positioning a patient's spine refer to movement along a posterior to anterior axis.
- Anterior translation of a <u>spinous</u> process will induce extension of the spine at the level where the translation is introduced.
- Anterior translation of a <u>transverse</u> process will primarily induce rotation to the opposite side.

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Elsie's Medicinal Garden

Dedicated to A.T. Still University and the Museum of Osteopathic Medicine, which preserves osteopathic medical history. and to the outstanding students. faculty, administration, staff, and alumni, who are first in whole person healthcare — body, mind, spirit.

Endowment sponsored by Elsie Gaber, PhD. former assistant vice president for university relations and associate dean for the School of Health Management (1996-2014) and Ron Gaber, DHL. dean emeritus of students and vice president emeritus of student affairs (1988-2012).

That is all.



Supplemental Material

- These slides provide some further information on integration into patient care and a little information on research supporting the use of OMT
- The overall goal of this course was to focus primarily on manual skill and technique development so this supplemental material was not presented during course time

"Osteopathic manipulative treatment (OMT) has always been and continues to be used by osteopathic physicians (DOs) as an adjunct to a comprehensive medical and surgical practice to correct inefficient biomechanics of the musculoskeletal system (somatic dysfunction), improve homeostatic mechanisms, including natural immune system functions, and aid the patient in the restoration of health."

Michael A. Seffinger, D.O., F.A.A.F.P.

Integrating the Osteopathic Thought Process into Patient Care

Subjective: Patient history informed by your understanding of the 4 Tenets

Objective: Physical evaluation including TART findings.

Assessment: Diagnoses including regions of somatic dysfunction

Plan: Medications, Surgery, Lifestyle Changes, Surveillance, etc. and OMT as indicated

Does OMT Work?

- Many different approaches to OMT.
- Many different techniques.
- Many different practitioners performing the 'same' technique differently.
- Many different patient populations.
- Many different diseases conditions.

Where and Why to use OMT on an Individual Patient

- Patient Care is Complex.
- General medical and surgical management of conditions change over time.
- Patients burden of somatic dysfunction varies.
- 5 models approach for guidance on how to incorporate OMT into overall patient care of an individual patient.



From: Osteopathic Philosophy

Foundations of Osteopathic Medicine, 3e, 2010



Legend:

Osteopathic philosophy of health displayed as the coordinated activity of five basic body functions, <u>integrated by the musculoskeletal system</u>, adapting to environmental stressors. Evaluation and treatment of the musculoskeletal system is performed in light of its ability to affect not only the five functions but also ultimately the person's own ability to adapt to internal and external stressors.

Date of download: 7/30/2014

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Osteopathic Approaches to Patient Care

Model	Anatomical Correlates	Physiological Functions			
Biomechanical	Postural muscles, spine, and extremities	Posture and motion			
Respiratory-Circulatory	Thoracic inlet, thoracic and pelvic diaphragms, tentorium cerebelli, costal cage	Respiration, circulation, venous, and <u>lymphatic</u> drainage			
Metabolic-Energy	Internal organs, endocrine glands	Metabolic processes, homeostasis, energy balance, regulatory processes; immunological activities and inflammation and repair; digestion, absorption of nutrients, removal of waste; reproduction			
Neurological	Head (organs of special senses), brain, spinal cord, autonomic nervous system, peripheral nerves	Control, coordination, and integration of body functions; protective mechanisms; sensation			
Behavioral	Brain	Psychological and social activities, e.g., anxiety, stress, work, family; habits, e.g., sleep, drug abuse, sexual activities, exercise; values, attitudes, beliefs			

Areas of Research that Provide Support for Using OMT in Clinical Practice

- Basic Science
 - Cellular
 - Animal
- Human subjects
 - Mechanistic
 - Palpatory diagnosis
 - Examiner reliability
 - Correlation with clinical conditions
 - Clinical outcomes
 - POEM vs DOE?

- Manual medicine
 - Chiropractic
 - Physical Therapy
 - Physiatry
 - DOs
 - U.S. & Elsewhere
 - Others

Patient Perspective

- What do patients care about?
 - Patients don't care about whether a medication will lower their blood pressure but rather they want to know "will it help to increase the length of my life or improve the quality of my life?"
- Does the evidence affect:
 - Mortality
 - Morbidity
 - Quality of life

POEM

Patient-Oriented Evidence

that **M**atters

- Matters to the clinician, because if valid, it will *require* a *change* in practice.
- Matters to the patient because it affects morbidity, mortality, quality of life.

Shaughnessy AF, Slawson DC, Bennett JH. Becoming an Information Master: A Guidebook to the Medical Information Jungle. The Journal of Family Practice 1994;39(5):489-99.

Relevance: Type of Evidence

- **POEM**: Patient-oriented evidence that matters
 - mortality, morbidity, quality of life
 - Longer, better or both
- **DOE**: Disease-oriented evidence
 - pathophysiology, pharmacology, etiology

Chronic Migraine (Cerritelli, et.al. 2015)

- 225 assessed at neurology clinic
 - Neurologist and staff blinded to allocation
 - Patients blinded to sham vs OMT.
- 3-armed randomized controlled trial (n=105)
 - OMT + medication therapy (n=35)
 - Sham + medication therapy (n=35)
 - Medication therapy only (n=35)
- Days of migraine per month
- Pain Severity, Medications
- Functional Disability, HIT-6

Chronic Migraine (Cerritelli, et.al. 2015)

- OMT
 - 6 Italian osteopaths
 - Need-based patient tx approach based on eval.
 - BLT, BMT, MFR, Cranial-sacrum
 - 8 txs over 24 weeks
- Sham
 - Similar eval.
 - Light touch while silently subtracting by seven
 - 8 txs over 24 weeks

Chronic Migraine (Cerritelli, et.al. 2015)

Days of Migraine per Month							
	OMT	Sham	Control				
baseline	22.5	22.3	22.5				
6 months	1.2	18.6	22.3				
	Patients Takin	g Medications					
baseline	35	35	35				
6 months	7	32	35				

OMT significantly (p<0.001) reduced Days of Migraine/month and number of patients taking medications compared to Sham or Control.

HIT-6, Severity of Pain, and Functional Disability all improved significantly (p<0.001 in the OMT group.

Complementary and alternative medicine supported neuromusculoskeletal techniques for treatment of chronic pelvic pain syndrome

Treatment Par	Participants	Pain	Sex (male,			100	CPPS	Males	NIH-CPSI			
category	(n)	inclusion criteria	female, both)	Primary outcome measures	Acupaint	68	CPPS	Males	NIH-CPSI			
	80	Abdominal	Both	VAS pain, symptom improvement scales	stimulation	55	CPPS	Females	VAS Pain			
Treatment categoryPropriation80 60 31 11 12 13 	60	Abdominal	Both	VAS pain, symptom improvement scales		15	CPPS	Females	Serum CRP, McGill Pain Questionnaire, VAS pain, pelvic pain questionnaire, symptom improvement scales			
	35	CPPS	Males	IPSS, NIH-CPSI, quality of life	DEA	60	Abdominal	Both	PFSD scale, symptom improvement scales			
	19	CPPS	Males	IPSS, NIH-CPSI, quality of life	BFA	15	CPPS	Female	Psychophysical metrics, evoked pain outcomes			
	19	CPPS	Females	PDI, VAS pain, RAND-36 Health Survey		94	Pelvic	Females	Symptom improvement scales, satisfaction questionnaire			
	6	Pelvic	Females	Pain Likert scales, symptom improvement Likert scales	Biofeedback	33	CPPS	Females	Reported pain, symptom improvement			
	374	CPPS	Both	Symptom improvement scales, medication usage		21	CPPS	Males	VAS pain, symptom improvement scales			
	42	Pelvic	Both	Symptom improvement scales	Photobiomodulation	30	CPPS	Males	VAS pain, NIH-CPSI			
Myofascial release	39	CPPS	Females	Pain scales, urgency, severity and impact of life questionnaire, levator ani morphology, pain thresholds	CPPS: chro	CPPS: chronic pelvic pain syndrome; CRP: C-reactive protein; GUPI: genitourinar						
	31	CPPS	Males	NIH-CPSI	pain index;	pain index; IPSS: International Prostate Symptom Score; NIH-CPSI: National						

pain index; IPSS: International Prostate Symptom Score; NIH-CPSI: National Institutes of Health-Chronic Prostatitis Symptom Index; PDI: Pain Disability Index; PFSD: Pain Frequency-Severity-Duration; RAND-36: RAND corporation 36-Item Short Form Health Survey; VAS: visual analog scale

 Marks SK, Rodriguez NA, Shah A, Garcia AN, Ritter L, Pierce AN. Clinical Review of Neuromusculoskeletal Complementary and Alternative Approaches for the Treatment of Chronic Pelvic Pain Syndrome. Cureus. 2022 Jul 20;14(7):e27077. doi: 10.7759/cureus.27077. PMID: 35989846; PMCID: PMC9388957.

NIH-CPSI, GUPI

CPPS

Males

Depression (Plotkin, et.al. 2001)

- Randomized, controlled clinical trial
- Women with depression, age 20-50
- 2 groups
 - Standard care + OMT (n=8)
 - Standard care + placebo control (n=9)
- All received Paxil plus weekly psychotherapy for 8 weeks
- Psychiatrists and psychotherapists blinded to group assignment

Depression

- Placebo Control
 - 30 minute osteopathic structural exam
 - 142 examination points head to toe
- OMT
 - Students under physician supervision
 - Structural exam + 20 minute treatment based on findings
 - Direct, indirect and cranial techniques

Depression Results:





Zung Depression Scale OMT Post-treatment decreased versus control (P<.001)

Percent of Patients returning to normal (score < 50 = normal)

Recurrent Acute Otitis Media (Mills et al 2003)

- Children 6 months 6 yrs. of age with recurrent acute otitis media (AOM) (n= 57)
- randomized to one of two groups:
 - standard care plus OMT (n=25)
 - standard care only (n=32)
- Pediatrician blinded to patient group and study outcomes
- Osteopathic physician blinded to patient clinical course

Recurrent Acute Otitis Media

- OMT provided by osteopathic physicians specializing in NMM/OMM
- OMT 15-25 minutes
- Entire body, attention to head and neck
- No HVLA, gentle techniques on restricted areas
- Balance ligamentous tension, balanced membranous tension, myofascial release, facilitated positional release, counterstrain

Recurrent Acute Otitis Media Results:

- Patients in the OMT group had:
- Fewer episodes of AOM (p=.04)
- Fewer surgical procedures (p=.03)
 (1 in OMT versus 8 in control)
- Increased frequency of normal tympanograms (p=.02)
- No adverse reactions reported

Low Back Pain Meta-analysis and Systematic Review (Licciardone et al 2005)

- 6 RCTs from 1973-2001
- 3 U.S. and 3 U.K.
- 525 patients with Low Back Pain
- Treated with OMT by Osteopathic Physicians

Low Back Pain Meta-analysis & Syst. Rev. Results:

- OMT significantly reduced LBP better than

 both no treatment and placebo controls
 - (effect size, -0.30; 95% confidence interval, -0.47 to -0.13; P = .001)
- Pain relief persists for at least 3 months

Low Back Pain Meta-analysis and Systematic Review (Licciardone et al 2005)

	Control	No. of	<u>subjects</u>	-					
Source, year	treatment	OMT	Control	Weight		Effec	⇒tsize(:	95%(CI)	
Hoehler 1981 [42]	Active and placebo	56	29	17	Ĩ				
Gibson 1985 [48]	Active treatment	38	27	12		<u> 19</u>	-		
Gibson 1985 [48]	Placabo control	39	33	14		0. 1			
Cleary 1994 [47]	Placabo control	8	4	2	-			<u></u>	
Andersison 1999 [44]	No treatment	83	72	29					
Burton 2000 [45]	Active treatment	20	20	8			133		
Licciardone 2003 [46]	Placabo control	32	19	9					
Licciardone 2003 [45]	No treatment	42	17	9			-		
Overall		01 8	201	100			+		2
				-2	2.00	-1.00	0.00	1.00	200
						Favors OM1	Г	Favors Co	ntrol

AHRQ NGC: 007504 July 2009

- It is recommended that osteopathic manipulative treatment (OMT) be utilized by osteopathic physicians for musculoskeletal causes of low back pain, i.e., to treat the diagnoses of somatic dysfunctions related to the low back pain. (*Level of Evidence: 1a*)
- http://www.guideline.gov/index.aspx
 - Enter "OMT" in the search box

Hospitalized Elderly Patients with Pneumonia (Noll et al 2000)

- Patients over 60 years of age
- hospitalized with pneumonia (n= 58) were randomized to one of two groups:
 - standard care plus OMT (n=28)
 - standard care plus light touch sham OMT (n=30)
- OMT and light touch provided by osteopathic physicians in residency programs and an osteopathic physician specializing in OMT

Hospitalized Elderly Patients with Pneumonia

• OMT

- paraspinal inhibition, rib raising, diaphragmatic myofascial release (redoming the diaphragm), condylar decompression, soft tissue cervical muscles, myofascial release to the anterior thoracic inlet, and the thoracic lymphatic pump
- Physicians making medical decisions in regards to treatment and discharge were blinded as to patient group allocation

Hosp. Elderly Patients with Pneumonia Results:

- Decreased duration of IV antibiotics (p=.002)
 - OMT group 5.3 ± 2.2 days
 - Light touch 7.3 \pm 2.8 days
- Decreased length of stay (p=.014)
 - OMT group 6.6 ± 2.9 days
 - Light touch 8.6 \pm 2.9 days

Hospitalized Elderly Patients with Pneumonia (Noll et al 2010)

- Multi-site (n=7)
- Patients over 50 years of age
- Hospitalized with pneumonia (n= 406) were randomized to one of three groups:
 - Conventional care only (CCO) (n=135)
 - CCO plus OMT 2x/day (n=135)
 - CCO plus light touch (LT) sham OMT 2x/day (n=136)

Hosp. Elderly Patients with Pneumonia

- 20 osteopathic neuromusculoskeletal (OMM) specialists and 64 resident physicians from 12 specialties administered the protocols
- Physicians managing the patients were blinded to the patients' group allocation
- OMT: thoracolumbar soft tissue, rib raising, doming of the diaphragm myofascial release, cervical spine soft tissue, suboccipital decompression, thoracic inlet myofascial release, thoracic lymphatic pump, and pedal lymphatic pump
- 1st OMT or LT within 24 hours of admission

Hosp. Elderly Patients with Pneumonia Results:

- Intention-to-treat analysis (n=387)
 No significant difference between groups
- Per Protocol analysis (n=318)
 - Decreased median length of stay (p=.01) OMT v. CCO
 - OMT group (3.5 [3.2-4.0] days)
 - CCO group (4.5 [3.9-4.9] days)
 - LT group (3.9 [3.5-4.8] days) v. OMT not significantly different

Hosp. Elderly Patients with Pneumonia Results:

- Per Protocol Analysis (continued):
- Duration of intravenous antibiotics (p=.05) lower for OMT versus CCO, but not versus LT
- Death or respiratory failure (p=.006) lower for OMT versus CCO, but not versus the LT group

Number of Hospitalized Pneumonia Patients Needed to Treat with OMT to Prevent One Death

Occurrence of	Control Event Rate (CER) Conventional	Exp. Event Rate (EER)	Relative Risk Reduction (RRR)	Absolute Risk Reduction (ARR)	Number Needed to Treat (NNT)
	Care	OMT	CER-EER/CER	CER-EER	1/ARR
Respiratory	9/127	1/96	85.9%	6.1%	17
Failure (p=.006)	(7.1%)	(1.0%)			
Death (p=.006)	10/127 (7.9%)	0/96 (0.0%)	100%	7.9%	13
Postoperative lleus (Crow and Gorodinsky 2008)

- Retrospective
- Single Hospital 2003-06
- Patients with ileus following abdominal surgery
- 2 Groups
 - OMT (n=172)
 - Control (n=139)



Postoperative lleus

• 6 surgeons (5DO & 1MD) made decision to consult for OMT

• OMT

- 10 faculty (9DO & 1MD), 55 DO FM residents, osteopathic medical students
- Common sites treated:
 - OM suture, CT & L spine, ribs, diaphragm, sacrum, pelvis, thoracic duct, mesentery, ganglia (celiac, superior & inferior mesenteric)

Postoperative lleus Results:

- Length of Stay (LOS)
 - OMT 11.8 days
 - Control 14.6 days
 - Age adjusted LOS difference 2.8 days
 - -P = 0.029
 - analysis adjusted for age difference between groups

Postoperative Ileus Others:

- Ileus Prevention, OMT n=317, no OMT n=92
 - Incidence of Ileus: OMT 0.3%, no OMT 7.6%
 - Herrmann EP. Postoperative adynamic ileus: its prevention and treatment by osteopathic manipulation [Precepts and Practice]. The DO. 1965;6(2):163-164.
- Second Retrospective Study
 - OMT (n=17), LOS = 6.1 days
 - Control (n=38), LOS = 11.5 days p=0.006
 - Baltazar GA, Betler MP, Akella K, Khatri R, Asaro R, Chendrasekhar A. Effect of Osteopathic Manipulative Treatment on Incidence of Postoperative Ileus and Hospital Length of Stay in General Surgical Patients. J Am Osteopath Assoc. 2013;113(3):204-209.

ER Patients with Ankle Sprain (Eisenhart et al 2003)

- Adults who presented to an emergency department with a unilateral first- or seconddegree acute ankle sprain (n=55) were randomized into two groups:
 - standard care plus OMT (n=28)
 - standard care (n=27)



ER Patients with Ankle Sprain

- OMT provided by osteopathic emergency medicine resident physician
- OMT: soft tissue, myofascial release, strain/counterstrain , and lymphatic
- Tibia, fibula, ankle and foot
- Blood SD. Treatment of the Sprained Ankle. J Am Osteopath Assoc, 1980, 79(11):680-692.

ER Patients with Ankle Sprain Results:

- Immediately after OMT
 - Decreased edema (P<.001)
 - Decreased pain (P<.001)
- One week later
 - Increased range of motion (P < .01)



Fig. 4. Correction of posterior displacement of the distal fibula. 1

Acute Neck pain (McReynolds and Sheridan 2005)

- Randomized Clinical Trial
- Patients with acute neck pain (less than 3 wks)
- Ages 18-50
- Presenting to Emergency Department
- 2 Groups
 - OMT (n=29)
 - IM Ketorolac (n=29)



Acute Neck pain

- Three osteopathic physicians that specialize in emergency medicine and routinely use OMT for patient treatment in the ED
- OMT
 - HVLA, soft-tissue, MET
- Pain scale (0-10)
 - Before and one hour post intervention

Acute Neck pain Results:

- Both groups significant pain reduction (p<.001)
- Ketorolac
 - 5.6 ± 2.4 (pre) to 3.9 ± 2.7 (post)
- OMT
 - 6.1 ± 1.7 (pre) to 3.3 ± 1.9 (post)
- OMT group had significantly reduced pain compared to Ketorolac (p=.02)

Fibromyalgia (Gamber et al 2002)

- Randomized, observer masked, placebo controlled
- Rheumatology Clinic patients diagnosed w FM
- 4 Groups (n=24) females ages 30-65
 - OMT
 - OMT + TP self-tx instructions
 - Moist heat to most troublesome TPs
 - Control group
- All groups continued their current meds

Fibromyalgia

- OMT
 - 15-30 minutes by OMT specialists, once per week
 - 6 months vs weeks 1, 2, 4, 7, 11, 15, 19, and 23
 - Counterstrain at most troublesome TPs
 - MFR, MET, soft tissue, cranial osteopathy
- Pain thresholds were measured at each of 10 bilateral TPs using a 9-kg dolorimeter

Fibromyalgia Results:

- OMT groups showed significant (p<.05) improvement
 - pain threshold
 - perceived pain
 - attitude toward treatment
 - activities of daily living
 - chronic pain



Additional Studies

Tension-type headaches (Hanten et all 1999)

- randomized controlled clinical trial
- chronic tension-type headaches (n=22)
- 3 groups:
 - standard care + OMT
 - standard care + palpatory diagnosis (placebo)
 - standard care + 10 minutes of relaxation (control)

Tension-type headaches Results:

• OMT group versus control and placebo showed significant decrease in rated headache pain (P<.0003)



Chronic tension-type headaches (Anderson RE, et. al. 2006)

- single-blind, randomized
- I.H.S. 2004 Classification
- 2 groups (n=29)
 - Progressive Muscle Relaxation (PMR) (n=12)
 - PMR + OMT (n=14)
- Headache diary
 - 2 weeks before intervention
 - 6 to 7 weeks

Chronic tension-type headaches

- PMR exercises daily for 20 minutes
- OMT
 - 1X/week for 3 weeks
 - Pelvis, sacrum, upper T-spine, upper rib cage, C-spine, head
 - MFR, stretching, inhibition, BLT, MET, counterstrain, articular, cranial

Chronic tension-type headaches Results:

- OMT + PMR group versus PMR only: Increased HA-free days (p=.016)
- PMR participation
 - OMT + PMR 78%
 - PMR 76%

Infantile Colic (Haydena & Mullingerb 2006)

- randomized, prospective
- 28 infants
- 2 groups
 - -OMT
 - No OMT



Infantile Colic

- OMT
 - All seen 1x/week for 4 weeks
 - One physician provided treatment
 - Cranial osteopathic manipulation based on individual findings

Infantile Colic Results:

- Progressive decline from weeks 1 4
- Time spent crying (hours/24h)
 - OMT 63% reduction (p<.001)
 - Controls 23% reduction
- Time spent sleeping
 - OMT 11% increase (p<.002)</p>
 - Controls 2% increase
- Required less parental attention

Patients Hospitalized with Pancreatitis (Radjieski et al 1998)

- Hospitalized adult patients with uncomplicated pancreatitis (n= 14)
- Randomly assigned to two groups:
 - six received standard care plus OMT;
 - the rest received standard care only.



Patients Hospitalized with Pancreatitis

- OMT was provided by an osteopathic family medicine resident physician
- Mobilization of the hips, pelvis, shoulders, sacrum, spine and ribs using standard myofascial release, articulatory and muscle energy procedures
- Tenderpoints found on the torso, spine and extremities were treated with standard strain/counterstrain
- Physicians making medical decisions in regards to treatment and discharge were blinded as to patient group allocation

Patients Hospitalized with Pancreatitis Results:

 Patients in the OMT group spent significantly fewer days in the hospital before discharge (mean reduction of 3.5 days, p< .039).

Table 4 Hospitalization Variables for Group Receiving Osteopathic Manipulative Treatment (OMT) Versus Control Group										
Variable	OMT group (n=6)		Control group (n=8)							
	Mean	SD	Mean	SD	t	Ρ				
Days in hospital	4.5	1.4	8.1	3.9	2.41	.039				
Days with no oral intake	2.2	1.2	1.9	1.9	0.33	.74				
□ Requests for pain medication	2.0	1.7	1.1	0.9	1.1	.27				

OMT during Pregnancy (King et al 2003)

- Retrospective study in 4 cities
- Women who received OMT throughout pregnancy (n=160)
- Women who did not (n=161)
- OMT included HVLA, MET, MFR, BLT, BMT, CS
 - Treating physician's choice

OMT during Pregnancy Results:

- decreased frequency of meconium-stained amniotic fluid (P<.001)
- decreased occurrence of preterm delivery (P<.01)
- decrease in the use of forceps
 - Not significant (P < .07)</p>

Ambulatory adults with low back pain (Anderson et al 1999)

- randomized, controlled, clinical trial
- subacute low back pain
 - (greater than 6 weeks but less than 3 months)
- patients ages 20-59 (n=155)
 MD (n=72) vs. DO (n=83)
- evaluated pain, disability, activities



Ambulatory adults with low back pain

- DOs could prescribe medicine and order physical therapy, but the MDs and PTs were restricted in that they could not perform manipulation, whereas the DOs could
- Only patients with lumbar, sacral or pelvic somatic dysfunction diagnosis were included in the study before randomization
- OMT was performed by DOs who specialized in OMT

Ambulatory adults with low back pain Results:

- DOs prescribed fewer medications
 - NSAIDS used DOs (24%) vs. MDs (54%)
 - muscle relaxants used DOs (6%) vs. MDs (25%)
- DOs referred less to physical therapy
 (0.2% for DOs vs. 2.6% for MDs)
- Patients were equally satisfied with either treatment methods
- Otherwise outcomes similar

OMT during Pregnancy (King et al 2003)

Table 2 Number of Deliveries with Osteopathic Manipulative Treatment, Prenatal Care, and Postnatal Care by Center										
Center	N	MSAF, No. (%)	PTD, No. (%)	UCP, No. (%)	Use of Forceps, No. (%)	CSD, No. (%)				
Received OMT										
Chicago	50	3 (6)	2 (4)	0 (0)	0 (0)	9 (18)				
Kirksville	44	4 (9)	3 (7)	0 (0)	5 (11)	5 (11)				
Maine	21	3 (14)	0 (0)	0 (0)	2 (10)	3 (14)				
San Diego	45	2 (4)	1 (2)	0 (0)	3 (7)	9 (20)				
Total	160	12 (8)	6 (4)	0(0)	10 (6)	26 (16)				
Did Not Receive OMT										
Chicago	50	13 (26)	6(12)	0 (0)	1 (2)	3 (6)				
Kirksville	44	6 (14)	4 (9)	0 (0)	6 (14)	15 (34)				
Maine	21	4 (19)	2 (10)	0 (0)	2 (10)	1 (5)				
San Diego	46	11 (24)	7 (15)	0 (0)	8 (17)	10(22)				
Total	161	34 (21)	19 (12)	0(0)	17 (11)	29 (18)				

OMT indicates osteopathic manipulative treatment; MSAF, meconium-stained amniotic fluid; PTD, preterm delivery;

UCP, umbilical cord prolapse; CSD, cesarean section delivery.

OMT for back pain during 3rd trimester pregnancy (Licciardone et al 2009)

- randomized, placebo-controlled trial
- 3 treatment groups
 - usual obstetric care (UOBC) + OMT (n=49)
 - UOBC + sham ultrasound tx. (SUT) (n=48)
 - UOBC (n=48)
- Roland-Morris Disability Questionnaire (RMDQ)
 - to assess back-specific functioning

OMT for back pain during 3rd trimester pregnancy

- Seven 30 minute treatments at 30-39 weeks
- OMT
 - C, T, L-spine, rib cage, sacrum, pelvis
 - Soft tissue, MFR, MET, articular
 - No HVLA, no CV-4
- SUT
 - Same physicians as provided OMT
 - Non-functional machine over similar landmarks as OMT

OMT for back pain during 3rd trim. Preg. Results:

- Intention-to-treat analysis n=144
- RMDQ back-specific inventory declined less

 UOBC + OMT versus UOBC (p=.001)
 UOBC + OMT versus UOBC + SUT (p=.09) not signif.
- Back pain (0 to 10 interval)
 - No significant differences between groups

Post operative pain after Total Abd. Hyst. (Goldstein et al 2005)

- Randomized double-blind controlled trial
- 4 Groups
 - 1. Pre-op saline and post-op sham OMT (n=9)
 - 2. Pre-op saline and post-op OMT (n=10)
 - 3. Pre-op morphine and post-op sham OMT (n=10)
 - 4. Pre-op morphine and post-op OMT (n=10)
- Standard medical and surgical care

Post operative pain after Total Abd. Hyst.

- IV saline or morphine 10 minutes before incision
- OMT
 - Sacrum, lumbar, lower thoracic
 - Myofascial release and soft tissue (15 minutes)
 - 4 hrs post-op, POD #1 8am & 2pm


Post operative pain after Total Abd. Hyst. Results:

- After surgery, all received morphine via an IV patientcontrolled analgesia pump
- Group 4 used less morphine than Group 3
 - First 24 hours (p=.02)
 - 25-48 hours (p=.01)
- No difference between the 4 groups for:
 - Pain, nausea, vomiting

Parkinson's disease and gait (Wells MR, et. al. 1999)

- Mild to moderate Parkinson's disease (PD)
- 3 groups ages 45-58
 - OMT protocol
 - Parkinson (n=10)
 - Normal (n=8)
 - Sham OMT protocol
 - Parkinson (n=10)



- Gait analysis reflective markers and camera system
 - 40 foot walk pre and post intervention

Parkinson's disease and gait

- 12 hour medication washout
- Student physician provided OMT & Sham
- OMT-one standard 30 minute protocol
 14 techniques performed in sequence from OA to feet
- Sham-one standard 30 minute protocol
 - Voluntary ROM of joints treated in OMT protocol

Parkinson's disease and gait Results:

- Stride length
 - PD OMT increased (p<.02)
 - Sham & Normal groups no change
- Cadence
 - PD OMT increased (p<.005)
 - Sham & Normal groups decreased to no change
- Significant changes in maximum velocities of lower limb joints

Pediatric Patients with Asthma (Guiney PA, et.al. 2005)

- Pediatric Patients with Asthma
- Randomized (2:1 assignment ratio)
- Ages 5-17
- 2 groups
 - OMT (n=90)
 - Sham (n=50)
- Measured Peak Expiratory Flow (best of 3)
 - pre and post intervention



Pediatric Patients with Asthma

• OMT

- Rib raising, MFR, MET

Sham

- Performed by MD pediatrician
- Placed hands in similar positions as the OMT group

Pediatric Patients with Asthma Results:

Table 3Peak Expiratory Flow Rates for Pediatric Patients with AsthmaSummary of t Test Analysis (Liters Per Minute)

	Difference	Percent Difference
Group	Mean (95% Cl)*	
Osteopathic Manipulative Treatment (n=90)	13.0 (7.3 to 18.7)	4.8 (2.7 to 6.9)
Control (n=50)	0.3 (-9.8 to 10.4)	1.4 (-1.8 to 4.5)

* Cl indicates confidence interval.

Post Coronary Artery Bypass Graft surgery (O-Yurvati et al 2005)

- Prospective
- 2 groups ages 56-79 undergoing CABG – OMT (n=10)
 - Matched controls (n=19)
- Cardiac index=cardiac output (L/min)/body surface area (m2)
- SvO2, an indicator of peripheral oxygen consumption (pulmonary artery)
- Thoracic Impedance
 - Increases as central blood volume decreases

Post Coronary Artery Bypass Graft Surgery

- OMT
 - Osteopathic Physicians specializing in OMT
 - OMT within 2 hours of the end of surgery
 - Patients still sedated and pharmacologically paralyzed
 - T-spine and ribs first, the diaphragm, sternum third, and upper cspine last
 - BLT, MFR, rib raising, OA decompression, Sibson's fascia release
- Hemodynamic measures
 - 1 and 2 hours post-op

Post Coronary Artery Bypass Graft Surgery Results:

- SvO2
 - Increased Pre vs Post OMT (p<.005)
 - OMT group increased versus control (p<.005)
- Cardiac Index
 - Increased Pre vs Post OMT (p<.01)
 - OMT group increased versus control (p<.02)
- Thoracic Impedance
 - Increased Pre vs Post OMT (p<.02)
 - Not measured for control group

Sleep (Cutler et al 2005)

- 20 healthy volunteers, ages 22-35
- 3 Groups, randomized assignment
 - -OMT
 - Sham, light touch
 - Control



Sleep

• OMT

- Compression fourth ventricle (CV-4)

- Sleep Latency
 - standard Multiple Sleep Latency Test protocol
- MSNA
 - muscle sympathetic nerve activity (MSNA) as a potential mechanism for altered sleep latency
 - Microneurography direct recording of sympathetic nerve activity representing postganglionic vasoconstrictor nerve activity

Sleep Results:

- Sleep Latency
 - OMT decreased versus sham or control (p<.05)
- MSNA
 - Decreased post versus pre OMT (p<.01)
 - OMT decreased versus sham or control (p<.05)
 - Sham and control no significant change (p>.80)

Session Evaluation



Grievance Policy

All grievances should be in writing and should specify the nature of the grievance. Initially, all grievances should be directed to MAOPS Executive Director, who will then forward said grievance to the Education & Convention Committee. All grievances will receive an initial response in writing within 30 days of receipt. If the participant does not receive a satisfactory response, then they can then submit a complaint in writing to the Bureau of Osteopathic Education of the AOA at 142 East Ontario Street, Chicago, IL 60611.

 $\left. ATSU \right| \text{ still opti}$

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