ATSU-SOMA “Top 10” Basic Skills in Osteopathic Manipulative Medicine

A Guide for M.D. and D.O. Preceptors in the Supervision of Clinical Applications of Osteopathic Manipulative Treatment by SOMA Students

Developed by the A.T. Still University School of Osteopathic Medicine in Arizona Osteopathic Principles and Practice Faculty

Purposes of this Program:
To help ATSU-SOMA faculty and preceptors become more familiar with the concepts involved in the application of osteopathic manipulative treatment (OMT), and more comfortable in the supervision of our students in the course of their osteopathic clinical training.

- To give faculty and preceptors an overview and basic understanding of a select set of (OMT) techniques - the “Top 10”.
- To serve as an aide to familiarize physicians supervising these students in the application of the “Top 10” basic OMT techniques.
- To be a resource for descriptions, indications, contraindications, and applicable clinical presentation examples, for the “Top 10” basic OMT techniques.

Background of this Program

1. This Program as well as the associated video series, was developed as a collaborative initiative by the OPP Program and the Clinical Affairs Unit at A.T. Sill University School of Osteopathic Medicine in Arizona.

2. This initiative addresses the integration of OMT into training programs and student experiences during the clinical years.

3. This guide and aide in the supervision of OMT in clinical training was developed as part of ongoing faculty development efforts at SOMA.

Outcome Goals of this Program:

- SOMA faculty and preceptors provide opportunities for the students under their supervision to integrate OMT where appropriate into their patient contacts.
- Documentation of increased opportunities for incorporation and utilization of OMT by SOMA students during clinical training
- Receipt and evaluation of feedback on OMT faculty development resources by SOMA faculty and preceptors
Principles of Selection of OMT Procedures:

The OMT techniques described in this program were selected for their effectiveness and safety as well as for simplicity of supervision by SOMA preceptors who may be unfamiliar with such procedures.

Student Preparation:

The curriculum in Osteopathic Principles and Practice (OPP) program at SOMA is a four year curriculum. Prior to the completion of the first year, all students will have achieved and demonstrated competency in the OMT basic skills presented in this program. Competency evaluation occurs by live practical examination and evaluation of participation in small group discussion of clinical applications.

The “Top 10” OMT Basic Skills:

1. Osteopathic Structural Examination: standing, seated
2. Soft Tissue and Myofascial Release Techniques: cervical, thoracic, lumbar regions
3. Indirect Techniques (Balanced Ligamentous Tension) : cervical, thoracic, lumbar regions
4. Diaphragm Release Techniques: thoracic inlet, respiratory diaphragm
5. Thoraco-Lumbar Junction Inhibition
6. Occipito-atlantal Release and Decompression
7. Venous Sinus Release Technique
8. Sacroiliac Release Techniques: sacral rocking, indirect to sacrum
9. Strain-Counterstrain Techniques: cervical, thoracic, lumbar, lower extremity
10. Lymphatic Pump Techniques: thoracic and pedal pumps; rib raising
1. Osteopathic Structural Exam

Standing Postural Exam:

Establish relative heights of bony landmarks.

A. Mastoid processes  
B. Shoulders  
C. Inferior Border Scapula  
D. Iliac Crests  
E. PSIS  
F. Femoral Heads  
G. Sacral Base

- Note lateral curvatures in vertebral column  
- Describe with right or left convexity  
- Note apex of lateral curvature.

Standing and Seated Flexion Tests

- With patient in standing / seated position, locate PSIS with thumbs  
- Ask patient to slowly bend forward, while maintaining thumbs at PSIS  
- Note which PSIS moves furthest superior/cephalad, and identify this as the “positive” side.  
- Note rotational asymmetries of vertebral column during forward flexion indicating rotoscoliotic curvature.  
- Positive Standing Flexion Test: Indicates dysfunction in the leg and/or in the pelvis on the “positive” side  
- Positive Seated Flexion Test: Indicates some problem with the sacroiliac joint (innominate or sacrum somatic dysfunction) on the positive side
2. Soft Tissue Treatment and Myofascial Release Techniques:

A. Model Introductions
   - Soft Tissue Model
   - Myofascial Release Model

Soft Tissue Model

Definition
Soft tissue technique is a direct technique that usually involves lateral stretching, linear stretching, deep pressure, traction and/or separation of muscle origin and insertion while monitoring tissue response and muscle changes by palpation.

Proposed Mechanism(s)
- Relaxes hypertonic muscles and reduces spasm
- Stretches and increases the elasticity of shortened fascial structures
- Enhances circulation to local myofascial structures
- Improves local tissue nutrition, oxygenation, and removal of metabolic wastes
- Improves abnormal somato-somatic and somato-visceral reflex activity, thus improving circulation in areas of the body remote from the area being treated
- Identifies areas of restricted motion, tissue texture changes and sensitivity
- Improves local and systemic immune response
- Provides a general state of relaxation
- Provides a general state of tonic stimulation by stimulating the stretch reflex in hypotonic muscles

Indications
- Somatic dysfunction of the soft tissues of the body as characterized or inferred by asymmetry, restriction of motion, tissue texture changes and tissue tenderness:
  - hypertonic muscles
  - excessive tension in fascial structures
  - abnormal somato-somatic and somato-visceral reflexes
- Clinical conditions that would benefit from:
  - enhanced circulation to local myofascial structures
  - improved local tissue nutrition, oxygenation, and removal of metabolic wastes
  - improved local and systemic immune responsiveness
- As an adjunct to additional manipulative treatment in order to:
  - identify other areas of somatic dysfunction
  - observe tissue response to the application of manipulative technique
  - provide a general state of relaxation
  - provide a general state of tonic stimulation
  - prepare tissues for other types of manipulation
Cautions and relative contraindications: must use good clinical judgment in cases of the following:

- **Skin**: Disorders which would preclude skin contact, e.g., contagious skin diseases, acute burns, painful rashes, abscesses, skin cancers, etc.
- **Fascia**: Acute fasciitis (infectious or autoimmune), acute fascial tears
- **Muscle**: Acute muscular strains, acute myositis, muscle neoplasms.
- **Ligament**: Acute ligamentous sprain, acute ligamentous inflammatory disorders, septic arthritis, primary or secondary joint neoplasms.
- **Bone**: Acute fracture, osteomyelitis, primary or secondary bone tumors, osteoporosis

**Myofascial Release (MFR) Model**

**Definition**

Myofascial release (MFR) is a system of diagnosis and treatment, first described by Andrew Taylor Still and his early students, which engages continual palpatory feedback to achieve release of myofascial tissues.

**Proposed Mechanism(s)**

- Fascia is capable of changes in length (plasticity and elasticity), with associated changes of energy content (hysteresis). MFR provides peripheral neuroreflexive alterations in muscle tone and neural facilitation, in part, by its influence on mechanoreceptors.
- The application of MFR allows for connective tissue plastic changes (creep) which are associated with release of energy. This may include heat, electromagnetic, and piezoelectric changes.
- External forces applied to fascia facilitate restoration of normal structure and function.
- Mechano-Transduction principles coupled with fascial bioelectric (piezoelectric) properties influence the anatomical and physiological responses of tissues to applied manipulative forces.

**Indications**

MFR is used to treat somatic dysfunctions involving myofascial or other connective tissues.

**Contraindications**

Relative: Extreme caution should be exercised in patients with fractures, open wounds, acute thermal injury, soft tissue or bony infections, abscesses, deep venous thrombosis (threat of embolism), anticoagulation, disseminated or focal
neoplasm, recent post-operative states over the site of proposed treatment (wound dehiscence), and aortic aneurysm.

**Principles of Diagnosis**

Passive motion testing for a region, local tissues, or a joint is performed to identify a restrictive barrier and a position of ease.

**Cervical Soft Tissue and Myofascial Release Technique**

1. Patient is supine and the physician stands at the side of the table near the patient’s head.
2. Physician contacts the medial aspect of the cervical paraspinal muscles with the pads of the fingers of one hand while the other hand controls the forehead.
3. The fingers are drawn anteriorly carrying the muscle fibers with them while the other hand rotates the head away from the physician.
4. *Enough force is applied to feel the muscles relax but not enough to cause discomfort or to cause the muscles to tighten further.*
5. The force is slowly relaxed, the fingers are repositioned and the kneading and stretching are repeated.
6. Kneading and stretching are continued until maximal response is obtained
7. Recheck

*Diagnosis: Paraspinal muscle dysfunction*

**Clinical Presentations:**

- Arm Pain
  - Cervicobrachial syndrome
- Headache, cervicogenic
- Neck Pain
  - Cervical Sprain/Strain
- URI
• Otitis Media
• Vertigo, cervicogenic
  ❖ Any CP where improved circulation and drainage to and from the cranium would be of direct benefit

**Thoracic Soft Tissue and Myofascial Release Technique:**

1. Patient is prone and the physician stands at the side of the table opposite the tight muscles
2. Physician places the pad of the thumb of one hand along the medial aspect of the erector spinae muscles and reinforces it with the heel of the other hand
3. *Sufficient force is applied anteriorly and laterally to scoop the muscle laterally, creating kneading*
4. *Additional force is applied sufficiently to feel the muscles relax but not enough to cause discomfort or cause the muscles to tighten further*
5. The force is slowly relaxed
6. Kneading is repeated rhythmically until maximal response is obtained. This technique can be applied to the muscles on the other side
7. Recheck

*Diagnosis: Paraspinal muscle dysfunction*

**Clinical Presentations:**
• Mid and upper back pain
• Cough, Bronchitis, Pneumonia
• Constipation / Diarrhea
• Abdominal Pain
• GERD
• Any CP benefiting from improved autonomic balance from sympathetic outflow – T1-T12
Lumbar Soft Tissue and Myofascial Release Technique:

1. Patient is prone and the physician stands at the side of the table.
2. Physician places the heel of one hand along the medial aspect of the erector spinae muscles. The other hand cups the ASIS on the side of the tight muscles and lifts it to provide stretching.
3. Sufficient force is applied anteriorly and laterally to scoop the muscle laterally, creating kneading.
4. The force is slowly relaxed.
5. A rhythm is developed between the action of the hands, first lifting the hip and then kneading the muscle while offering counterforce through the hip.
6. Kneading and stretching are repeated rhythmically until maximal response is obtained.
This technique can be applied to the muscles on the other side.
7. Recheck

*Diagnosis: Paraspinal muscle dysfunction*

**Clinical Presentations:**

- Low Back Pain
  - Strain
  - Psoas Syndrome
- Constipation / Diarrhea
- Irritable Bowel Syndrome
- Dysmenorrhea
- Any CP that would benefit from improved balance in sympathetic function in from lower thoracolumbar region (T12-L2)
3. Indirect techniques (balanced ligamentous tension):

Definition: a method of technique that moves the dysfunctional component away from the restrictive barrier (moving in the direction of ease). Movement or positioning is in all 3 planes of motion normal to the joint involved. The joint, structure, or component is moved to the point in all 3 planes where balanced tension in the involved ligamentous structures is palpated. This point and the corresponding technique is called “balanced ligamentous tension (BLT).”

Cervical Indirect BLT:

1. Patient is supine and the physician sits at the head of the table
2. Physician supports the patient’s head with his/her forearms and contacts the articular pillars bilaterally with the index fingers
3. Physician sidebends to the left or right, and rotates to the left or right, and flexes or extends as needed to balance ligamentous tension in all three planes at the dysfunctional segment. (take joint into the direction of ease)
4. The respiratory phases are tested and the patient is instructed to hold his/her breath as long as possible in the phase that provides the best ligamentous balance. This is usually inhalation. The physician makes minor adjustments in all three planes as needed to maintain ligamentous balance
5. Step 4 is repeated until the best motion is obtained (average is 3 times)
6. Recheck

Clinical Presentations:

- Arm Pain
  - Cervicobrachial syndrome
- Headache, cervicogenic
- Neck Pain
  - Cervical Sprain/Strain
• URI
• Otitis Media
• Vertigo, cervicogenic
• Cardiac Arrhythmia (cervicogenic)
  ❖ Any CP where improved circulation and drainage to and from the cranium would be of direct benefit
  ❖ Any CP where improved autonomic balance would benefit

Thoracolumbar Indirect BLT:

1. Patient is supine and the physician sits at side of the patient.
2. Physician reaches under the patient with caudad hand and contacts the *anterior* transverse process or the *spinous* process of the dysfunctional segment with the pad of a finger. Cephalad hand is placed on the opposite side of the patient’s rib cage
3. Physician pulls the thorax gently toward him/her to induce sidebending
4. Applies anterior pressure to lift the transverse process and induce rotation to the point of balanced ligamentous tension (into the direction of ease).
   a. OR Applies traction on spinous process to induce rotation to the point of balanced ligamentous tension (into the direction of ease).
5. Localization of flexion and extension may require raising the head with pillows or anterior tension with the physician’s right hand
6. The respiratory phases are tested and the patient is instructed to hold his/her breath as long as possible *in the phase that provides the best ligamentous balance*.
7. The physician makes minor adjustments in all three planes as needed to maintain ligamentous balance
8. Repeat as needed until the best motion is obtained (average is 3 times)
9. Recheck
Clinical Presentations, Thoracic Region Technique:

- Mid and upper back pain
- Cough, Bronchitis, Pneumonia
- Constipation / Diarrhea
- Abdominal Pain
- GERD
  - Any CP benefiting from improved autonomic balance from sympathetic outflow – T1-T12

Clinical Presentations, Lumbar Region Technique:

- Low Back Pain
  - Strain
  - Psoas Syndrome
- Constipation / Diarrhea
- Irritable Bowel Syndrome
- Dysmenorrhea
  - Any CP that would benefit from improved balance in sympathetic function

4. DIAPHRAGM RELEASES

Lymphatic Model
Definition
Lymphatic techniques are those designed to remove impediments to lymphatic circulation and promote and augment the flow of lymph. The purpose of lymphatic treatments is to improve the functional capacity of the lymphatic system, which includes maintenance of fluid balance in the body, purification and cleansing of tissues, and enhancement of immune response. As the lymphatic system is also involved in tissue nutrition and the absorption of macronutrients from the GI tract and interstitial fluids, treating the lymphatics can theoretically improve tissue nutrition.

Proposed Mechanism(s)
- Lymphatic flow depends on several factors including diaphragmatic motion, gravitational forces, muscle contraction, and visceral motion.
- Lymph stasis can result in edema and accumulation of particulate matter, exudates, toxins, and bacteria, leading to inflammation, impaired immune cell mobilization, tissue hypoxia, tissue fibrosis, and a variety of diseases.
- One form of lymphatic treatment affects lymphatic channels that travel in fascial layers. Any treatment that reduces fascial restrictions can theoretically improve lymphatic flow by optimizing the capacity of intrinsic lymphatic pumps.
• Lymphatic treatments enhance lymphatic return by increasing the gradient for lymph and assisting the return of lymph from the lung, abdomen, and other tissues.

Lymphatic pump techniques employ direct forces such as external pressure, changes in pressure gradients, and oscillatory movements to act as extrinsic pumps to mobilize lymphatic fluid. Research has shown that lymphatic techniques increase thoracic lymph flow and also increase the concentration of leukocytes in the thoracic lymph. Enhanced mobilization and lymphatic transport of immune cells during abdominal compression is likely an important mechanism responsible for the increased immune responses of patients treated with lymphatic pump technique.

**Indications**

- Edema, tissue congestion, or lymphatic stasis
- Infection
- Inflammation

**Contraindications**

Clinical judgment must be used in employing lymphatic techniques with particular attention to the patient’s diagnosis, clinical condition, and medical therapy. These factors influence choice of the appropriate technique, dose, duration, and frequency of treatment. Because no risks of lymphatic treatment on patients with cancer have been demonstrated to date (2008), and is currently under study, judicious use in select cancer patients is supported by most authorities.

**Absolute**

- Aneuressis if not on dialysis
- Necrotizing fasciitis (in area involved)
- Lack of patient consent and/or cooperation

**Relative**

- Cancer (immune system activation vs. lymphatic spread)
- Osseous fracture or crushed tissue
- Bacterial infections with risk of dissemination
- Chronic infections with risk of reactivation (abscess, chronic osteomyelitis)
- Diseased organ (treating thyroid in presence of hyperthyroidism)
- Pregnancy (uterus/deep abdominal work)
- Circulatory disorders (venous obstructions, embolism, hemorrhage)
- Coagulopathies; patients on anticoagulants
- Unstable cardiac conditions
• CHF (Caution should be used to avoid mobilizing and returning an overwhelming amount of fluid to a compromised heart)
• COPD (thoracic pump with activation due to increased residual volume post treatment)

**Safety and Efficacy**

No cases are known of complications resulting from lymphatic treatment to date (2008).

Multiple published studies have documented the efficacy of various lymphatic treatments. Clinical judgment should always be used in prescribing treatment in

**Principles of Diagnosis**

1. Evaluate diaphragms/fascia including thoracic inlet for restrictions which may limit lymphatic flow.

2. Palpate tissues to evaluate presence of congestion/excess fluid in the interstitial tissues.

3. Consider the fascial patterns of Zink which describe common fascial restrictions such as torsion or rotational patterns that cause restriction of lymphatic flow.

**Principles of Treatment**

Treatments are designed to 1) remove impediments to lymphatic flow starting centrally and moving peripherally and 2) to extrinsically augment the flow of lymph.
4A. THORACIC INLET RELEASE:

1. Patient is supine and the physician sits at the head of the table
2. Physician places hands over of the thoracic inlet with fingers spread over the anterior thorax and thumbs over the posterior thorax
3. Physician carries the thoracic inlet into right or left rotation to the point of balanced ligamentous tension, then adds components of left or right sidebending and flexion or extension until all three planes are at ligamentous balance
4. The respiratory phases are tested and the patient is instructed to hold breath as long as possible in the phase that provides the best ligamentous balance until maximal tissue response has been obtained
5. Recheck

CLINICAL PRESENTATIONS:

HEENT problems:

- URI
- Headache
- Sinus Infection/Congestion
- Tinnitus
- Otitis Media
- Any clinical presentation that would benefit from enhanced lymphatic drainage (thoracic duct proximity)
4B. ABDOMINAL DIAPHRAGM RELEASE:

1. Patient is supine and the physician stands at the side of the table
2. Physician grasps the lateral sides of the patient’s rib cage with his/her palms
   with the fingers spread apart or places one hand posteriorly behind the
   diaphragm and the other hand anteriorly over the subxiphoid region
3. Physician carries the rib cage into left or right rotation to the point of
   balanced ligamentous tension.
4. Physician then adds components of left or right sidebending and flexion or
   extension until all three planes are at ligamentous balance.
5. Holds position at balanced ligamentous tension until a release of the
   dysfunction is effected
6. Recheck.

Clinical Presentations:

- Pneumonia
- Bronchitis
- Asthma
- Low back pain
- Any CP that would benefit from increased lymphatic flow or improved
  respiratory ability.
6. Thoraco-Lumbar Junction Inhibition: (Soft Tissue/Lymphatic):

1. The patient is supine with their arms crossed over the chest. The operator is seated at the side of the patient.
2. The physician makes a fist with the fingers of the cephalad hand, leaving the thumb extended.
3. The physician slides that hand under the patient’s upper lumbar spine, fitting the lumbar spinous processes in the depression between the distal phalanges and the base of the hand.
4. The physician applies a gentle superior lift with the cephalad hand, the knuckles and base of the hand maintaining even pressure on the respective transverse processes.
5. With the caudad hand on the patient’s elbows, the physician uses downward pressure into the bed (or treatment table) to closely control the lift of the fingers, balancing the lift to the resistance felt in the tissues.
6. This positioning is held until release is felt.
7. The area of the thoracolumbar junction is rechecked for reduced hypertonicity.

Clinical Presentation:

- Back Pain
- Lower extremity lymphatic stasis
- Diaphragm tension
- Congestive heart failure
- Lower extremity edema
  - Any CP benefiting from improved drainage of lymphatics from lower extremity through cistern chili
  - Any CP benefiting from improved balance of lumbar sympathetic ganglia
Osteopathy in the Cranial Field: (Items 6-7)

**Definition**
Osteopathy in the Cranial Field (OCF)
A system of diagnosis and treatment by an osteopathic physician using the primary respiratory mechanism and balanced membranous tension. See also primary respiratory mechanism.

**Proposed Mechanism(s)**
- Models of diagnosis and treatment include articular, membrane and fluid.
- The primary respiratory mechanism is a conceptual model that describes a process involving five interactive, involuntary functions: (1) The inherent motility of the brain and spinal cord. (2) Fluctuation of the cerebrospinal fluid. (3) Mobility of the intracranial and intraspinal membranes. (4) Articular mobility of the cranial bones. (5) Mobility of the sacrum between the ilia (pelvic bones) that is interdependent with the motion at the sphenobasilar synchondrosis.

**Indications**
OCF is used to treat Somatic Dysfunctions
- Cranial Neuropathy-nerve entrapment
- Bell’s palsy
- Trigeminal neuralgia
- Atypical facial pain
- Headache
- Sinusitis
- Orofacial pain
- Vertigo
- Visual disturbances
- Tinnitus
- TMJ Dysfunctions
- Malocclusions
- Strabismus
- Strain patterns of the sacrum
- Strain patterns of the axial and appendicular skeleton

**Contraindications**

**Absolute**
- Increased intracranial pressure
- Acute intracranial bleeding
- Skull fracture
- Acute cerebrovascular accident

**Relative:**
- Coagulopathies
- Space occupying lesion in cranium
6. Occipito-Atlantal Release

1. Patient is supine and the physician sits at the head of the table
2. Physician uses index fingers to contact the occiput as near to the condyles as possible. Asking the patient to nod the head helps obtain access to the area. The index fingers may be reinforced with the middle fingers. Physician hands should be resting on the table for support
3. Tension is applied toward the orbits to make firm contact with the occiput
4. Physician applies traction while his/her elbows are moved medially. This moves the fingers laterally to widen the foramen magnum along its entire margin and decompress the tension on the occiput.
5. The respiratory phases are tested and the patient is instructed to hold breath as long as possible in the phase that provides the best increase in tension on the side of restriction. This is usually inhalation. The physician makes minor adjustments in all three planes as needed to maintain balanced ligamentous tension.
6. Step 5 is repeated until the best motion is obtained (average is 3 times)
7. Recheck
   a. With the release, it is more a waiting for a “softening” of the tissues.
   b. With decompression there is slightly more pressure on the cranial bones to separate the condyles

Clinical Presentations:

- Headache
- Sinusitis
- Allergic rhinitis
- Otitis media
- GI disorders
- Any CP benefiting from increased balance from parasympathetic innervation from vagus nerve.
7. Venous Sinus Drainage technique (release)

A. 8 step sequence:

Step 1 – Confluence of sinuses
Steps 2 and 3 - Occipital Sinus
Step 4 - Condylar Decompression
Step 5 - Transverse Sinus
Step 6 – Straight Sinus
Step 7 – Sagittal Sinus – parietal portion
Step 8 – Sagittal Sinus – frontal, metopic portion

Patient and Physician Positioning:

1. Patient is supine and the physician is seated at the head of table with the forearms resting on the table

Hand positioning and Landmarks:

Confluence of Sinuses

1. Physician identifies external occipital protuberance (inion)
2. The pads of the middle fingers contact the inion so that tips of middle fingers touch each other.
3. The weight of the patient’s head completely rests on the pads of the middle fingers, no additional pressure is exerted by the physician.
4. Finger contact should be comfortable to the patient.
5. Physician waits for the tissue texture changes and warmth occurs.
Occipital Sinus

1. Angle the middle finger pads @ 45 degrees and move inferior one fingerbreadth toward the foramen magnum.
2. The finger pads are contacting the midline of the occiput.
3. The weight of the patient’s head completely rests on the finger pads.
4. The physician may slightly lateral distract the finger pads to initiate lateral distraction.
5. Physician waits for the tissue texture changes and warmth occurs.
6. Maintaining the same 45 degrees angle and move inferior one fingerbreadth further toward the foramen magnum.
7. Physician waits for the tissue texture changes and warmth occurs.
Condylar Decompression

1. Maintaining the same 45 degrees angle move inferior one fingerbreadth at the Occipital-atlantal junction (fingers avoid cervical segment –contact occiput)
2. Approximate wrists slowly in order to translate a lateral distraction at the fingerpads
3. Physician waits for the tissue texture changes and warmth occurs

Transverse Sinus

1. Contact 5th digit of each hand at the inion and drape the other digits laterally along the superior nuchal line medial to the occipito-mastoid suture
2. Let the head completely rest on the fingers
3. Physician waits for the tissue texture changes and warmth occurs
Straight Sinus

1. Contact the 5th digit at the inion and the thumb of the same hand on the vertex of the head
2. Consider a line drawn between the inion and the vertex thumb position
3. Physician waits for the tissue texture changes and warmth occurs

Superior Sagittal Sinus

1. Place pads of thumbs in a crossed position to straddle the midline just superior to the inion
2. Approximate the thumbs to distract laterally
3. Physician waits for the tissue texture changes and warmth occurs
4. Maintain crossed thumbs and move superiorly along the sagittal suture (until the coronal suture is reached)
5. Moving slowly superiorly and coaxing the widening of the superior sagittal sinus with gentle thumb approximation
6. Physician waits for the tissue texture changes and warmth occurs at each position
**Metopic Suture**

1. Widen the fingers and place the fingerpads on either side of the midline of the frontal bone from the bregma (coronal suture) to glabella
2. A slight lateral distraction is applied to widen the metopic suture and address the anterior portion of the superior sagittal sinus.
3. Physician waits for the tissue texture changes and warmth occurs
4. Recheck at the Occipito-atlanto junction for symmetry in motion and decrease tissue tension bilaterally

**Clinical Presentations:**

- Headache
- Neck Pain
- Sinusitis / URI
- Sinus Congestion / infection
- Otitis Media
- Any CP where improved drainage from venous sinuses of cranium would be of benefit
8A. Sacral Treatment: Sacral Rocking Technique

Treatment:

1. Patient prone, physician stands at bedside
2. Palms over sacrum longitudinally, one hand over the other
3. Lean over sacrum, and apply pressure anteriorly over base, and rock sacrum anteriorly at the base.
4. Apply pressure anteriorly over the apex of the sacrum, rocking the sacrum posteriorly at the base.
5. Continue with slow gentle rocking alternating with first anterior pressure over the base and then over the apex.
6. Continue for 30 seconds to a minute or until tissue texture change signals release of somatic dysfunction
7. Recheck sacral somatic dysfunction.

Clinical Presentations:

- Menstrual disorder/difficulty
- Low back pain
- Hip pain
- Gait abnormality
- Lower extremity pain
8B. Sacroiliac supine indirect BLT:

Treatment:

1. Patient supine, physician seated at bedside, facing side of bed/table.
2. Physician positions caudad hand beneath sacrum and between the patients thighs / or as needed at angle coming from side.
3. Palm of the hand under sacrum is positioned longitudinally with fingers toward the sacral base and heel of hand under the sacral apex.
4. Other hand is positioned across the hips and applies medial pressure to gap the SI joints (or positioned at L5 drawing L5 cephalad)
5. With sacrum hand, take sacrum to balance ligamentous tension point, in all 3 planes of motion, and hold at that point, making adjustments as needed through treatment.
6. Check respiratory phases for maximal relaxation of sacral region, and ask them to hold breath in that phase.
7. Wait for tissue texture change signally release of somatic dysfunction
8. Recheck sacral somatic dysfunction.

Clinical Presentations:

- Menstrual disorder/difficulty
- Low back pain
- Hip pain
- Gait abnormality
- Lower extremity pain
9. Jones Strain-Counterstrain

Counterstrain Model

Definition
An osteopathic system of diagnosis and indirect treatment in which the patient’s somatic dysfunction, diagnosed by an associated myofascial tender point, is treated by using a position of spontaneous tissue release while simultaneously monitoring the tender point.

Proposed Mechanism(s)
There are a number of proposed mechanisms and one study has provided evidence for the muscle spindle theory.
The proposed mechanism of action of injury for strain counterstrain is as described in FOM2, pp 1003.
Etiology/definition/characteristic of tender points
Mechanism of action of treatment

Indications
Acute or chronic somatic dysfunctions
Somatic dysfunctions with a neural component like a hypershortened muscle
As primary treatment or in conjunction with other approaches
Somatic dysfunctions in any area of the body

Contraindications
Absolute
- Absence of somatic dysfunction
- Lack of patient consent and/or cooperation.
Relative
- Patient who cannot voluntarily relax
- Severely ill patient
- Vertebral artery disease
- Severe osteoporosis

Safety and Efficacy
- Complications and precautions
- Post-treatment reaction
- Pain, most often in antagonist muscles, several hours after treatment, usually self limited and well-tolerated by patients
- Reactions associated with patient position
- Avoid positions that do not relieve pain
- Avoid positions that cause discomfort, dizziness, panic and/or neurogenic pain such as upper cervical hyper rotation and hyperextension
- Avoid extreme forward bending of the thoracolumbar spine in osteoporotic patients
- Use caution when treating the cervical spine in a patient with rheumatoid arthritis or any other rheumatological conditions, segmental or ligamentous instability.
Principles of Diagnosis
Patient history and observation of body habitus are evaluated. Once an area of potential dysfunction is determined, then specific tissue locations are evaluated for presence of tenderness and tissue texture abnormalities (increased tension). The amount of pressure used to elicit a tender point is approximately that which is needed to blanch the nail bed of the diagnosing finger. This pressure will not produce tenderness in healthy tissue and does not radiate.

Counterstrain to cervical spine:

1. Patient supine, physician seated at head of patient
2. Locate tender point on anterior surface of transverse process of cervical spine.
3. Flex the cervical spine down to the segment involved
4. Rotate and sidebend away from the side of the tender point.
5. Fine tune the position in 3 planes to achieve at least a 70% reduction in tenderness
6. Hold for 90 seconds
7. Slowly return the patient’s head and neck to the neutral starting position.
8. Recheck for tenderness over the point treated.

Clinical Presentation:

- Neck Pain
- Headache
- HEENT related clinical presentations
- Whiplash
Counterstrain to Pelvis (eg. Piriformis):

1. Patient prone, physician seated on side of tender point
2. Locate tender point in piriformis muscle 8-9 cm medial to and slightly cephalad from the greater trochanter.
3. Patient leg suspended off table, resting on operator thigh
4. Flex hip to 135 degrees
5. Abduct “knee” slightly (hip abduction)
6. Rotation – variable – internal or external
7. Fine tune position for at least a 70% reduction in tenderness.
8. Hold for 90 seconds
9. Slowly return patient to neutral position, asking them not to help you.
10. Recheck the tenderpoint for tenderness.

Clinical Presentation:

- Sciatica
- Lower back pain
- Hip pain
Counterstrain to Ankle:

1. Locate area of greatest tenderness at ankle.
2. Operator grasps or stabilizes lower leg above the tender point.
3. Operator grasps and controls foot of tender point side.
4. Operator everts or inverts ankle toward tender point
   a. (If lateral point, evert; if medial point, invert)
5. Fine tune dorsiflexion, plantar flexion, and rotation, as well as eversion or inversion as above, to resolve the tenderness.
6. Hold for 90 seconds, or until a tissue texture change is noted.
7. Slowly return the ankle joint to neutral, and recheck the tender point.

Clinical Presentation:

- Ankle pain
- Ankle Sprain
- Gait imbalance
- Short leg
Counterstrain to Thoracic Region: (eg. anterior thorax)

1. Patient prone
2. Physician stands at head of table with knee on the table
3. Locate tender point midline on the sternum
4. Support patient’s head and upper back with the knee
5. Flex patient’s upper back and neck to the level of the tender point, while supporting head and spine with physician’s hand and thigh.
6. Fine tune the position in 3 planes to reduce tenderness at the tender point by at least 70%.
7. Hold for 90 seconds.
8. Slowly return the patient to the neutral position.
9. Recheck the tender point for tenderness.

Clinical Presentations:

- Non-cardiac chest pain
- Sprain/Strain of rib cage and/or sternum
- Costocondritis
- Pneumonia
- Bronchitis
- Asthma
10. Lymphatic Techniques

LYMPHATIC PUMPS

Thoracic Pump:

1. Patient is supine; physician stands at the head of the table. Be sure that the patient’s mouth is free of foreign objects or loose dentures.
2. Instruct patient to turn head to the side; physician turns his/her head to the other side.
3. Places palms with the thumbs at the midline and the fingers spread over the patient’s chest below the clavicles. (The fingers are located more anteriorly for a male patient and more laterally for a female patient to avoid pressure on breast tissue) (may also have patient place her hands over the breasts, and then place operator hands on patient’s, as shown in photo)
4. Instruct patient to take a deep breath and let it all the way out. As the patient exhales the physician follows the thorax to full exhalation. Apply gentle springing to chest wall at this point.
5. Maintain compressive force and instruct patient to take another deep breath.
6. Resist inhalation motion of the thoracic wall during early inhalation.
7. When sufficient respiratory force accumulates against physician pressure, release the compression suddenly.

Clinical Presentations:

- Pneumonia
- Bronchitis
- Hospitalized Patient
- Post-Operative Patient (depending on surgery site)
- Influenza
- Any CP that would benefit from reduced Lymphatic edema or improved drainage of lymphatic fluid
Pedal Pump:

1. Patient supine; physician at the foot of the table.
2. Place the palms of both hands over the metatarsal heads on the plantar surface of the feet and dorsiflexes them to their physiologic barriers.
3. Apply a low velocity, moderate amplitude springing force in a cephalad direction. The repetition rate of the springing is varied until the maximal abdominal visceral motion is observed.
4. Continue for 1-2 minutes, to patient’s tolerance, or until the desired fluid response is obtained.

Clinical Presentations:

- Influenza
- Viral infections
- Pneumonia
- Lower extremity edema
  - Any CP that would benefit from reduced Lymphatic edema or improved drainage of lymphatic fluid
Rib Raising:

1. Patient is supine and the physician sits at the side of the table.
2. Patient crosses arms to move the scapulae laterally and allow access to the ribs posteriorly.
3. Physician places finger pads on the posterior angles of the ribs in the lower thoracic region.
4. Physician lifts the rib angles anteriorly as a group until anterior motion of the chest wall is observed.
5. Physician holds the ribs up until the surrounding tissues relax, then allows the ribs to fall posteriorly.
6. Rib-raising may be applied once or rhythmically for several cycles.
7. Physician repositions the hands to contact a higher group of ribs and step 4 is repeated.
8. When one side of the rib cage is treated completely, the other side is treated.

Clinical Presentations:

- Pneumonia
- Bronchitis
- Hospitalized Patient
- Post-Operative Patient (depending on surgery site)
- Influenza
  - Any CP that would benefit from reduced Lymphatic edema or improved drainage of lymphatic fluid
  - Any CP that would benefit from reduced hypersympatheticatonia
Sources:

   - Chapter 44. “Musculoskeletal Examination for Somatic Dysfunction”
   - Osteopathic Structural Examination: standing, seated
   - Chapter 71, “Treatment of the Acutely Ill Hospitalized Patient.”, p.1136, “lumbar ganglia technique”
   - Thoraco-Lumbar Junction Inhibition

   - Soft Tissue and Myofascial Release Techniques: cervical, thoracic, lumbar regions, pp.40, 42, 44
   - Indirect Techniques (Balanced Ligamentous Tension): cervical, thoracic, lumbar, and sacral regions., pp. 80, 101, 175, 207
   - Diaphragm Release Techniques: thoracic inlet, respiratory diaphragm, pp.53, 55
   - Occipito-atlantal Release and Decompression, p.69
   - Description of Indirect Technique – Balanced Ligamentous Tension, p.30

   - Sacral rocking technique

4. Friedman, Gilliar, Glassman, Counterstrain Approaches in Osteopathic Manipulative Medicine, SFIMMS, 2nd ed., Santa Cruz, CA, 2009. (techniques adapted from text):
   - Strain-Counterstrain Techniques: cervical, thoracic, lumbar, lower extremity, pp.10, 18, 43, 79

   - Lymphatic Techniques: thoracic and pedal pumps, rib raising, pp.308, 311, 300

Technique principles, mechanisms, indications, and contraindications from, or adapted from:

- Soft Tissue Model
- Myofascial Model
- Osteopathy in the Cranial Field
- Counterstrain Model
- Lymphatic Model