Osteopathic Management of the Military Patient

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Objectives

- List the indications for OMM in the military patient
- Identify the appropriate OMT techniques that can be used in an austere environment.
- Be able to safely perform OMT techniques on common musculoskeletal issues in the military population.
- Be able to safely perform OMT techniques on common systemic issues in the military population.


SAFETY
SOOKRANG

OMM in the military

- Not just for musculoskeletal disorders!
- Pre-op and Post-op care
- OB/Gyn
- Pulmonary
- Cardio
- GI
- Ortho
- Trauma
- Fluid management

Indications for OMT

- Neck and back pain
- Shoulder/knee (extremity) pain
- URI/Pneumonia
- Asthma/bronchitis
- CHF
- Cellulitis
- Prevention or tx of post-op ileus/atelectasis
- Lymphedema
- Any post-op pain
- Post-partum pain

Things to Consider

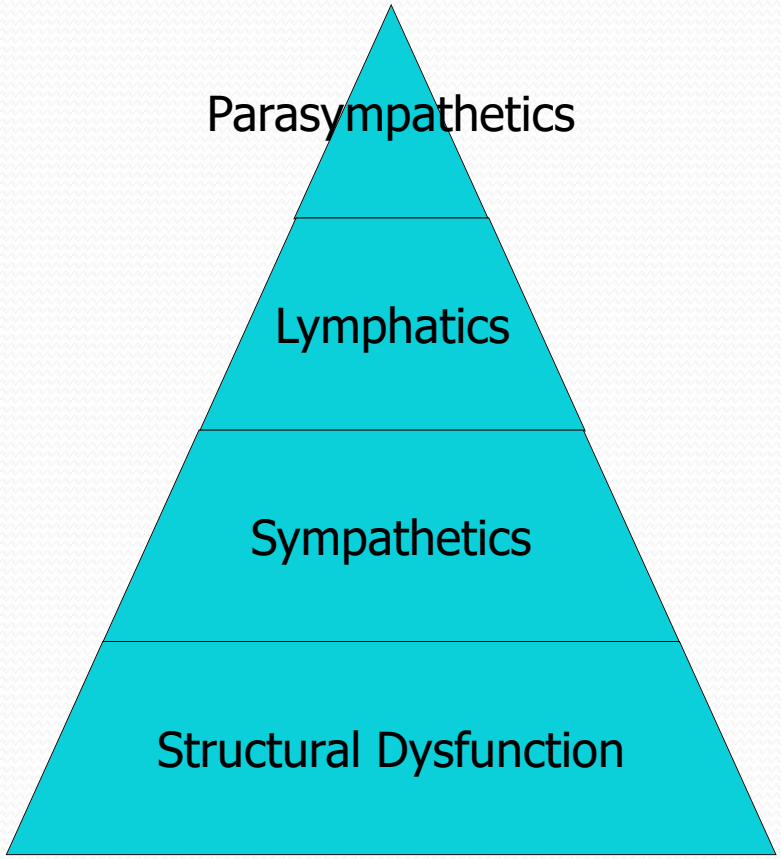
- OA/cervical dysfunction from wearing headgear (w and w/o NVGs)
- 1st rib issues-body armor, heavy gear
- Upper back/levator scap issues-pulling G's, rucksacks
- Back issues from "too much at the gym"
- Extremity injuries from overuse/conditioning/boots
- Don't waste your manipulative effects on areas of the body that do not require your immediate attention

Goals of OMT in Visceral Dysfunction for systemic illnesses

- Normalize sympathetic tone to that viscera.
- Normalize parasympathetic tone to that viscera.
- Improve venous and lymphatic return.
- Improve the mechanical function of the contiguous structures.
- Improve the mechanical environment of the viscera for visceral mobility and motility.
- Remove any structural hindrance to respiration and circulation.

Order of Treatment

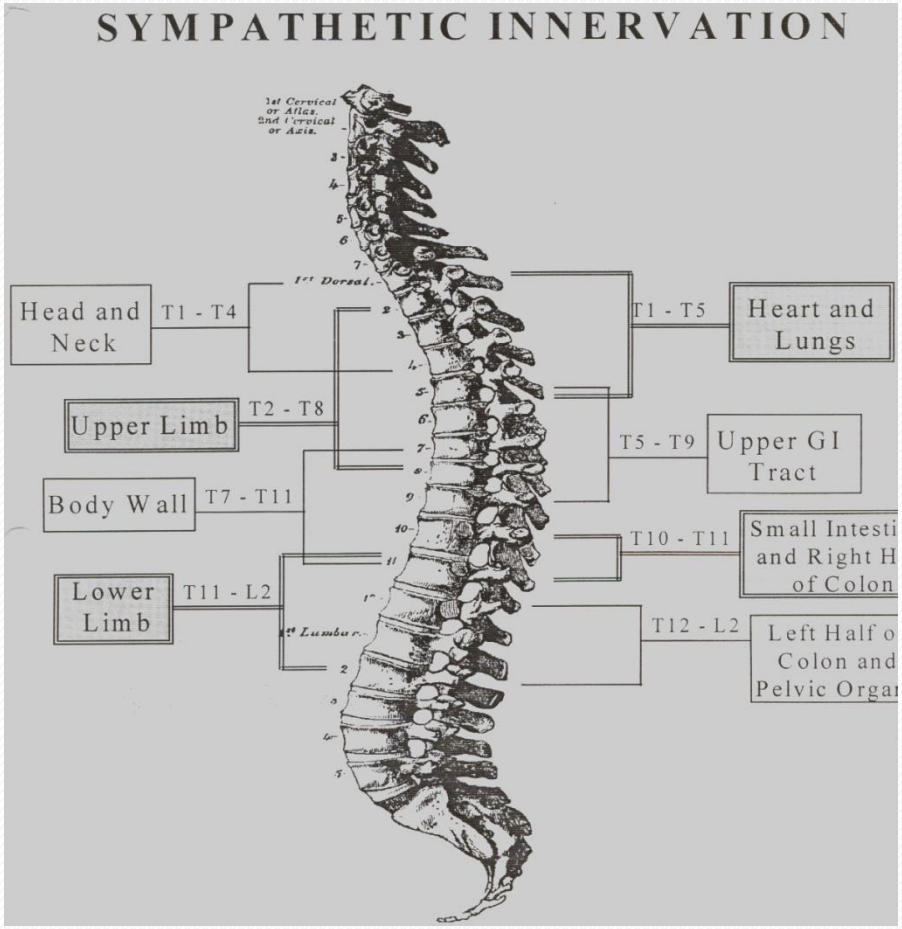
1. Treat related structural dysfunction
   - Indirect if possible
2. Normalize sympathetics
   - Rib raising
   - Thoracolumbar inhibition
3. Enhance drainage
   - Fascial diaphragms
   - Lymphatic pumps
4. Normalize parasympathetics
5. Suboccipital release



Treat Related Somatic Dysfunction

- **Cephalgia**
  - **Cranial Osteopathy**
  - **Cervical**
- **Cardiovascular**
  - **Thoracic**
  - **Ribs**
- **Respiratory**
  - **Thoracic**
  - **Ribs**
- **GI/GU**
  - **Lumbosacral**

Sympathetic Innervations



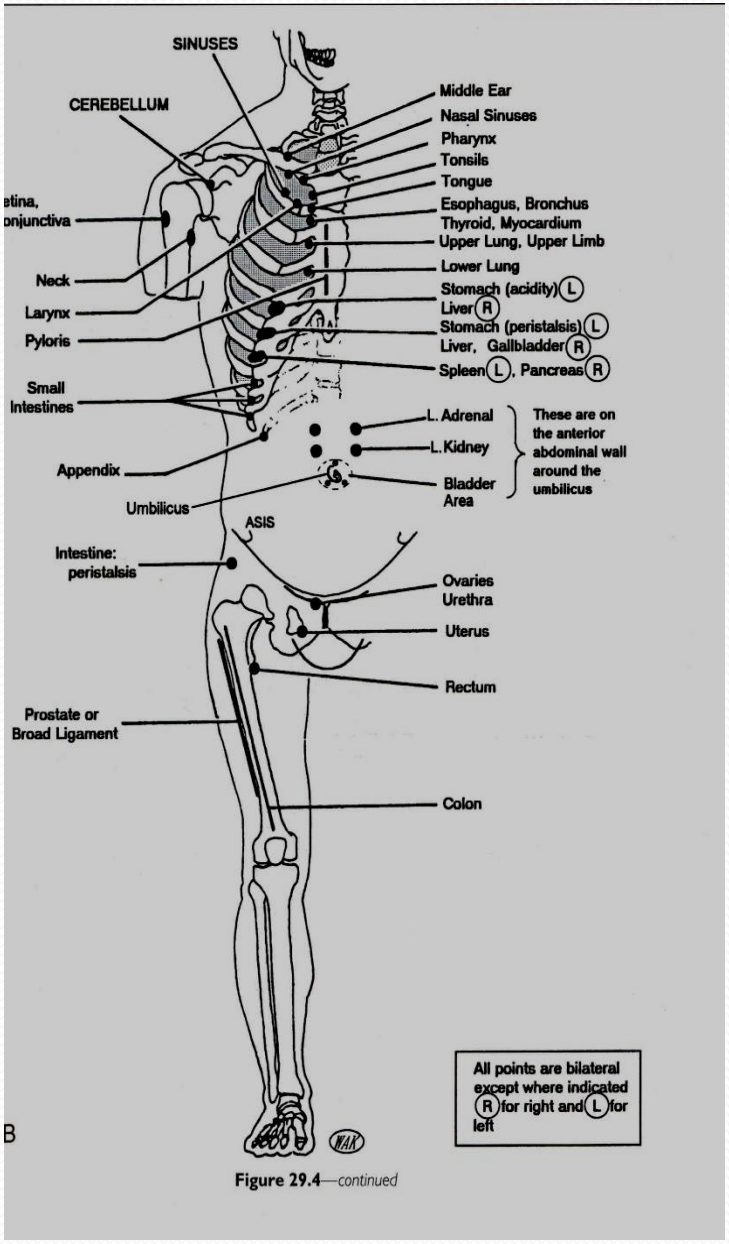
- **Heart & Lungs**
  T1 – T5
- **Upper GI Tract**
  T5 – T9
- **Small bowel & Right Colon**
  T10 – T11
  (appendix-T12)
- **Left Colon & Pelvic Organs**
  T12 – L2

Techniques to Normalize Sympathetic Tone

- **Rib Raising**
  - Temporary stimulation with subsequent rebound normalization of excessive afferent input to facilitated cord segments
- **Abdominal plexus release**
  - Collateral ganglion inhibition
- **Chapman's point stimulation**
- **Treat vertebral & rib S/D before doing rib raising**

Chapman's Reflexes

- **Anterior points**
  - Diagnosis
- **Posterior points**
  - Treatment
- **Differential Diagnosis**
  - Appendicitis
    - Tip of 12th rib
  - Reflux/GERD
    - Between ribs 5 and 6 on the left side



Normalize Parasympathetics

- **OA, C1, and C2 (Vagus nerve)**
  - Suboccipital release
  - Counterstrain
  - MFR/FPR
  - ME
  - HVLA/articulatory
- **S2-4 (Pelvic Splancnics)**
  - Sacral Rocking

Lymphatics

- Consider anatomical region or organs upon which focus of lymphatic treatment will be directed.
- Consider path of lymphatic drainage related to anatomical region or organs.
- Begin lymphatic treatment at most proximal drainage location (usually thoracic inlet).
- Treat common “choke points” (diaphragms and transition zones) distally, ending at focus anatomical region or organ.
- Add general lymphatic pump techniques to facilitate fluid motion.

Fascial Diaphragms

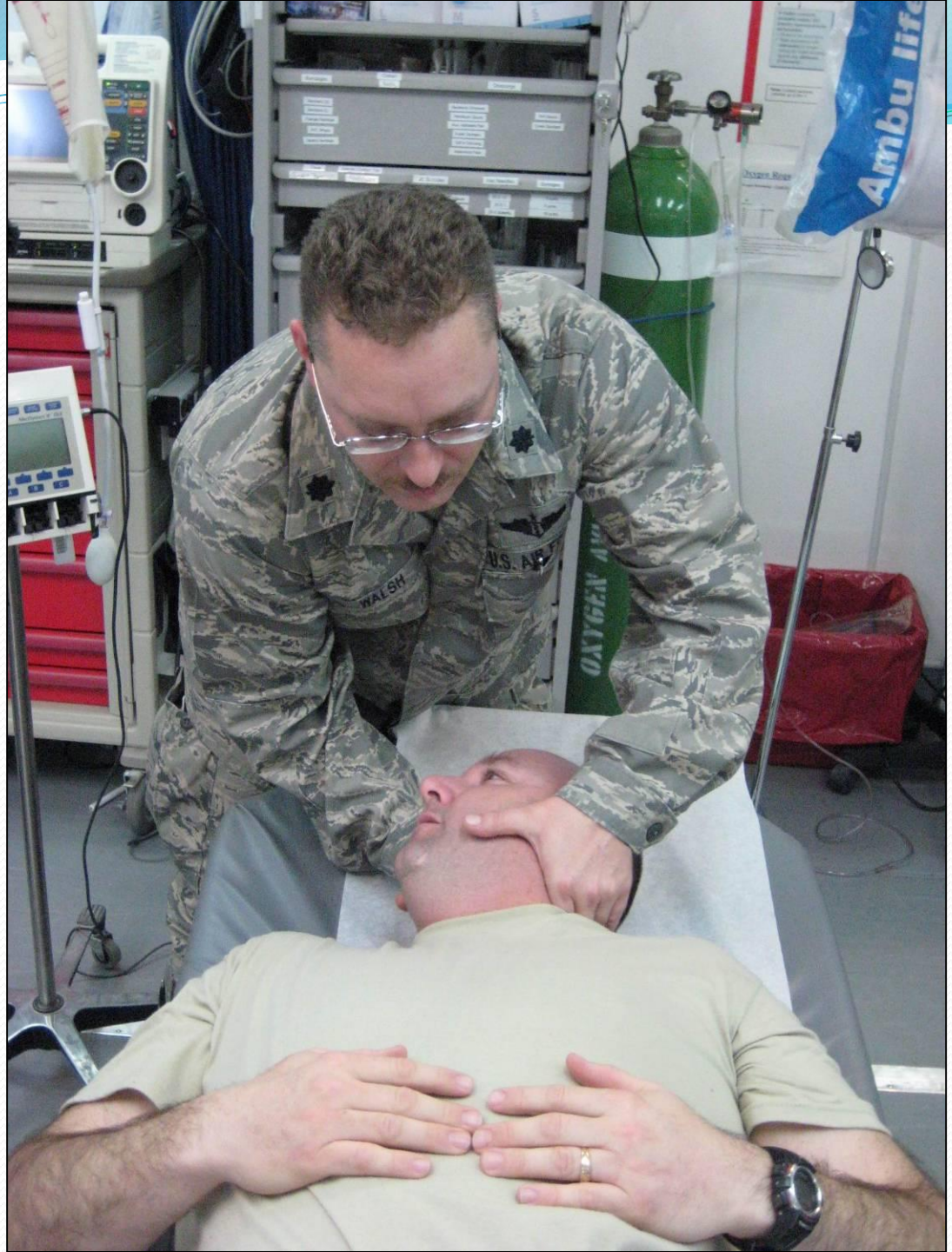
- Pelvic Diaphragm
  - Lumbosacral fascia
- Abdominal Diaphragm
  - Thoracolumbar fascia
- Thoracic Inlet
  - Sibson's fascia
  - Cervicothoracic diaphragm
  - Occipitoatlantal diaphragm

Lymphatic Techniques

- **Thoracic inlet/outlet**
  - Sibson's fascia release
- **Pectoral Traction**
  - Helps expand the chest
- **Miller Lymphatic Pump**
  - Helps create negative pressure in the chest
- **Pedal Pump**
- **Re-doming of the diaphragms**
- **Pelvic diaphragm release**

Post op pain/Trauma

- These patients can and should receive OMT
- Address corresponding Sympathetic, Parasympathetic, and Lymphatic systems-
  - key to restoring autonomic balance and decreased fluid congestion
- Avoid excessive jiggling and overhead arm techniques
- Techniques such as lymphatic pump with arms overhead or vigorous pedal pump may endanger the stability of the operative site or injury
- Utilize indirect techniques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Cervical Spine Mechanics

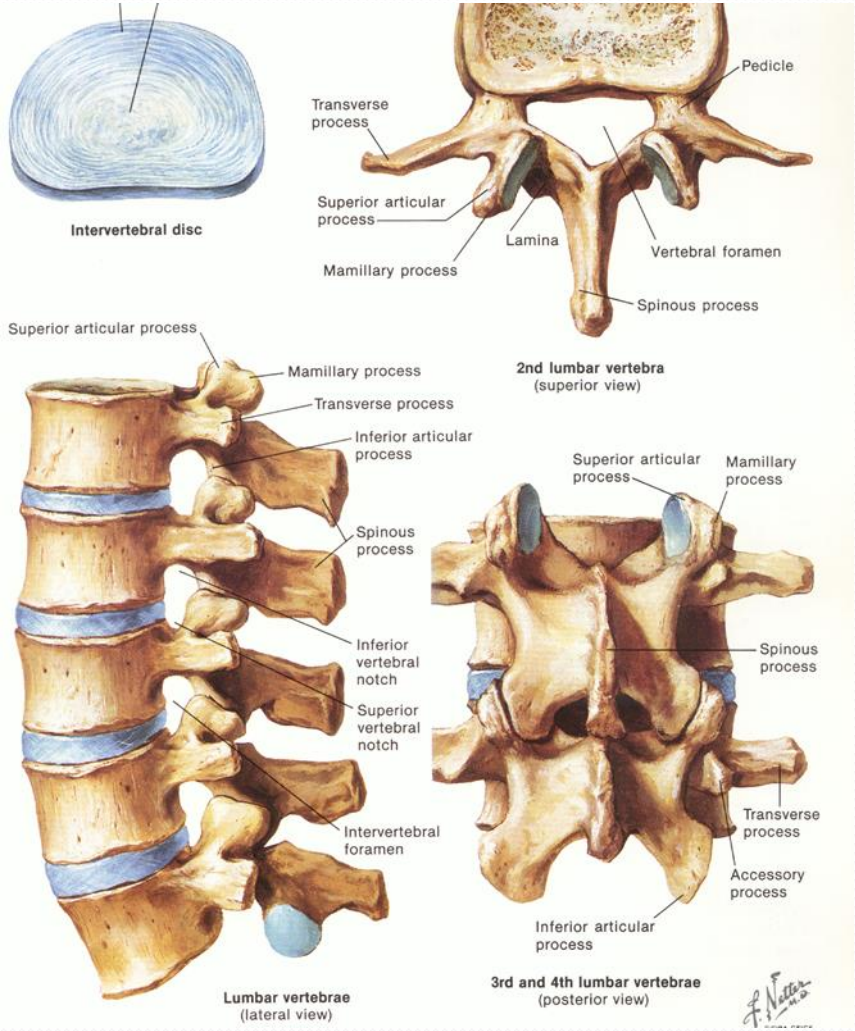
- Type I and Type II mechanics do not apply to the cervical spine
  - OA
    - When sidebending is introduced, rotation will occur in opposite direction ($S_L R_R$)
  - AA
    - Rotation only
  - Typical Cervicals
    - When sidebending is introduced, rotation will occur in same direction ($S_L R_L$)
- Motion
  - OA
    - 50 % of cervical FB/BB
  - AA
    - 50 % of cervical rotation
  - Typical Cervicals
    - Remaining 50 % of cervical FB/BB & rotation

Thoracic Spine Mechanics

- Type I Mechanics
  - When motion is introduced into the spine from a neutral position sidebending precedes rotation, with rotation occurring to the side opposite sidebending.
  - Example: SxRy
- Type II Mechanics
  - When sidebending is introduced into a region of the spine in a non-neutral position, rotation of at least one segment must precede sidebending. Rotation and sidebending occur to the same side
  - Example: RSx
- Most freedom in rotation with articular facets preferring this motion (most in spine except AA)
- Less ROM than C and L spines in FB/BB and SB due to costal restrictions

Lumbar Spine Mechanics

- Same as for Thoracic spine
- Sagittal plane orientation of the facets
- Superior Articular Facet faces Posteromedially
- Inferior Articular Facet Faces Anterolaterally
  - Allows good FB, BB
  - Discourages Rotation & SB



OA Joint- Indirect, Pt Coop/Resp Force- SlRr (Nicolas, 2nd Ed., pg. 407)

- Operator stabilizes the atlas with left hand
- Occiput is sidebent left and slightly rotated right
- Adjust in all 3 planes for greatest ease
- Patient holds breath at point of maximal ease waiting for release

AA Joint-Horizontal Plane-ME

(Nicholas, 2nd Edition, pg. 242)

- Pt supine and operator seated at head of table
- Operator places palms on each side of the pt's skull contacting atlas with finger tips
- Lift head into complete FB without SB
- Rotate to R or L to engage restrictive barrier
- Pt instructed to rotate head opposite direction of setup against operator's counter-force
- Upon relaxation, engage new barrier and repeat 2-3 times

Typical Cervicals-FPR

C3-ESrRr (Nicolas, 2nd Ed., pg. 407)

- Palpate articular facet of C3/C4 with pads of the left thumb and index finger and hold between fingers
- Use right hand on pt's head to straighten cervical lordosis with FB
- Add compressive force through right hand down to C3/C4
- Extend the neck through C3 while maintaining compression
- Sidebend and rotate through the level of C3 to the right, freeing all three planes of motion
- Hold 3-4 seconds for release and return to normal position
- Recheck

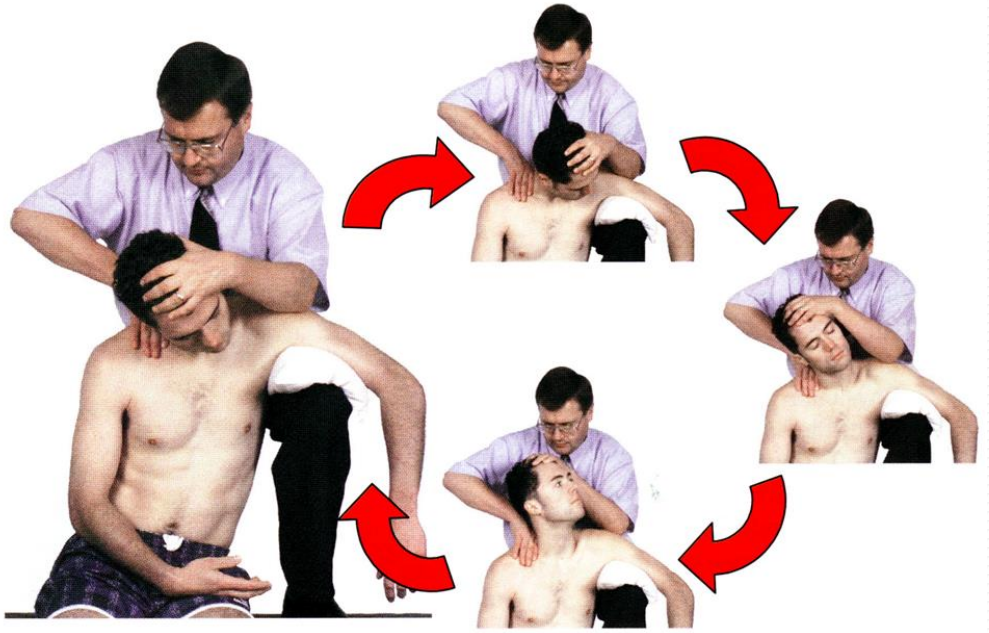
1st Rib Segmental Diagnosis

- Thumbs just anterior to patient's trapezius, apply pressure in caudad direction; sink down to first rib
- Compare elevation
- Spring in caudad direction- lack of spring usually indicates elevation (by scalenes)
- clinical note: depression is very uncommon, usually 2º to trauma or lifting.

Elevated 1st Rib

Seated, Direct Articulatory

- Pt seated and physician behind pt
- Hold rib with thumb lateral to the costotransverse joint with a finger on its anterior end
- Physician uses hand and neck to move T1 through its full ROM until best possible motion is obtained
- Recheck

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OXYGEN AVIATORS

Thoracic Diagnosis

- Determine which transverse process of the vertebrae is posterior: this is the side of rotation
- Have the patient flex and extend to see if the transverse process moves more anteriorly with either flexion or extension: If it moves back into the coronal plane, or “improves”:
  - If a posteriorly rotated process moves anteriorly with flexion: it is FRSx
  - If a posteriorly rotated process moves anteriorly with extension: it is ERSx
  - If rotational component does not change with either maneuver, it is neutral: NSxRy

Neutral Triaxial Plane-Seated Direct, ME T4-12 SlRr (Nicholas, 2nd Edition, pg. 248)

- Pt sits on table with doc standing behind pt.
- Pt placed in "Osteopathic salute" position on side of rotation
- DO places thumb or thenar eminence against apex of lesioned group
- Reach beneath pt's arm to grasp opposite arm
- Pt is slightly extended, sidebent right and rotated left until all planes of motion are localized under thumb/thenar eminence
- Pt uses isometric ME force to straighten up
- reposition pt in all 3 planes after relaxation (engage the new lesion barrier).
- repeat 3 times or until SD is corrected.

Non-Neutral Triaxial Plane-Seated, Direct ME T4-12 RrSr (Nicholas, 2nd Edition, pg. 250)

- Pt sits on table, doc stands behind pt.
- Pt placed in "Osteopathic salute" position on side of rotation
- DO places thumb or thenar eminence against apex of lesioned group
- Reach beneath pt's arm to grasp opposite arm
- Pt is slightly extended, sidebent left and rotated left until all planes of motion are localized under thumb/thenar eminence
- Pt uses isometric ME force to straighten up
- reposition pt in all 3 planes after relaxation (engage the new lesion barrier).
- repeat 3X or until SD is corrected.

Neutral and Non-Neutral Dysfunction of Lumbar Spine

- Seated, Direct ME is the same as for Thoracic spine except more FB or BB to localize to the affected lumbar level


Belize 2002

Psoas Syndrome

- Classic pattern of somatic dysfunction of the low back and hip which centers around shortening of the psoas on one side
- Characteristics include:
  - tight psoas on one side- causes sidebending of lumbars to that side and shortening of the leg with eversion of the foot on that side
  - tight piriformis on the other side- causing external rotation of the leg and sciatica
  - Non-neutral L1 or L2 (usually the key lesion) rotated and side-bent to the side of the spasm
  - Oblique axis sacral dysfunction to the same side as psoas spasm

Psoas Treatment Plan

- If spasm acute: rule out an organic cause, ice, NSAIDs, promote correct posture, avoid sit-ups and backward bending at the waist
- OMT:
- Remove the key lumbar non-neutral at L1 or L2
- Strain-counter strain to relax lumbars, psoas, and piriformis
- Prescribe exercises that stretch the psoas such as swimming and push-ups

Myofascial Treatment of Psoas

- Patient prone
- Operator stands on side opposite of tight psoas
- leg is lifted and adducted to point of movement of thoracolumbar junction
- May be done as muscle energy technique as well.

Upper Extremity OMT

Indications:

Rotator Cuff injuries-MFR/FPR

Frozen shoulder-Spencer's

Radial head dysfunction-ME

Carpal Tunnel Syndrome-MFR

Techniques:

- Spencer Technique
- Counterstrain
- Myofascial/Ligamentous articular release

Spencer Technique

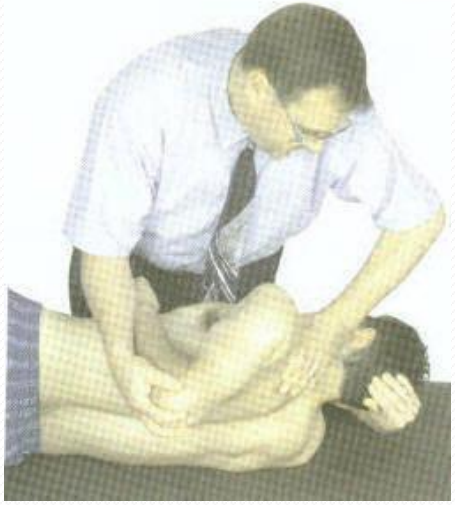
- Treatment for SD of clavicle, glenohumeral joint, or muscular imbalance of the shoulder.
- 7 stages
- Utilizes ligamentous release and isometric contractions
- Physician stabilization of joint critical during isometric contractions
- Always use short lever first before activating extended (straight) arm (stages 1-3)
- Good for adhesive capsulitis (frozen shoulder), and improving ROM (not for acutely inflamed joints)

Spencer Technique- 7 Stages

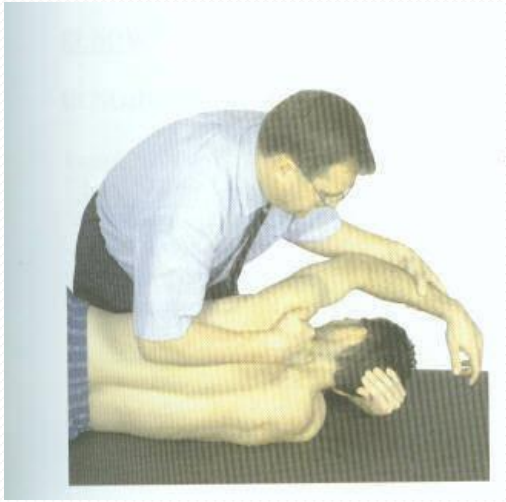
- Short Lever
  - **1- Extension**
  - **2- Flexion**
  - **3- Circumduction**
    - **(compression)**
- Long lever
  - **4- Circumduction**
    - **(traction)**
  - **5- Abduction**
  - **6- Internal rotation**
  - **7- Joint pump**

7 Stages of Spencer

- Stage 1: Extension

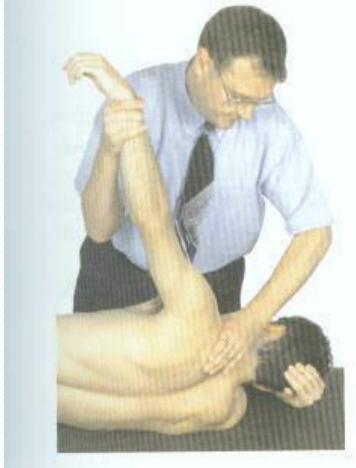


- Stage 2: Flexion



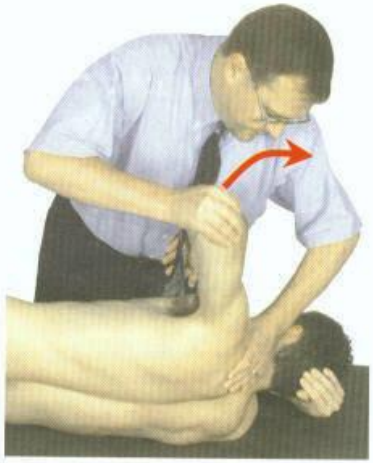
- Stage 3: Circumduction with Compression

- Stage 4 Circumduction with Traction



7 Stages of Spencer, cont.

- Stage 5: Abduction



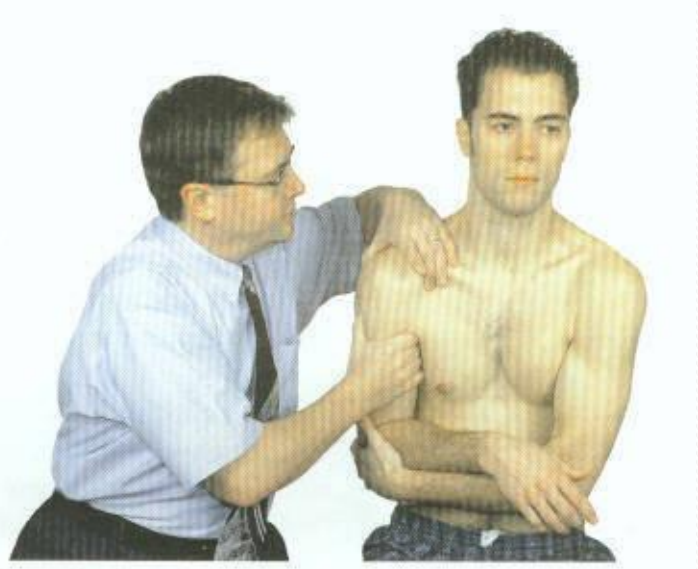
- Stage 6: Internal Rotation

- Stage 7: Joint Pump

The Kimberly Manual, 2000 pgs. 236 – 238

Counterstrain

- Most common tender points occur along the supraspinatus muscle.
- Place patient in “statue of liberty position”
- Hold 90-120 seconds



The Kimberly Manual, 2000 pgs. 234

Lower Extremity OMT

Lower Extremity Somatic Dysfunction

- Hip (Flexed, Extended, Internally rotated, Externally Rotated, Adducted, Abducted, Tenderpoints(Iliopsoas, Piriformis…)
- Knee (Tibial torsions, Fibular Head Anterior or Posterior) Tenderpoints
- Ankle (Anterior/posterior tibia on talus, tibial talar compression, Subtalar compression) tenderpoints
- Foot (Supinated, Pronated, inferior cuboid, Inferior metatarsal head) Tenderpoints.
- Many more……

Lower Extremity Techniques

- Muscle Energy (direct/indirect) techniques work very well for chronic conditions-hips rotation, fibular head ant/post.
- Myofascial Release and Balanced Ligamentous techniques (indirect) can be safely used for acute conditions-knee and ankle sprains.
- Strain-Counter strain for tender points-Piriformis syndrome.

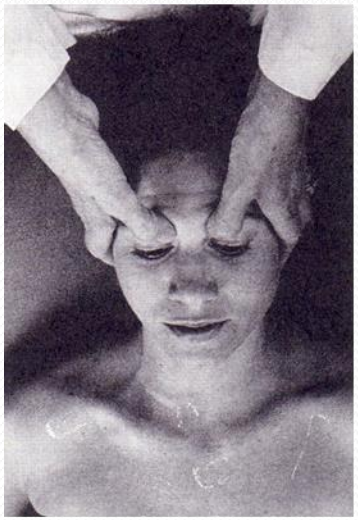
Sinusitis

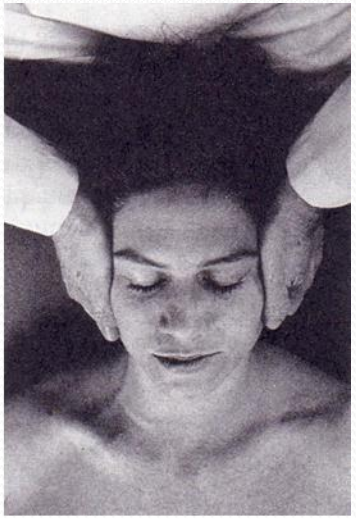
Goals of treatment with OMT:

- To relieve obstruction and pain
- To improve venous and lymphatic flow from the area
- To effect reflex changes
- To improve mucociliary clearance

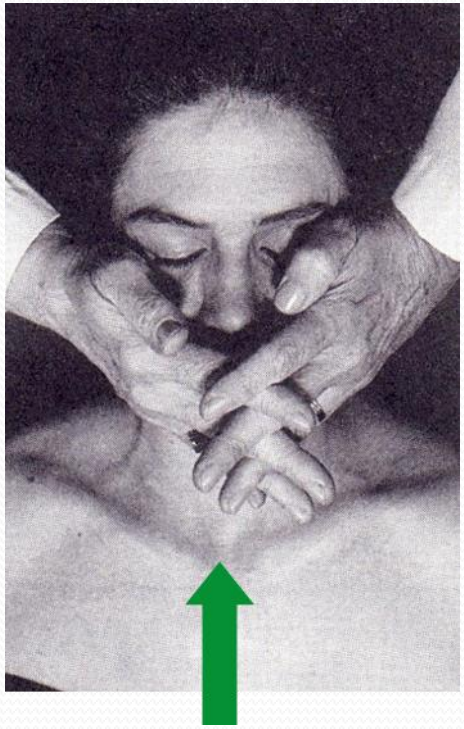
Sinusitis: Efflurage

- Pressure is applied directly with the thumbs in the following series:
- Frontal sinuses (not pictured)
- Supraorbital notch
- Maxillary sinuses
- Temporal areas
- Pressure is gradually increased and released in gentle, rhythmic motion
- Repeat cycle several times

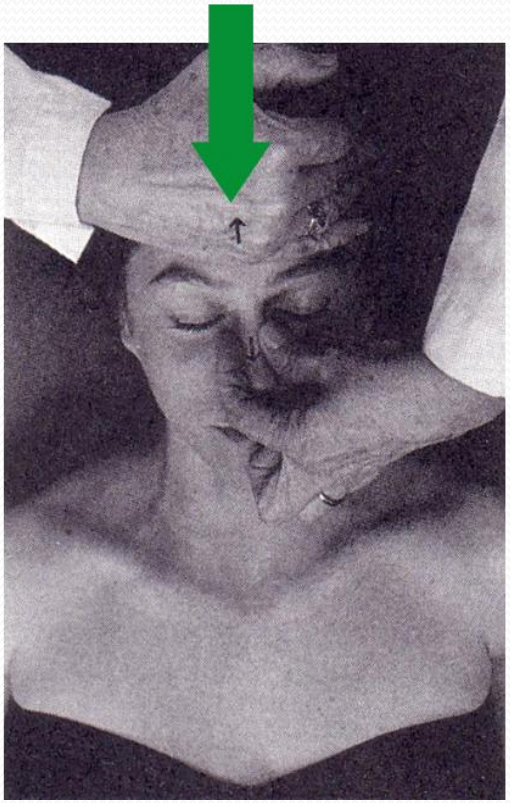




Sinusitis: Counterstrain



Supraorbital tender points – one hand rests on the
patient's forehead, lightly pulling it superiorly.
Fingers of the other hand pinching the bridge of the nose distract the nose caudad.



Maxillary sinus - Interlace fingers above the bridge of the nose with the thenar eminences resting on the lateral curve of the zygoma.
Apply pressure through the thenar eminences in a compressing and lifting motion.
Maintained for 90 seconds then release.

URI/Pneumonia

- **Goals of treatment:**
  - Balance autonomics
  - Improve rib cage motion
  - Improve lymphatic movement

- **Treatment options:**
  - Sub occipital release, OA and AA treatment
  - ME for C3-C5 dysfunction
  - Soft tissue stretching of scalene muscles
  - Correction of 1st rib dysfunction
  - reflex at Rt sternal border, inferior to ribs 3 and 4 (if rib involved inhibitory pressure works well)
  - Re-doming of the diaphragm
  - Lymphatic pump techniques

Pneumonia (cont)

- **Normalizing Parasympathetic/Sympathetic Tone:**
  - **Increase of the following:**
    - Acute burst of catecholamines and bronchial dilation
    - Thinning of secretions
    - Improve blood flow
  - **Decrease of the following:**
    - Goblet cell hyperplasia over the long term
    - Smooth muscle hyperplasia over the long term
    - Quantity of mucus production
- **Improving diaphragmatic motion:**
  - Allowing for increased tidal volume
  - Improving lymphatic flow and decreasing vascular congestion

Any Questions?