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.
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
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
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)

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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
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 lumbar 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
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

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.

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.

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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?