

Application of OMM in any Setting

Jodie Hermann, DO, MBA, FACP

American College of Osteopathic Internists

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Disclosures

- None

Jodie Hermann, DO

- Dually Board Certified:
 - Internal Medicine
 - Neuromusculoskeletal Medicine
- Fellowship:
 - Integrative Medicine
- Chair, Osteopathic Manipulative Medicine
 - University of New England College of Osteopathic Medicine
- Hospitalist
 - Maine General Medical Center, Augusta, Maine
- Sports Medicine Team Physician
 - University of New England, Biddeford, Maine

Performing an Osteopathic Physical Exam

- Combine this with your regular PE
- As you move through the anatomic locations, add the TART assessment
- If you are able, treat the patient while you are at that location after your assessment.
- Physical assessment does not have to be a cumbersome process.
 - Remember we are looking for restriction. Fluid does not flow as readily with restrictions in place. Observe a fluid wave and where it may be inhibited.
- In general:
 - Younger individuals with more acute conditions are more amenable to direct techniques
 - Older individuals with more chronic conditions are more amenable to indirect techniques
 - In general.....

Osteopathic Tenets

The Tenets of Osteopathic Medicine express the underlying philosophy of osteopathic medicine and were approved by the AOA House of Delegates as policy.

- The body is a unit of mind, body and spirit.
- The body is capable of self-regulation, self-healing and health maintenance.
- Structure and function are reciprocally interrelated
- Rational treatment is based upon an understanding of the basic principles of body unity, self-regulation and the interrelationship of structure and function.

5 Osteopathic Pathophysiological Models

Academy of Osteopathy

- Assessing patient functioning, assessment and care central to OPP
 - Biomechanical-Structural
 - Respiratory-Circulatory
 - Neurological
 - Metabolic-Nutritional
 - Behavioral- Biopsychosocial

5 Osteopathic Pathophysiological Models

The Bioenergetic Model in Osteopathic Diagnosis and Treatment: An FAAO Thesis, Part 1 Jan T. Hendryx, DO, FAAO

Biomechanical- Structural

Primarily from a structural perspective. Emphasize anatomy: muscles, spine and extremities; posture and motion.

OMT directed to normalizing biomechanical somatic dysfunctions (joints, myofascia), thus restoring normal structural integrity, physiological functioning, adaptive potential and homeostasis.

OMT to normalize biomechanics include high-velocity low amplitude thrusting, muscle energy, counterstrain, ligamentous articular strain, myofascial release, facilitated positional release and Still technique.

Respiratory-Circulatory

Emphasizes normalization of pulmonary, cardiovascular, and circulation of fluids (blood, lymph, cerebrospinal fluid).

Horizontal diaphragms (tentorium cerebelli, respiratory, pelvic), thoracic inlet, thoracic cage, extracellular matrix, lymphatics and viscera (heart, lungs, kidneys) are important anatomical structures addressed.

Osteopathy in the cranial field, cervical, thoracic and rib mobilization, lymphatic drainage, respiratory diaphragm myofascial release, and visceral osteopathic manipulative techniques are helpful in restoring health. The Bioenergetic Model in Osteopathic Diagnosis and Treatment in combination with medications, surgery, intravenous fluids and even ventilation as appropriate.

5 Osteopathic Pathophysiological Models

The Bioenergetic Model in Osteopathic Diagnosis and Treatment: An FAAO Thesis, Part 1 Jan T. Hendryx, DO, FAAO

Neurological

Peripheral, autonomic and central nervous system

Control, coordinate and integrate body functions. Proprioceptive reflex and muscle strength imbalances, spinal segmental facilitation, nerve compression and entrapment disorders, autonomic reflexes and visceral dysfunctions, nociceptive influences and brain dysfunctions are common problems.

Manipulative treatment may include osteopathy in the cranial field, Chapman reflexes, rib raising, counterstrain, muscle energy, neural release and inhibition. Exercise therapy, including proprioceptive balance training, stretching and strengthening.

Appropriate neurological evaluation, referral, surgery and medications may be appropriate in patient management.

Metabolic-Nutritional

Maximizing the efficiency of the patient's natural self-regulatory and self-healing mechanisms.

Homeostatic adaptive responses are orchestrated through positive and negative feedback systems to regulate various forms of energy exchange and conservation that occur through metabolic processes and organ functioning. The neuroendocrine-immune system and all internal organs are the focus.

Lifestyle changes such as appropriate exercise, nutritional counseling and stress reduction are primary therapeutic modalities, as are appropriate use of medications. Osteopathic manipulative treatment includes lymphatic pump and visceral techniques.

5 Osteopathic Pathophysiological Models

The Bioenergetic Model in Osteopathic Diagnosis and Treatment: An FAAO Thesis, Part 1 Jan T. Hendryx, DO, FAAO

Behavioral- Biopsychosocial

Addresses a patient's mental, emotional, social and spiritual dimensions in relationship to health and disease. Mind-body interactions can have a huge influence on a patient's wellbeing and functioning in society.

Depression, anxiety, stress, habits, addictions and numerous other conditions must be addressed appropriately, often in conjunction with medications, psychiatry or psychotherapies, stress reduction, meditation, and support groups.

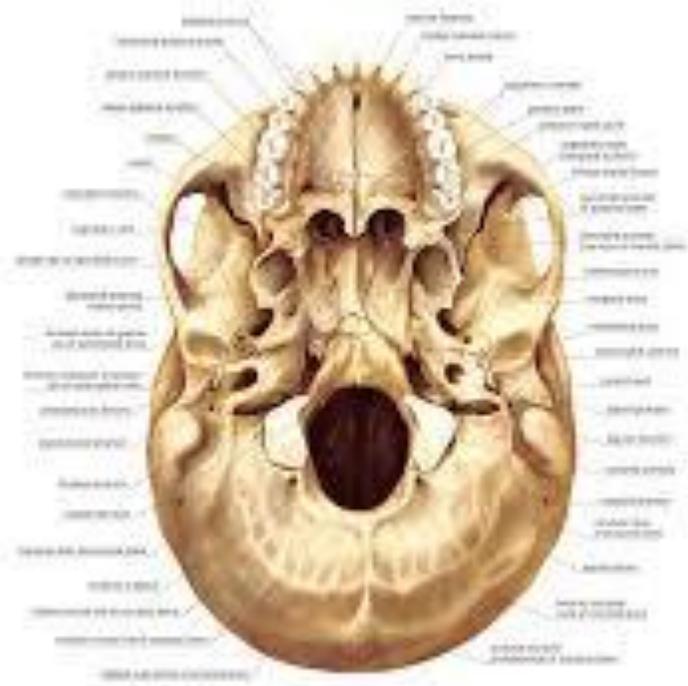
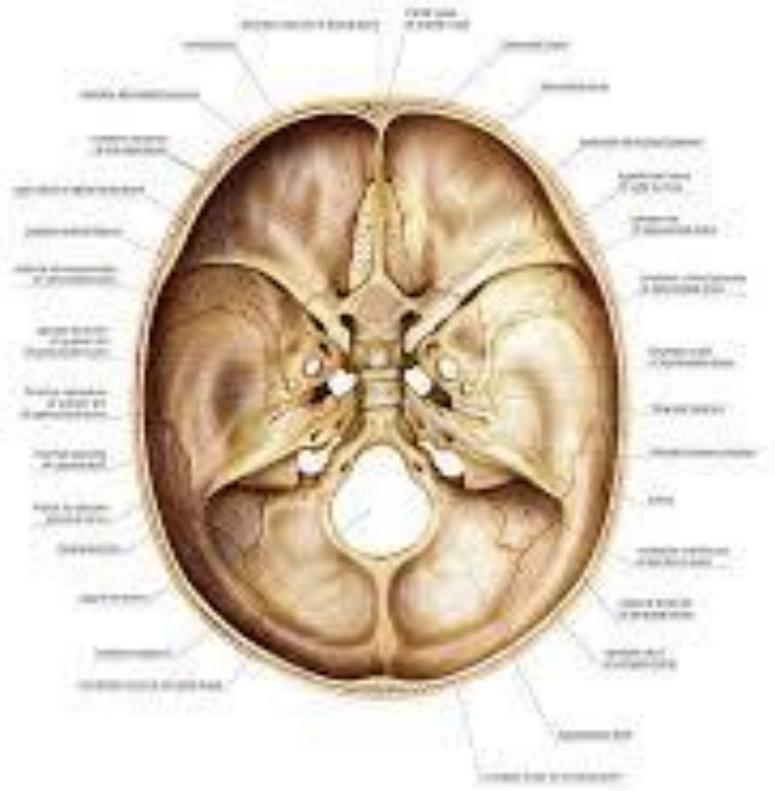
TART

- Tenderness
- Asymmetry
- Restricted Range of Motion
- Tissue Texture Changes

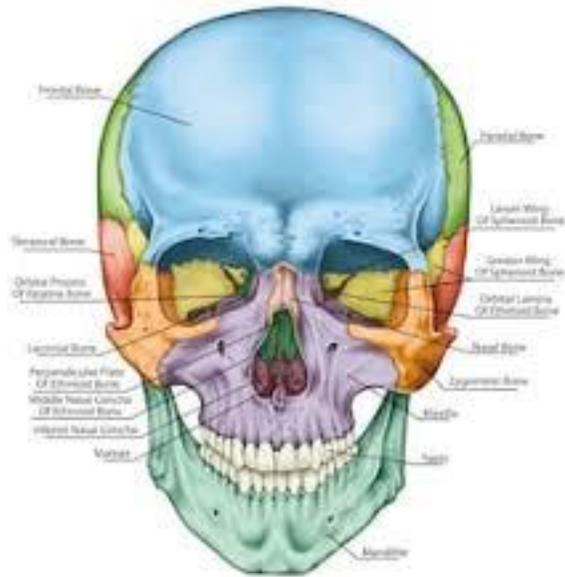
Osteopathic Manipulative Techniques (OMT) Integration with Internal Medicine

- Thought process: Relating the 5 Osteopathic Models
 - Anatomy
 - Physiology
 - Movement/Restriction
- Common Diseases
- Inpatient and Outpatient
- OMT Techniques

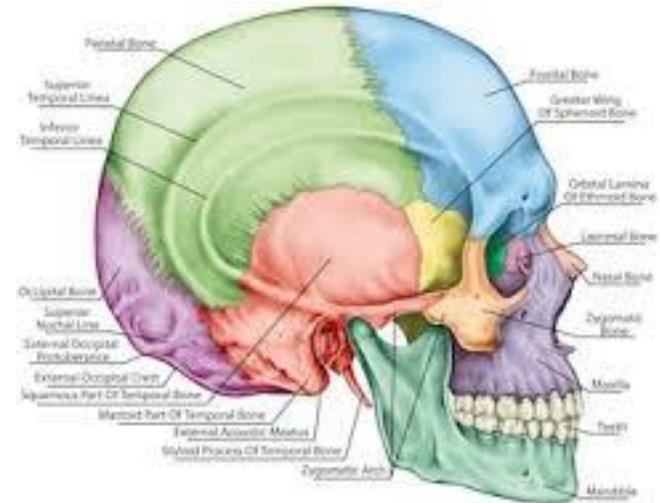
Cranium



Facial Bones

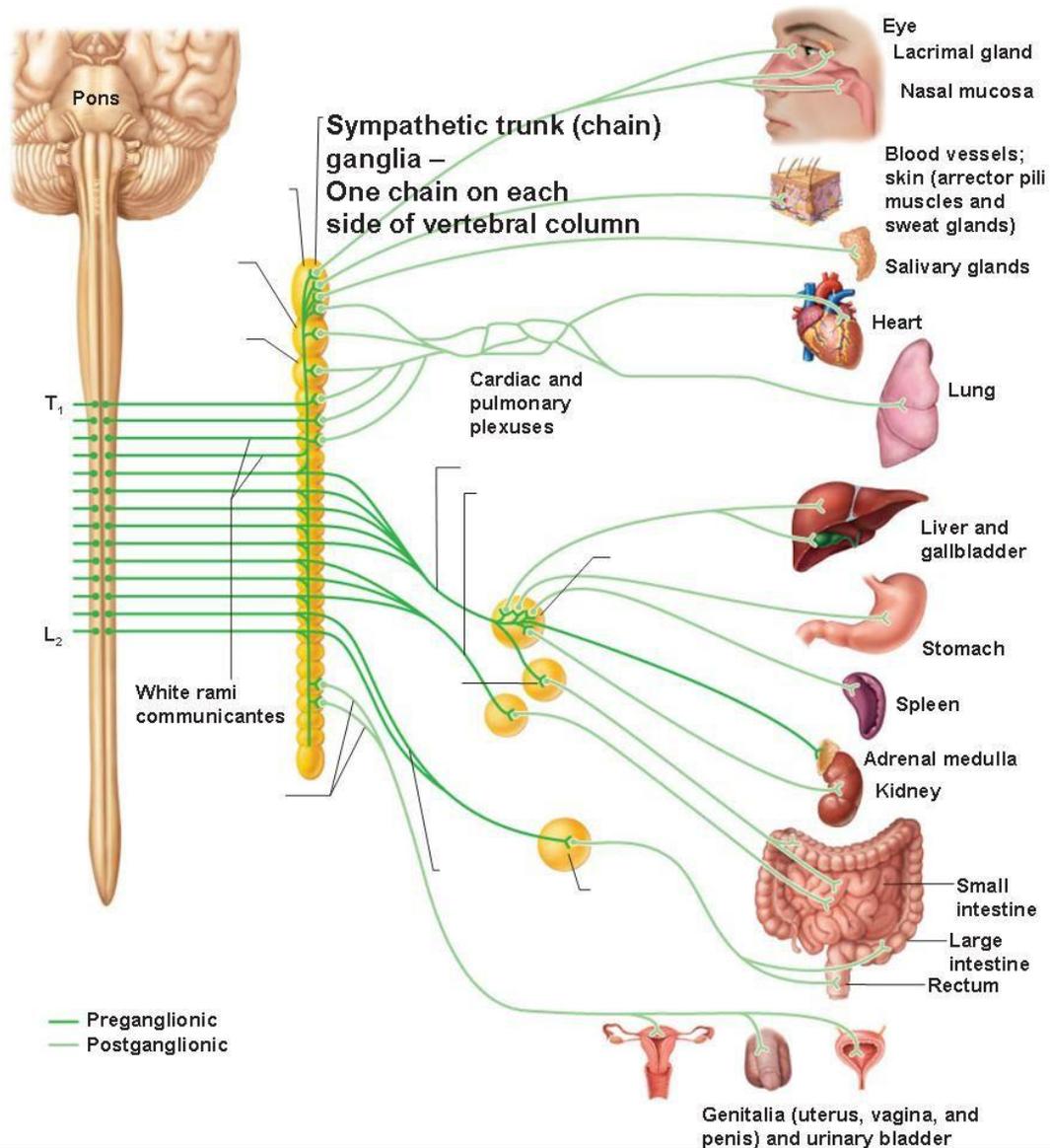


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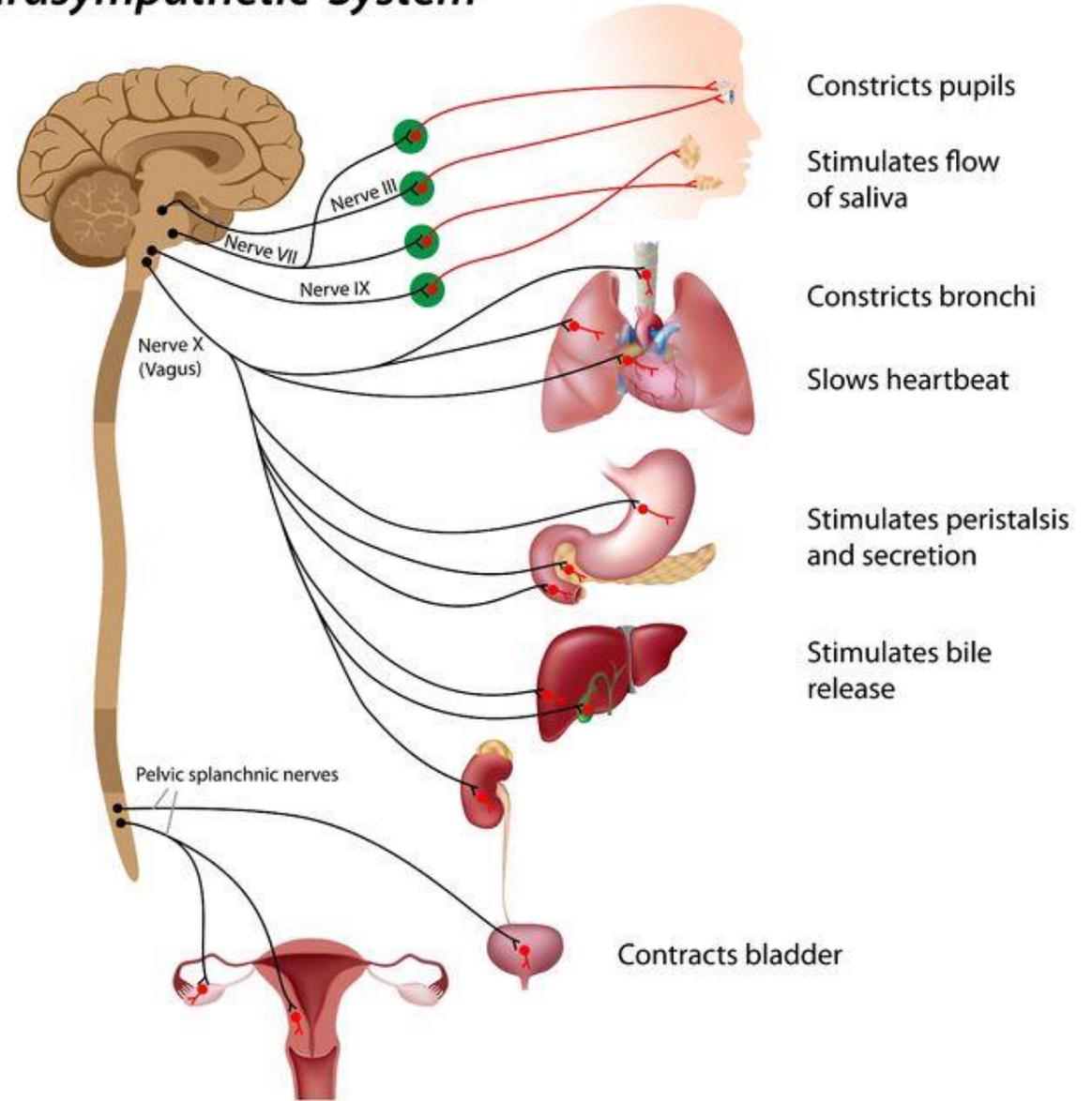


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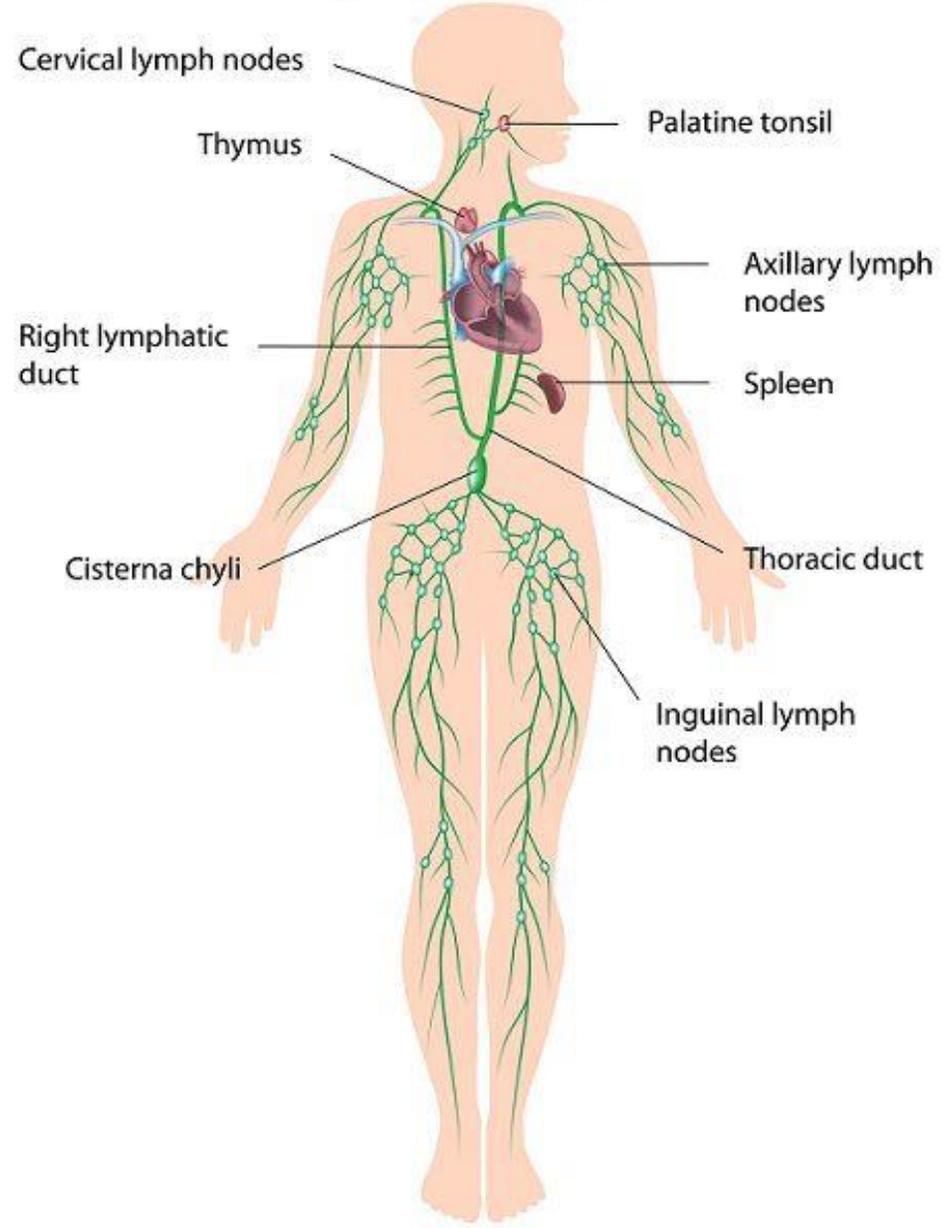
Autonomic NS



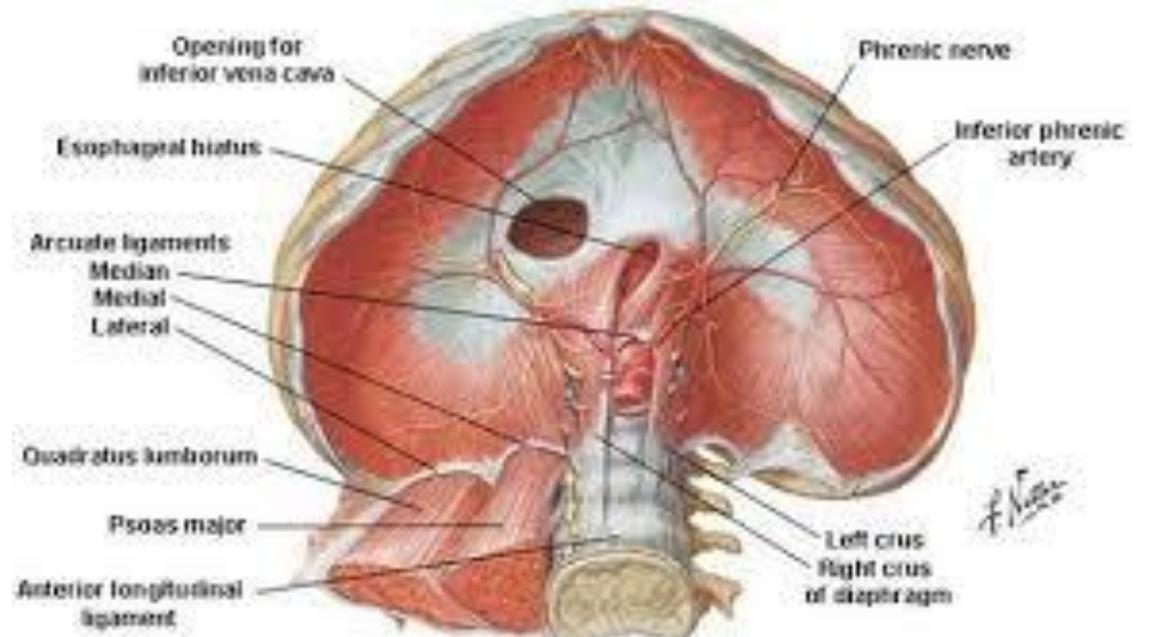
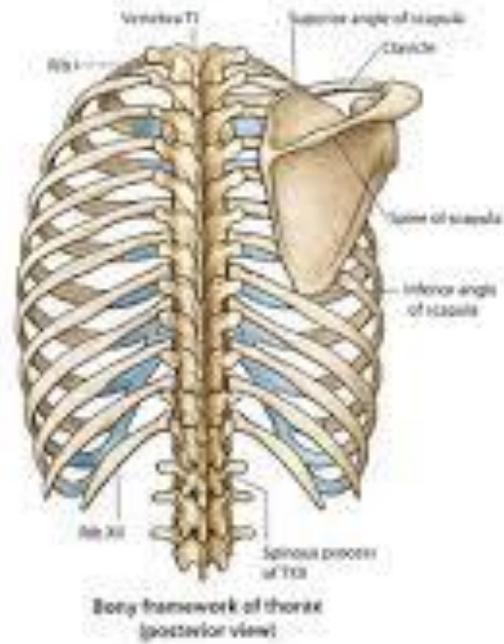
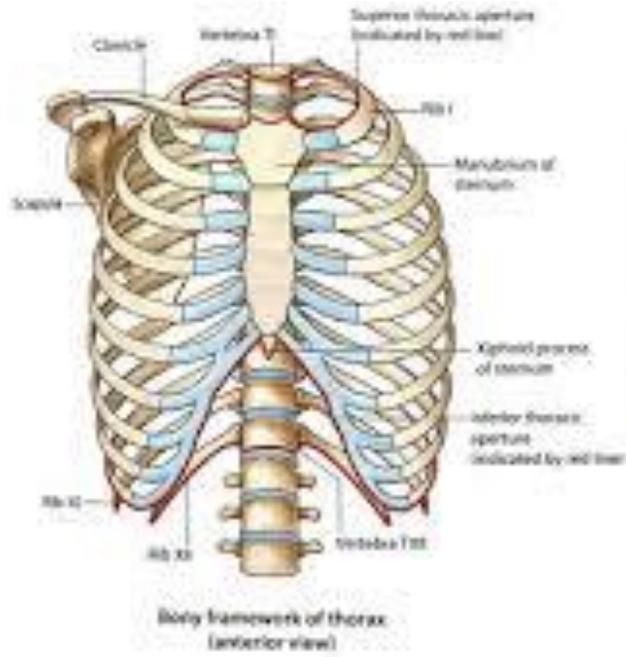
Parasympathetic System



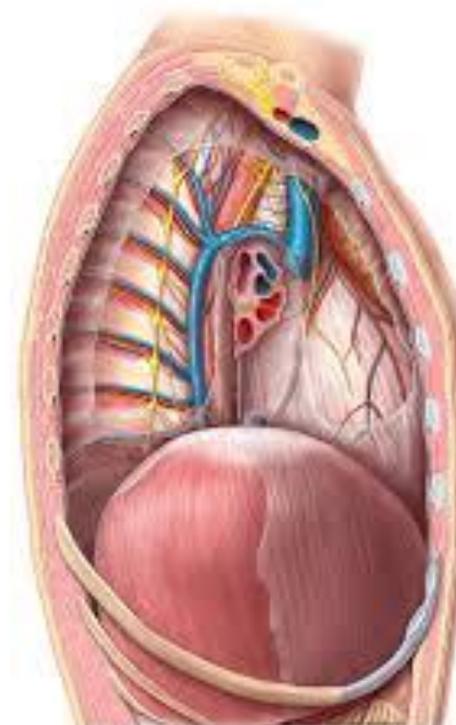
The Lymphatic System



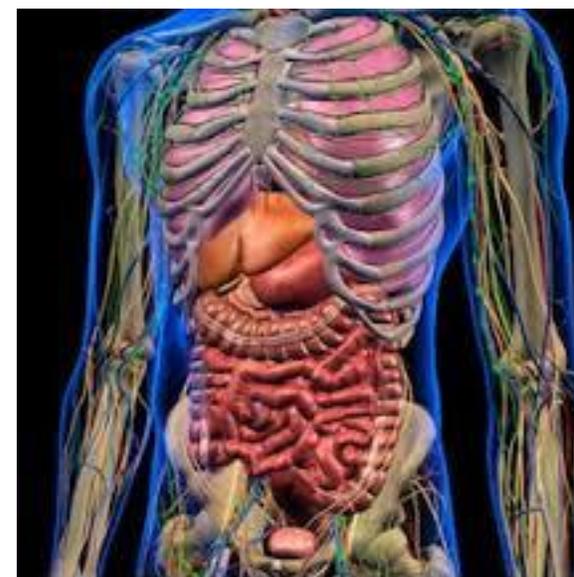
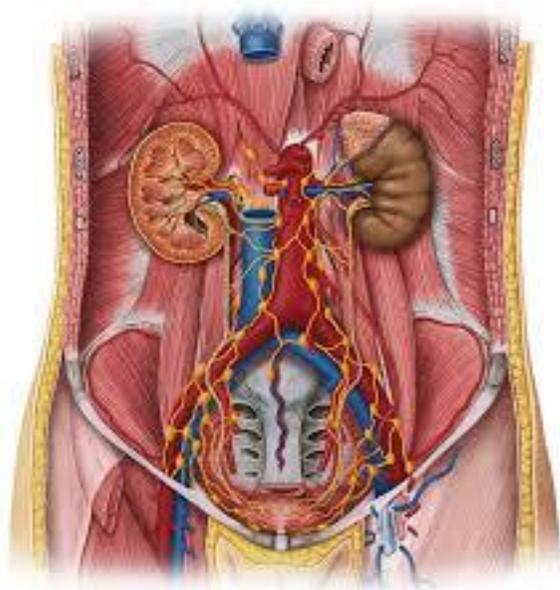
Thorax



Thorax



Abdomen

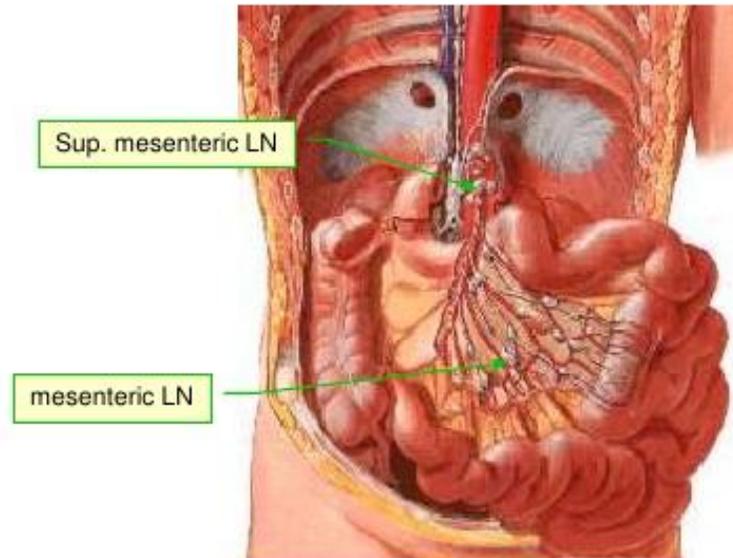
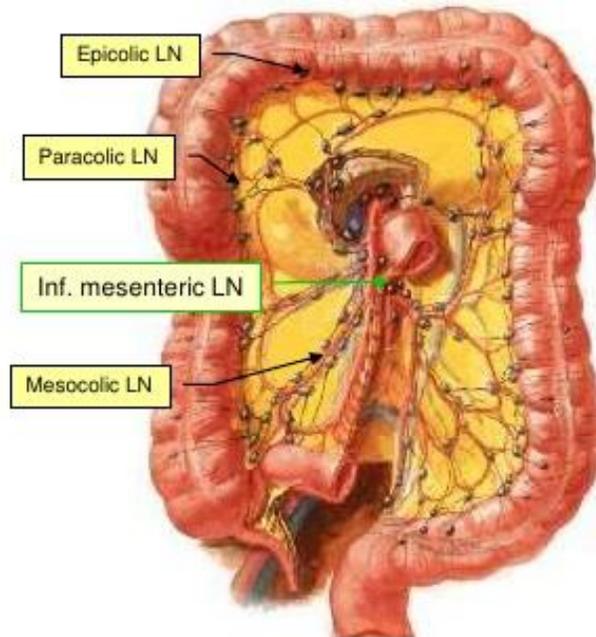


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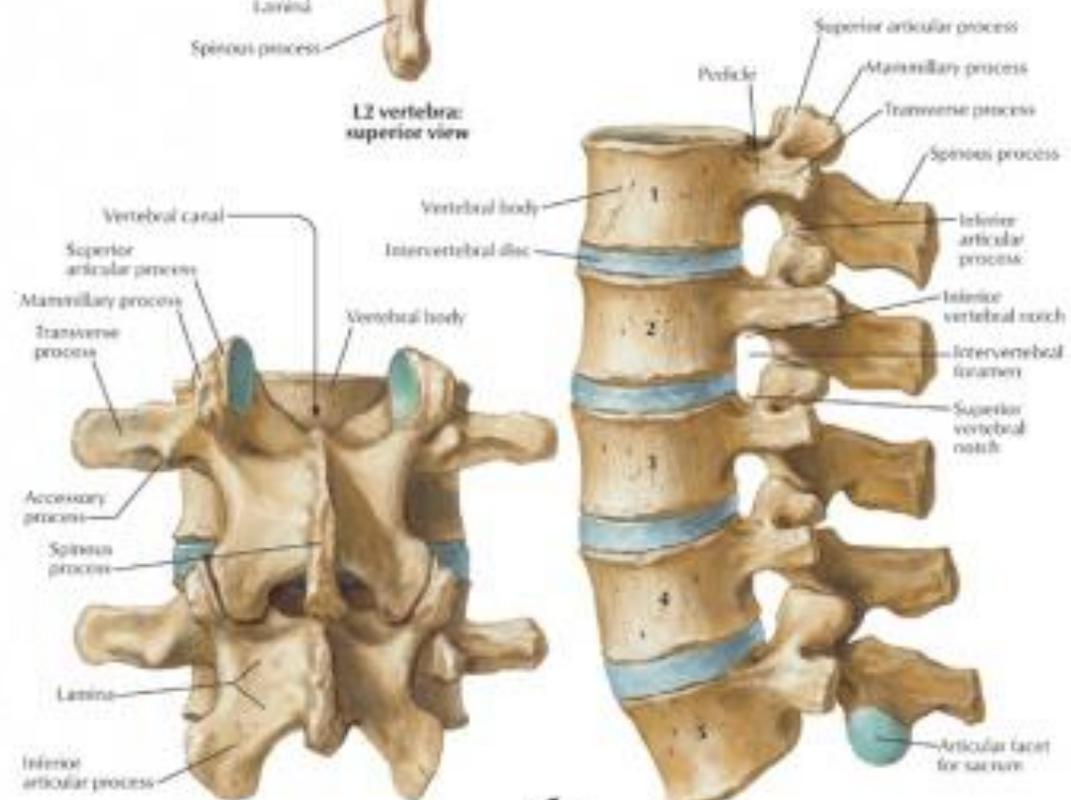
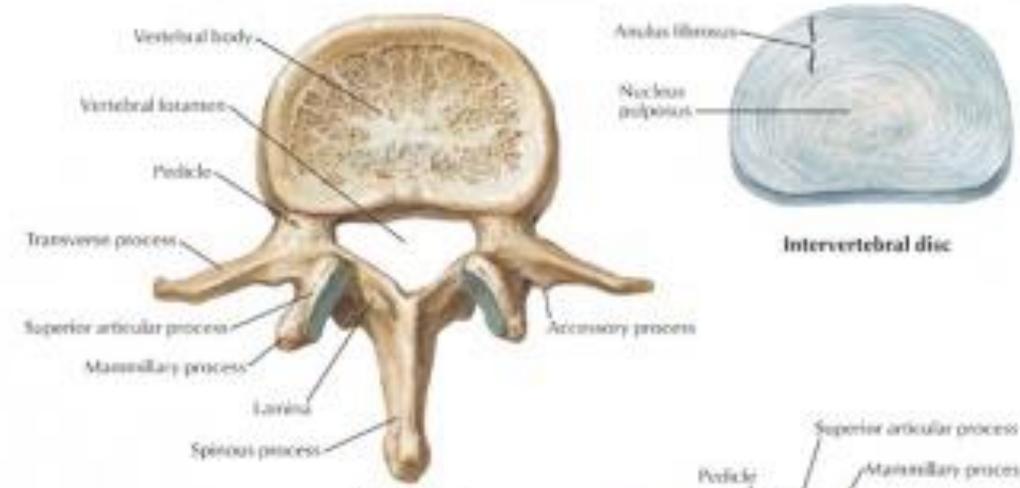
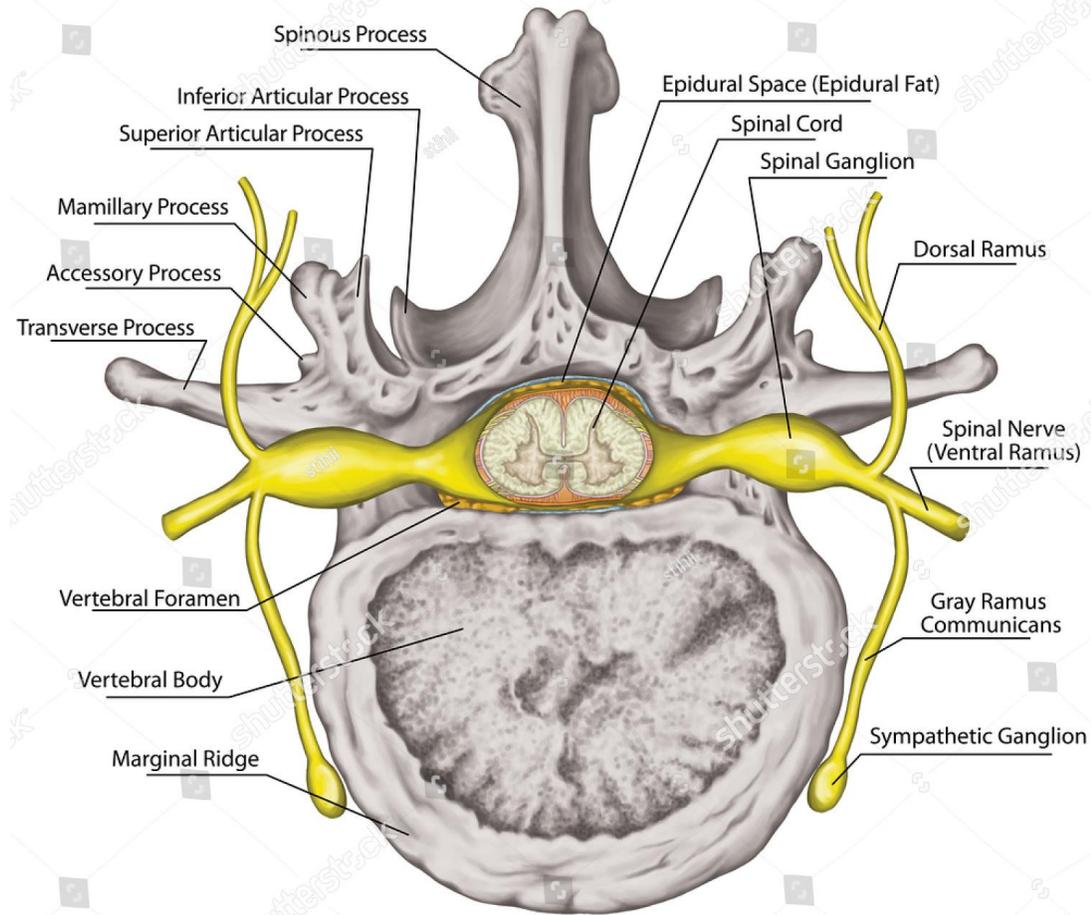
Abdomen

Superior and inferior mesenteric lymph nodes

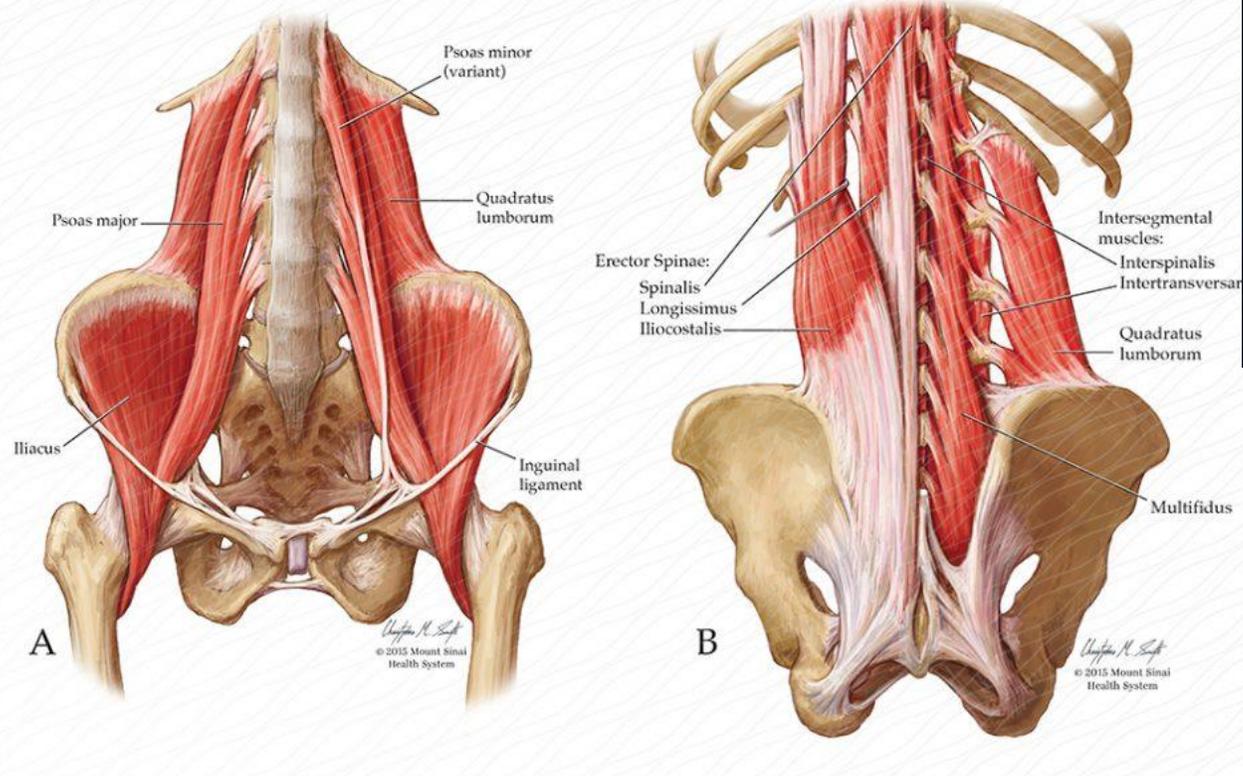
- Drain the small and large intestines
- Drain the intestines via lymph nodes close to intestinal wall and intermediate nodes in the mesentery



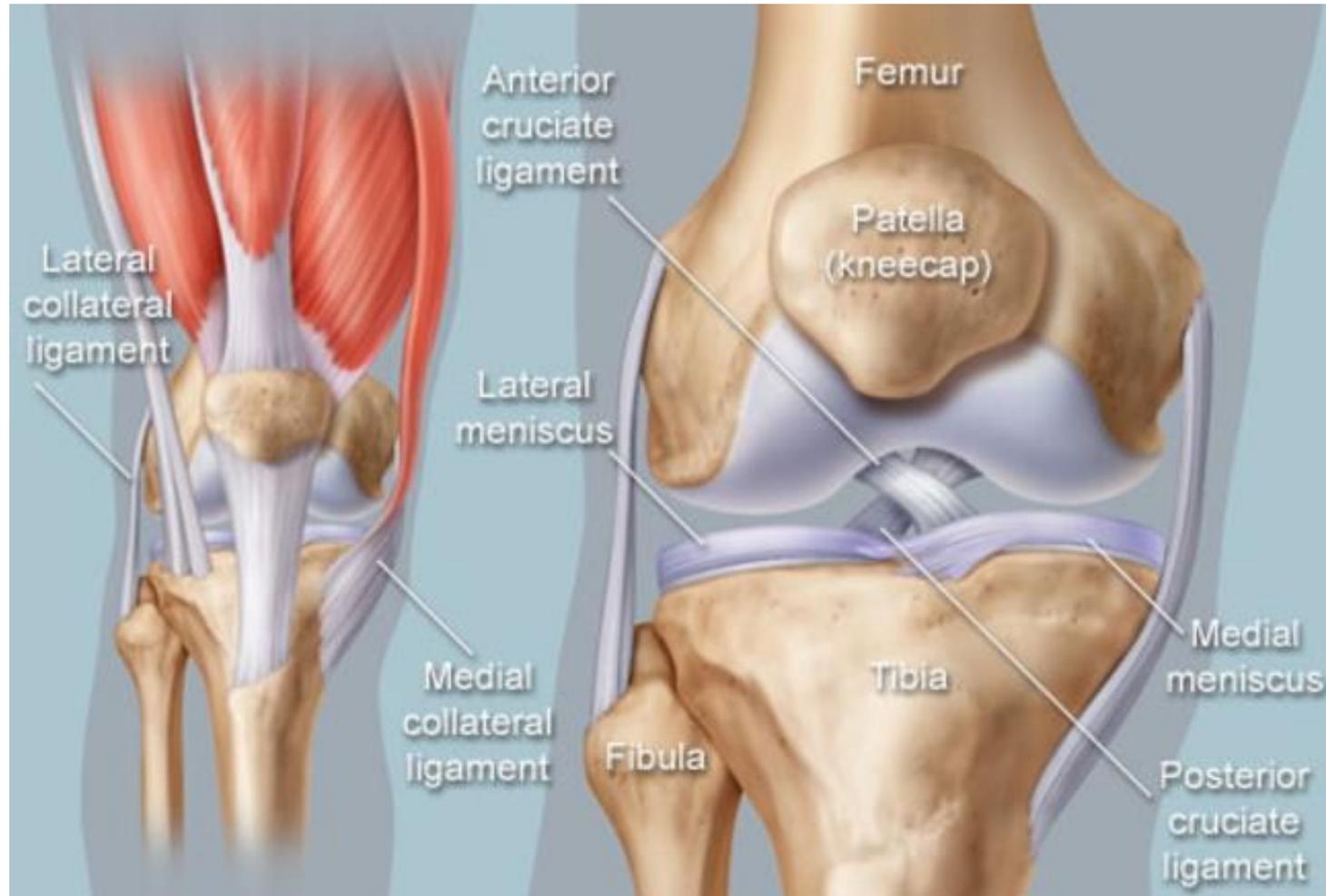
Lumbar Region



Lumbar Region



Lower Extremity: Knee



Application of OMT: Inpatient

- Pneumonia
- Congestive Heart Failure
- Acute Renal Failure
- Infection
- Post-op Ileus/Constipation

Inpatient OMT: Pneumonia

Medical issue: Infection of lung parenchyma. Decreased air movement, decreased overall movement, blockage of alveoli/bronchioles.

Goal: Increase fluid movement, increase air movement, exchange O₂/CO₂

- Visceral/movement/lymphatics
- Pulmonary/lymphatics/immune system/autonomic
- Evidence based medicine

OMT Techniques

- Thoracic Inlet
- Rib raising
- Diaphragm doming

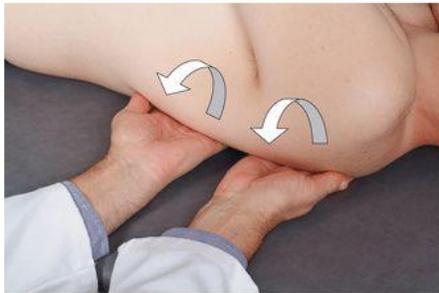
Thoracic Inlet

Myofascial Release

- Pt: Lay supine on table.
- Dr: Sit at the head of the table. Rest your forearms on the table. Place your hands on pts shoulders with your finger tips curled under the clavicle: R to R and L to L. Thumbs at cervical thoracic junction bilaterally on posterior aspect of upper trapezius.
- Adjust thoracic inlet in all ranges to find the greatest point of ease. Hold until you feel a release.
- Have patient take 2-3 deep slow breaths in to facilitate release.



Rib Raising, Supine Extension



- Pt: lying supine on table.
- Dr: Seated on side of patient at level of ribs. Place the back of your hands on the table with all 8 finger tips on ribs angles from ribs 2 – 8. Apply superior (anterior in relation to the pts body) pressure with finger tips pointed upward and lateral. Hold position and await release of tissue.
- Recheck ribs for motion.

Diaphragm Doming

Myofascial Release

- Pt: Laying supine on table
- Dr: Stand on side of table just inferior to pts diaphragm region/lower ribs. Place finger tips on lower ribs pointed laterally, thumbs sinking into abdomen in epigastric region applying medial compression to each side. Apply enough pressure to feel the point of maximum ease at mid diaphragm. Hold for 3-5 seconds. Release.
- Reassess ribs and diaphragm for motion.

MFR: *passive or active* applied to the muscle and fascia system: *direct or indirect*. 3D superficial and deep fascia release. ³



Inpatient OMT: Pneumonia EBM

1. Donald R. Noll, DO Brian F. Degenhardt, DO Jane C. Johnson, MA. Multicenter Osteopathic Pneumonia Study in the Elderly: Subgroup Analysis on Hospital Length of Stay, Ventilator-Dependent Respiratory Failure Rate, and In-hospital Mortality Rate. *J Am Osteopath Assoc.* 2016, 116 (9), 574-587.
2. Yao, Sheldon, et al. Osteopathic Manipulative Treatment as a Useful Adjunctive Tool for Pneumonia. *Journal of Visualized Experiments.* 2014 May 6; (87):50687. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4173698/>
3. Donald Noll, Brian Degenhardt, Thomas F Morley, et al. Efficacy of osteopathic manipulation as an adjunctive treatment for hospitalized patients with pneumonia: a randomized controlled trial. *Osteopathic Medicine and Primary Care.* 2010 March 19; 4: 2. doi: 10.1186/1750-4732-4-2.

Inpatient OMT: Congestive Heart Failure

Medical issue: Inefficient cardiac function leading to fluid back up and displacement in body.

Goal: Optimize cardiac tissue functioning in order to assist with increased cardiac efficiency

Systems

- Vascular/visceral/lymphatics
- Cardiac/vascular/pulmonary/renal/autonomic

OMT techniques

- Vascular: cervical/thoracic/renal
- Lymphatics:
 - Subclavian: right side head and RUE/ left side rest of the body: Thoracic Duct
 - Cysterna Chyli
 - Inguinal/popliteal/pedal
- Visceral: Heart/Lungs
- Autonomics: sympathetic/parasympathetic balancing

Lymphatics

- Pt: lying supine on table.
- Phys: Standing on left side of pts chest with left middle finger placed on inferior aspect of clavicular curve and right middle finger placed on top of left, with superior posterior pulsatile pressure, to 'clear the drain'. Continue until increased ease occurs. Move to right clavicle, switch hand placement to right on bottom and left on top.
- Phys: Diaphragm Doming
- Phys: Move to bilateral inguinal regions to perform the above technique at mid region between ASIS and pubic symphysis.
- Phys: Move to bilateral popliteal regions to perform above technique by placing hands on medial and lateral aspect of the knee with middle finger tips in middle popliteal region on the posterior aspect of the knee.
- Recheck fluid movement.



Lymphatics: Pedal Pump Dorsi/Plantarflexion

- Pt: Lying supine on table.
- Phys: Standing at patients feet.
- Phys: Place palms of hands on plantar surface of pts feet. Right hand on pts left foot: left hand on pts right foot.
- Phys: Take up the slack in the fascia by pressing cephalad on the plantar surface of the feet. Send a wave of motion superiorly, which can be observed easily in the patients abdomen. Apply rhythmic pressure in cephalad direction until range increases and resistance decreases at about 60 times per minutes x ~ 2minutes.
- Phys: Change to hands on dorsal surface with a caudad pressure to take up slack in anterior fascia, promoting wave motion into abdomen until resistance decreases and range increases.



Visceral: Cardiac

- Cardiac motion is down and out/up and in
- Pt: Lying supine on table.
- Phys: Seated at pts left side. Place right hand under and left hand over lower left rib cage.
- Phys: Sink your hands in slowly through tissue until you are on the cardiac tissue anterior and posterior. Motion test the heart. Assess its ability to move equally in all directions. Place the heart in the greatest position of ease. Hold for 3-5 seconds, or until you feel tissue release.
- Phys: Once you have a release in cardiac tissue, reassess. Repeat 2-3 times.



Visceral: Pulmonary

Lung motion is down and out/ up and in.

- Pt: Lying supine on table.
- Phys: Seated next to pt on left side. Place right hand under and left hand over middle ribs. Sink intention/attention to lung parenchyma. Assess for motion, balance at the point of ease. Hold for 3-5 seconds or until you feel a release.
- Phys: Repeat the above 2-3 times.

Autonomic Nervous System

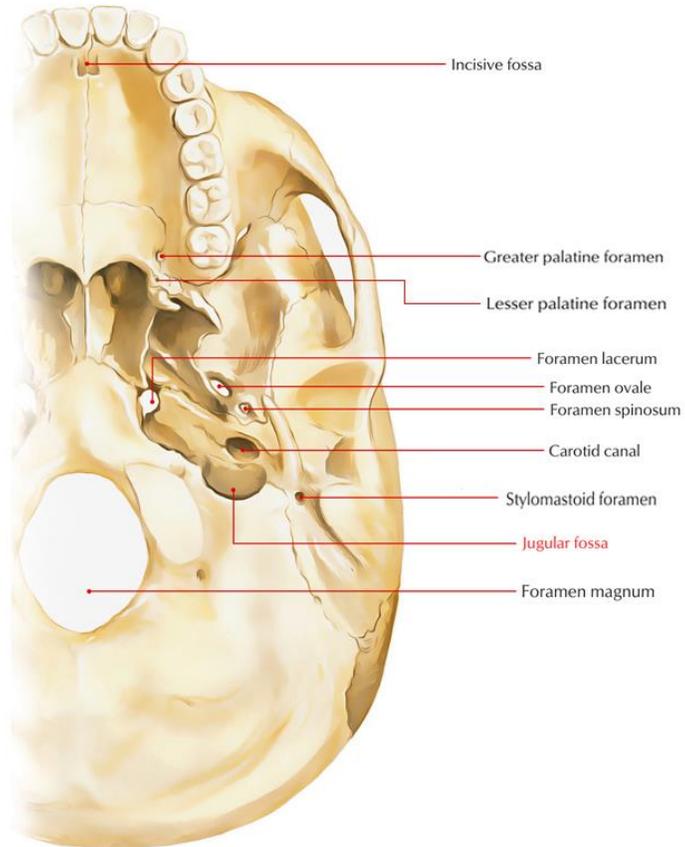
- Sympathetic Chain Ganglia
 - C2 – L2: Seated anterior to transverse process ??????
- Parasympathetics
 - CN X: Vagus
 - Travels through the Jugular foramen framed by the temporal and occipital bones
 - Pelvic Splanchnic Nerves

ANS: Sympathetic: Cervical, Thoracic, Lumbar

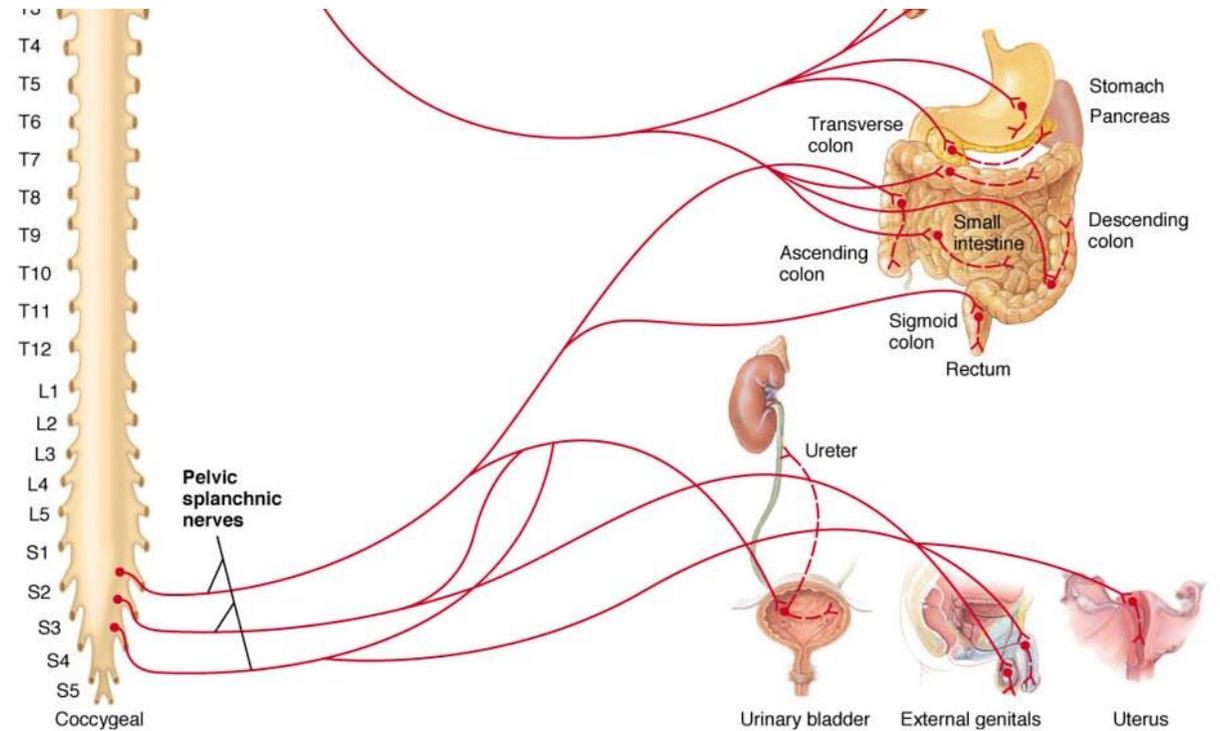
- Pt: Lying supine on table
- Phys: Seated at the head of the table.
- C/L: Place your finger tips on the transverse processes of the cervical vertebra bilaterally. With each individual vertebra motion test and bring that vertebra to its position of ease.
- T: Place your finger tips just lateral to the costovertebral junction, on the angle of the rib. Place anterior force (toward the ceiling) on the ribs. Hold for 3-5 seconds, or until the rib head releases from the vertebra.

Parasympathetic:

- CN X: Vagus nerve



- Pelvic Splanchnic Nerve



CN X: Vagus Nerve

- Pt: Lying supine on table.
- Phys: Standing/seated at head of bed/table with forearms resting on the bed.
- Phys: Hands in cranial vault hold. Assess pts CRI. Assess occipital mastoid/temporal suture.

Pelvic Splanchnic Nerve

- Pt: Lying supine on table.
- Phys: Seated at side of table at level of pelvis. Hand toward feet placed under sacrum from side or under legs holding sacrum in hand. Hand toward head placed at base of lumbar vertebra; finger tips on far side transverse processes with thenar eminence on near side transverse processes. 5th and/or 4th digit on superior portion of sacrum. Motion test lumbar, sacrum and innominates to place in position of greatest ease. Hold for 3-5 seconds or until you feel a release. Repeat 2-3 more times.

Inpatient OMT: Congestive Heart Failure EBM

- Huff, J. B., Schander, A., Downey, H. F., & Hodge, L. M. (2010). Lymphatic pump treatment augments lymphatic flux of lymphocytes in rats. *Lymphatic research and biology*, 8(4), 183–187. doi:10.1089/lrb.2010.0009
- Vittorio, R., Bordoni, B., Castiglioni, P., Madocia, M, et al. Osteopathic Manipulative Treatment Improves Heart Surgery Outcomes: Randomized Controlled Trial. *The Annals of Thoracic Surgery*. Vol 104, Issue 1, July 2017, pp 145-152.
- Kawamura, M., Takahara, K, et al. Impace of optimal medical therapy on one-year outcomes in acute decompensated heart failure in Japan. P3369, Chronic Heart Failure. Academic. 9September2019. p697.
https://watermark.silverchair.com/ehx504.P3371.pdf?token=AQECAHi208BE49Ooan9kKhW_Ercy7Dm3ZL_9Cf3qfKAc485ysgAAoIwggJ-BgkqhkiG9w0BBwagggJvMIICawIBADCCAmQGCSqGSIB3DQEHATAeBgIghkGBZQMEEAS4wEQQMzbdK9HpCHhR2fr-AAgEQgIICNQ9dCQqxBD0jbc7UAw-yLTvsmz2dIVq0yLLJuyD8YThsNw0gFRbgboXfmug58piEr5O-0rUVVcyjz9kwM6JuSchZBASzSr6O8byFWY_08Nxt0XPdk_6D7UOze7SYY5YDPXOZLq8iA9Wm5rPXFH1ZlvjL9Et4J1dQPvMAtxucQluWicd2nDki8QCM54A4W1JvJZ6r1cd9MPu9jjp0xWIQAUI3PrQO8whdKK_d8bE1nW6Ka_rrxCeTqjhS0sS9Bxn8vtiGpUOe6sUCGwwzgvufv29e-wFbbHbB8NUqN7FEa5wsm4bz3x8LhhUSx3qXpnoGcZs1_bnRZ7PkkZGC40dbsKG0GKeNBZO8raCtwWjo_tTK5jjQL_g-aFBZuH9Z75zYrnKxRqISE0nKhkDY9trjCHSLBBpKgKrJyPnfy6xRMm3yy2SKDKMAh0qGuOpJ-Zf98zjHv1utQ2EKSfKVfvgIGHGTD9nQ3NcjcwzJ0y-9gUGyzS24e1E1rcpSdH15Uyt1qBKIGGsrJK8T9eyNvRAxAc6ql49TuF0rRax2BGYsXRiWbz88jQ3aeh6dGlrYhLhbAo5ysIV7WCXIPU9znD0D4sSfPHriAkzhQHs3SZApgEiWdx2FXvTVkM48R4J99z6KNTwSL-WHJEs4hFZgTggrxIOF-eJfKMiwNaddzj6UUiqCazumcEvTq4N5P0hAlio50jy-NgPnyY6-ad4SvOOQ3_9zzeT73ptLUyWXilj9suOTxERhhY

Inpatient OMT: Acute Renal Failure

- Visceral/ fluid
- Renal/metabolic/pulmonary/vascular

- Diaphragm doming
- Pelvic diaphragm balancing
- Visceral/renal
- Lumbar vertebra
- Autonomics

Pelvic Diaphragm Balancing

Balanced ligamentous tension

- Pt: Lying supine on table.
- Phys: Seated at side of patient at level of pelvis. Lay hands on innominates just inferior and lateral to ASIS. Lightly tap right innominate medial, watch for fluid wave, feel for restriction. Repeat with left innominate. Place hands on bilateral innomnates as noted above. Balance tissue around restricted point. Hold for 3-5 seconds or until release is felt Repeat 2-3

Visceral Renal

Visceral Manipulation

- Pt lying on table supine.
 - Phys: Seated/standing at patients right side at level of kidneys. Place left hand under abdomen at thoracolumbar junction. Place right hand vertically on pts abdomen with finger tips directed superiorly/toward pts head. With intentions, move through the layers of the abdomen until the kidneys are between your hands. Motion test the kidney, treating kidney in position of greatest ease. Hold for 3-5 seconds or until you feel a release. Repeat 2-3 times.

Inpatient OMT: Acute Renal Failure EBM

- Tozzi BSC Ost, P., Bongiorno, D., Bitturini, C. Low back pain and kidney mobility: local osteopathic fascial manipulation decreases pain perception and improves renal mobility. *Journal of Bodywork and Movement Therapies*. Vol 16, Issue 3, July 2012, pp 381-391.

Inpatient OMT: Infection

- Lymphatics
- Lymphatics/immune system/visceral (organ system with infection)
- Lymphatics of region: always clear thoracic duct first
- Visceral of spleen/liver

Inpatient OMT: Post-op Ileus/Constipation

- Visceral/fluid/lymphatics
- GI/autonomic/

- Visceral – gi
- Lymphatics – celiac, superior/inferior mesenteric nodes
- Pelvic diaphragm balancing
- Autonomics

Inpatient OMT: Post-op Ileus EBM

- Henley, C., Ivins, D., Mills, M., et al. Osteopathic manipulative treatment and its relationship to autonomic nervous system activity as demonstrated by heart rate variability: a repeated measures study. *Osteopathic Medicine and Primary Care* **volume 2**, Article number: 7 (2008). 05June2008.

Application of OMT: Outpatient

- Headache/Traumatic Brain Injury
- Low Back Pain
- Gastroesophageal Reflux Disease – GERD
- Knee Pain
- Sinus Infection

Outpatient OMT: Headache/Traumatic Brain Injury

- Cranial movement
- Cranial
 - Assess for physiologic and/or non-physiologic strains
- Fluid flow
- Cervical – BLT
- Thoracic- BLT/cranial/sternum
- Pelvis – balancing include cranial

Outpatient OMT: Low Back Pain

- Stenosis/entrapment/mechanics
- Soft tissue
- Muscle energy
- Balance Ligamentous Tension

Outpatient OMT: Gastroesophageal Reflux - GERD

- Malfunction of lower esophageal sphincter
- Visceral: EG junction/esophagus/stomach
- Autonomics: sympathetic/parasympathetic balance

Outpatient OMT: Knee Pain

- Mechanics/anatomy/vascular/neuro
- Musculoskeletal
- Balanced Ligamentous Tension
- Strain Counter Strain
- Articulatory/Still Technique
- Trigger Points

Outpatient OMT: Sinus Infection/Congestion

- Lymphatics/fluid movement/Cranium and facial bones
- Get Patients history

- Lymphatics
- Cranial
- Facial Bones

Lymphatics

- Pt: Laying supine on table
- Dr: Standing at side of table. Middle/index finger placed at inferior portion of curve on left clavicle. With Right middle finger placed on top of left, apply inward pressure to region in pump like fashion. Feel the lymphatics resistance to your pressure and add just a little more to overcome the resistance. Continue in rhythmic pump like fashion until resistance eases.
- Perform on right side.

Lymphatics: A/P Cervical Chain

- Pt: Lying supine on table.
- Dr: Seated at head of table.
- Dr: Place index and middle fingers at anterior base of SCM, provide light to medium pressure and stroke fingers inferior to clear anterior cervical lymphatic chain. Continue this pressure and motion while moving superior on the chain with stroke to clavicle.
- Repeat for posterior chain.

Billing for Performing OMT

- Wonderful to think about the patient with
 - Osteopathic Tenets
 - 5 Osteopathic Models
- Easy to perform techniques specific to the patient in any setting
- How do I get credit and/or get paid for my services?

Billing and Coding¹

American Osteopathic Association billing and coding resources:

- ICD 10 codes for OMT
- RVU's for OMT codes
- Reporting E/M and OMT using modifier – 25
- Reporting E/M and OMT as separate services

<https://osteopathic.org/practicing-medicine/business-of-medicine/osteopathic-billing-coding/>

ICD-10 codes for proper OMT billing¹:

- **M99.00** Segmental and somatic dysfunction of head region
- **M99.01** Segmental and somatic dysfunction of cervical region
- **M99.02** Segmental and somatic dysfunction of thoracic region
- **M99.03** Segmental and somatic dysfunction of lumbar region
- **M99.04** Segmental and somatic dysfunction of sacral region
- **M99.05** Segmental and somatic dysfunction of pelvic region
- **M99.06** Segmental and somatic dysfunction of lower extremity
- **M99.07** Segmental and somatic dysfunction of upper extremity
- **M99.08** Segmental and somatic dysfunction of rib cage
- **M99.09** Segmental and somatic dysfunction of abdomen and other regions

Work Value (RVU's) for OMT codes 98925-98929¹

OTM Code	Work Value
98925	0.46
98926	0.71
98927	0.96
98928	1.21
98929	1.46

Reporting E/M and OMT using modifier – 25¹

- E/M -> Evaluation and Management
- Modifier -25 allows for separate reporting for E/M and OMT services provided on the same date for initial and subsequent encounters.
- Report the appropriate CPT E/M service (99201-99215) code and the appropriate OMT code (98925-98929). Append Modifier -25 to the E/M service code.

Reporting E/M and OMT as Separate Services¹

- In order to accurately report E/M and OMT as separate services, they must be provided on the same date by the same physician. When documenting, it is important to understand how both services are connected, but why OMT should be separate from the E/M service.
- OMT is a manual treatment used to treat somatic dysfunction, sprains, strains and related disorders.
- Patients do not present to DOs to solely receive OMT.
- Patients typically present to the physician on the initial encounter to address acute injury/pain and on subsequent encounters for ongoing care, which may be related to the initial injury/pain.
- The E/M service is used to address the presenting problem, followed by the physical exam and concluding with medical decision making.
- Once the physician decides to utilize OMT to treat the diagnosis, the three key components of an E/M service have been met.
- The decision to utilize OMT is made on a visit-by-visit basis, requiring the physician to evaluate the patient encounters to determine if OMT will be beneficial.
- After the decision is made to utilize OMT to treat the diagnosis, the physician begins the preservice work associated with OMT, followed by hands-on manipulation (intraservice) and concluding with the postservice work.

Overall

- Shortened Length of Stay (LOS)
- Improved Outcomes
- Improved Care

Future.....

- Continue to utilize
 - OPP as your guiding light
 - OMM as a treatment tool to optimize your patients health
- Research
 - Please help to bring more research to the table with case studies or randomized controlled trials
- Colleges of Osteopathic Medicine
 - increasing in number 38 accredited in 59 locations
 - This increases the ability to provide the patient population with a broad skill set and a form of treatment that assists health maintenance of their system.

References/Resources

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