

Introduction to OMM for MDs and DOs

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ATSU

National Center for Osteopathic
Principles and Practice Education

Sacrum 3-pole Diagnosis and Treatment And Some Other OMT Common in Research

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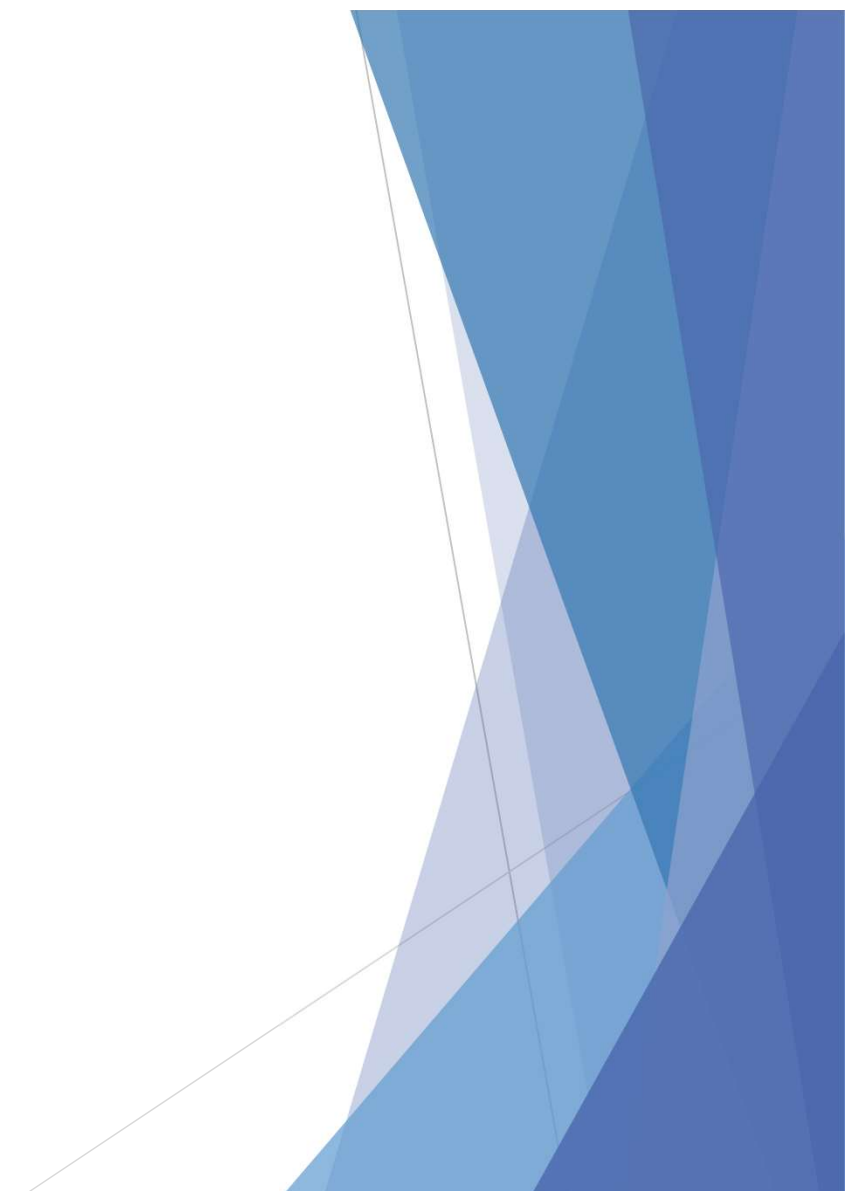
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Sacral Anatomy

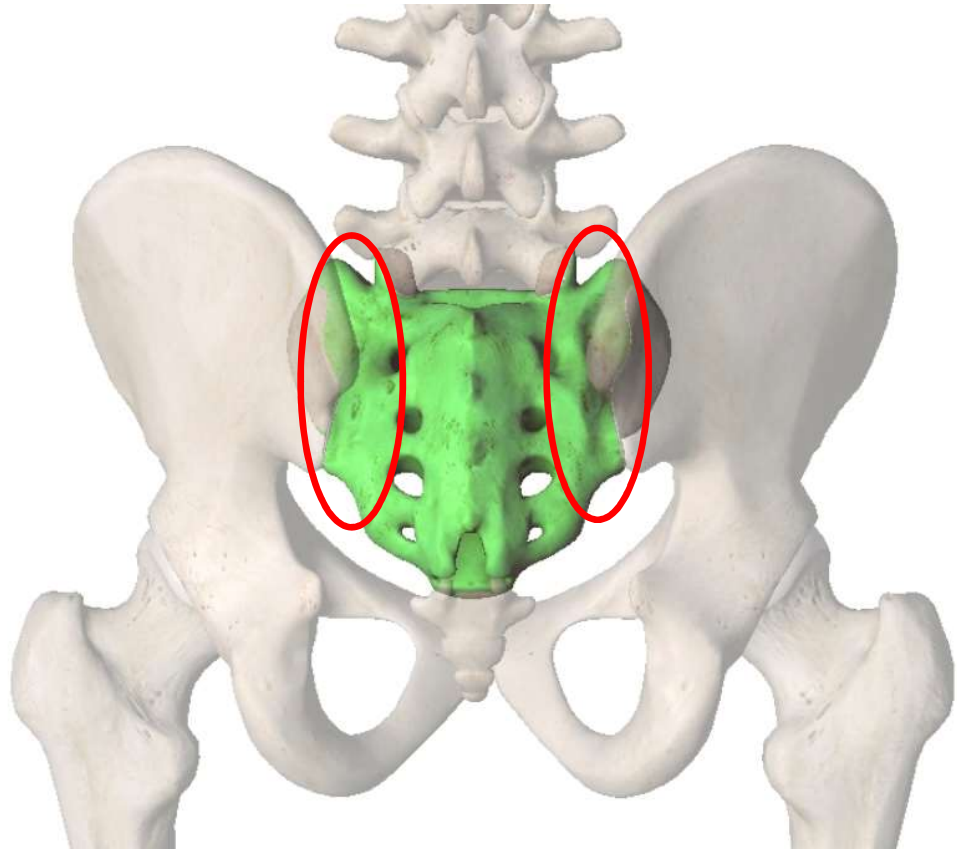


Articulations

Lumbosacral Joint

Sacroiliac Joints (SIJs)

Sacrococcygeal joint



Sacroiliac Joint (SIJ)

Synovial Plane Joint – gliding movement.

Irregular shape that produces a “interlocking” articular surface required for bipedal locomotion.

Interlocking articular surface is required for stability and increase in irregularity as children begin to walk.

Important for bipedal gait as a shock absorber from body to lower extremity.

Stability maintained through its own unique shape as well as through ligaments.



SIJ Angulation



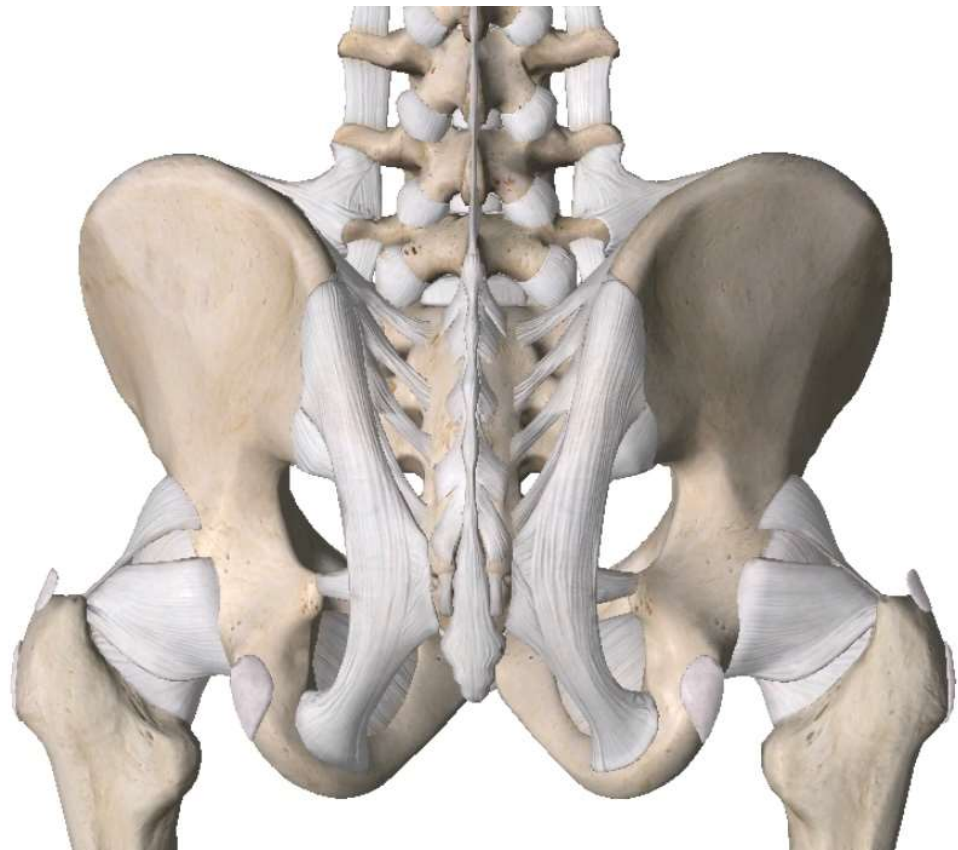
Ligament attachments

Iliolumbar

Sacroiliac

Sacrospinous

Sacrospinous



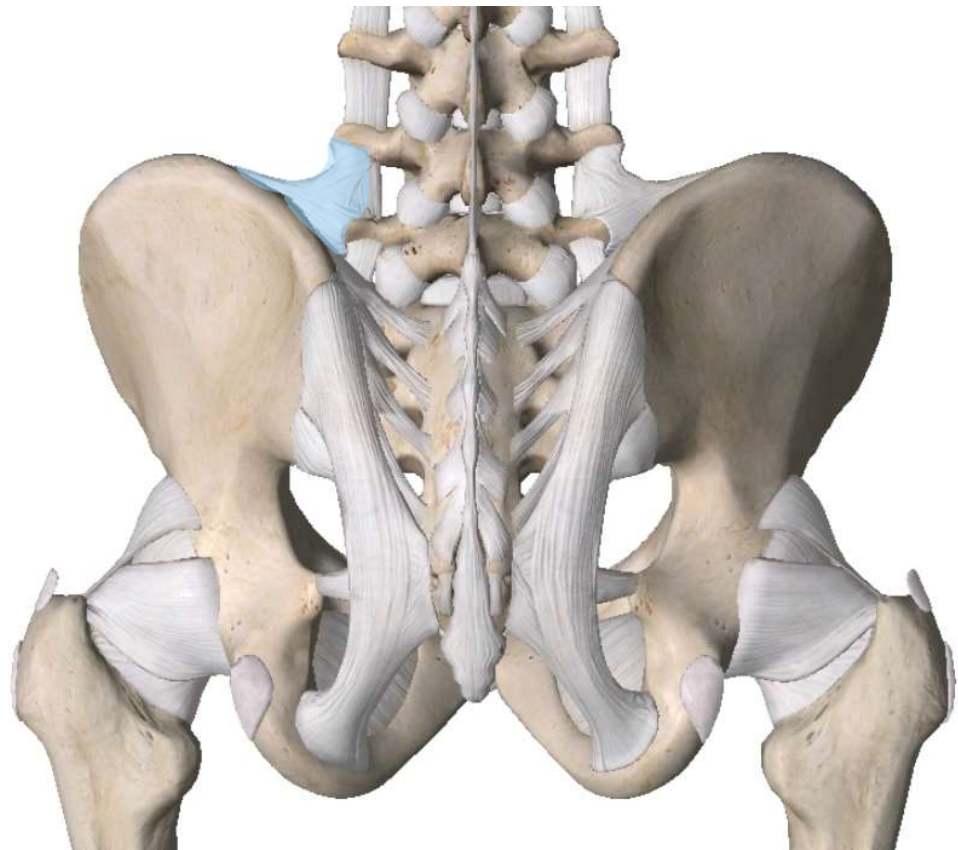
Ligament attachments

Iliolumbar

Sacroiliac

Sacrospinous

Sacrospinous



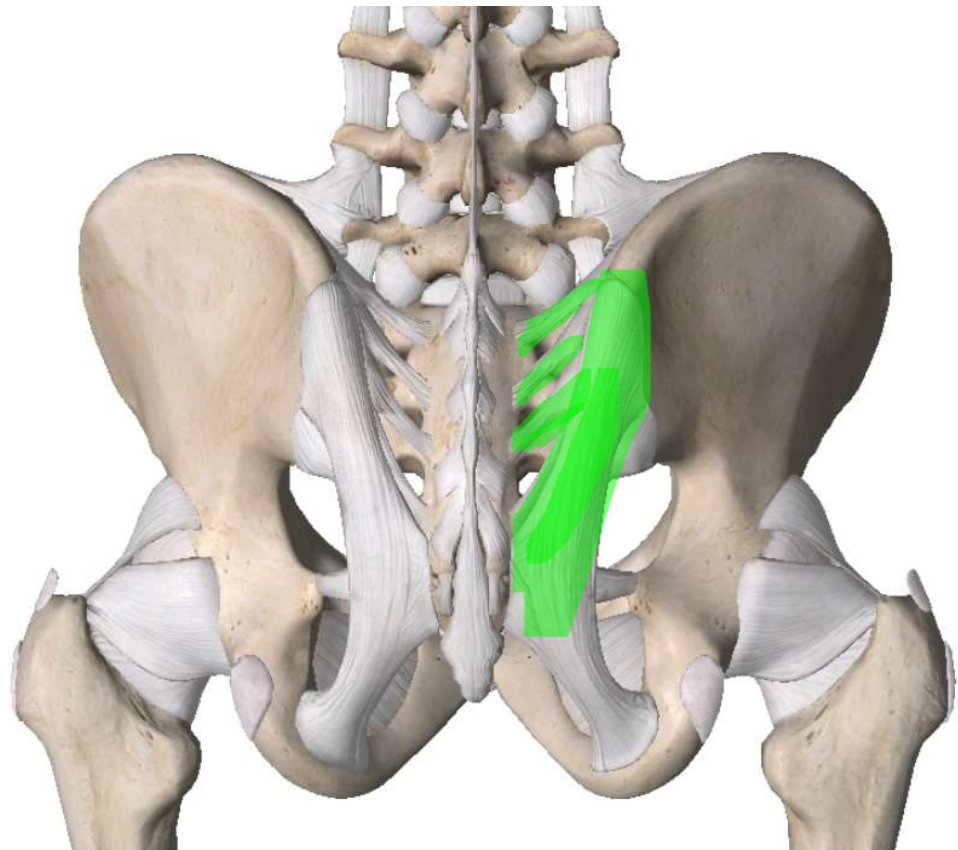
Ligament attachments

Iliolumbar

Sacroiliac

Sacrospinous

Sacrospinous



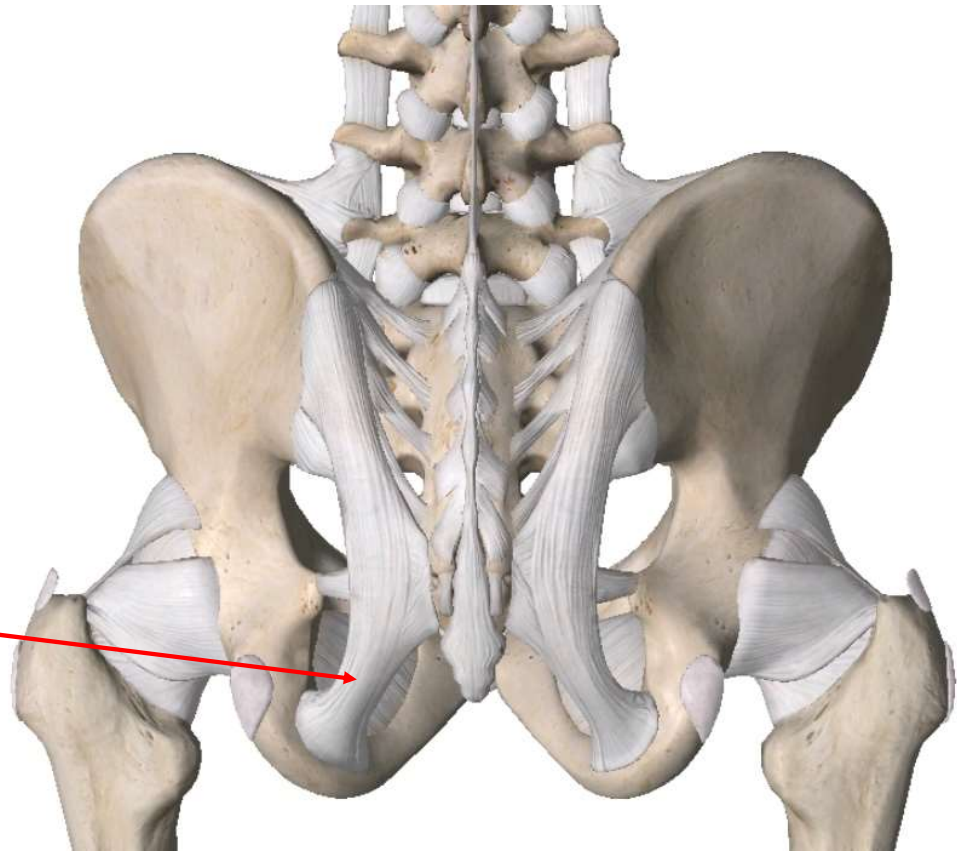
Ligament attachments

Iliolumbar

Sacroiliac

Sacrotuberous

Sacrospinous



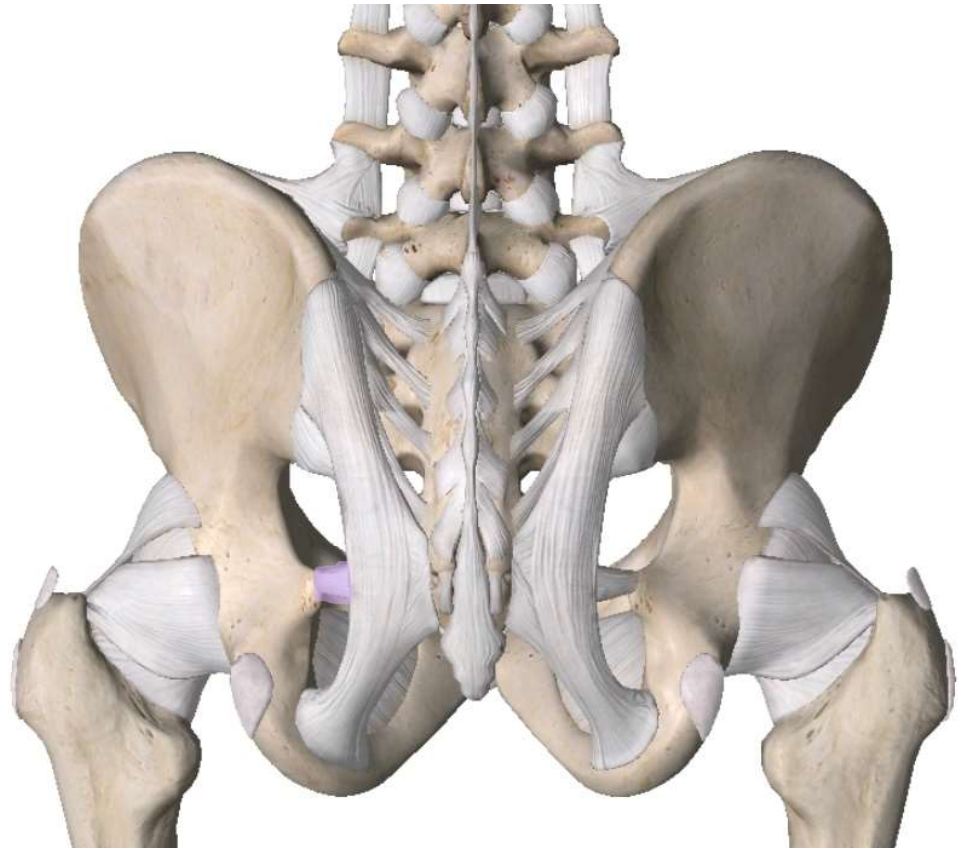
Ligament attachments

Iliolumbar

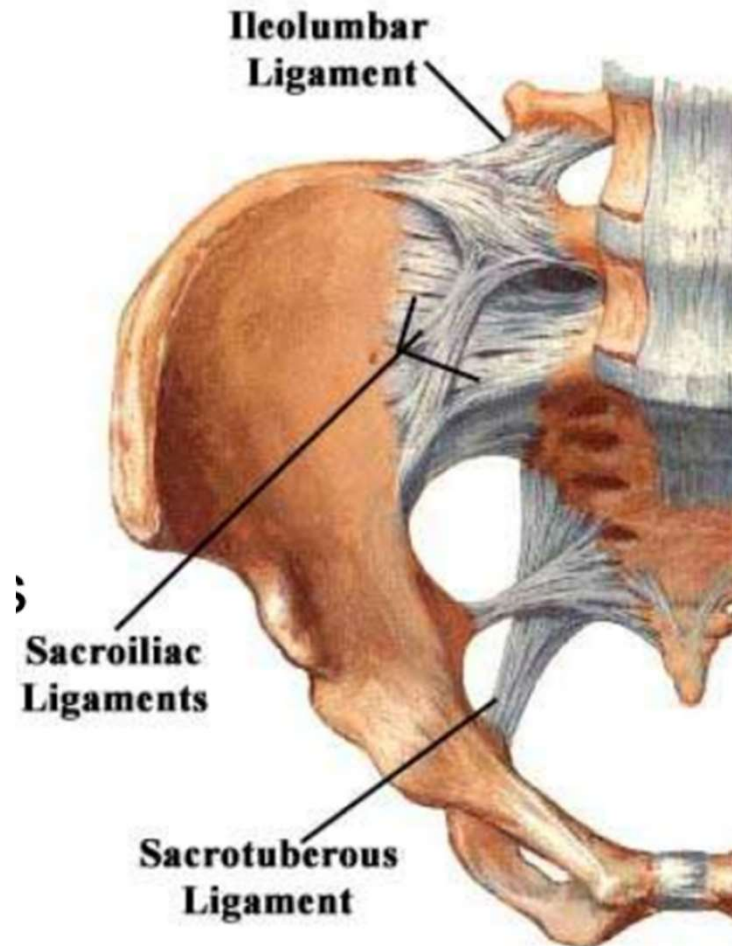
Sacroiliac

Sacrospinous

Sacrospinous



Anterior Ligament Attachments

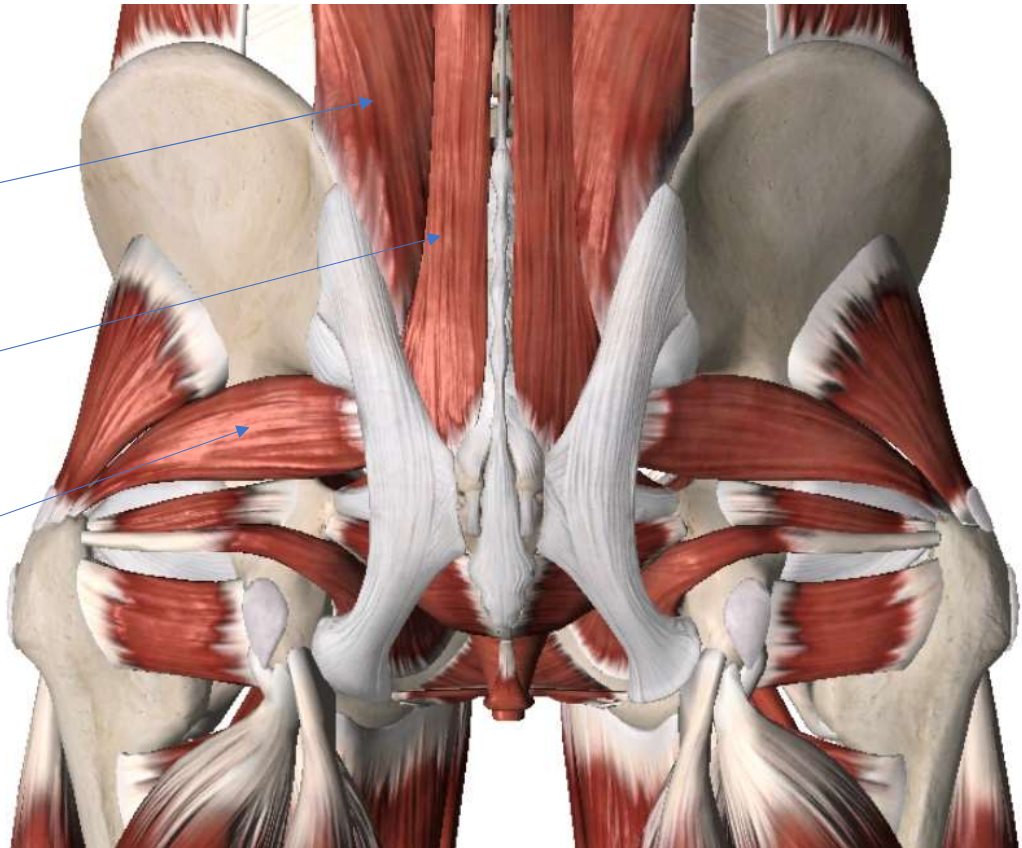


Muscle attachments

Erector Spinae

Multifidus

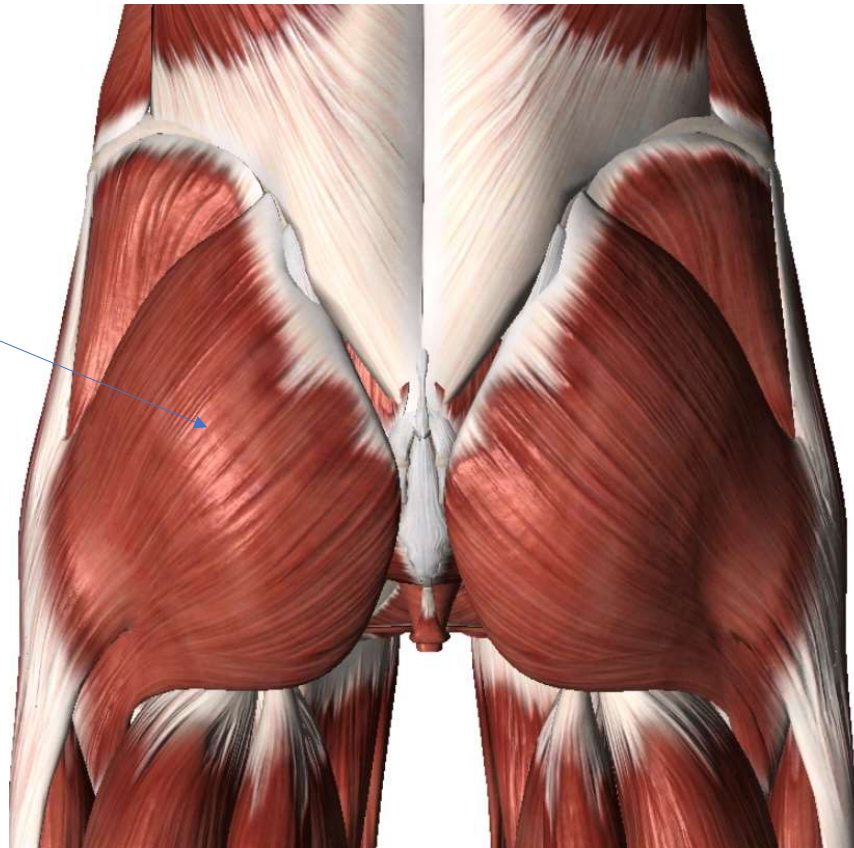
Piriformis



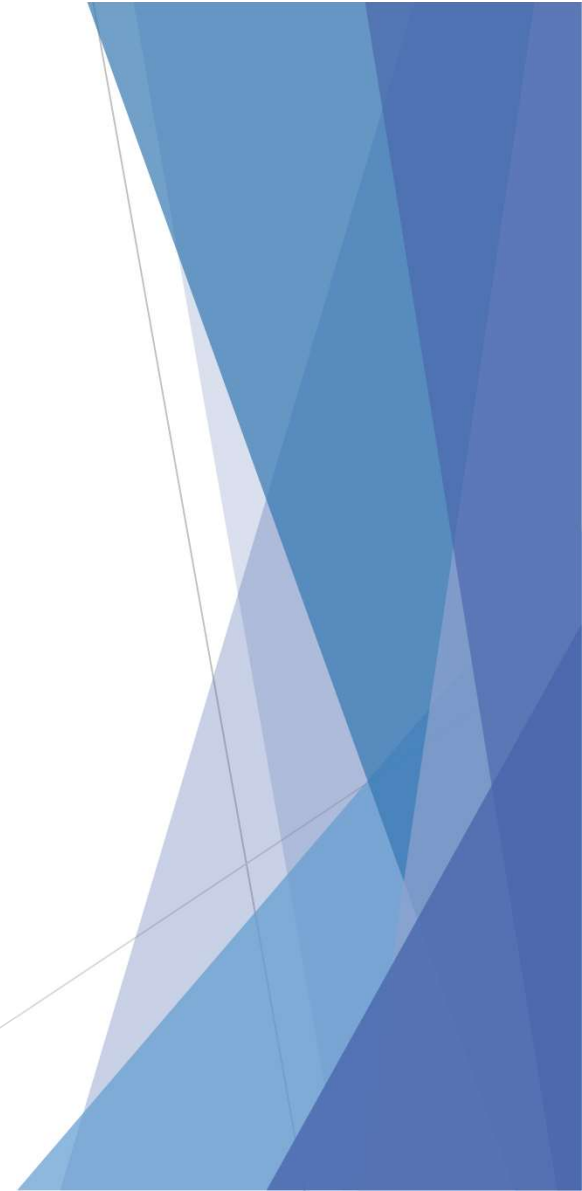
Muscle attachments

Gluteus Maximus

Coccygeus (pelvic
floor muscles)



Dx Sacral Somatic Dysfunction with 3-pole method



3- poles of the Sacrum

Superior Pole

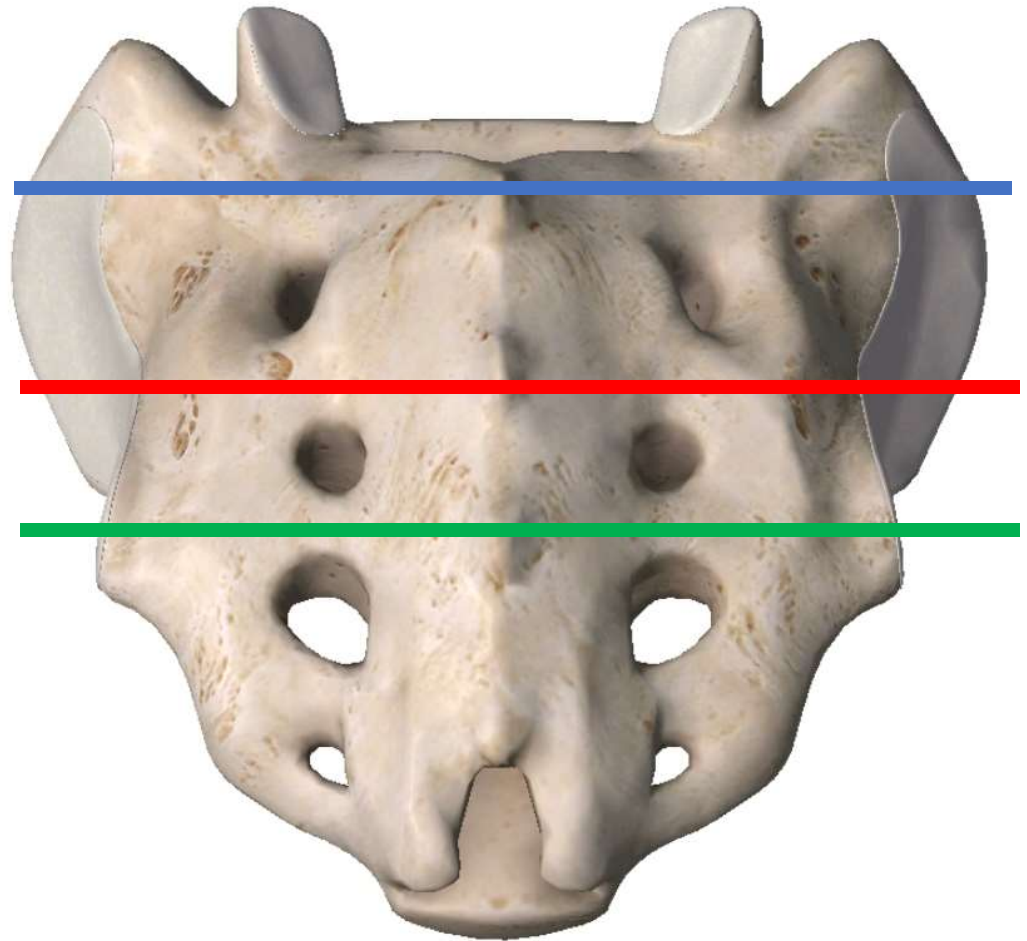
Respiratory/Cranial Axis

Middle Pole

Sacral motion

Inferior Pole

Innominate motion

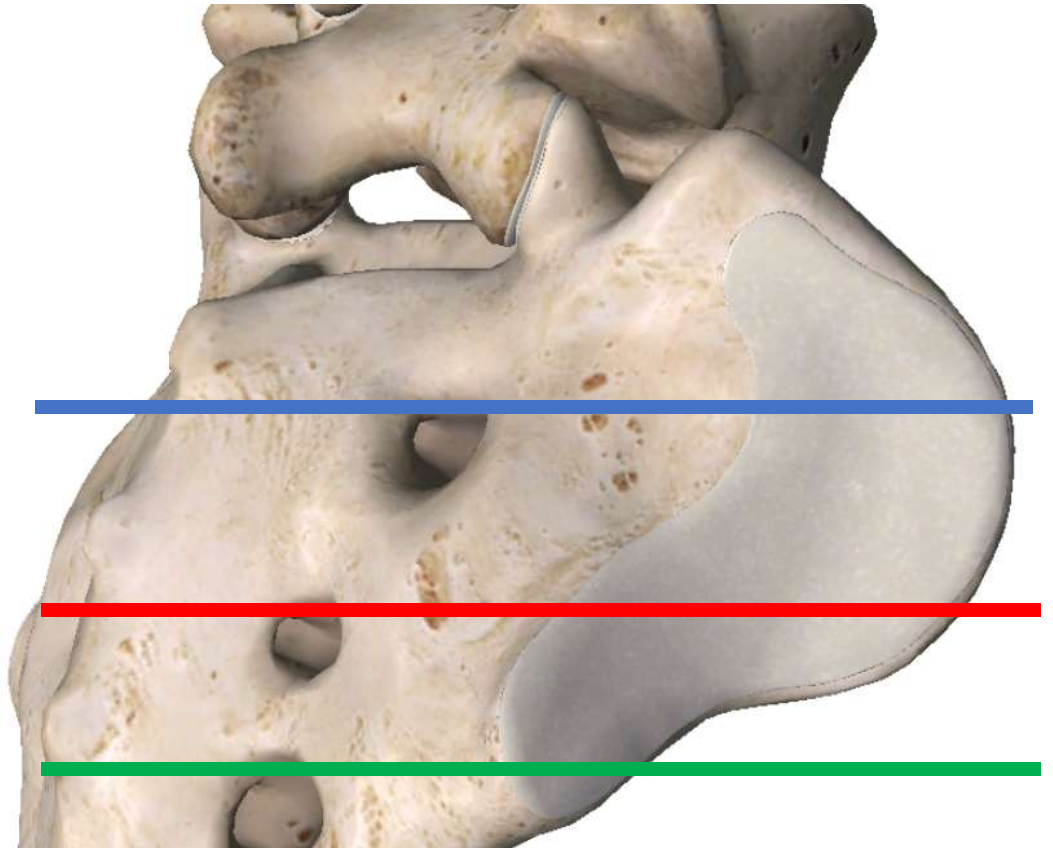


3- poles of the Sacrum

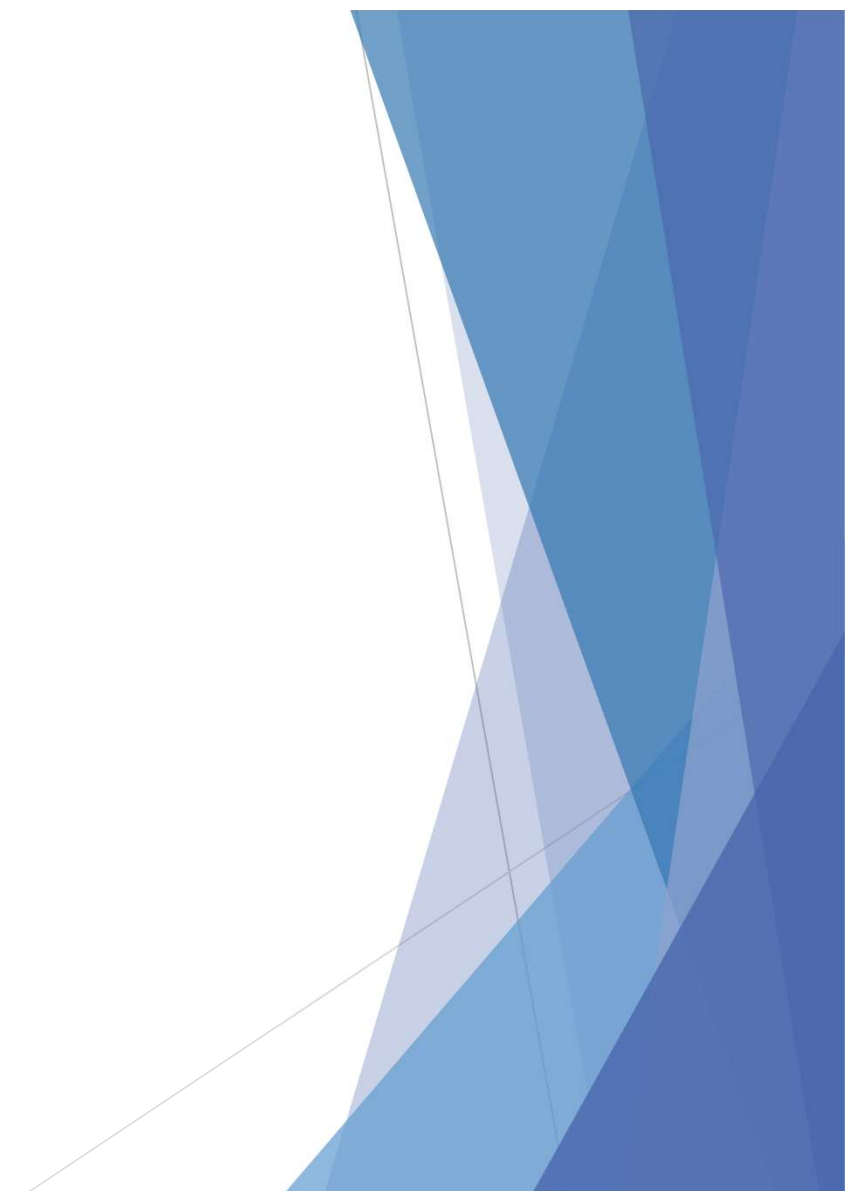
Superior Pole

Middle Pole

Inferior Pole



Supine Dx and Tx



ASIS Compression Test – Short lever

Patient position is supine. Physician stands at side of table facing head.

Contact ASIS's with palms of each hand.

Apply posteromedial compressive/springing force on one ASIS while stabilizing the other ASIS.

Gliding ilium posterior relative to sacrum at SIJ, keeping in mind SIJ angle.

Positive side demonstrates restriction of motion.

By adjusting pressure superiorly or inferiorly, one can test the superior and inferior axis as well.

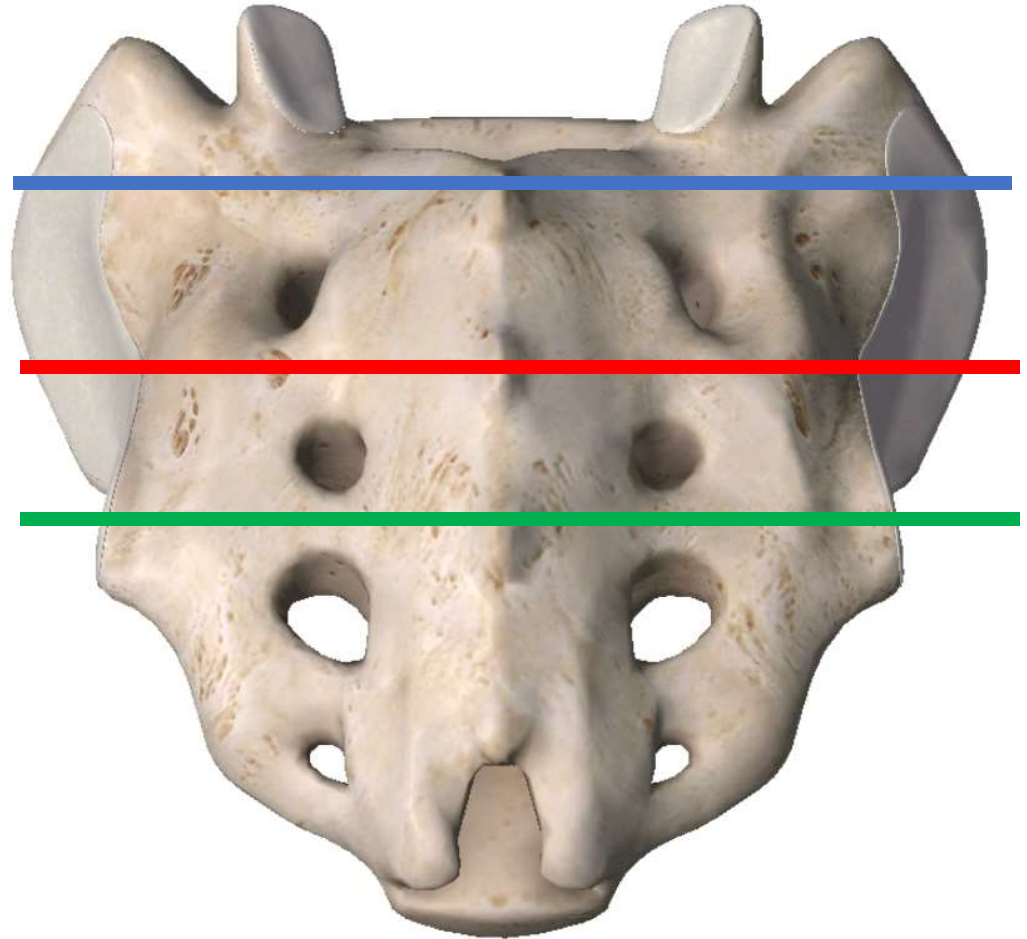


Palpation of Sacral Pole- 1st level

Index Finger

Middle Finger

Ring Finger

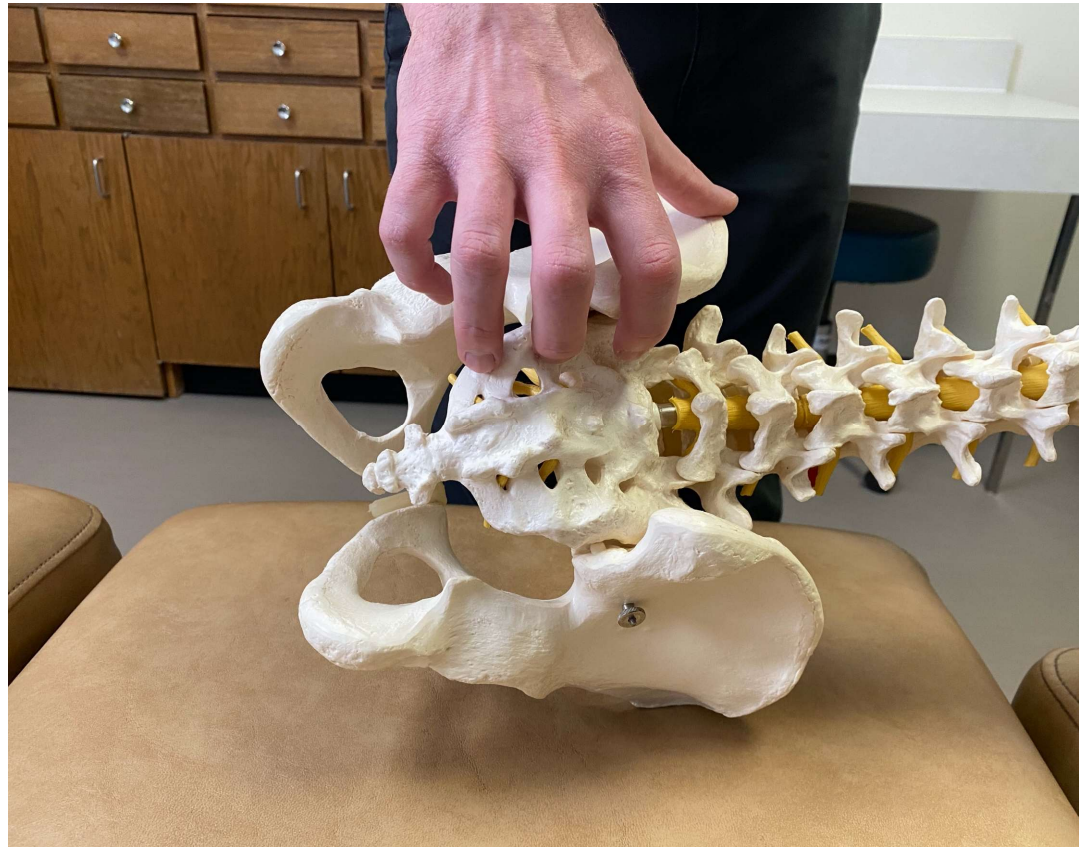


Palpation of Sacral Poles – long lever

Index Finger

Middle Finger

Ring Finger



Finding restriction at the Superior Pole

Patient is supine

Palpate the SIJ

Flex hip to specific angles to activate each pole along the SIJ

Feel for motion at **Superior Pole with Index Finger**

Compress Femur through the acetabular joint into the SIJ to assess restriction

Adjust with adduction and abduction of the hip (Adduction >> Abduction)



Finding restriction at the Middle Pole

Patient is supine

Palpate the SIJ

Flex hip to specific angles to activate each pole along the SIJ

Feel for motion at the **Middle Pole with the middle finger**

Compress Femur through the acetabular joint into the SIJ to assess restriction

Adjust with adduction and abduction of the hip (Adduction >> Abduction)



Finding restriction at the Inferior Pole

Patient is supine

Palpate the SIJ

Flex hip to specific angles to activate each pole along the SIJ

Feel for motion at the **Inferior pole with the ring finger**

Compress Femur through the acetabular joint into the SIJ to assess restriction

Adjust with adduction and abduction of the hip (Adduction >> Abduction)



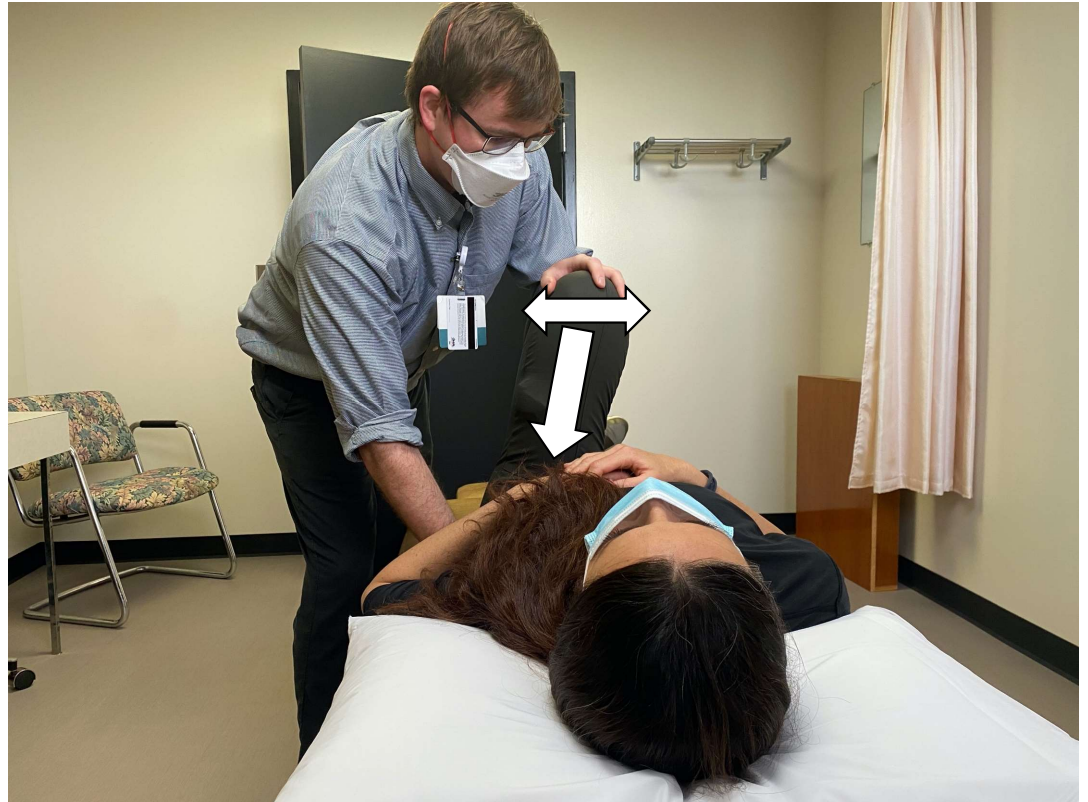
TX with Myofascial Release (MFR)

Increase tension at the Sacral Pole
Hold until change in tissue is sensed
Reassess

Enhancing Maneuvers during hold:

- Deep Breathing
- Arching Lumbar Spine
- Flattening Lumbar Spine

Reassess with ASIS compression test or long lever 3-pole testing on most restricted side



TX with Muscle Energy

Position patient to where there is increased tension (the barrier) at the sacral pole of interest.

Instruct patient to push their knee laterally with a slowly increasing force.

Be sure the patient is matching your resistance. Not over powering.

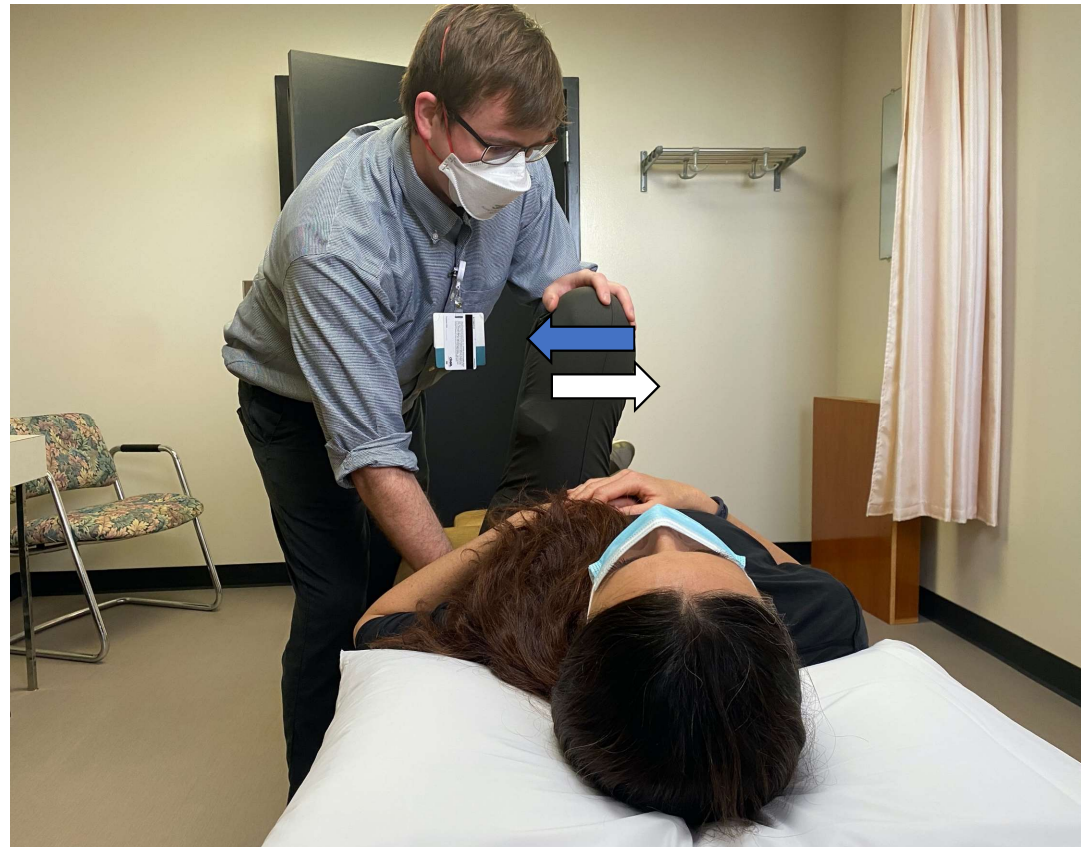
Hold for 3-5 seconds

Have patient slowly decrease resistance until relaxations. Be sure to match this transition.

Allow muscles to fully relax

Reposition patient to where there is new increased tension (new barrier)

Reassess with ASIS compression test or long lever 3-pole testing on most restricted side





Other Techniques Commonly Found in Research

Efficacy of osteopathic manipulation as an adjunctive treatment for hospitalized patients with pneumonia: a randomized controlled trial

Osteopathic Medicine and Primary Care 2010, **4**:2 doi:10.1186/1750-4732-4-2

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Article type Research

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Hospitalized Elderly Patients with Pneumonia (Noll et al 2010)

- Multi-site (n=7)
- Patients over 50 years of age
- Hospitalized with pneumonia (n= 406) were randomized to one of three groups:
 - Conventional care only (CCO) (n=135)
 - CCO plus OMT 2x/day (n=135)
 - CCO plus light touch (LT) sham OMT 2x/day (n=136)
- Noll DR, 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, 4:2; available online at <http://www.om-pc.com/content/4/1/2>.

Hosp. Elderly Patients with Pneumonia

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

Hosp. Elderly Patients with Pneumonia Results:

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

Hosp. Elderly Patients with Pneumonia Results:

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

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

Occurrence of	Control Event Rate (CER) Conventional Care	Exp. Event Rate (EER) OMT	Relative Risk Reduction (RRR) CER-EER/CER	Absolute Risk Reduction (ARR) CER-EER	Number Needed to Treat (NNT) 1/ARR
Respiratory Failure (p=.006)	9/127 (7.1%)	1/96 (1.0%)	85.9%	6.1%	17
Death (p=.006)	8/127 (6.3%)	0/96 (0.0%)	100%	6.3%	16

Direct Myofascial Release Reminders

1. Gently position the tissue at the restrictive barrier in all three planes of motion.
2. Hold at the restrictive barrier until the tissue begins to yield or release.
3. As the tissues release, maintain constant tension in order to maintain contact with the shifting restrictive barrier.
4. Reassess

MOPSE OMT

- rib raising
- diaphragm myofascial release
- thoracic inlet myofascial release
- cervical spine soft tissue
- suboccipital decompression
- thoracolumbar soft tissue
- thoracic lymphatic pump
- pedal lymphatic pump

MOPSE OMT

- rib raising
- diaphragm myofascial release
- thoracic inlet myofascial release
- cervical spine soft tissue
- suboccipital decompression
- thoracolumbar soft tissue
- thoracic lymphatic pump
- pedal lymphatic pump

Functional Anatomy

When treating lymphatic system remember to also:

1. Open the thoracic inlet to allow proper drainage of the thoracic duct
2. Open abdominal diaphragm for Cisterna Chyli
3. Decompress the OA for vagus nerve

Open the Thoracic Inlet (Direct MFR)

1. Patient is supine and the physician sits at the head of the table.
2. Physicians places their hands over the thoracic inlet with their fingers spread over the anterior thorax and their thumbs over the posterior thorax.
3. Physician carries the thoracic inlet into left/right rotation to increase fascial tension. They then add components of left/right sidebending and flexion/extension until all three planes are at the myofascial restrictive barrier.
4. As tissues relax, follow to the new restrictive barrier. May have patient do release enhancing maneuvers.
5. Recheck when motion stops and no more creep can be gained.



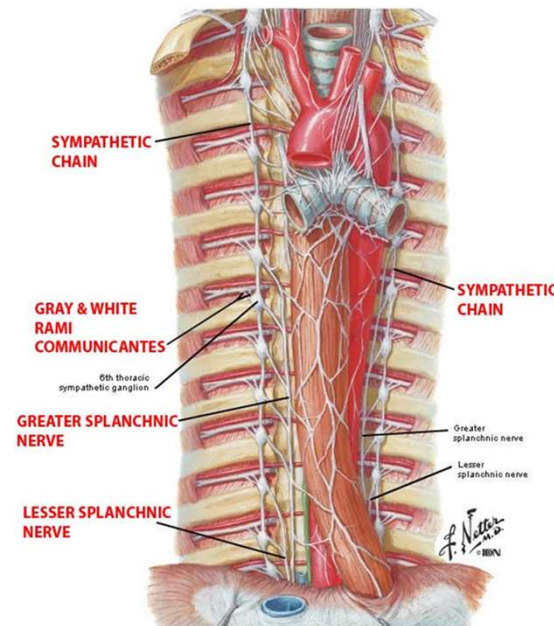
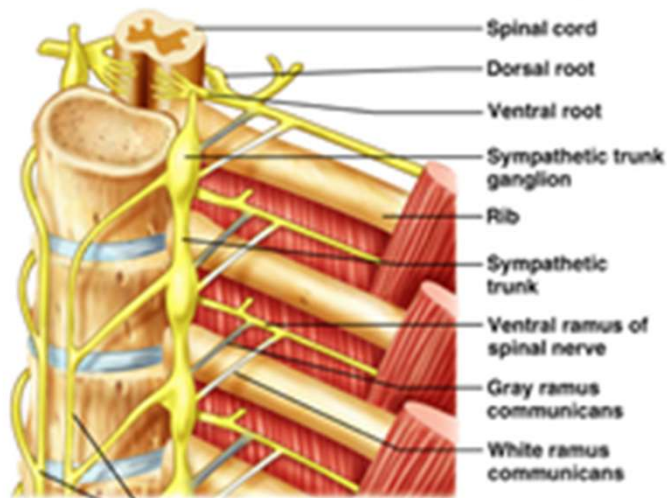
Rib Raising Techniques: Effects on Respiratory Efforts and Lymphatics

- Free restrictions of thoracic spine and rib cage
- Improved respiratory excursion of rib cage
 - Minimizes the amount of work required for thoracic expansion during respiration
- Improved lymphatic pumping mechanism of the thoracic cage
- Autonomic/sympathetic/lymphatic
 - Reduce constriction of larger lymphatic vessels

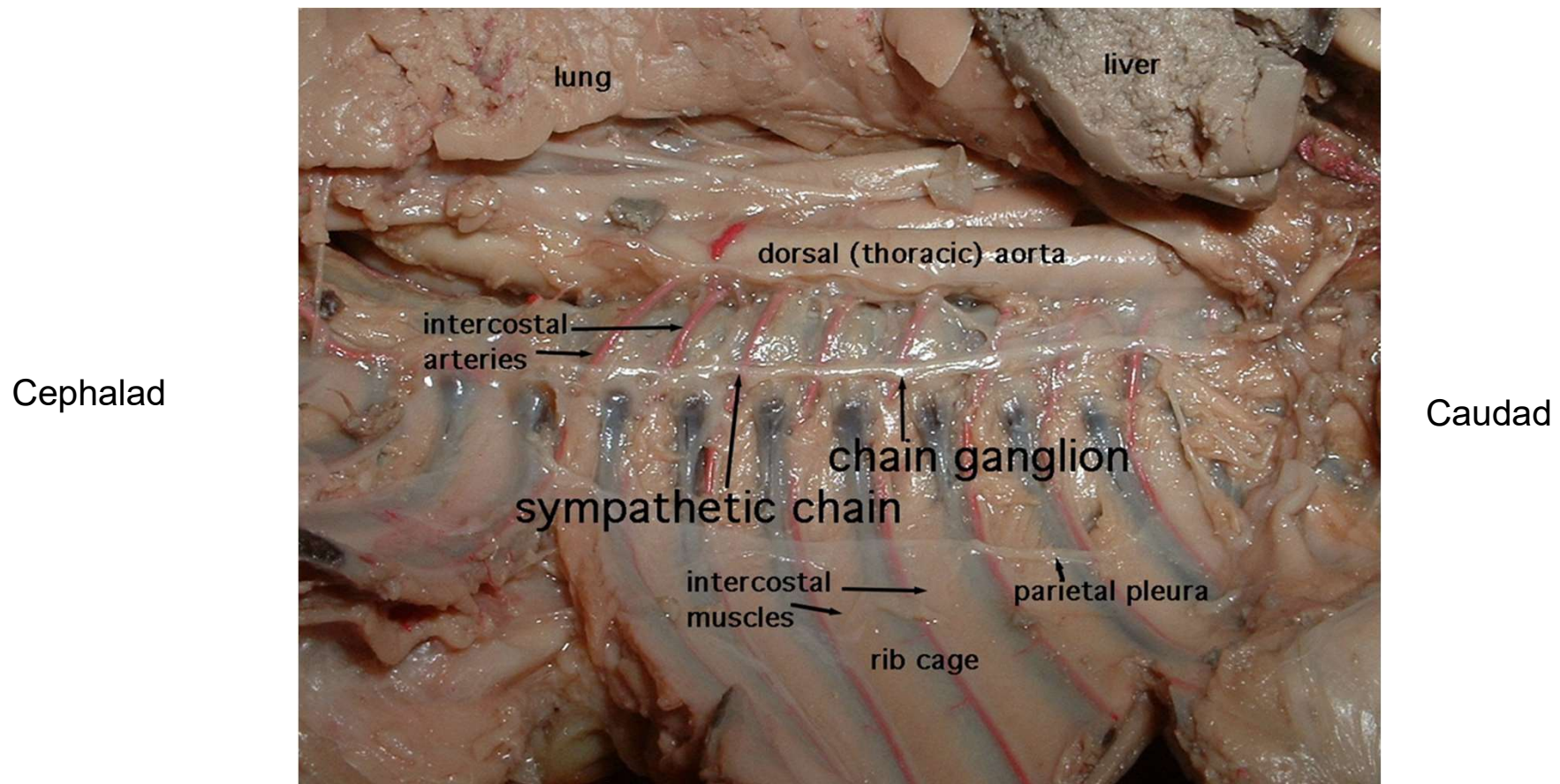
Rib Raising Techniques: Effect on Sympathetics

- Sympathetic chain ganglia located just anterior to the rib heads
- Ganglia can be affected by lifting the rib heads
- Technique may initially be stimulatory, but results in a decreased or normalized activity of the sympathetics

Sympathetic Trunk Ganglia



Functional Anatomy



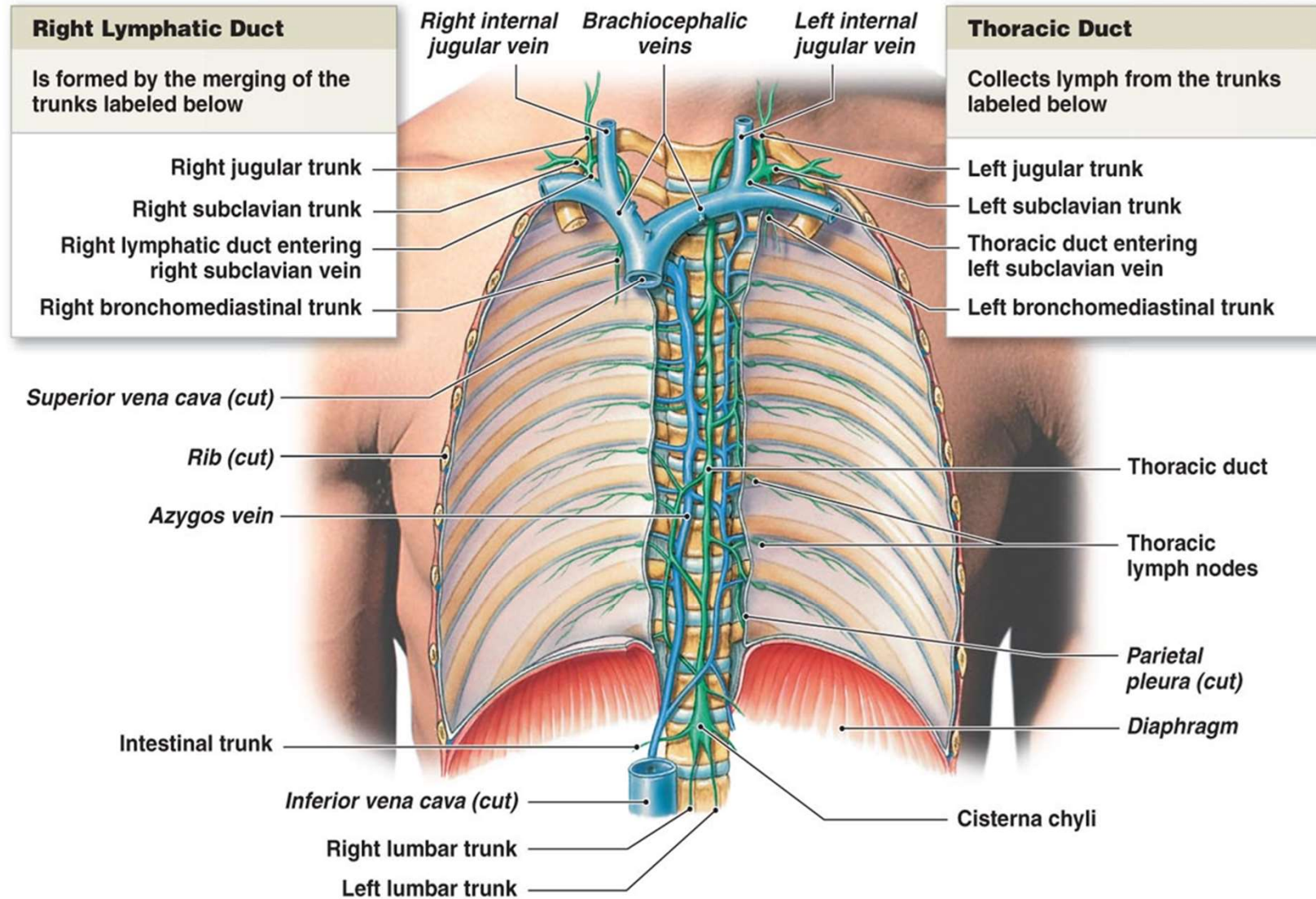
Anterior to Posterior view, organs moved to the side.

Rib Raising—Supine-Direct-LVMA (springing)

1. Patient is supine and the physician sits at the side of the table.
2. Patient crosses their arms to move the scapulae laterally and allow access to the posteriorly.
3. Physician places their 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. They hold up the ribs until the surrounding tissues relax. They then allow the ribs to fall posteriorly. Rib raising may be applied once or rhythmically for several cycles.
5. Physician repositions the hands to contact a higher group of ribs and step 4 is repeated.
6. When one side of the rib cage is treated completely, the other side is treated.
7. Recheck lymphatic status.



The relationship between the right lymphatic and thoracic ducts and the venous system



Functional Anatomy

When treating lymphatic system remember to also:

1. Open the thoracic inlet to allow proper drainage of the thoracic duct
2. Open abdominal diaphragm for Cisterna Chyli
3. Decompress the OA for vagus nerve

Open the Abdominal Diaphragm



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 their palms with the fingers spread apart.
3. Patient's respiration is observed and palpated to determine which hemidiaphragm is most restricted.
4. Physician carries the rib cage into left/right rotation to the point of maximum ligamentous tension (facial barrier). They then add components of left/right sidebending and flexion/extension until all three planes are at the fascial barrier.
5. Patient is instructed, "Take some deep breaths." The physician maintains the abdominal diaphragm at the fascial barrier in three planes while resisting the inhalation effort on the side that has the best motion, forcing the restricted side of the diaphragm to move.
6. Recheck.

Functional Anatomy

When treating lymphatic system remember to also:

1. Open the thoracic inlet to allow proper drainage of the thoracic duct
2. Open abdominal diaphragm for Cisterna Chyli
3. Decompress the OA for vagus nerve

1. Patient is supine and the physician sits at the head of the table.
2. Physician uses their index fingers to contact the occipital bone as near to the condyles as possible. Finger pads placed in the suboccipital sulcus (groove) on both sides.
 1. Asking the patient to nod their head helps obtain access to the area. 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 their elbows are moved medially.
 1. This moves the fingers laterally to widen the foramen magnum along its entire margin and decompress the tension in the occiput.
5. The respiratory phases are tested and the patient is instructed to hold their breath as long as possible in the phase that provides the best increase in tension on the side of the restriction. This is usually inhalation. The physician makes minor adjustments in all three planes as needed to maintain balanced ligamentous tension. Traction with or without LVMA springing may be applied.
6. Step 5 is repeated until the best motion is obtained (average is 3 times).
7. Recheck.

Decompress the OA



Somatotopic Relationships to Sympathetic Function

- T1-4 Head and Neck
- T1-6 Heart, Lungs
- T2-8 Upper Extremity
- T2-8 Esophagus
- T5-9 Upper GI System
- T10-11 Mid GI System
- T10-Kidney
- T 10-11-Ovaries, Testes
- T11-L1 Upper Ureter
- T12-L2 Bladder
- T12-L2 Lower GI System
- T12-L2 Uterus, Prostate
- T11-L2 Lower Extremity

