



Manual Therapy Strategies To Successfully Treat Complex Patients

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Evaluation Tests That Should Be Considered

- **Listen-Think-Feel-Treat**

Remember that it is usually a mistake to begin any patient treatment without some type of evaluation, even after their initial visit. This step allows you to assess the patient's current condition in case changes have occurred from their previous visit.

Treatment should only begin after the clinician has had a chance to:

1. **Listen** to the patient's current subjective complaints, remaining functional limitations, functional improvements that have resulted from previous treatment sessions and/or their exercise program, medication changes, new medical test results, etc.
 2. **Think** about what this information tells you as it often indicates what the problem is, and, if you allow the patient to talk long enough, they often tell you how to fix it. Ex. "I always feel better when I". This step also can tell you what specific tests/special tests you will need to include in your evaluation.
 3. **Feel** the body tissues during the evaluation process to tell you which body regions are contributing to the patient's subjective complaints, what physiological aberrancies are present, what body systems might be involved, and where tissue restrictions or instabilities are located. Remember the importance of doing a good layer palpation.
 4. **Treat** the dysfunctional areas that were discovered during the evaluation process.
- **Remember** that in order to have successful treatment outcomes:
 - Pain is a liar so the true sources of the problem may not be where the pain is located.
 - Keep the bigger picture in mind as many problems are not just musculoskeletal in nature and the **neurological, autonomic, lymphatic, circulatory, respiratory, digestive, reproductive, hormonal-HPA axis, and immunological** processes may also be involved.

- To fully evaluate the patient before treatment commences in order to decide your appropriate treatment sequence, the following tests should be considered:

Standing:

1. Gait
2. Standing Posture
3. Trunk Sideglide Test
4. Clavicular Jump Tests
5. Manubrial Scan Tests

Supine

1. Leg Length
2. Foot Squeeze
3. Talar Glide Test
4. Leg Lift-Hip IR / LE Rotation Test
5. Squish Test
6. Respiratory and Pelvic Diaphragm motion
7. Respiratory Scan with Rib Spring along lateral rib margins
8. Thoracic Inlet - Drive The Bus
9. Manubrial Scan tests
10. Check the abdominal viscera for ease of peritoneal glide
11. Cervical Sideglide
12. Cranial Vault Hold
13. Cranial Pussyfoot scan using temporal external rotation
14. Cranial Scan Tests
15. Autonomic Scan Test

Standing Evaluation and Scan Tests

1. Gait

PURPOSE:

To evaluate how the body moves as a functional unit and determine which regions might be dysfunctional as they cannot perform in a proper manner during the walking cycle.

PROCEDURE:

Observe the patient walk and observe the following:

- Does the body move with general smoothness?
- Is there a proper cadence?
- Is the stride length appropriate?
- Is the base of support too wide or too narrow?
- Do the ankles have adequate dorsiflexion during the stance phase as the tibia progresses over the talus?
- After heel strike and during the foot flat phase, is there good pronation in the midfoot to transfer the weight from the lateral foot to the medial foot or does the weight stay on the lateral foot?
- Is there good 1st MTP extension during heel off?
- Is there good bilateral hip sway during weight shift or is there excessive trunk sidebending to compensate for poor hip sway?
- Do the hips smoothly swing forward?
- Is there good bilateral trunk sidebending and rotation throughout the trunk?
- Is bilateral arm swing full?
- Are the eyes level and fixed on horizon?
- If pain is present, where in the gait cycle does it occur?

2. Standing Posture

PURPOSE:

To see if compensations are present that can indicate what regions of the body might need closer evaluation.

PROCEDURE:

Observe the following:

- Are the feet level and pointing straight ahead?
- Is the pelvis level?
- Are opposite rotations throughout the lower extremities, pelvis, trunk, and neck? If opposite rotations are present, at what level do the crossovers occur?
- Are the shoulders level? Is one rotated forward?
- Are the scapulae retracted?
- Are the shoulders rotated or do the arms hang evenly with the thumbs pointing straight ahead?
- Are the head and eyes level?
- Are the ears over the shoulders or is the head forward?

NOTES:

- Remember that if the patient does not appear to be standing in their typical relaxed posture, have them march in place for a few seconds in order to settle the posture into its typical pattern.
- Repeat in sitting to see what changes occur, if any, when the lower extremities and any pelvic asymmetries associated with standing are removed out of the equation?

3. Trunk Sideglide Test

PURPOSE:

A general scan to test mobility of the spinal segments.

PROCEDURE:

1. Stand behind the patient on their right side.
2. The clinician should place their right hand on the top of the patient's head and their left thumb along the right side of the spinous process of C1.
3. Gently sidebend C1 to the right, which causes it to sideglide to the left.
4. Repeat for the right C2-C7.
5. The clinician should then place their right hand on the patient's right shoulder and their left thumb along the right side of the spinous process of T1.
6. Press down on the patient's right shoulder with only as much force needed to induce a sidebending at T1.
7. Repeat for the right T2-L5.
8. Stand behind the patient on their left side and reverse the starting hand positions.
9. Repeat steps 2-7 to evaluate the mobility in the left spinal segments. Note what levels in the thorax have hypomobile segments.

NOTES:

- Sidebending a vertebral segment causes it to sideglide to the opposite side.
- If the above testing reveals multiple consecutive segments are hypomobile, it suggests further examination of the viscera that are innervated by those segmental levels or the following areas may be needed:
- Scapulae (T1-7) suggests that ipsilateral wrist and hand dysfunctions may need to be treated first as they may be causing reflexive tightening of T1-7.
- Lumbar (L1-5) suggests ipsilateral foot and ankle dysfunctions may need to be treated first as they may be causing reflexive tightening of L1-5.
- Viscerosomatic reflexes may be involved and require treatment of the viscera and autonomic nervous system at those segmental levels.

4. Latissimus Dorsi Couple/Uncouple (Clavicular Jump) Test

PURPOSE:

This scan uses the latissimus dorsi's function as a clavicular depressor to indicate areas that need further evaluation.

This test uses the latissimus dorsi as a structure that crosses and connects several regions to reflect how these regions are acting together (or not) in complex motion. It can show where further testing is indicated.

The first three outcomes lead to further local testing. The last outcome shows the need for further global testing.

PROCEDURE:

1. The patient stands with arms hanging at sides, feet hips-width apart.
2. The clinician lightly places the pads of the index fingers or radial side of the thumbs on the superior aspect of the sternal ends of the clavicles, and assesses the initial relative levels in relationship to each other.
3. The patient then slowly abducts their arms overhead without bending their elbows, so that the backs of their hands touch above their heads.
4. The clinician then assesses the final relative levels of the clavicles.
5. A normal test shows the sternal ends of the clavicles are level at the start, and level at the end, having dropped slightly.

POSSIBLE OUTCOMES INDICATING FURTHER TESTING:

1. Clavicles start even, end uneven: This indicates an upslip on the side of the high clavicle at end range.
2. Clavicles start uneven, end even: This indicates the dysfunction is greatest below T-10.
3. Clavicles start uneven, end uneven but reverse sides: This indicates the dysfunction is greatest above T-6.
4. Clavicles start uneven, end uneven and **Do Not** reverse sides: this indicates there is global dysfunction. T-6 and T-10 do not function independently from one another.

NOTES: This 4th finding indicates an involvement of at least one of three structures: the latissimus dorsi, the diaphragm, and the anterior longitudinal ligament. Both the longus colli and the psoas major insert on the anterior longitudinal ligament and the two may be acting as a functional unit instead of independently.

Because the Latissimus dorsi depresses the clavicle, the following negate this test being used :

- Latissimus injury.
- Clavicular fracture.
- Severe shoulder ROM restrictions.

5. Standing Manubrial Scan Test

PURPOSE:

This test is a scan for dysfunction in the cervical spine, clavicles, and upper ribs.

PROCEDURE:

1. Place your thumbs on the manubrium close to the SC joint.
2. Have the patient flex and extend their neck and see if your thumb position changes. Movement of your thumb on one side indicates cervical spine dysfunction on the side that moves.
3. Have the patient take a deep breath and see if your thumb position changes. Asymmetrical motion indicates upper rib dysfunction on the side that moves.
4. Have the patient shrug and see if your thumb position changes. Asymmetrical finishing position indicates clavicular dysfunction on the side that moves.

If this test is positive:

- a. Place your thumbs on anterior surface of the medial clavicles. Have the patient raise their arms overhead. If 1 clavicle stays elevated and does not glide inferiorly, then it is superiorly subluxed.
- b. Place your thumbs on anterior surface of the medial clavicles. Have the patient flex their shoulders to 90° and then reach forward. If 1 clavicle does not glide posteriorly, then it is anteriorly subluxed.

NOTES:

- The above tests may be positive on both sides so pay close attention to whether your thumbs do not move or both move.
- A common pattern is for the right clavicle to be superiorly subluxed and for the left clavicle to be anteriorly subluxed.

Supine Evaluation and Scan Tests

1. Supine Leg Length

PURPOSE:

To determine the presence of iliosacral dysfunction, which may be producing a functional leg length discrepancy.

PROCEDEURE:

1. Have the patient lie supine on the table with knees flexed.
2. Stand at the patient's feet facing cephalad.
3. Have the patient lift their hips and quickly drop their pelvis back to the table. Then grasp the patient's feet and straighten LEs passively.
4. Place your thumbs at the tips of the medial malleoli to check for symmetry.

KEYS TO REMEMBER:

- Look for a high malleolus indicating an apparent leg length inequality.
- Differences here indicate a pelvic obliquity.
- The side of dysfunction has not yet been determined.
- If a leg length discrepancy is present, it may be a true structural one and not a functional one secondary to the presence of a pelvic dysfunction.

2. Foot Squeeze Test

PURPOSE:

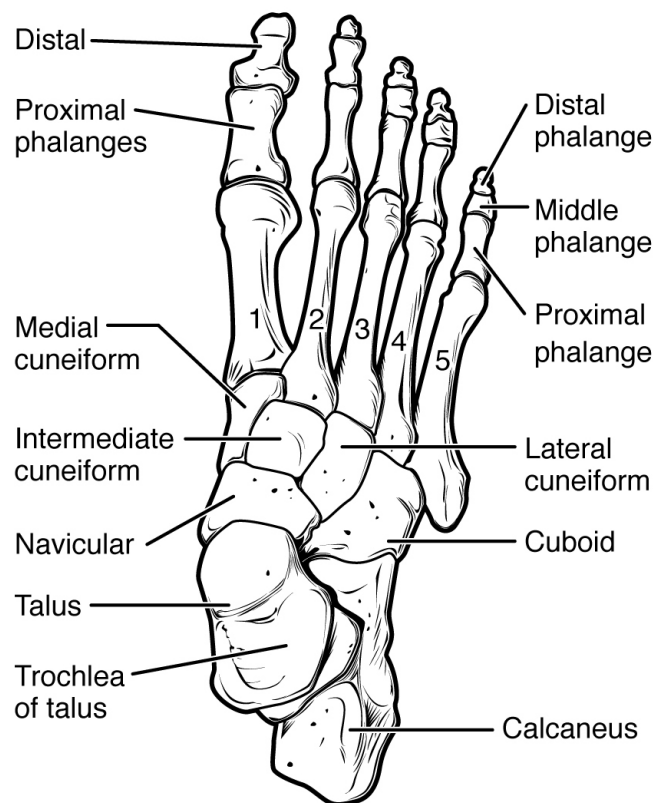
This test indicates foot dysfunction that requires further evaluation and treatment before treatment of the pelvis can begin.

PROCEDURE:

Patient is lying supine, squeeze midfoot bilaterally and compare for stiffness.

KEYS TO REMEMBER:

- A positive result indicates the presence of a lower extremity barrier that requires attention. If this is not addressed, lumbopelvic dysfunctions may return as soon as the patient walks around.



3. Talar Glide Test

PURPOSE:

This test examines the ability of the talus to glide posteriorly into the ankle mortise during dorsiflexion.

PROCEDURE:

1. Have the patient lie supine on the table.
2. Stand at the patient's feet facing cephalad.
3. Grasp the midfoot with your fingers wrapping underneath and the thumbs resting on the anterior aspect of the dome of the talus.
4. Passively dorsiflex the ankles.
5. Feel for the ability of the talus to glide back and disappear into the ankle mortise.

KEYS TO REMEMBER:

- Look for even motion and excursion bilaterally.
- Differences indicate a need for further evaluation of LE barriers before beginning treatment of the pelvis.
- A dysfunction here is RARELY primary unless a recent injury has occurred.



4. Leg Lift - Hip Internal Rotation

PURPOSE:

This tests the relative weight of each lower extremity and looks at the amount of internal rotation available in each hip, as well as the ability of each hip to glide posteriorly during passive internal rotation.

PROCEDURE:

1. With the patient supine, stand at the patient's feet facing cephalad.
2. Grasp the patient's feet with the back of their heels in your palms and your thumbs behind the lateral malleoli.
3. Lift both lower extremities a few inches off the table keeping the knees straight. Compare the weight of both LEs.
4. Gently roll the LEs in, 1 at a time, to test hip IR to end range of motion.
 - Does each LE roll gently into the hip socket or climb up?
 - Do the LEs IR evenly?
 - Is the range of motion symmetrical?

KEYS TO REMEMBER:

- Limited hip IR is positive for psoas dysfunction.
- Inability of the femoral head to glide posteriorly in the acetabulum is positive for Quad/TFL Dysfunction or deep hip rotator dysfunction.
- If there is a palpable weight difference, think about fluid retention in the heavy limb. Check pelvic diaphragm motion on the side of the heavy leg as decreased motion may limit fluid pumping out of the leg. Also consider Chapman's neurolymphatic reflexes.

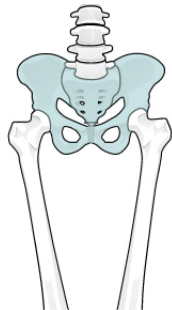
5. Squish Test

PURPOSE:

This test indicates which iliosacral/sacroiliac joint is dysfunctional.

PROCEDURE:

1. Patient lies supine on the table.
2. Stand on one side of the patient, with your dominant eye over the midline.
3. Place your palms over the ASIS bilaterally.
4. Apply pressure at a 45° angle posteromedially through the joint. Glide the ilium on the sacrum without moving the sacrum. Do one side at a time.
5. LIGHTEN UP AND GO SLOWLY – THIS TEST REQUIRES VERY LITTLE FORCE.
6. The stiff side is the dysfunctional (named) side.



KEYS TO REMEMBER:

- Push hard on a joint and it will stiffen up, so press lightly.
- Use a 45° angle for glide motion.
- If the pelvis rocks you are pushing too hard.
- You are trying to glide the ilium on the stationary sacrum.
- **The dysfunctional side is ONLY established after normalizing the pubic symphysis.**

6. Motion of the Respiratory and Pelvic Diaphragms with Respiration

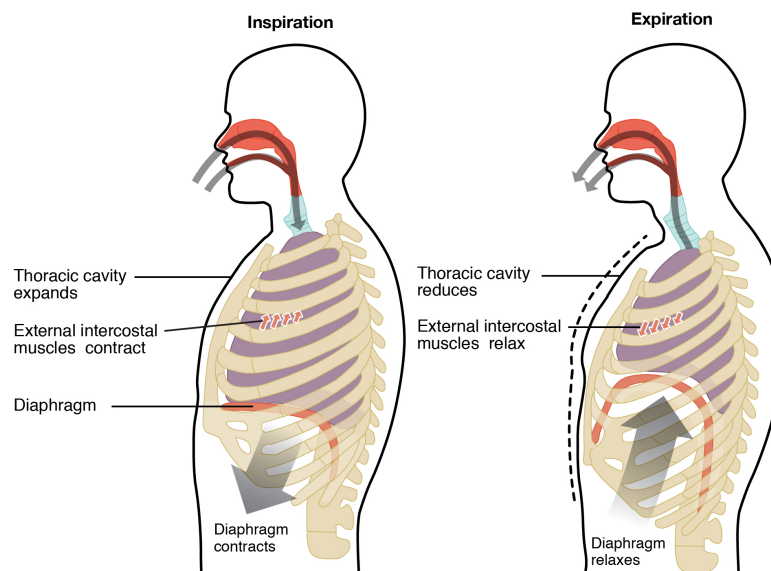
PURPOSE: To assess the ability of the respiratory and pelvic diaphragms to fully descend and ascend with respiration.

PROCEDURE:

1. Place the patient in supine and have them bend their knees with their feet apart and their knees together.
2. Stand on the side of the table of your dominant eye facing cephalad.

Respiratory Diaphragm

3. Place your hands on the abdomen in the central subcostal margin just beneath the xiphoid process with your fingers pointing towards the patient's head.
4. Have the patient take a breath and see if the central portion of the respiratory diaphragm fully descends bilaterally with inhalation and fully ascends bilaterally with exhalation.
5. Repeat step 4 with your hands now placed in the subcostal margin halfway towards the lateral edge.
6. Repeat step 4 with your hands now placed in the subcostal margin on the lateral edge.

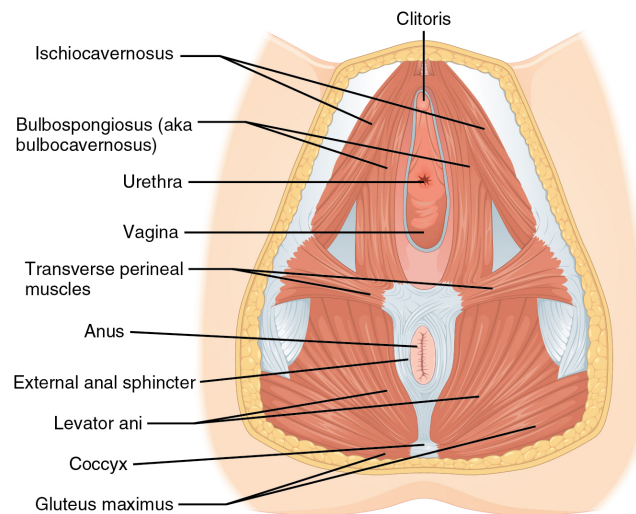


6. Motion of the Respiratory and Pelvic Diaphragms with Respiration cont.

Pelvic Diaphragm

- Place 1 hand in the central subcostal margin just beneath the xiphoid process with your fingers pointing towards the patient's head as before.
- Place your other hand just medial to the ischial tuberosity.
- Have the patient take a deep breath and see if the pelvic diaphragm on that side descends fully and just a fraction of a second after the respiratory diaphragm begins to descend.
- Repeat step 9 on the opposite side.

KEYS TO REMEMBER:



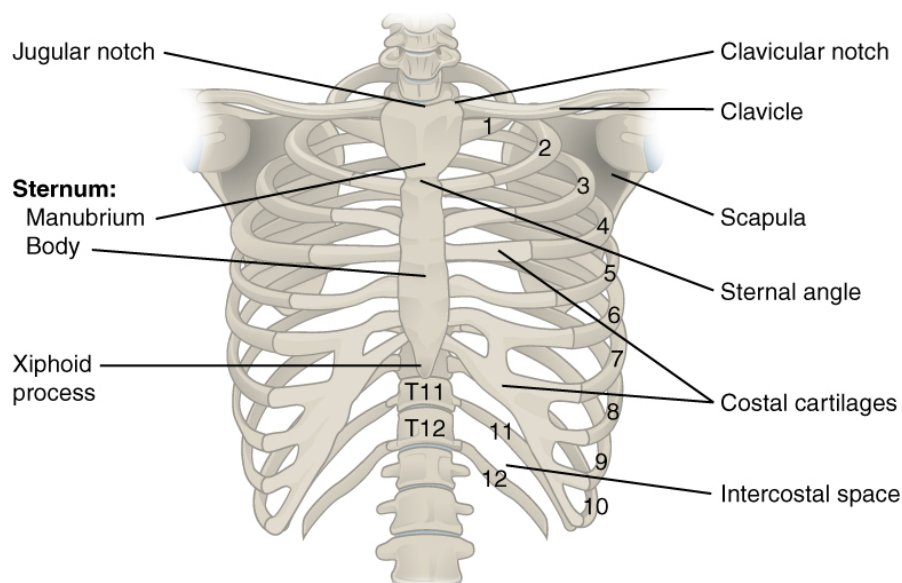
- The respiratory diaphragm develops embryologically from 4 sources:
 - The septum transversum, which forms the central tendon.
 - The dorsal esophageal mesentery.
 - The pleuroperitoneal membranes.
 - The body wall.
- The hand placements for the respiratory diaphragm scan looks at each these sources.

7. Respiratory Scan of the Thoracic Cage

PURPOSE: This scan is a way to quickly see where further testing is indicated in the thoracic cage.

PROCEDURE:

1. The patient lies supine.
2. Stand to one side of the table.
3. Place your hands along the lateral rib cage on both sides and press in with each hand to perform a **Rib Spring** along the lateral rib margins.
4. Repeat along the entire rib cage.
5. If the Rib Spring is positive (stiff) in any area in the rib cage, do the following:
 - If +, pay close attention when checking the pump handle, bucket handle, and caliper motions below.
 - If +, also do a layer palpation to help determine if the limitation is biomechanical or visceral.
6. Next, again place your hands along the lateral rib margin.
7. Beginning in the inferior margin over ribs 11 and 12, have the patient take a series of breaths while you palpate the thorax for smooth motion and symmetry. The palpation is done bilaterally to be able to compare one side's motion to the other.



7. Respiratory Scan of the Thoracic Cage cont.

8. Next repeat step 7, but now move your hands farther up the rib cage until you have tested from bottom to top. This hand position is used to test the bucket handle motion of the ribs. Move your hands to the anterior rib cage to test the pump handle motion of the ribs.
9. Repeat until all of the following areas have been tested in inhalation and exhalation:
 - Caliper motion of floating ribs 11-12
 - Bucket handle and pump handle of false ribs 8-10
 - Bucket handle and pump handle of true ribs 1-7
10. Place the fingers of each hand on the superior aspect of both 1st ribs in the supraclavicular space. Assess if 1 or both of these ribs is more stiff and/or held in a position that is more superior than it should be. Have the patient take a deep breath to see the 1st ribs can elevate with inhalation and descend with exhalation.

KEYS TO REMEMBER:

- It is more common to see bucket handle dysfunctions in the lower rib cage and pump handle dysfunctions in the upper rib cage, but either dysfunction can be seen throughout the rib cage.
- The most common dysfunctions seen in the 1st ribs are superior subluxations and posterior subluxations.

8. Drive The Bus Technique (Assessment)

PURPOSE:

This test is used as a scan test for possible clavicular, lower cervical, and upper thoracic cage dysfunctions. This position can also be used as a treatment position.

PROCEDURES:

1. Place patient in the supine position.
2. Sit at the head of the table.
3. Place both hands on either side of the base of the neck with your thumbs on either side of the spinous process of T1, your index fingers on the supraclavicular space, your middle fingers on the clavicles, and your ring and little fingers on the 1st and 2nd ribs and manubrium.
4. Use your hands to assess motion of this entire complex in all directions.
5. Once the barriers of motion have been determined, use a direct or indirect MFR technique to free up the barriers.

NOTE: Restrictions around the subclavian vessels and thoracic ducts should be removed to maximize venous and lymphatic drainage from the head, neck, and throughout the body.



9. Sternal And Manubrial Motion Tests

PURPOSE:

This test is a scan test to see if dysfunction may be present in the manubrium, sternum, and/or upper thoracic cage.

PROCEDURES:

Manubriosternal Joint Motion

1. Stand besides the patient with your dominant eye over the chest.
2. Place a flat palm vertically on the sternum.
3. Place the opposite hand horizontally on the manubrium touching the opposite hand perpendicularly.
4. Have the patient inhale and see if the hands come apart and without rotation.

Manubrial vs. Sternal Motion

1. Stand besides the patient with your dominant eye over the chest.
2. Place the thumb and index finger of top hand over the manubrium just above Rib 2, 1 finger on the right and the other on the left.
3. Place the thumb and index finger of the bottom hand over the sternum just above Rib 4, 1 finger on the right and the other on the left.
4. Have the patient take a breath and observe the relative motion of the 2 sets of fingers.

KEYS TO REMEMBER:

- Make sure you explain the purpose of the test and your hand positions to the patient and get permission to perform it.
- A positive Manubriosternal Joint Motion test indicates a primary dysfunction at the manubriosternal joint.
- A positive Manubrial vs. Sternal Motion test indicates that sternochondral or costochondral dysfunctions or chest muscle tightness may be the primary dysfunction affecting manubrial or sternal motion.

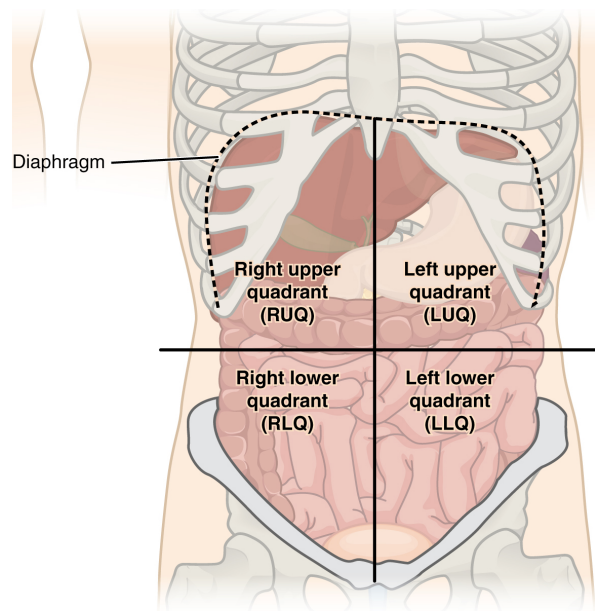
10. Abdominal Viscera Peritoneal Glide Scan

PURPOSE:

To assess the ease of the viscera to glide within the abdominal cavity without restrictions and possibly limiting motion in the vertebral column, rib cage, and/or pelvis.

PROCEDURE:

1. Place the patient in supine.
2. Sit on either side of the table.
3. Place 1 hand in the Right Upper Quadrant and the other hand under the spinous processes associated with that quadrant.
4. Do a layer palpation until you are assessing the peritoneum surrounding the abdominal viscera in that quadrant.
5. Try to fold the peritoneal tissue toward the umbilicus and assess for ease of motion.
6. Repeat step 5 for the Left Upper Quadrant, Right Lower Quadrant, and the Left Lower Quadrant.



KEYS TO REMEMBER:

- If tissue restrictions are felt in the peritoneum in any of the 4 quadrants, then the more extensive assessment of the specific viscera that are located in that quadrant should occur.

11. Cervical Side Glide Testing - C1-7

PURPOSE:

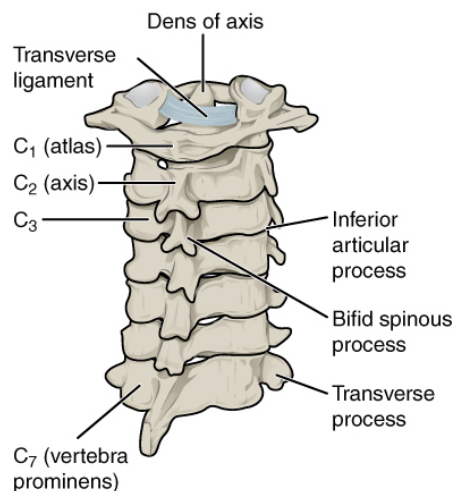
To quickly assess the cervical spine for dysfunction to see if more specific assessment of any of the vertebral segments needs to occur.

PROCEDURE:

1. Place the patient in supine.
2. Sit at the head of the table.
3. Make sure the upper cervical spine is in neutral and in a loose pack position.
4. Place the index fingers of each hand on the transverse processes of C7.
5. Side glide C7 to the left to test right side bending.
6. Then side glide C7 to the right to test left side bending.
7. Repeat steps 5-6 for C1-6.

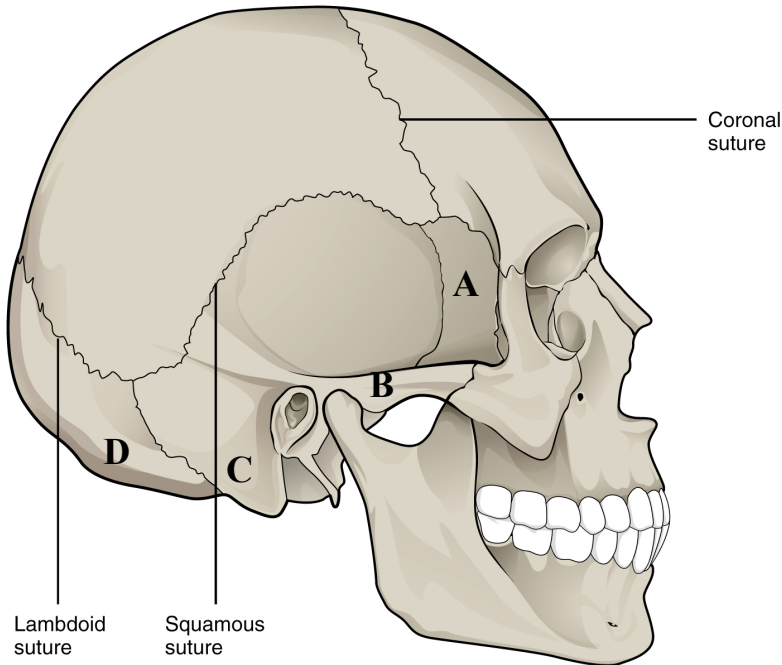
KEYS TO REMEMBER:

- Make sure the index fingers are on the same transverse processes. It is easy to be on two different spinous processes in the cervical spine.
- If there are no restrictions, the motion should be equal bilaterally.
- Unequal motion is an indication that a facet at that vertebral level cannot move freely and more specific evaluation of that level is needed.



Assessment of the Cranial Rhythmic Impulse (CRI)

12. Cranial Vault Hold



Finger Placement:

- A. **Index Finger:** On the Greater Wing of the Sphenoid
- B. **Middle Finger:** In front of the ear on the Temporal Zygomatic Process
- C. **Ring Finger:** Behind the ear on the Temporal Mastoid Process
- D. **Little Finger:** On the squamous portion of the Occiput

Note: Thumbs touch or cross each other without touching the patient's cranium.



Cranial Vault Hold Technique

PURPOSE: This hold is used as a general scan to assess the cranial rhythmic impulse (CRI) to indicate where further assessment is indicated.

PROCEDURE:

1. Place the patient in supine. The clinician sits at the head of the table.
2. Establish a fulcrum by resting both forearms on the table.
3. Cradle the patient's head, making full palmar contact on both sides.
4. Palpate the CRI:
 - **Flexion-External Rotation:** coronal diameter widens, anteroposterior diameter decreases, and height decreases.
 - **Extension-Internal Rotation:** coronal diameter narrows, anteroposterior diameter increases, and height increases.
5. Assess the amplitude, rate, and regularity of the CRI.
6. Assess which bones, if any, have an altered amplitude, rate, and regularity.

NOTE:

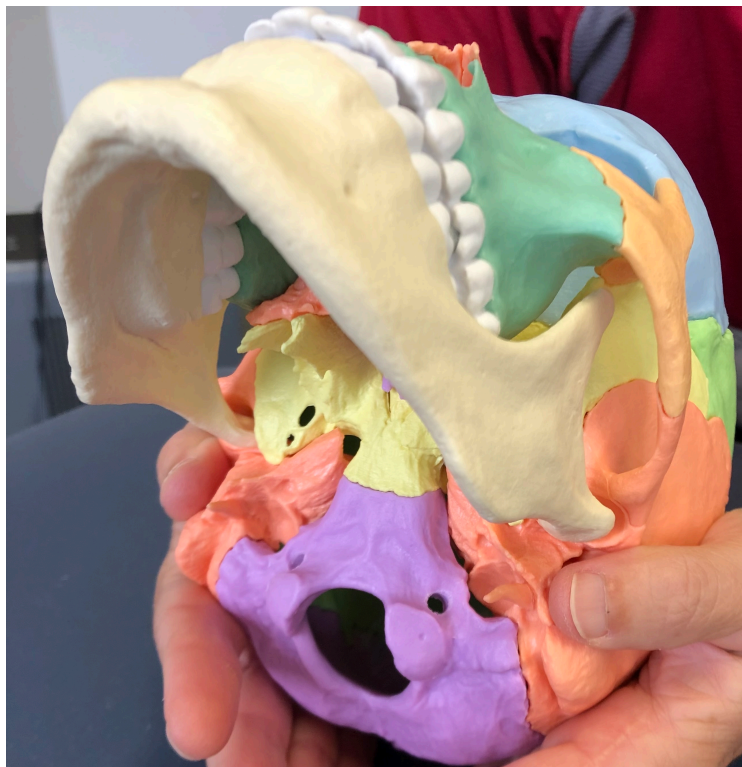
- You may instruct the patient to stop breathing to further distinguish the rhythmic sensations that occur in the CRI.
- You can also have the patient inhale and exhale fully to increase the amplitude of the CRI, which can make it easier to feel.

13. Pussyfoot Assessment Technique

PURPOSE: A good overall non-specific technique to check for cranial dysfunctions by using temporal motion to assess for asymmetric motion. Asymmetric motion here indicates a dysfunction somewhere in the cranium and not necessarily the temporal bone. Temporal asymmetric motion may be compensatory.

PROCEDURE:

1. Have the patient in supine.
2. Sit at the head of the table.
3. With your hands palms up, place the palms of your hands behind the patient's head with your thumbs on the lateral aspect of the mastoid process in the mastoid slot.
4. Alternately smoothly rock each temporal into external rotation to establish a lateral tidal fluctuation of cerebrospinal fluid motion in the subarachnoid space from right to left and back. Compare motion on the right and left and if both are full. You can also passively follow the CRI through the temporals alternately.



14. Cranial Scan Tests

- The following scan tests can be used to help decide which regions of the skull require more specific assessment for the presence of dysfunctions.
- Perform all of these scan tests with the patient in supine and you sitting at the head of the table.

A. Cranial Vault Hold - see above.

B. Pussyfoot Assessment - see above.

C. Temporal Drawer Test - To rule out a temporal bone dysfunction.

1. With the patient supine, sit at the head of the table.
2. Place your index or middle finger pads in the mastoid slot behind the ear on the inferior tips of mastoids.
3. Draw the temporals straight superior by slightly leaning your body back. Only a few ounces cephalic traction is used for 1-2 seconds.
4. If 1 temporal bone is reluctant to slide toward you, that temporal is dysfunctional.
5. This dysfunction may be in 1 or more of its articulations: occipitomastoid, petrojugular, petrobasilar, petrosphenoid, sphenosquamous, parietosquamous, parietal notch, or, rarely, asterion.

D. Asterion Assessment

1. Place your hands on the back of the skull with the middle finger along the occipitomastoid suture with the tip of the middle finger resting on the parietal bone.
2. Assess CRI to see if they are equal.
3. If not, assess if this suture is stuck open (cranial extension) or stuck closed (cranial flexion).

E. Petrojugular Dysfunction Assessment

1. Place your hands on the back of the skull with your thumbs resting on the lateral aspect of the mastoid processes.
2. Have the patient take a breath and see if both temporal bones externally rotate with inhalation and internally rotate with exhalation.
3. If 1 of the temporal bones rotates out of pattern, a petrojugular dysfunction exists on that side.

F. Lambdoidal Suture Assessment

1. Place both hands on the back of the skull with the middle finger of the ipsilateral hand placed on the lambdoidal suture with the ring fingers placed on the occiput and the index fingers on the parietal bone.
2. Assess CRI to see if they are equal.
3. If not, a cranial dysfunction is present that is affecting the lambdoidal suture on the side of decreased motion.

G. Sagittal Suture Assessment

1. Place both hands on the squamous portion of the parietal bones with the tips of each hand on either side of the sagittal suture.
2. Assess CRI to see if they are equal.
3. If not, a cranial dysfunction is present that is affecting the parietal bone on the side of decreased motion.

H. Coronal Suture Assessment

1. Place the thumbs of each hand along each side of the coronal suture.
2. Gently press the thumbs down into the coronal suture.
3. If one side feels more stiff or harder, a cranial dysfunction is present in the suture or adjacent cranial bones.

I. Frontozygomatic Suture Assessment

1. Place your thumbs on the superior aspect of the frontal bones and the index fingers along the lateral aspect of the frontozygomatic suture.
2. Assess CRI to see if they are equal.
3. If not, a cranial dysfunction is present that is affecting the region of that lateral orbit on the side of decreased motion.

J. Metopic Suture Assessment

1. Place the palms of each hand on the lateral aspects of the frontal bones and the fingertips on the anterior aspect of the frontal bone on either side of the metopic suture.
2. Assess CRI to see if they are equal.
3. If not, a cranial dysfunction is present in the metopic suture that is causing asymmetric motion in the frontal bones.

K. Frontal-Lesser Wing of the Sphenoid Assessment

1. Place your thumbs on the anterior aspect of the frontal bones just above the bridge of the nose.
2. Gently press the thumbs down into the frontal bones.
3. If both thumbs feel stiff or hard, a cranial dysfunction is present in the Frontal-Lesser Wing of the Sphenoid Suture.

15. Autonomic Nervous System Balancing Techniques - Scan Test

PURPOSE:

To assess if the autonomic nervous system is balanced, and if not, where the imbalance is occurring. If autonomic nervous system imbalance is present, this test will also allow you see if the imbalance is occurring at the local reflex level or if the brain's central command centers are involved as well. If the brain's central command centers are involved, this indicates that the local irritation could not be managed by the local nervous, immune, and hormonal systems and the higher centers in the brain are being recruited to help as the threat to body has increased to a more serious level.

PROCEDURE:

1. Palpate the **brain's central command centers** below for bilateral tenderness or tissue tension to see if afferent feedback from the local areas of the body along the parasympathetic, sympathetic, and/or trigeminal pathways are involved.
 - a. **Occipitomastoid Sutures**
 - b. **Trigeminal Centers**
 - Palpate the masseter muscles for tenderness with the teeth lightly clenched in order to ensure you are palpating the masseter and not the parotid gland. This indicates the primary irritation is within the cranium. If the masseter is tender, then check the ipsilateral supraorbital, infraorbital, and mental foramina to localize the source of the irritation further.
 - c. **Superior Cervical Ganglia**
 - If the either of the superior cervical ganglia are tender, palpate the middle and inferior cervical ganglia as well to see if they are also involved. Superior cervical irritation MAY flow down to these other ganglia. Irritation in either the middle or inferior cervical/stellate ganglia will always involve the superior cervical ganglia as signals are only sent down, but not up.

2. Palpate the prevertebral ganglia below for tenderness or tissue tension to see if the **local** visceral structures being innervated by them are the source of the irritation.

Celiac Ganglia

Superior Mesenteric Ganglion

Superior Hypogastric Plexus

Pubovesicle Plexuses

Ganglion Impar

Aorticorenal Ganglia

Inferior Mesenteric Ganglion

Inferior Hypogastric Plexuses

Pelvic Splanchnic Nerves (S2-4)

3. If tenderness or tissue tension is present in any of the brain's central command centers and any of the prevertebral ganglia, then balance the autonomic nervous system between the brain's central command centers and the prevertebral ganglia/plexuses using the protocol described below.

Note: If the Inferior Mesenteric Ganglion, Superior Hypogastric Plexus, Inferior Hypogastric Plexuses, or Pubovesicle Plexuses are involved, you may need balance them with Ganglion Impar (sympathetic) and the Pelvic Splanchnic Nerves (parasympathetic) in addition to the brain's central command structures above.

4. After the autonomic feedback from the prevertebral ganglia/plexuses and the brain's command centers have been balanced, assessment of the local reflexes between the prevertebral ganglia/plexuses and the paravertebral ganglia can begin.
5. Palpate the paravertebral ganglia of the bilateral Sympathetic Chain Ganglia from T1-L5 for tenderness or tissue tension to see if that local segmental level is the source of the irritation.
6. Once the local segmental reflexes that need balancing have been determined, balance the involved prevertebral ganglia/plexuses with the involved local segmental levels of the sympathetic chain that innervate those ganglia/plexuses that you found to be positive using the protocol described below.

Autonomic Nervous System Balancing Protocol

1. Have the patient in supine.
2. Place the fingers of 1 of your hands on 1 of the contact points and the fingers of your other hand on the other contact point.
3. Gently begin to apply equal pressure to each of the points simultaneously and gradually increase the pressure until you feel your fingers connect and the 2 points beginning to talk to each other. Usually the tissues under your fingers begin to soften.
4. Maintain your pressure until the tissues fully relax.

KEYS TO REMEMBER:

- Inferior ganglion of Vagus lies anterior to C1-2 as does the Superior Cervical Ganglion so will need to recheck for tenderness in the SCG after treatment of the vagus nerve at the occipitomastoid suture to see if the tenderness there is truly of sympathetic origin.
- Deep Touch = Inhibits - Dampens. Light Touch = Facilitates - Turns Higher
- **Ganglion** provides Good Regional information.
- **Plexus** provides Fine Local control.
- The easiest ways to change the neural cascade is to treat the gut and drain the head.

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