OMT TO IMPROVE BREATHING AND RELIEVE ANXIETY

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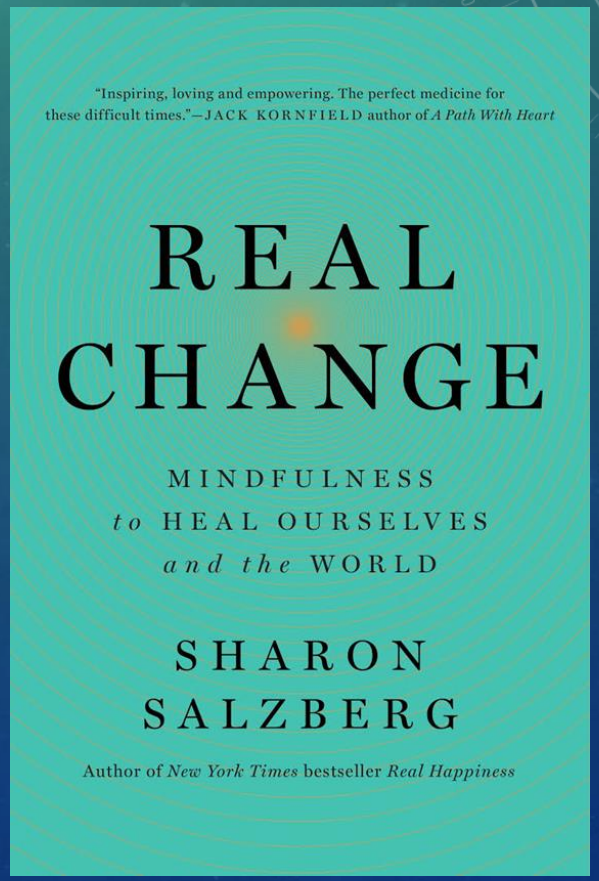
ADDRESSING THE SPIRIT: TAKE A BREATHER

- Sharon Salzberg's book *Real Change*, opens a doorway in your heart to gratitude and receiving happiness.



SIT IN A COMFORTABLE, RELAXED POSITION.

- Your eyes can be open or closed. Now bring to mind a pleasurable experience you had recently, one that carries a positive emotion such as happiness, joy, comfort, contentment, or gratitude. If you can’t think of a positive experience, be aware of giving yourself the gift of time to do this practice now.

TAKE TIME TO CHERISH WHATEVER IMAGE COMES TO MIND WITH THE RECOLLECTION OF THE PLEASURABLE EXPERIENCE.

- See what it feels like to sit with this recollection. Where in your body do you feel sensations arising? What are they? How do they change? Focus your attention on the part of your body where those sensations are the strongest. Stay with the awareness of your bodily sensations and your relationship to them, opening up to them and accepting them.

NOW NOTICE WHAT EMOTIONS COME UP AS YOU BRING THIS EXPERIENCE TO MIND.

- You may feel moments of excitement, moments of hope, moments of fear, moments of wanting more. Just watch these emotions rise and pass away. All of these states are changing and shifting. Perhaps you feel some uneasiness about letting yourself feel too good, because you fear bad luck might follow. Perhaps you feel some guilt about not deserving to feel this happiness. In such moments, practice inviting in the feelings of joy or delight, and allowing yourself to make space for them. Acknowledge and fully experience such emotions.

NOTICE WHAT THOUGHTS MIGHT BE PRESENT AS YOU BRING TO MIND THE POSITIVE.

- Do you have a sense of being less confined or less stuck in habits? Or perhaps you find yourself falling back into thoughts about what went wrong in your day, what disappointed you—these thoughts can be more comfortable because they are so familiar. If so, take note of this. Do you tell yourself, “I don’t deserve this pleasure until I give up my bad habits, or I must find a way to make this last forever?” Try to become aware of such add-on thoughts and see if you can let them go and simply be with the feeling of the moment.

END THE MEDITATION BY SIMPLY SITTING AND BEING WITH THE BREATH.

- Be with the breath gently, as though you were cradling it. Then when you're ready, you can open your eyes.

OBJECTIVES

1. RECALL THE ANATOMY AND PHYSIOLOGY OF RESPIRATION AND THE EFFECTS OF BREATHING ON SOMATIC STRUCTURES, THE AUTONOMIC NERVOUS SYSTEM, AND THE LYMPHATIC SYSTEM.

2. CONNECT BREATH AND EMOTION THROUGH UNDERSTANDING THE IMPACT OF BREATHING ON CONDITIONS SUCH AS ANXIETY.

3. DEVELOP AN ASSESSMENT APPROACH THAT EFFICIENTLY IDENTIFIES CLINICALLY RELEVANT SOMATIC DYSFUNCTION THAT MAY IMPEDE RESPIRATION AND AFFECT PHYSICAL, MENTAL, AND SPIRITUAL WELL-BEING.

4. EXPLORE OSTEOPATHIC MANIPULATIVE TREATMENT APPROACHES THAT ADDRESS MUSCULOSKELETAL, AUTONOMIC,AND LYMPHATIC CONSIDERATIONS RELATED TO BREATH AND ANXIETY.

5. CREATE A STREAMLINED APPROACH THAT USES OSTEOPATHIC MANIPULATIVE MEDICINE IN THE MEDICAL DECISION MAKING OF PATIENTS WITH CONDITIONS THAT AFFECT RESPIRATION, ANXIETY, AND OVERALL WELLBEING.

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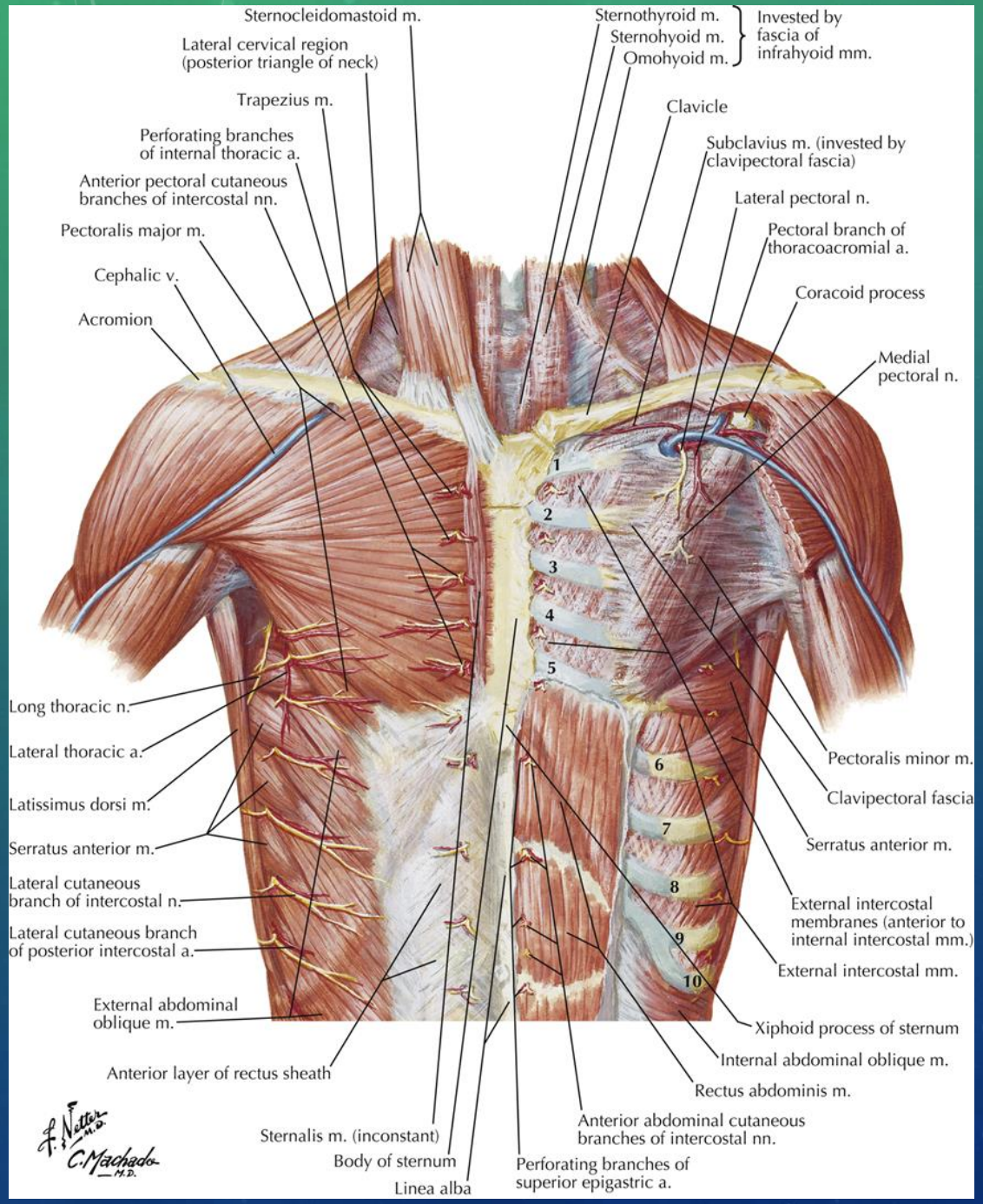

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ANATOMY

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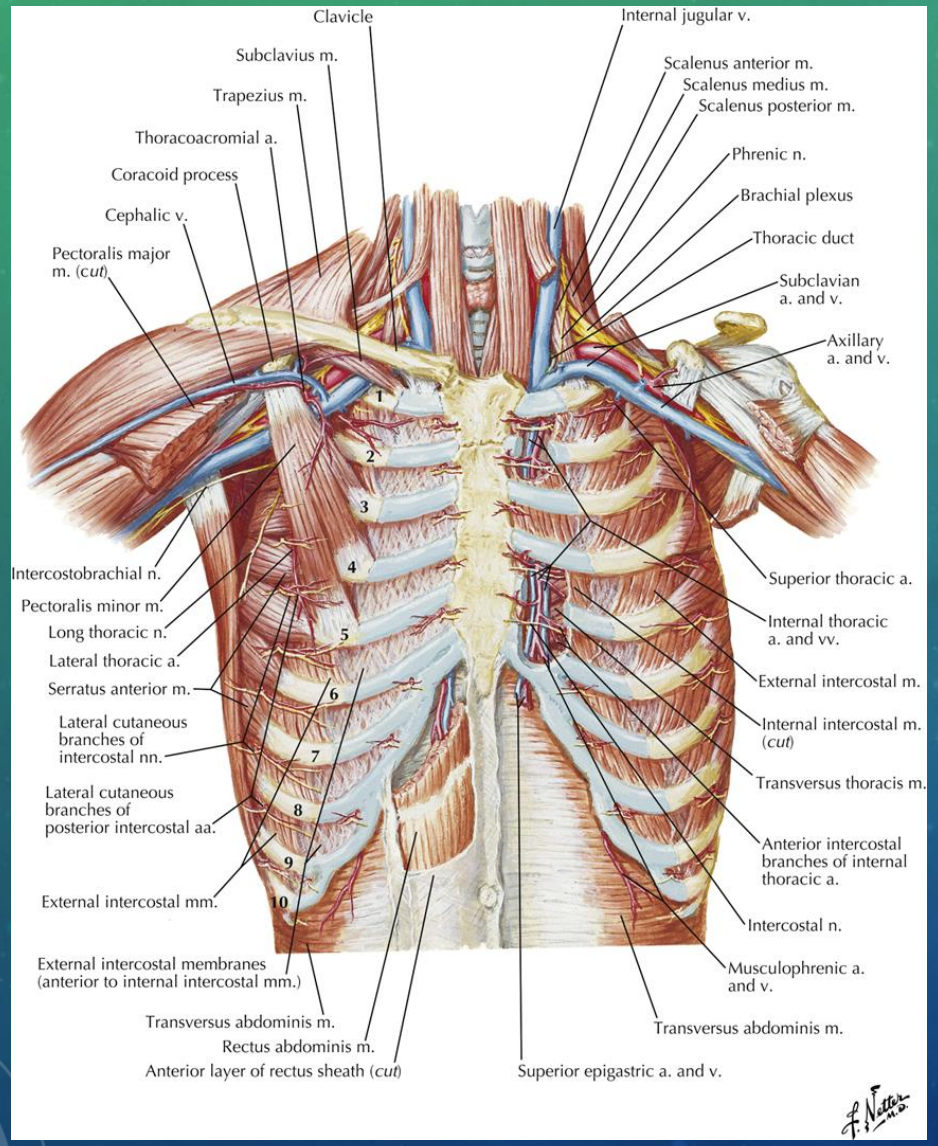

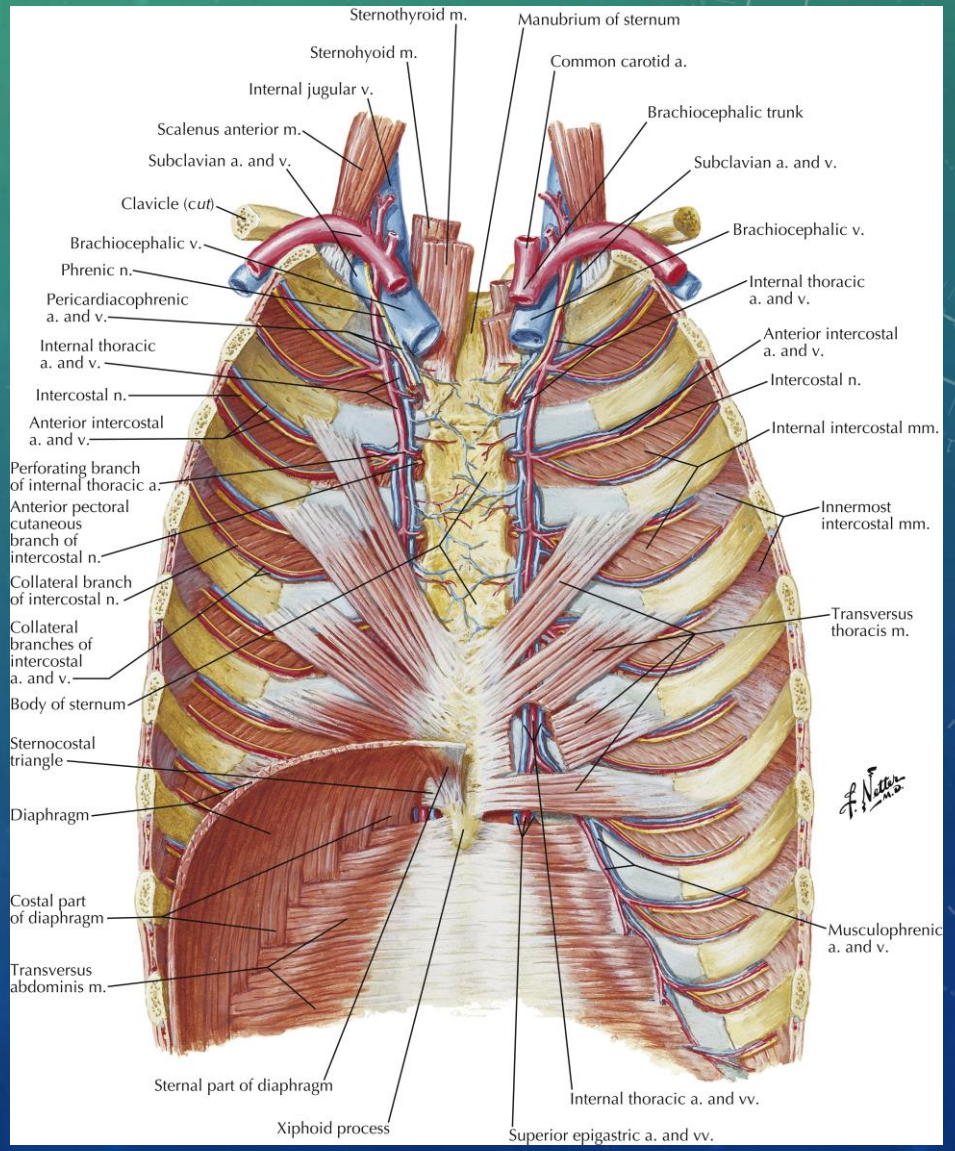

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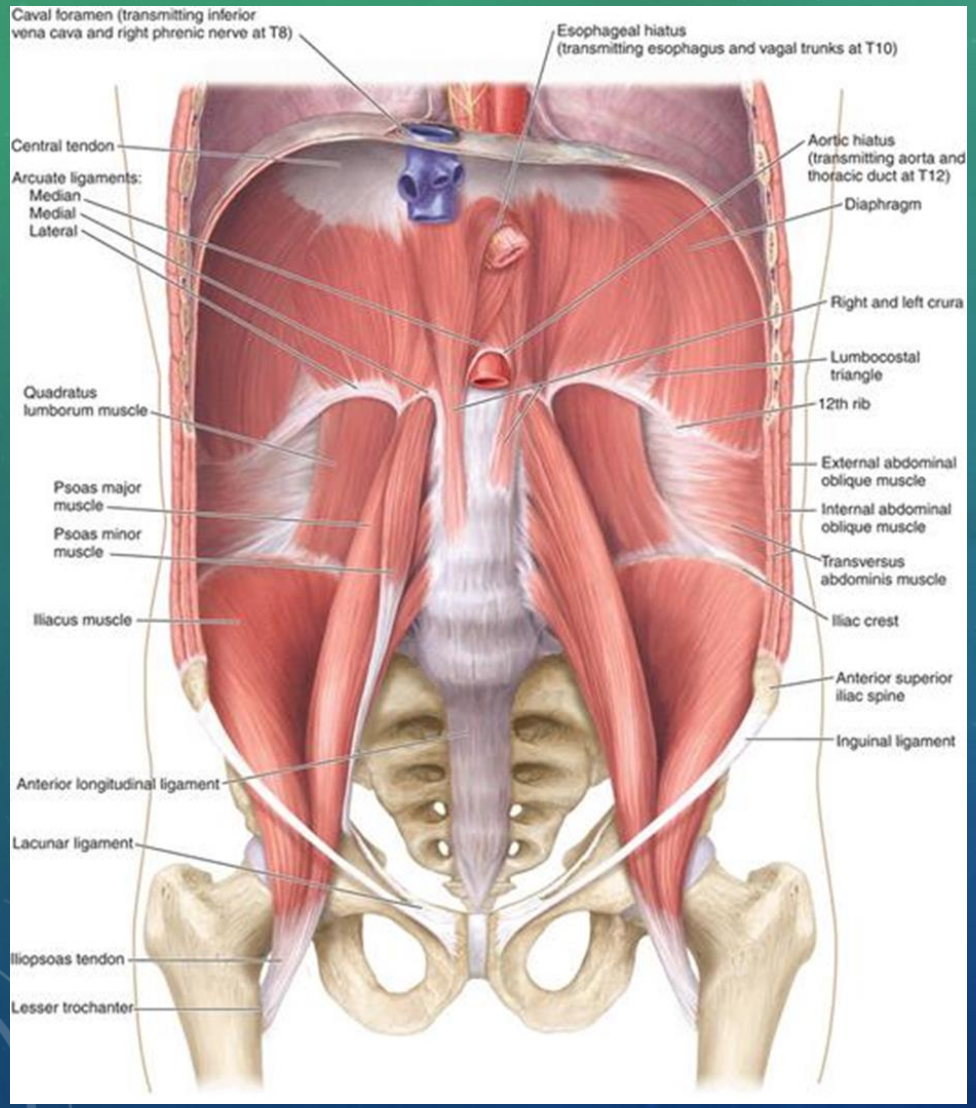
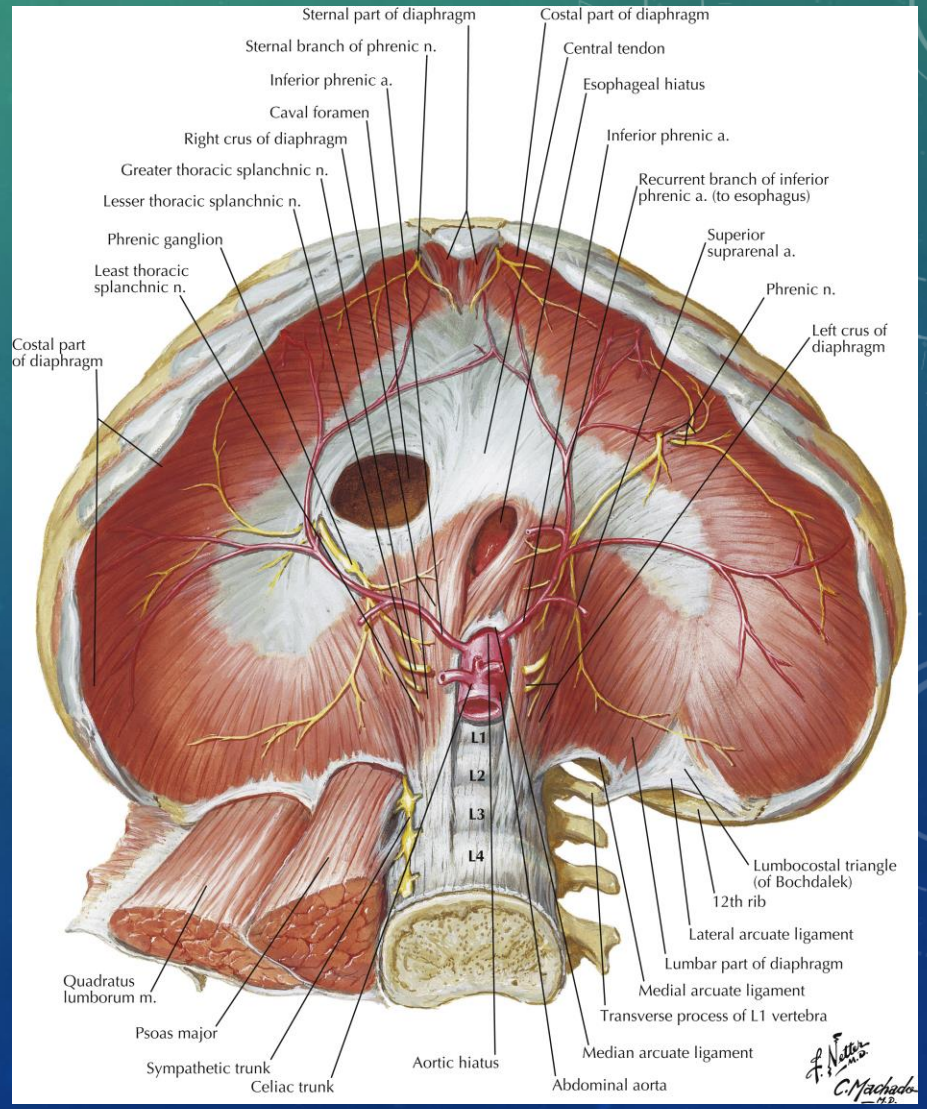
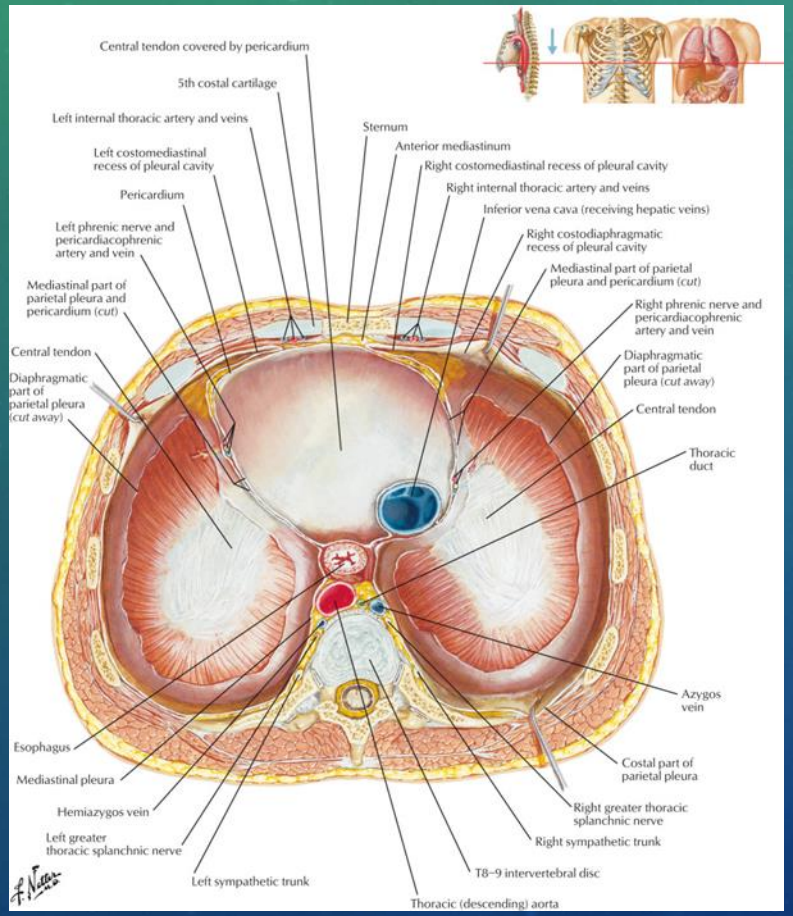




RESPIRATORY (THORACOABDOMINAL) DIAPHRAGM

Respiratory Diaphragm

Thoracic Surface



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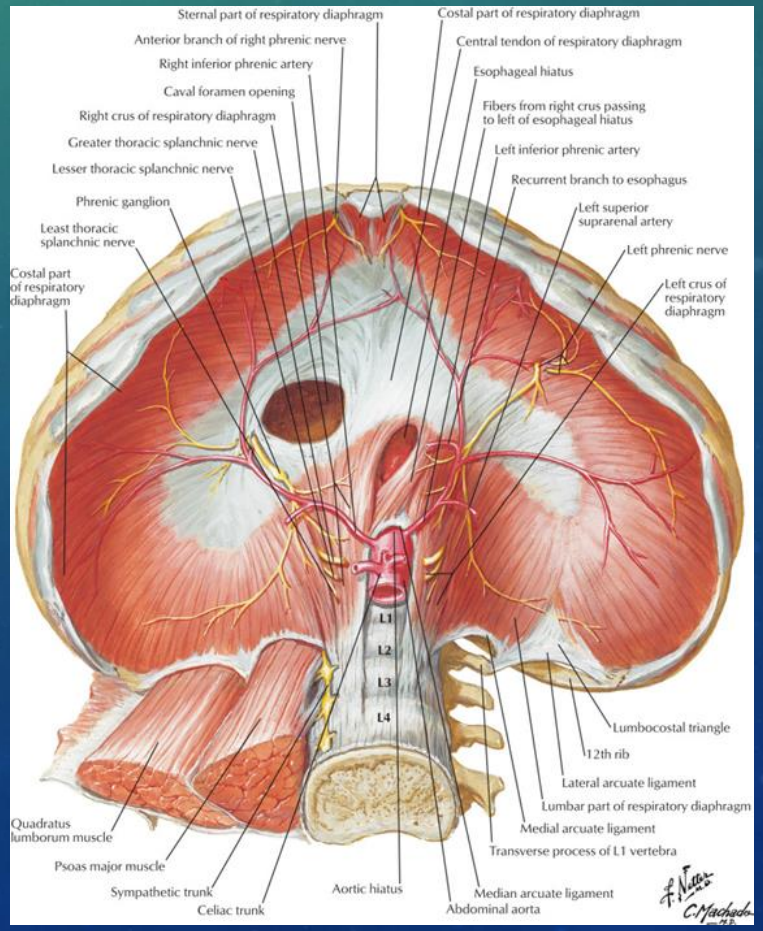
Respiratory Diaphragm

Abdominal Surface



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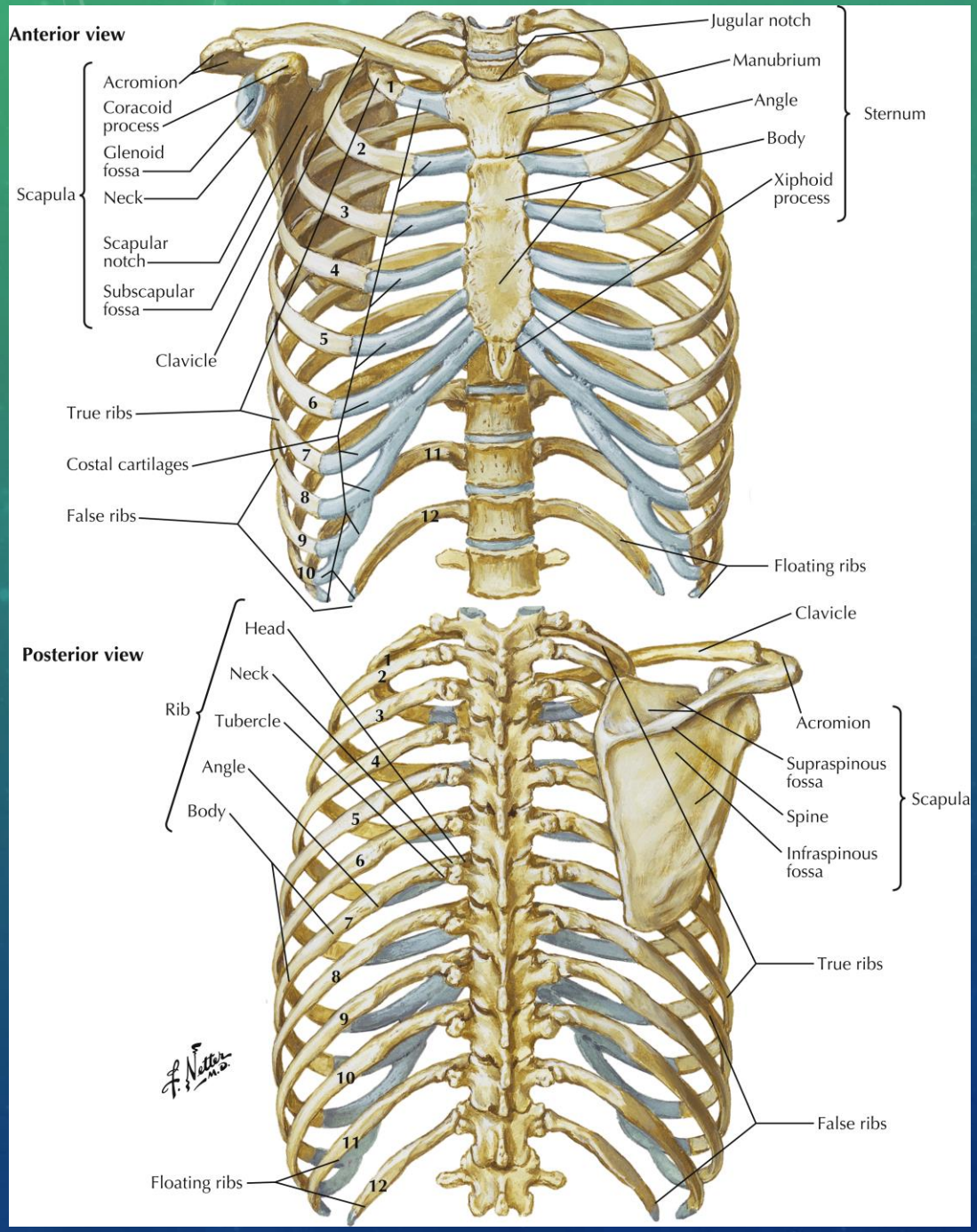

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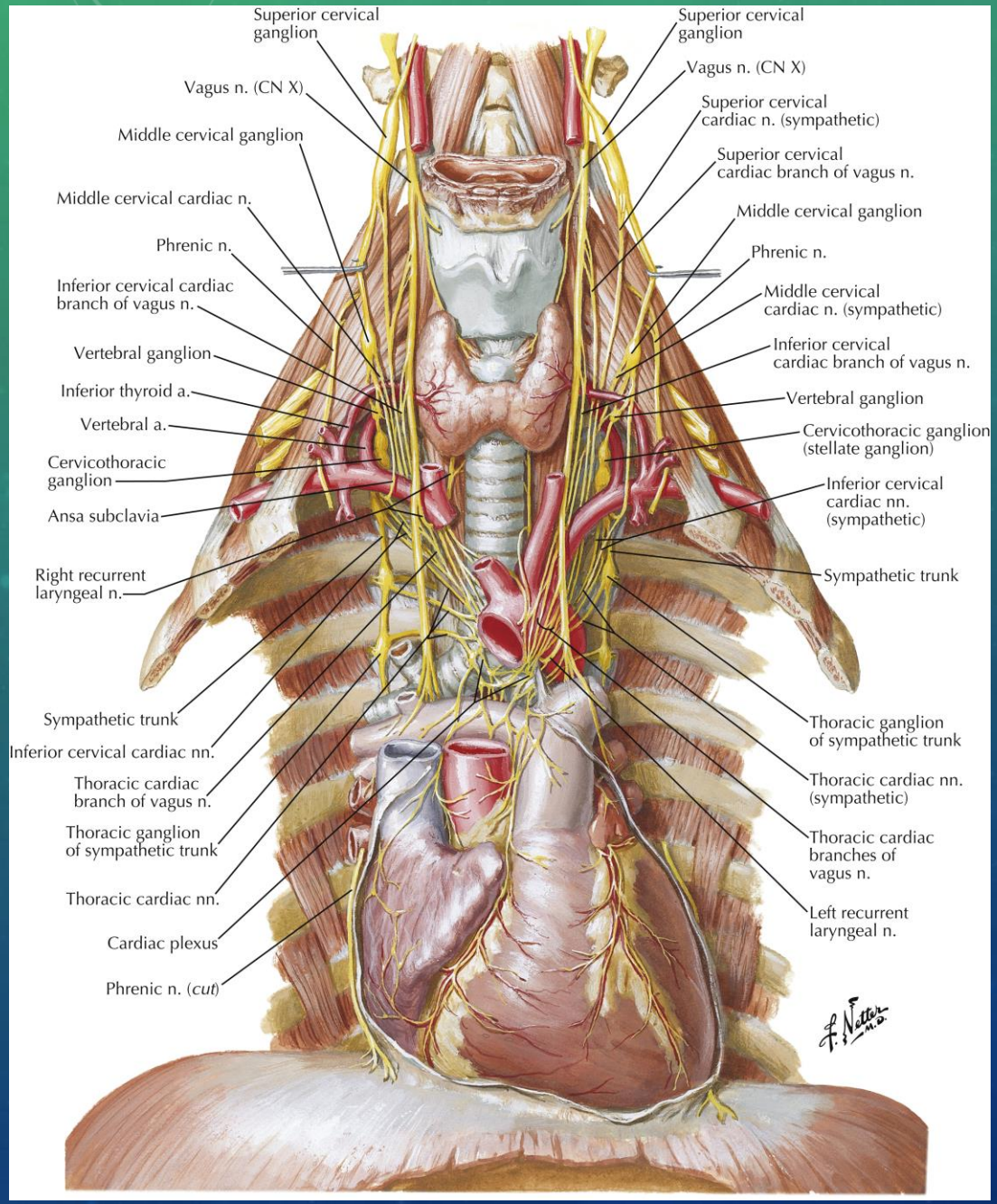

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PHYSIOLOGY

- Breathing is not the same as respiration.
- Breathing is the movement of air from outside the body into the lungs.

- Respiration is more complex but includes breathing.
- Breathing – the ventilation of air
  - Musculoskeletal system
- Exchange of gases across alveolar membrane
  - Respiratory system
- Transportation of gases to and from body tissues
  - Cardiovascular system
- Regulation of breathing by the CNS
  - Nervous system

THERE IS MUCH INTERCONNECTEDNESS

- Dyspnea creates a sense of fear, which in turn activates the sympathetic nervous system. This leads to bronchodilation, but also lymphatic congestion.
- Similarly, anxiety can lead to increased respiratory rate and a sense of dyspnea.

GENERALIZED ANXIETY DISORDER

- The comprehensive definition helps clinicians identify GAD by assessing the duration, severity, and impact of the anxiety on daily functioning.

GENERALIZED ANXIETY DISORDER

- Excessive anxiety and worry, occurring more days than not for at least 6 months, present in various environments.
- The worry is difficult to control.
- The anxiety and worry are associated with three or more of the following six symptoms:
  - Restlessness or feeling on edge.
  - Being easily fatigued.
  - Difficulty concentrating or mind going blank.
  - Irritability.
  - Muscle tension.
  - Sleep disturbance (difficulty falling or staying asleep, or restless, unsatisfying sleep).

GENERALIZED ANXIETY DISORDER

- The anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- The disturbance is not attributable to the physiological effects of a substance (e.g., drug of abuse, a medication) or another medical condition (e.g., hyperthyroidism).The disturbance is not better explained by another mental disorder (e.g., panic disorder, social anxiety disorder, obsessive-compulsive disorder, etc.).

SCREENING FOR ANXIETY

GAD-7 Anxiety

Over the last two weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid, as if something awful might happen	0	1	2	3

Column totals _____ + _____ + _____ + _____ =

Total score _____

SCREENING FOR ANXIETY

If you checked any problems, how difficult have they made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
☐	☐	☐	☐

Source: Primary Care Evaluation of Mental Disorders Patient Health Questionnaire (PRIME-MD-PHQ). The PHQ was developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke, and colleagues. For research information, contact Dr. Spitzer at ris8@columbia.edu. PRIME-MD® is a trademark of Pfizer Inc. Copyright© 1999 Pfizer Inc. All rights reserved. Reproduced with permission

Scoring GAD-7 Anxiety Severity

This is calculated by assigning scores of 0, 1, 2, and 3 to the response categories, respectively, of "not at all," "several days," "more than half the days," and "nearly every day."
GAD-7 total score for the seven items ranges from 0 to 21.

0–4: minimal anxiety

5–9: mild anxiety

10–14: moderate anxiety

15–21: severe anxiety

ANXIETY

- Anxiety is a natural human response to stress.
- It's a feeling of fear or apprehension about what’s to come.
- In small amounts, anxiety can be beneficial, helping you stay alert and focused.
- In excess, it can lead to distress and interfere with daily life.

DIAGNOSES ASSOCIATED WITH HIGH LEVELS OF ANXIETY

- Hyperthyroidism
- Cardiovascular disease
- Anemia, esp pernicious
- Respiratory disease
- Depression
- Hypoglycemia
- Epilepsy
- Very Type A
- Dementia
- Substance abuse

OSTEOPATHIC MANIPULATIVE TREATMENT OF THE THORACIC SPINE, RIB CAGE, AND ABDOMINAL DIAPHRAGM

GENERAL TREATMENT PLAN AND SEQUENCING

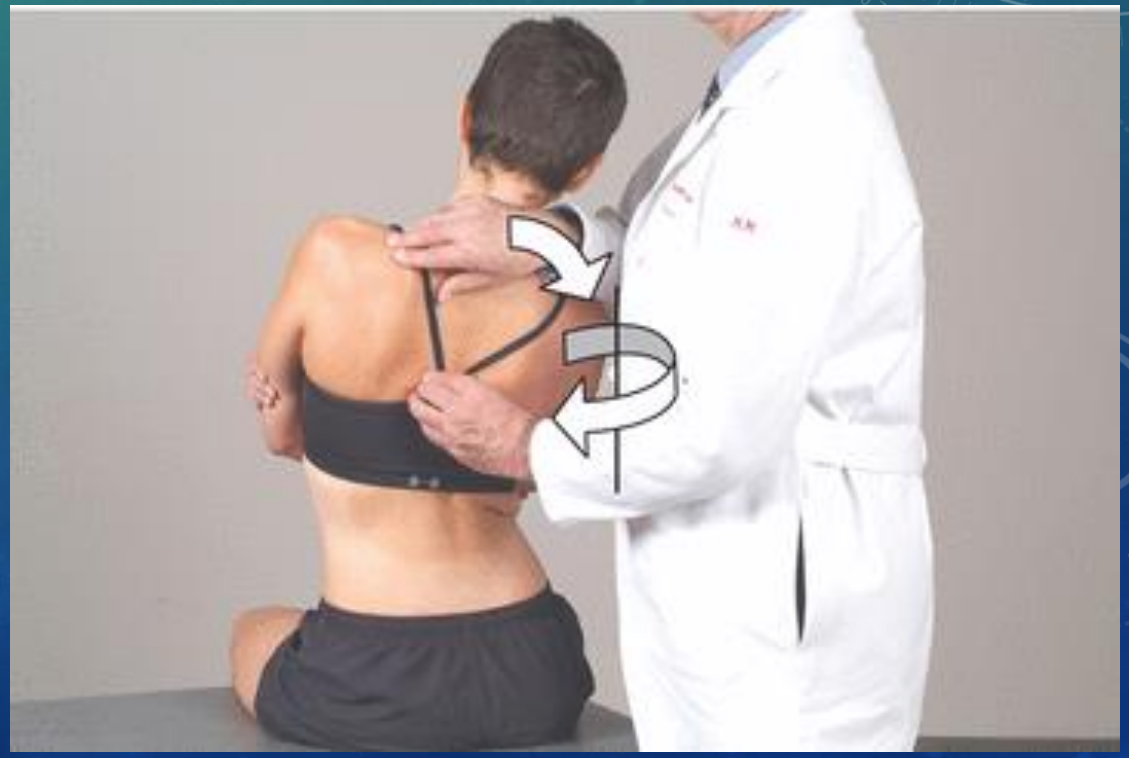
- Treat somatic dysfunction in the thoracic region, rib cage, and abdominal diaphragm.
- Address the autonomic components.
  - Decrease the excessive sympathetic tone
  - Balance the parasympathetic tone
- Improve lymphatic flow by releasing restrictions to flow at transition zones, then encourage proper drainage with lymphatic pump techniques.

FACILITATED POSITIONAL RELEASE

- A system of indirect myofascial release treatment developed by Stanley Schiowitz, DO.
- The component region of the body is placed into a neutral position, diminishing tissue and joint tension in all planes, and an activating force (compression or torsion) is added.
- The primary goal of this technique is to reduce abnormal muscle hypertonicity (superficial and deep) and restore lost motion to a restricted articulation.
- A patient-passive, indirect technique.
- Shares principles with the other indirect osteopathic techniques, especially myofascial release, balanced ligamentous tension, and ligamentous articular strain.
- Positioning is similar to counterstrain and the initial indirect positioning for Still technique.

TREATING THE THORACIC SPINE WITH FACILITATED POSITIONAL RELEASE

Begin by placing the myofascial or articular dysfunction in a “neutral” position, described as *flattening* the anteroposterior spinal curve; in this “neutral”, the facets are in a position between the beginning of flexion and the beginning of extension.



Atlas of Osteopathic Techniques, 4th Edition. 2023. Wolters Kluwer.

STRUCTURAL RIB DYSFUNCTIONS TREATED WITH STILL TECHNIQUE

STILL TECHNIQUE

- First, the affected joint is isolated at its presenting position and its position is slightly exaggerated.
- Second, axial compressive forces are applied through the joint or tissues.
- Next, a gentle, low velocity motion is introduced in the planes of restriction toward and through the area where the restriction barrier had been.
- Reevaluate.

FIRST RIB SUPERIOR SUBLUXATION

1. Patient is supine on the table.
2. Physician stands at the affected side of the patient facing the patient's head.
3. Physician has the patient flex the arm of the affected side at the elbow.
4. Physician's sensing hand is that closest to the patient. The pad of the index finger is placed on the head of the first rib.

SUPERIOR RIB ONE SUBLUXATION

5. Physician places the palm of the operating hand on the olecranon of the patient's right elbow.
6. Patient’s arm is moved medially until the patient's elbow lines up with the head of the first rib.
7. Compression is introduced by the physician's operating hand in a vector towards the head of the affected first rib.
8. Maintaining compression, the patient's elbow is brought superior along a line between the anterior and posterior attachments of the first rib.
9. Patient’s elbow is then moved in an arc until the patient's arm passes his or her ear, carrying the elbow outward towards the shoulder. Release is typically felt shortly after the arc moves outward toward the shoulder.

STRUCTURAL RIB TREATMENT- POSTERIOR APPROACH USING THE UPPER EXTREMITY

1. Patient is seated on a table or stool.
2. Physician stands behind the patient on the side of the affected rib.
3. Physician’s contralateral hand is used as the sensing hand, with the pad of the thumb in contact with the angle of the affected rib. The palm and fingers of the sensing hand are used to stabilize the patient's upper back.
4. Physician’s ipsilateral hand is used to hold the patient’s elbow on the affected side. Patient's arm is then brought posterior (extended at the shoulder). Patient's elbow will be at about the level of the angle of the affected rib.

STRUCTURAL RIB TREATMENT-POSTERIOR (CONT.)

5. Axial compression is introduced along the arm into and through the shoulder.
6. The vector of force should be through the rib head—the rib's articulation with the vertebrae.
7. Patient's shoulder is articulated in a smooth arc through abduction with partial flexion and into adduction.
8. Final position of patient's arm is in the area of the patient's abdomen
9. Axial compression is released. The patient's arm is returned to a neutral position; rib motion and position is reassessed.

STRUCTURAL RIB TREATMENT –ANTERIOR APPROACH USING THE UPPER EXTREMITY

1. Patient is seated on a table or stool. Physician stands behind the patient toward the affected side.
2. Positioning is similar to that of the posterior rib treatment except that the patient's arm is started in adduction at the level of the patient's shoulder.

STRUCTURAL RIB TREATMENT – ANTERIOR (CONT.)

3. The arm is then articulated through partial flexion and abduction at the shoulder and into extension at the shoulder in a smooth arc while maintaining axial compression from the elbow through the rib head.
4. Patient's arm is then released from compression and returned to neutral, and the rib is reassessed.

BALANCED LIGAMENTOUS TENSION

- According to Sutherland's model, all joints are balanced ligamentous articular mechanisms.
- Ligaments provide proprioceptive information that guides the muscle response for positioning the joint.
- Ligaments guide the motion of the articular components.
- Normal movements of a joint do not cause asymmetric tensions in the ligaments; tension distributed through ligaments in any given joint is balanced.
- Tensions change when alignment or joint is stressed (strained) in the presence of altered mechanical force.

BALANCED LIGAMENTOUS TENSION (CONT.)

- This principle is similar to the architectural and biomechanical principles of tensegrity.
- Treatment includes release-enhancing mechanisms such as isometric contraction, use of inherent and fluid forces.
- The physician introduces a force to position the patient so that a fulcrum may be set. This fulcrum along with the subsequent lever action of the tissues (ligaments), combines with fluid dynamics and other factors to produce a change in the dysfunctional state.
- May be applied directly or indirectly.

TWO APPROACHES OF BLT

Diagnosis and Treatment with Respiration

- In this method, the physician palpates the area involved and attempts to discern the pattern of dysfunction with extremely light palpatory technique.
- This could be described as nudging the segment through the *x*, *y*, and *z* axes with the movements caused by respiration.
- The movements used to diagnose and treat the dysfunction are extremely small.

Diagnosis and Treatment with Motion Testing

- In intersegmental motion testing/treatment style, slightly more motion and/or force can be used to test motion parameters in the dysfunctional site and to begin to move the site into the appropriate indirect position of balanced tensions.
- There may be more compression or traction in this form depending on the dysfunctional state, site, or preference of the treating physician.

BALANCED LIGAMENTOUS TENSION: TWELFTH RIB AND ABDOMINAL DIAPHRAGM

MYOFASCIAL RELEASE PRINCIPLES OF TREATMENT

- MFR can be applied as an Indirect or Direct technique
- Ease vs Bind (‘Tight-Loose’)
  - Traction, twist, compression, shear
- Palpate neuro reflexive change and release
  - Tissue ‘melting’
  - Multiple directions and layers
- Optional use of Enhancers
  - Can speed up or layer the release

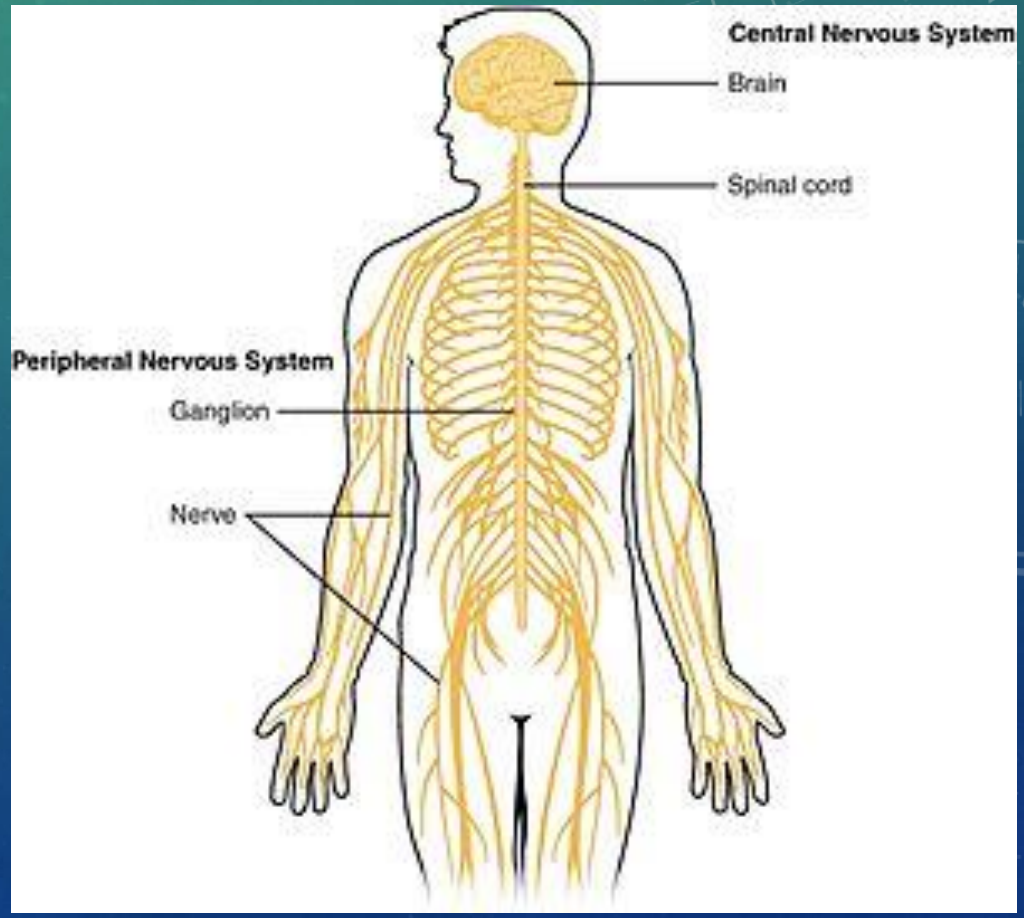
ENHANCING MANEUVERS

- Any movement to increase relevant afferents to CNS
  - Active stretching maneuvers
  - Active muscle contraction
  - Active rhythmic motions
    - respiration
    - tapping fingers
    - plantar/dorsiflexion of foot/wrist
    - internal external rotation of extremities

PURPOSE OF ENHANCING MANEUVERS

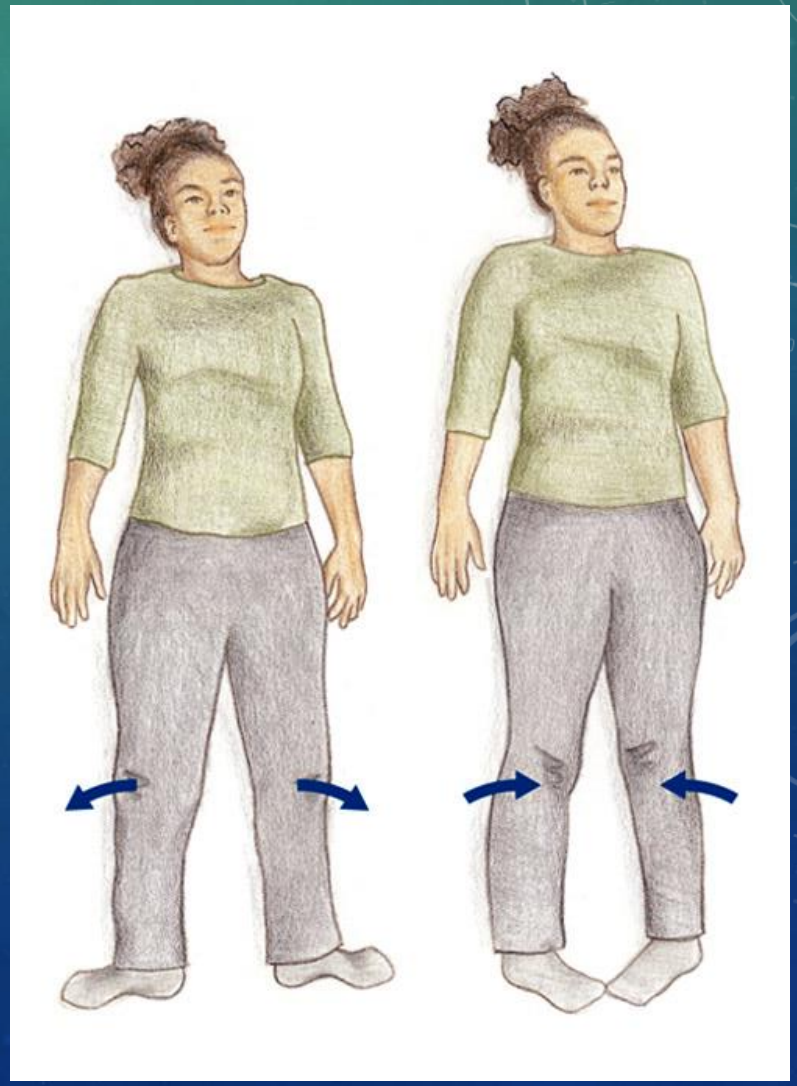
Two major benefits:

1. Speeds up the release by recruiting afferent information from muscle and joint proprioceptors
2. Allows you to use less external load/compression and improves your ability to palpate neuro reflexive changes

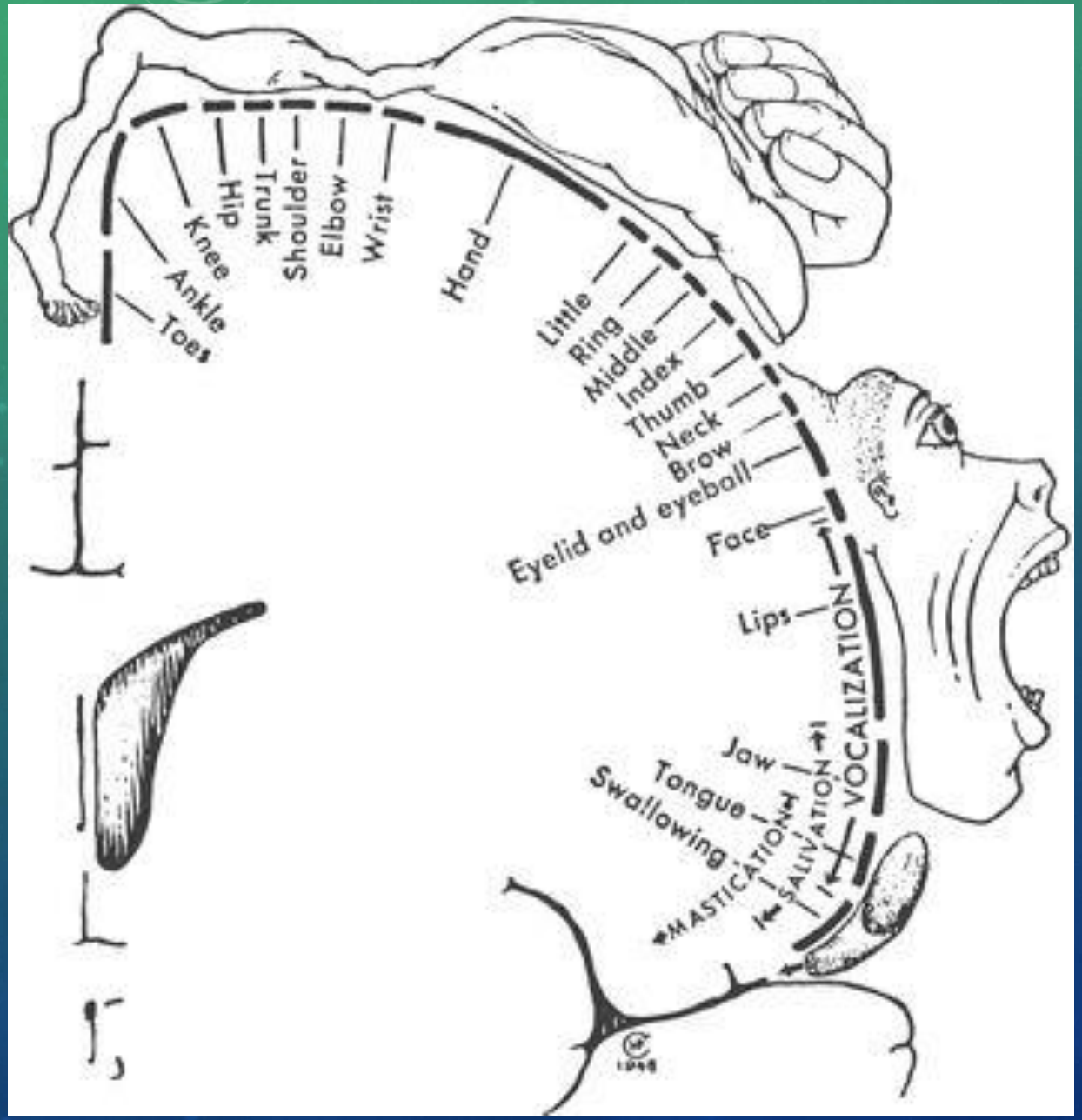


EXAMPLES OF ENHANCING MANEUVERS

- Pull the tongue back toward throat
- Teeth clenching
- Eye motions back and forth
- Arm swings
- Pushing knee into table
- Roll the leg(s) into IR/ER
- Deep breath in and out
- Deep breath in and cough



MOTOR HOMUNCULUS

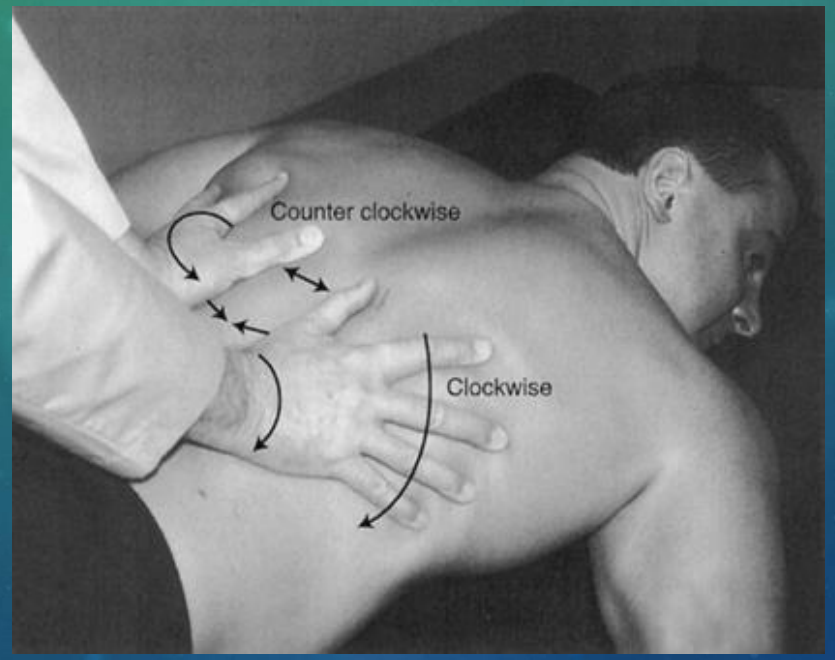


From Sapira's Art and Science of Bedside Diagnosis, 5th ed, Chpt 26- The Neurologic Examination; illustration reproduced from Penfield W, Rasmussen T. The Cerebral Cortex of Man. © 1950 Gale, a part of Cengage, Inc.

MYOFASCIAL RELEASE OF POSTERIOR DIAPHRAGM

From: **Chapter 47 Myofascial Release Approach**

Foundations of Osteopathic Medicine, 3e, 2010



Legend:

AUTONOMIC NERVOUS SYSTEM IMPLICATIONS AND TECHNIQUES

GOALS OF TREATING SYMPATHETIC HYPERACTIVITY IN THE RESPIRATORY PATIENT

- Decrease overall sympathetic tone
- Decrease vasoconstriction
- Decrease thickness of secretions and number of goblet cells
- Improve respiratory efficiency and efficacy

RIB RAISING

LWW Health Library

From: **40A Acutely Ill or Hospitalized Patient: Osteopathic Considerations and Approaches Using OMT**

Foundations of Osteopathic Medicine: Philosophy, Science, Clinical Applications, and Research, 4e, 2018

Seated

Supine

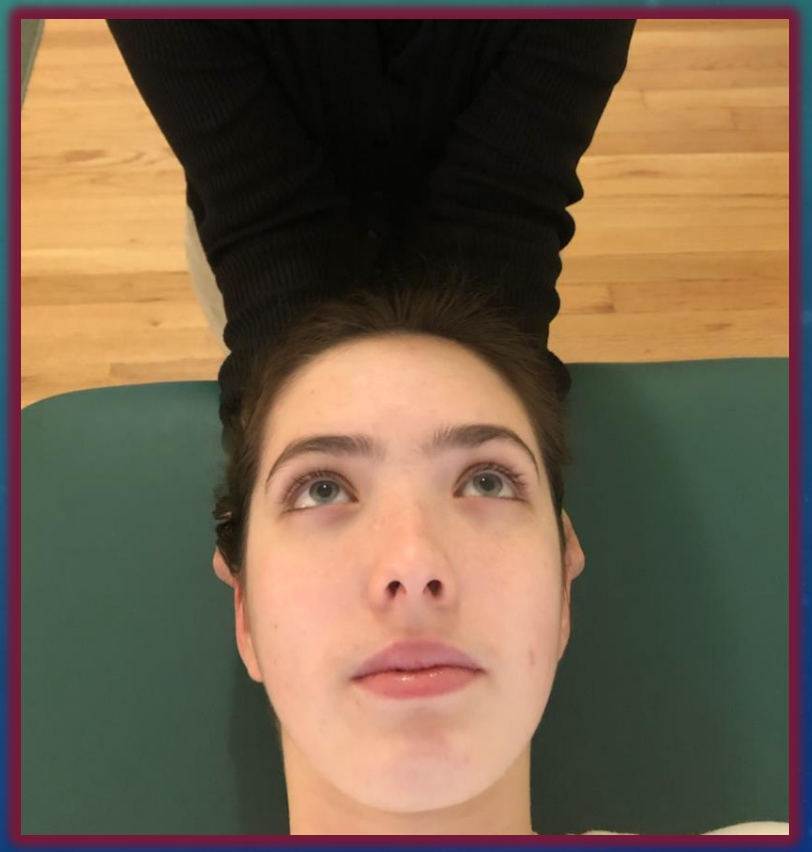
PARASYMPATHETIC INNERVATION

- Respiratory centers of the medulla
- Then via the vagus nerve (CN X)
  - Exits the cranium through the jugular foramen
  - Travels proximally from the upper cervical spine

GOALS OF TREATING THE PARASYMPATHETIC SYSTEM

- Balance overall autonomic tone
- Thin secretions and increase ciliated cells
- Decrease the sensitivity of alveoli to allow for deep breathing

CONDYLAR DECOMPRESSION



TRANSVERSUS ABDOMINUS RETRAINING

- Lie on your back with hips and knees flexed, feet flat on the table.
- Place your hands over the lower rib cage bilaterally.
- Slowly inhale through the nose, allowing your lungs to fill with air while the rib cage expands out laterally. The chest and shoulders are relaxed; the belly does not expand.
- Exhale through pursed lips and allow the ribs to lower; the upper chest should stay relaxed.
- If this is difficult, with exhalation, blow out as much air as possible using the abdominal muscles and hold for 3-5 seconds. Next, slowly inhale to allow air to fill the lungs. The automatic response allows the neck and chest to remain relaxed.

TRANSVERSUS ABDOMINUS RETRAINING

- In hands and knees quadruped position, begin in table top such that the shoulders and hips are at the same height. Bend the elbows slightly to achieve this.
- Fine a neutral position of the spine by rocking to 12 and 6 o'clock and find the midpoint between.
- Draw the abdominal muscles up toward the spine without changing the lumbar spine position
- Hole for 10 seconds, repeating 3-5 times.

OBLIQUE MUSCLE RETRAINING

- Lie on your back with knees and hips flexed, feet flat on the floor.
- Slowly lower your knees to the right about half-way to the floor.
- Bring the knees back to midline by flattening your left spinal muscles to the floor segmentally. Do not initiate the movement through the hips.
- Once you're back to midline, lower your knees slowly to the left about half-way to the floor.
- Bring the knees back to midline by flattening your right spinal muscles to the floor segmentally. Do not initiate the movement through the hips.
- Repeat 3-5 times, alternating sides.

FINISHING MEDITATION OF LOVING KINDNESS

- Sit with eyes closed, back straight; focus attention on your heart. Send yourself loving kindness by repeating the following:
  - May I be healthy, well, at ease, light, happy, peaceful, strong, and safe.
- Next, think of someone you care for deeply (not a romantic partner)
  - May you be healthy, well, at ease, light, happy, peaceful, strong, and safe.
- Now think of someone neutral you see around regularly.
  - May you be healthy, well, at ease, light, happy, peaceful, strong, and safe.
- Now think of someone you are having difficulties with at the moment.
  - May you be healthy, well, at ease, light, happy, peaceful, strong, and safe.
- Now put all of you in a circle.
  - May you be healthy, well, at ease, light, happy, peaceful, strong, and safe.
- Next, imaging loving kindness spreading out from this small circle to the neighborhood, country, continent, and across the world to all life forms.
  - May all beings on planet Earth be healthy, well, at ease, light, happy, peaceful, strong, and safe.
- Lastly, imagine loving kindness radiating from the earth into space and to all life-forms in the cosmos.
  - May all beings throughout all time and space be healthy, well, at ease, light, happy, peaceful, strong, and safe.

REFERENCES

- DeStefano LA. *Greenman's Principles of Manual Medicine, 5e*. Lippincott Williams & Wilkins, a Wolters Kluwer bu; 2017. Accessed September 18, 2024. https://osteopathicmedicine-lwwhealthlibrary-com.proxy1.cl.msu.edu/book.aspx?bookid=1743&sectionid=0
- Nicholas, Alexander S., Nicholas, Evan A. Atlas of Osteopathic Techniques, 4th Edition. 2023. Wolters Kluwer.
- Seffinger MA, Hruby R, Willard FH, et al. *Foundations of Osteopathic Medicine: Philosophy, Science, Clinical Applications, and Research, 4e*. Lippincott Williams & Wilkins, a Wolters Kluwer business; 2018. Accessed September 18, 2024. https://osteopathicmedicine-lwwhealthlibrary-com.proxy1.cl.msu.edu/book.aspx?bookid=2582&sectionid=0