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National Center for Osteopathic Principles and Practice Education

Soft Tissue of the Cervical Spine, Thoracic Spine, Upper Extremity

By Jonathon Kirsch, DO, C-AOBNMM, OHPF

Jonathon Kirsch, DO

Dr. Jonathon Kirsch, DO, C-AOBNMM, OHPF, received his bachelor of science degree from the University of Wisconsin-Madison and is a 1996 graduate of A.T. Still University-Kirksville College of Osteopathic Medicine. He completed postgraduate training at Midwestern University's AZ-GME Consortium and Community Hospital Medical Center in Phoenix, Arizona, and became board certified in osteopathic manipulative medicine/neuromusculoskeletal medicine in 2003. He completed the American Osteopathic Association Health Policy Fellowship in 2011 and has recently rejoined the ATSU-KCOM faculty as Professor of Osteopathic Manipulative Medicine. Dr. Kirsch is a member of MAOPS, AOA, AAO, and the Osteopathic Cranial Academy and is board certified in NMM and OMM.

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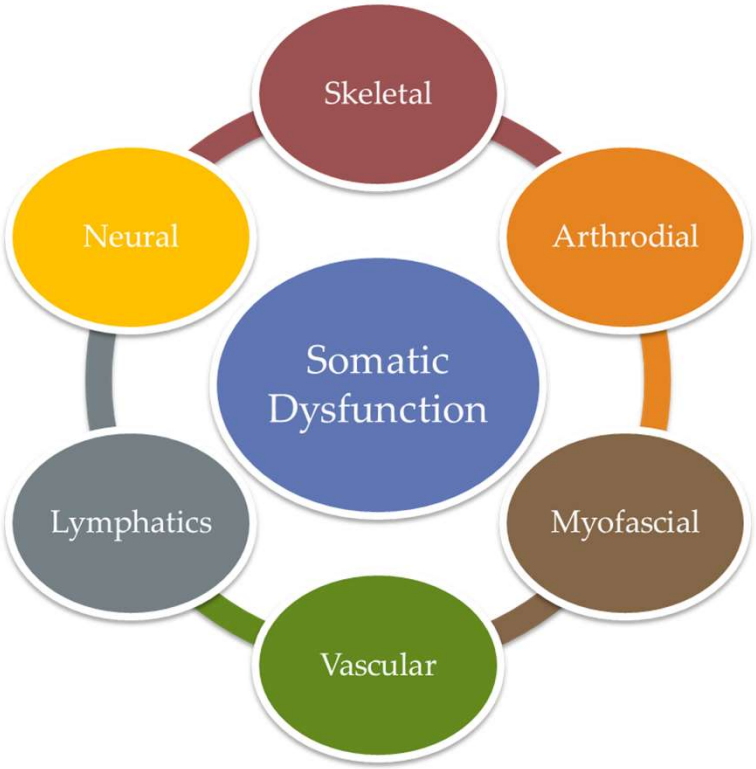
Objectives

- Identify, describe, and define
  - Soft Tissue OMT.
  - **Indications** and **Contraindications** for Soft Tissue OMT.
- Demonstrate the ability to position the patient in a manner that is **safe, comfortable, and maintains dignity** while diagnosing and treating somatic dysfunction using Soft Tissue OMT.
- Demonstrate efficient physician **ergonomics** while diagnosing and treating somatic dysfunction using Soft Tissue OMT.

Somatic Dysfunction

AKA = The “Osteopathic” Lesion

Impaired or Altered Function of the related components of the Somatic System
(SAM – VLN)



- Soft Tissue Method

A group of direct techniques that usually involve lateral stretching, linear stretching, deep pressure, traction and/or separation of muscle origin and insertion while monitoring tissue response and motion changes by palpation.

Key Concepts

- Soft tissue techniques are directly applied to the muscular and fascial structures of the body and affect the associated neural and vascular elements.
- Soft tissue preparation facilitates improvement of articular motion. *This is historically fundamental to OMT.*
- Soft tissue techniques span a wide range of applications of force. *This makes it one of the most versatile treatment forms available.*

Mechanisms

- Relaxes hypertonic muscles and reduces spasm.
- Stretches and increases elasticity of shortened fascial structures.
- Improves local tissue nutrition, oxygenation, and removal of metabolic wastes
- Improves abnormal autonomic reflexes.
- Improves local and systemic *immune response*
- Provides a general state of **relaxation**
- **Enhance circulation** to local myofascial structures
- Optimizes autonomic tone

Indications

- **Somatic Dysfunction:**
  - Hypertonic musculature
  - Tension of fascial structures
- **Adjunct to other OMT methods:**
  - Identify areas of restricted motion, tissue texture changes, and sensitivity
  - Provide a general state of **relaxation**
  - Prepare tissues for other types of OMT

FOM3, Ch. 50 Soft Tissue & Articulatory Approach

Absolute Contraindications

Contraindicated for use in the local region of any of the following conditions:

- Fracture or dislocation
- Neurologic entrapment syndromes
- Serious vascular compromise
- Local malignancy
- Local infection (e.g., cellulitis, abscess, septic arthritis, osteomyelitis)
- Bleeding disorders

Relative Contraindications

Individual techniques may be contraindicated in specific situations such as:

Severe osteoporosis

- *prone pressure techniques may be contraindicated in the thoracocostal region, but lateral recumbent techniques could be easily applied.*

Acute Injuries

- *Direct techniques that stretch acutely injured muscles, tendons, ligaments, or joint capsules may do additional damage to these structures, or increase the amount of pain the patient experiences and are therefore contraindicated.*

Principles of ST Technique

- **Patient comfort**
- **Physician comfort**: to minimize energy expenditure
- Initially, the applied ***forces are very gentle and of low amplitude***. The force is applied rhythmically, typically 1 or 2 seconds of stretch followed by a similar time frame releasing that stretch
- As the soft tissues are palpated responding to the technique, the applied forces can be increased to ***increase the amplitude*** of the technique. The *rate* of application typically *remains the same*

Principles of ST Technique

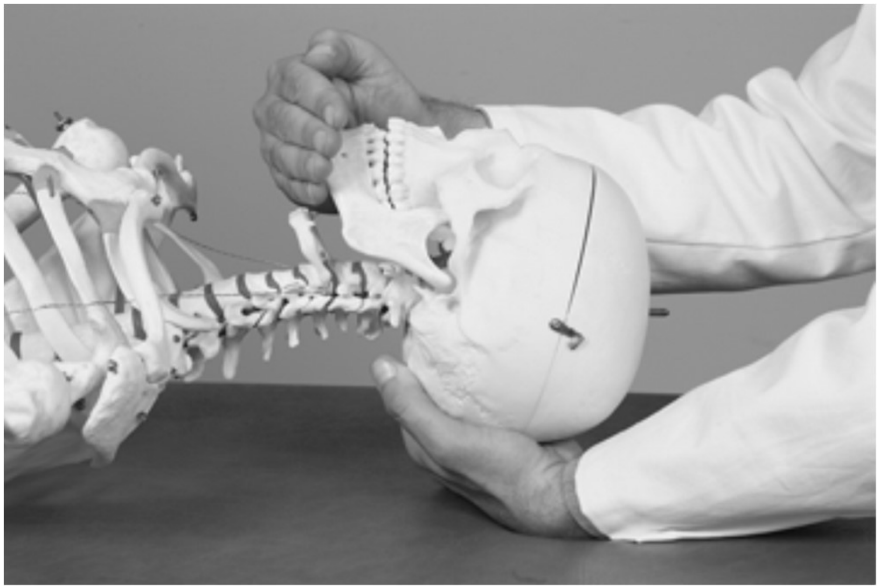
- The applied **forces should be comfortable** for the patient. Some patients experience some discomfort, but it is recognized by the patient as a ***good discomfort***
- **Do not** allow your hands to create friction by sliding across or rubbing the skin. ***The physician's hand should carry the skin and subcutaneous tissues in applying the activating force.***
- *The technique is continued until the desired effect is achieved.* **This typically means that the amplitude of excursion of the soft tissues has reached a maximum and has plateaued at that level.**

SOFT TISSUE TECHNIQUES

- Efflurage-light stroking
- Petrissage-Kneading
- Tapotment-Striking with thenar
- Skin Rolling
- Inhibition-Deep Pressure
- Parallel Traction-Linear Stretching
- Perpendicular Traction-Lateral Stretching

Stretch *(parallel traction)*

Increase distance between origin and insertion (parallel with muscle fibers



Legend:

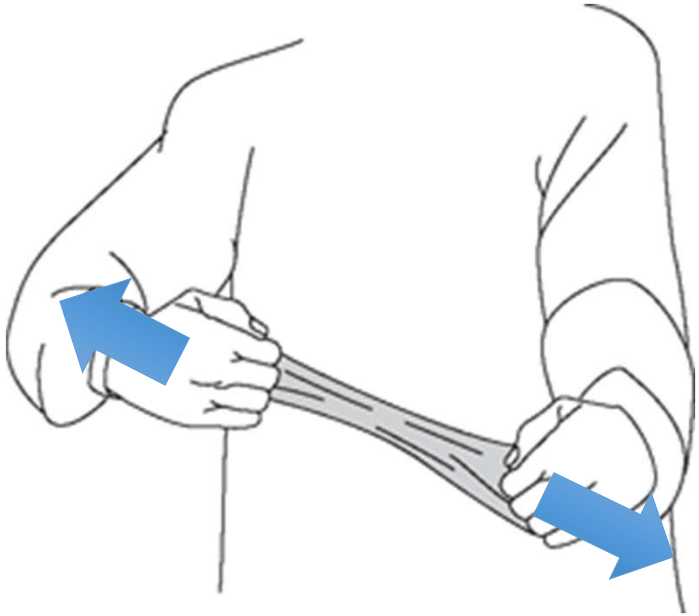
Intermittent cervical traction. (Used from Nicholas & Nicholas. Atlas of Osteopathic Technique. Philadelphia, PA: Lippincott, Williams & Wilkins, with permission.)

From: **Soft Tissue/Articulatory Approach**

Foundations of Osteopathic Medicine, 3e, 2010

In this type of soft tissue technique, the forces being applied are parallel to the myofascial structures needing treatment. This may be done by

- Separating the proximal and distal attachments of the muscle (both hands moving in opposite directions like a taffy pull) or by
- Anchoring one end of the muscle and pulling on the other (one hand or structure serving as a stationary anchor, the other one mobile)



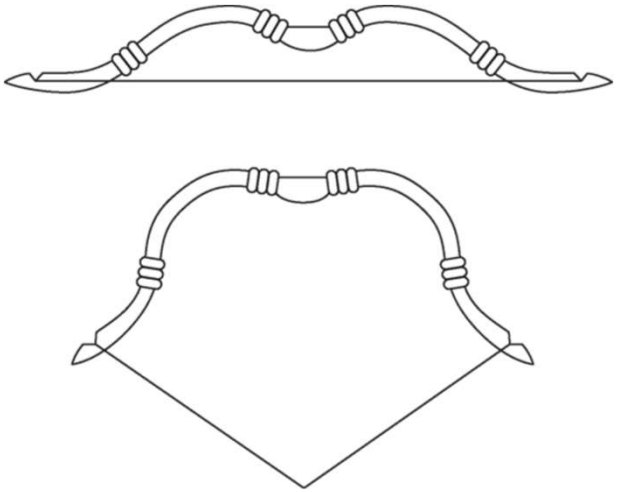
Legend:

The taffy pull = Stretch

From: **Soft Tissue/Articulatory Approach**

Foundations of Osteopathic Medicine, 3e, 2010

Knead (perpendicular traction): Repetitive pushing of tissue perpendicular to muscle fibers



Legend:

The bowstring = Kneading

Inhibition

- Push and hold perpendicular to the fibers at the musculotendinous part of hypertonic muscle.
- Hold until relaxation of tissue

Legend:

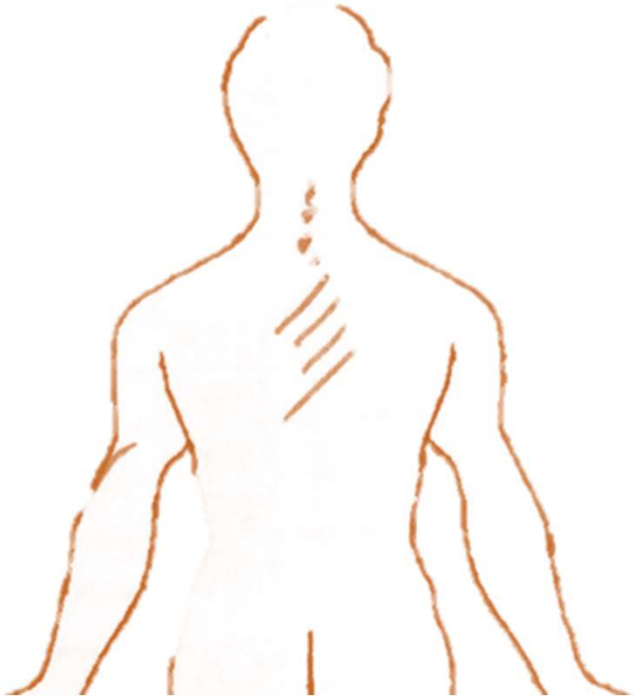
Suboccipital inhibition. (Used from Nicholas & Nicholas. Atlas of Osteopathic Technique. Philadelphia, PA: Lippincott, Williams & Wilkins with permission.)

Thoracic Spine

Soft Tissue Technique

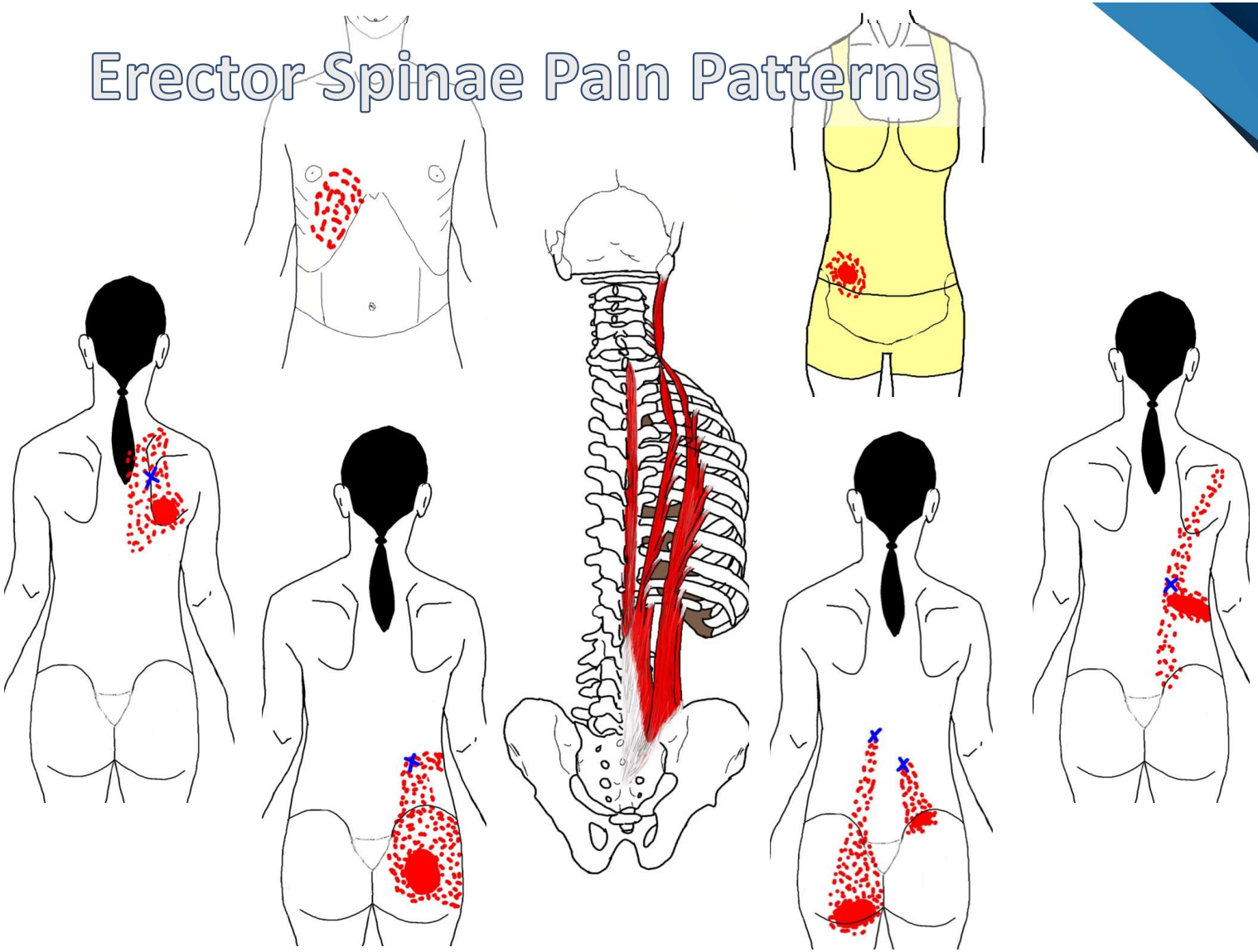
54 yo Male c/o stabbing upper back & achy neck pain…

- No trauma, awoke with pain
- Works road construction and farm…lifted a lot of lumbar last week
- Nothing makes him feel better or worse
- Severity = 4
- Meds: none
- PMHx/PSxHx: none



Left Right

Erector Spinae Pain Patterns

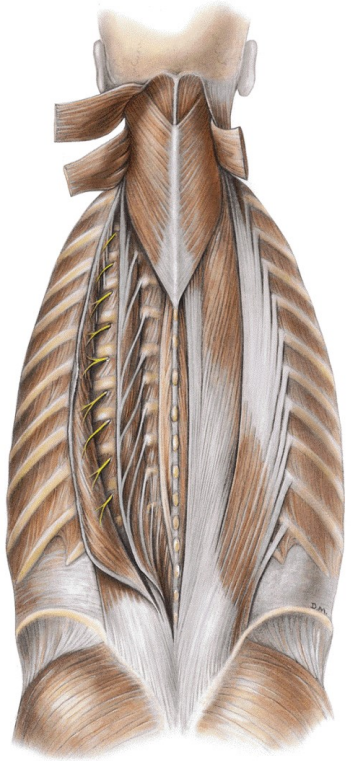


Sympathetic Innervation

Head/Neck	T1-4
Heart/Lungs	T1-6
Upper GI	T5-9
Small Intestine & R Colon	T10-11
Appendix	T12
L Colon/Pelvis	T12-L2
Adrenal	T10-11
GU tract	T10-L2
Ureter – Upper/Lower	T10-11/T12-L2
Bladder	T12-L2
Extremities – Upper/Lower	T2-8/T11-L2

Paraspinal Kneading

1. Contact the medial aspect of erector spinae muscles
2. Repetitively scoop muscles anteriorly and laterally until softening (response)
3. Recheck

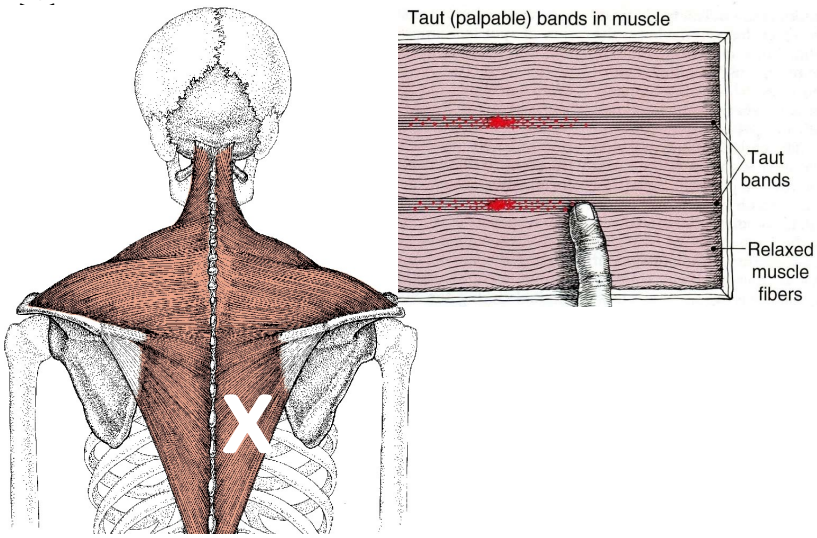


iKM 50 (4812.11A)

Paraspinal Inhibition

1. Contact tight muscle or tender point with thumb or thenar eminence
2. Apply repetitive traction perpendicular to paraspinal muscles until softening
3. Slow on, slow off
4. Recheck

'4912.11B)



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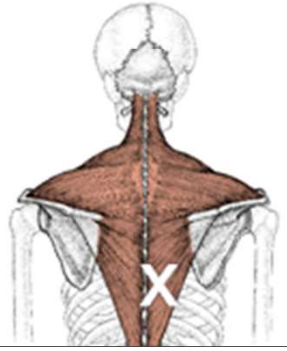

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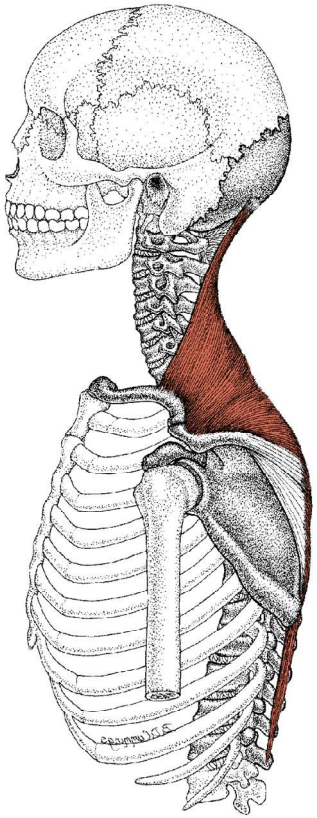
Cervical Spine

Soft Tissue Technique

Paraspinal Stretch - bilateral

1. Cross arms under neck with hands contacting shoulders
2. Lift head with forearms applying counterforce through shoulders
3. Hold until easing of tissue tension
4. Recheck

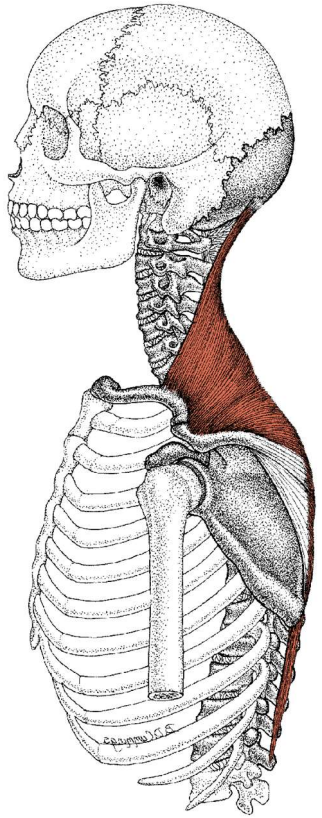


iKM p. 46 (4911.21C)

Paraspinal Stretch - unilateral

1. Contact the shoulder and occiput
2. Repetitively lift and turn head to right with counterforce through the shoulder
3. Recheck

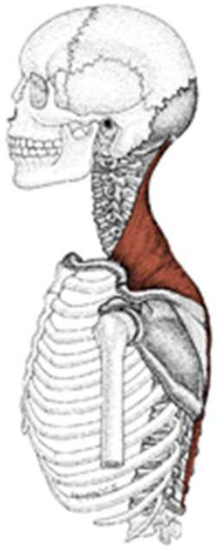
Alternate hold: cradle head in forearm



iKM p. 47 (4911.21D)

Paraspinal Stretch - bilateral

1. Cross arms under neck with hands contacting shoulders
2. Lift head with forearms applying counterforce through shoulders
3. Hold until easing of tissue tension
4. Recheck



iKM p. 46 (4911.21C)

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1. Contact the shoulder and occiput
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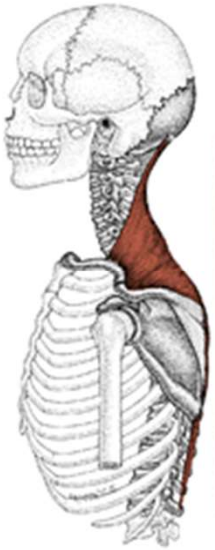
Alternate hold: cradle head in forearm



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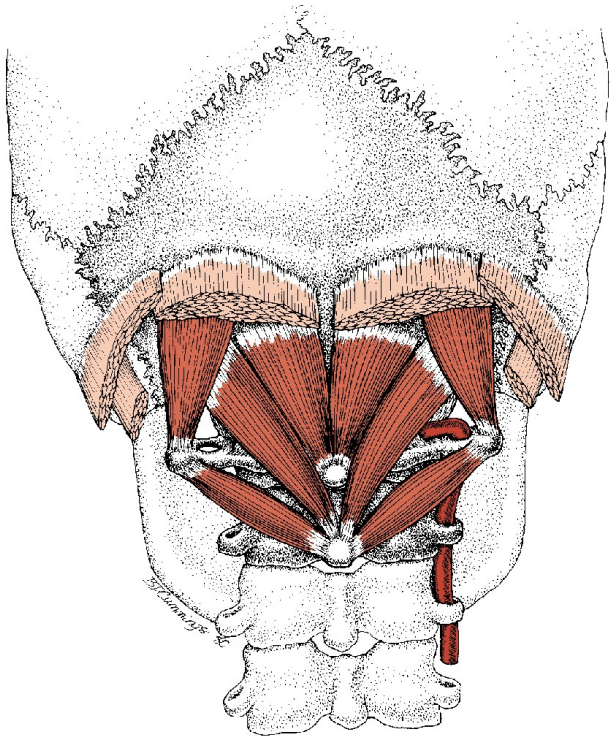
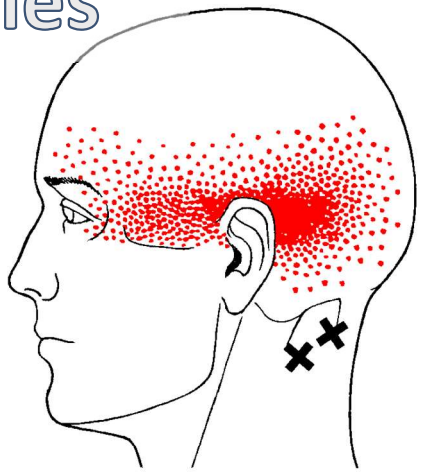
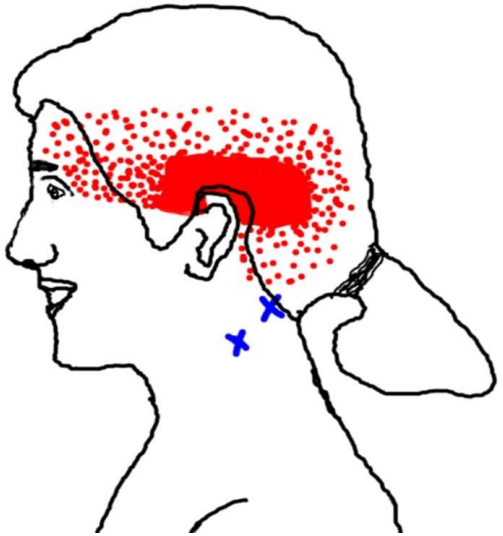
Suboccipital Muscles

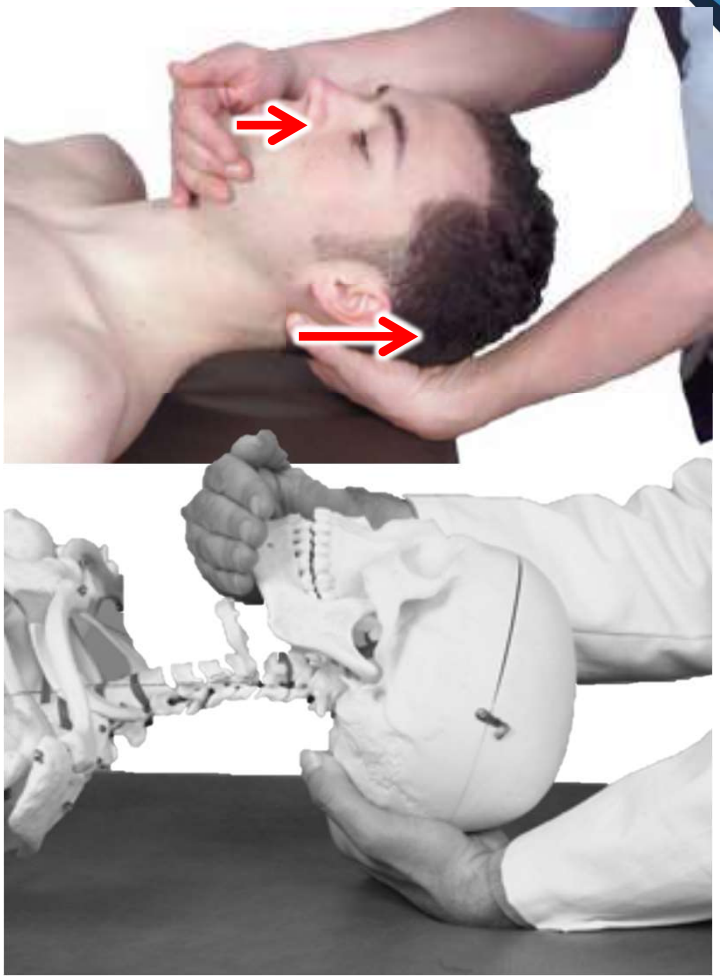






Cervical Traction

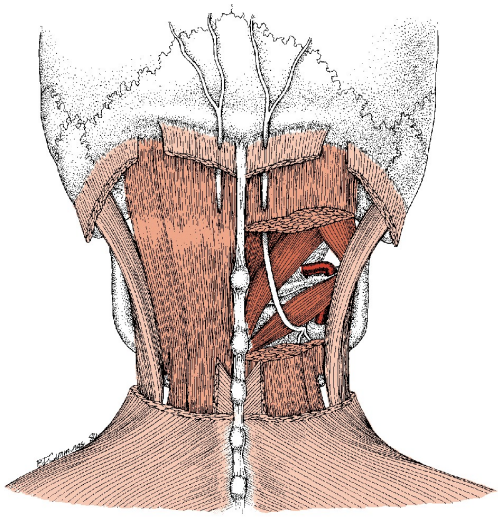
1. Cradle occiput and chin (no squeezing)
2. Apply axial cephalad traction slowly and rhythmically, with gradual increasing amplitudes
3. Continue until desired soft tissue or disc response (2-5 minutes)
4. Recheck

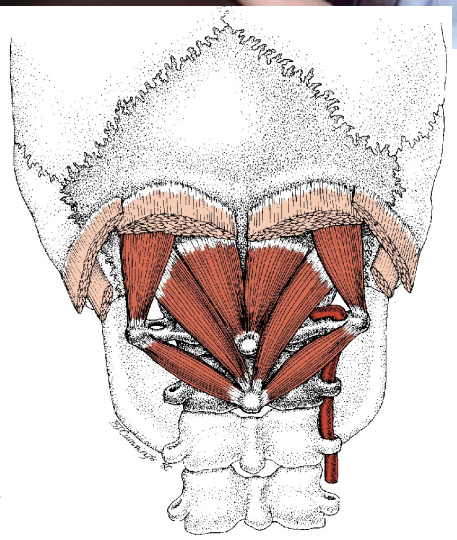


iKM p. 45 (4911.21B)

Suboccipital Kneading and Stretching

1. Contact medial aspect of suboccipital muscles
2. Repetitively draw fingers superiorly (stretching) and laterally (kneading) until tissue response
3. Recheck

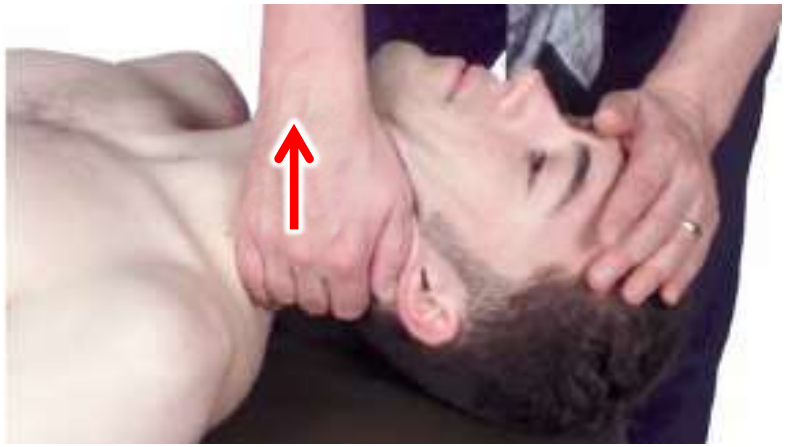


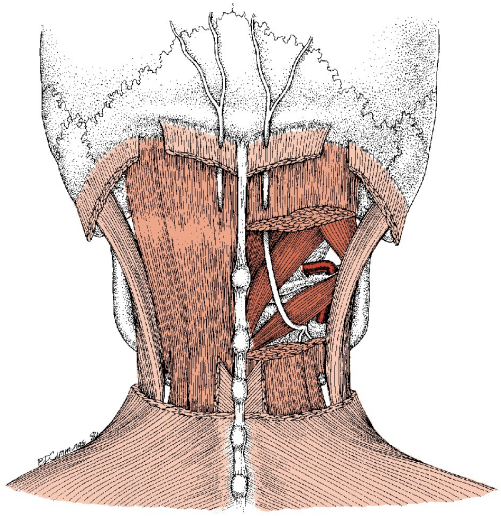


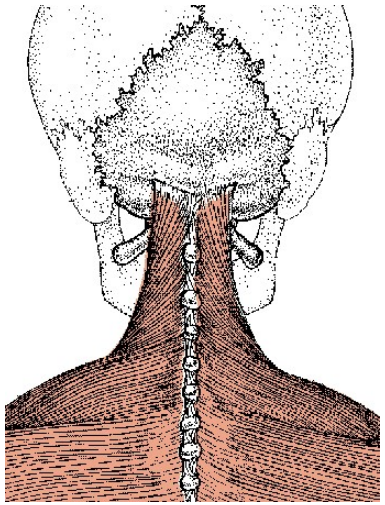
iKM p. 43 (4911.11A)

Paraspinal Kneading and Stretching

1. Contact medial aspect of cervical paraspinal muscles
2. Repetitively draw fingers anteriorly and rotate toward same side as follow-through
3. Recheck





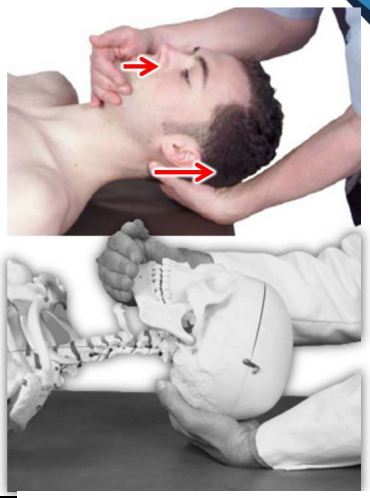


iKM p. 44 (4911.21A)

Cervical Traction

1. Cradle occiput and chin (no squeezing)
2. Apply axial cephalad traction slowly and rhythmically, with gradual increasing amplitudes
3. Continue until desired soft tissue or disc response (2-5 minutes)
4. Recheck

iKM p. 45 (4911.21B)



Suboccipital Kneading and Stretching

1. Contact medial aspect of suboccipital muscles
2. Repetitively draw fingers superiorly (stretching) and laterally (kneading) until tissu response
3. Recheck

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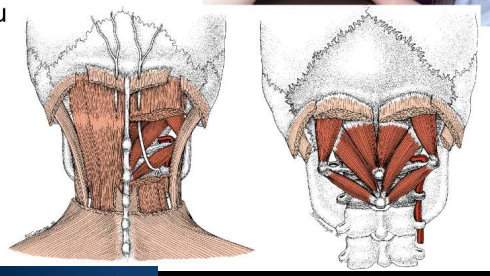

Paraspinal Kneading and Stretching

1. Contact medial aspect of cervical paraspinal muscles
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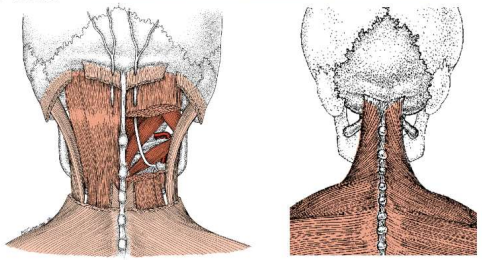
3. Recheck

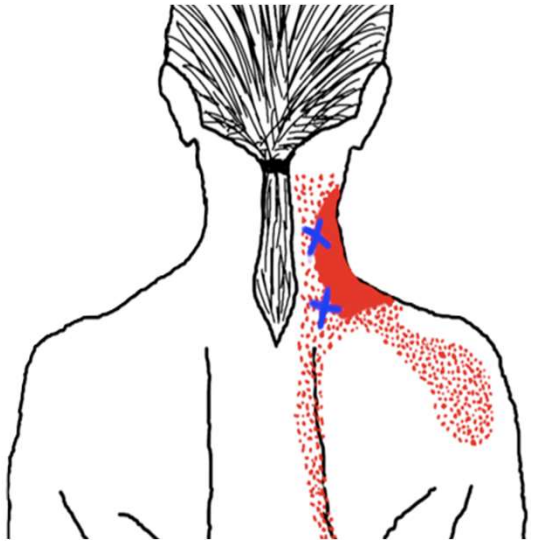
iKM p. 44 (4911.21A)

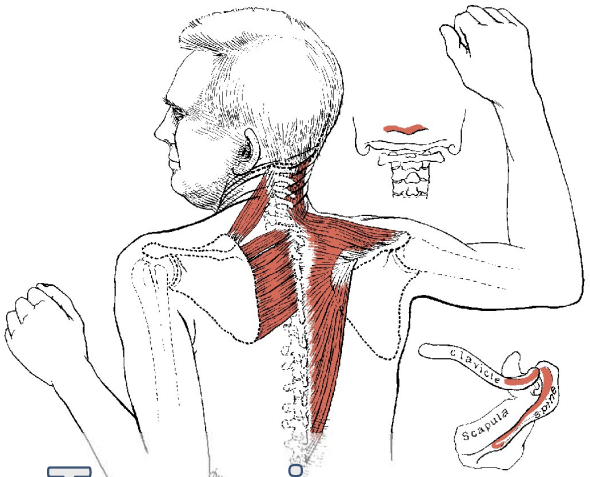


Upper Extremity

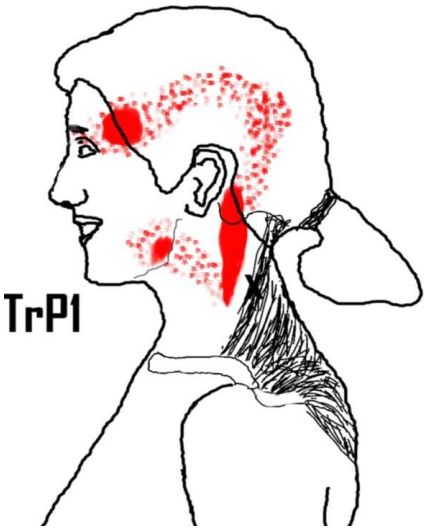
Soft Tissue Technique

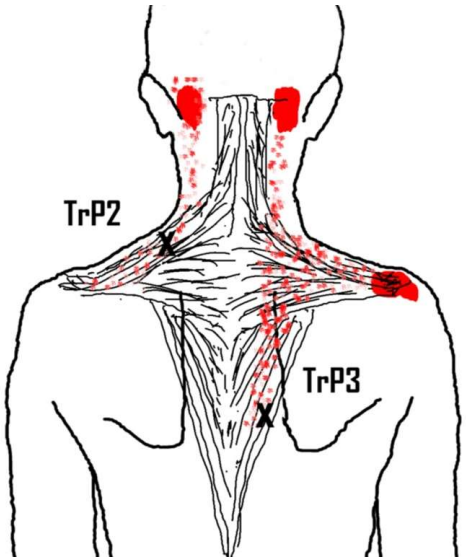
Levator Scapula





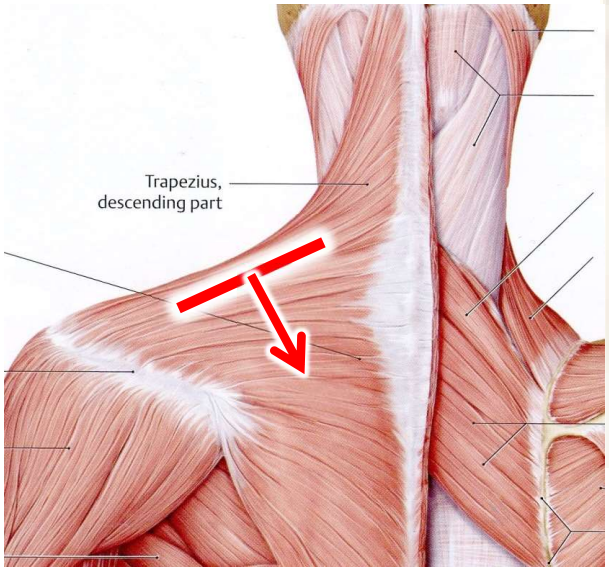
Trapezius

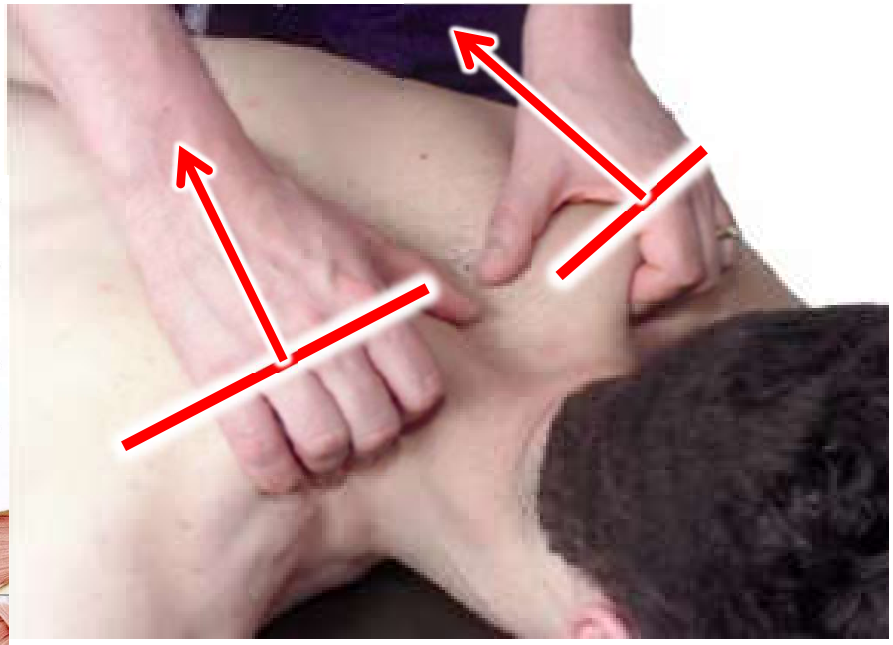




Trapezius Muscle Kneading

1. Hook fingers over superior margins of the Trapezius
2. Repetitively draw muscles inferior and medially until tissue response
3. Recheck





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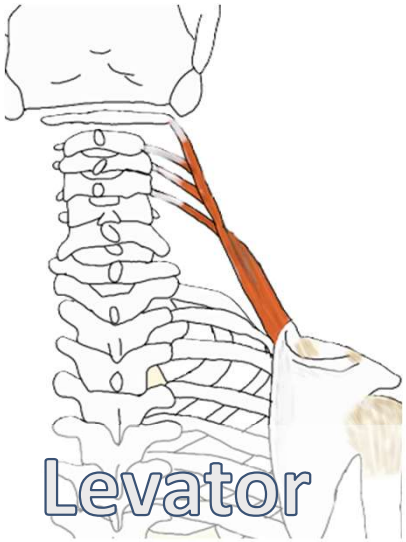
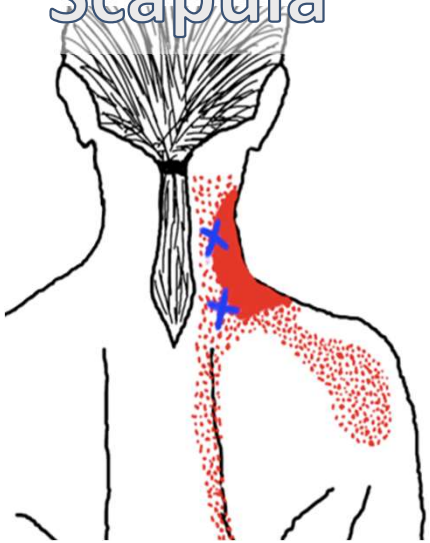
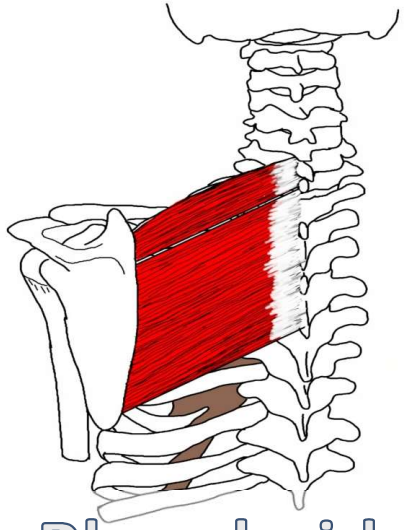
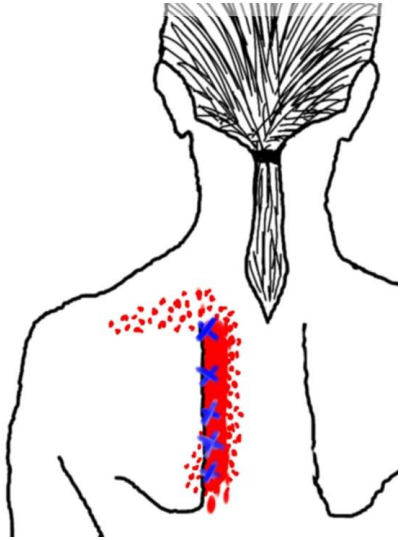
Levator Scapula



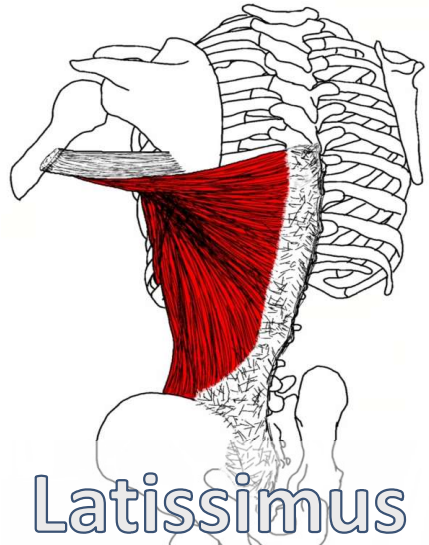


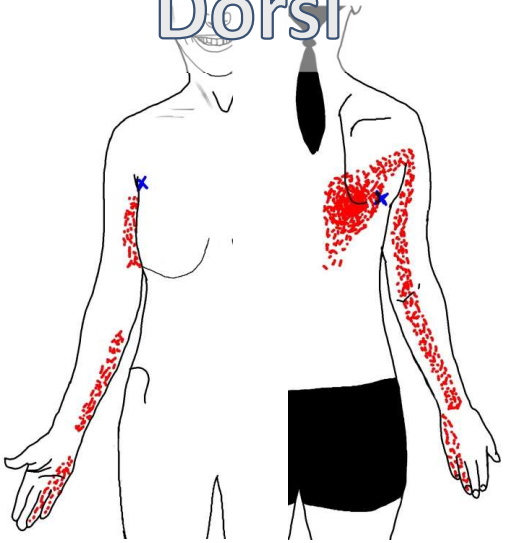
Rhomboids





Latissimus Dorsi





Shoulder: Lateral Recumbent

Levator scapula

Superior angle of scapula

pull inferolaterally

(iKM 62)

Rhomboid

Medial margin of scapula

stretch laterally

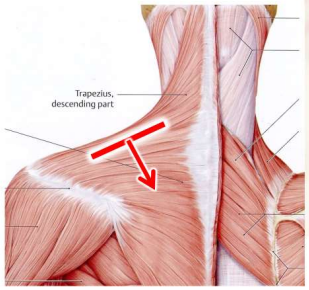
Latissimus Dorsi

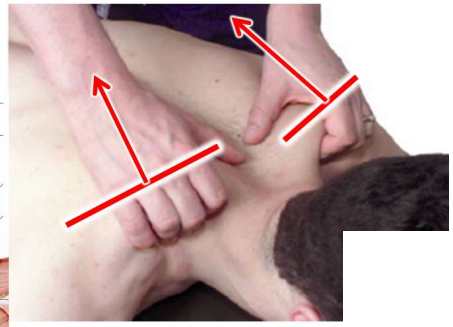
Inferior angle

stretch superior and laterally

Trapezius Muscle Kneading

1. Hook fingers over superior margins of the Trapezius
2. Repetitively draw muscles inferior and medially until tissue response
3. Recheck





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Shoulder: Lateral Recumbent

Levator scapula

Superior angle of scapula

pull inferolaterally

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Rhomboid

Medial margin of scapula

stretch laterally

Latissimus Dorsi

Inferior angle

stretch superior and laterally

Goals of Soft Tissue Treatment

Normalize the tissue

- Promote healing and repair
- Stretch shortened tissue
- Muscle relaxation
- Increase fluid drainage
- Reduce pain
- Influence cellular responses
- Influence a central response involving activation of descending inhibitory pathways

Summary

- Diagnosis is key
- Always use leverage, mechanical advantage
- Appreciate and contact the tissue with which you are working
- Be aware of the response to treatment
- Through fascial continuity, your treatment influence is broader than your hand placement

Grievance Policy

All grievances should be in writing and should specify the nature of the grievance. Initially, all grievances should be directed to MAOPS Executive Director, who will then forward said grievance to the Education & Convention Committee. All grievances will receive an initial response in writing within 30 days of receipt. If the participant does not receive a satisfactory response, then they can then submit a complaint in writing to the Bureau of Osteopathic Education of the AOA at 142 East Ontario Street, Chicago, IL 60611.