ATSU | National Center for Osteopathic Principles and Practice Education

Introduction to OMM for MDs and DOs

- May 20, 2024 – May 23, 2024 Kirksville, MO
- NCOPPE & KCOM

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Soft Tissue Technique

Tristan Glenn, DO

Eric Snider, DO

– Presentation Preparation

Tristan Glenn, DO

Tristan Glenn, DO, is a resident at Still OPTI/ Northeast Regional Medical Center. He is currently in his second year in the Osteopathic Neuromusculoskeletal Medicine Program. Dr. Glenn earned his doctorate of osteopathic medicine from the University of New England College of Osteopathic Medicine in Maine.

Eric Snider, DO

Eric Snider, DO, is an associate professor at A.T. Still University's Kirksville College of Osteopathic Medicine (ATSU-KCOM). He serves as the chairperson for the Osteopathic Manipulative Medicine department and as the program director for the Osteopathic Neuromusculoskeletal Medicine (ONMM) residency. Dr. Snider is board certified in Neuromusculoskeletal Medicine & Osteopathic Manipulative Medicine. He earned his Doctor of Osteopathy from the West Virginia School of Osteopathic Medicine (1999), and he completed his internship and residency at Northeast Regional Medical Center (1999-2002).

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Objectives

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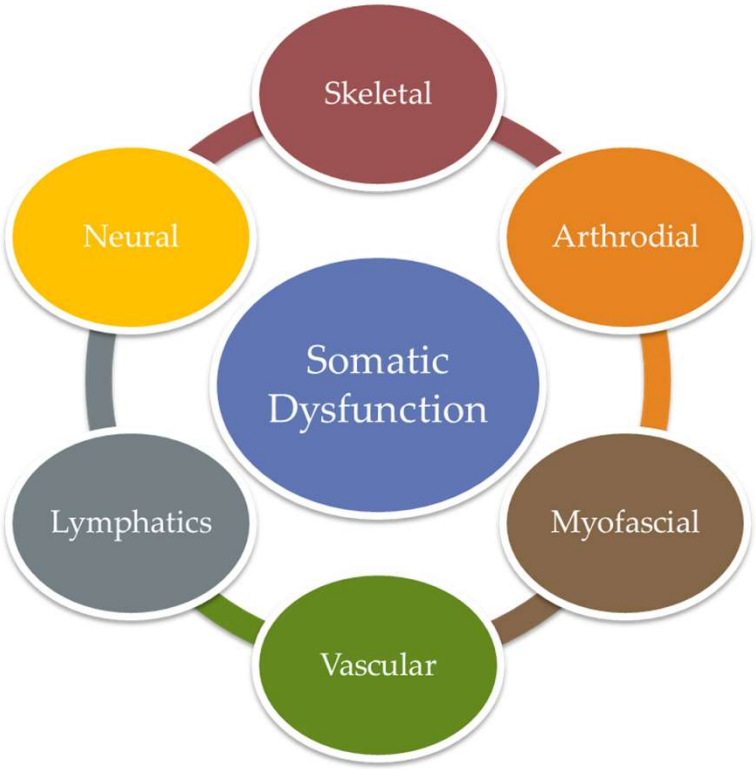
- Identify, describe, and define
  - Soft Tissue OMT.
  - **Indications** and **Contraindications** for Soft Tissue OMT.
- Demonstrate the ability to position the patient in a manner that is **safe, comfortable, and maintains dignity** while diagnosing and treating somatic dysfunction using Soft Tissue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

ST Indications

- **Relax** hypertonic muscles and reduce spasm
- **Stretch** and increase the elasticity of shortened fascial structures
- **Improve** local tissue nutrition, oxygenation, and **removal** of metabolic wastes
- **Improve** *abnormal* somato-somatic and somato-visceral *reflexes*, thus improving circulation in areas of the body remote from the area being treated

ST Indications *(continued)*

- **Diagnostically** to identify areas of restricted motion, tissue texture changes, and sensitivity
- **Feedback** about tissue response to OMT
- Improve local and systemic *immune response*
- Provide a general state of **relaxation**
- **Enhance circulation** to local myofascial structures
- Provide a general state of *tonic stimulation*

FOM3, Ch. 50 Soft Tissue & Articulatory Approach

What does “soft tissue” entail?

Living tissues of the body other than bone.

- Fascia
- Muscles
- Organs
- Nerves
- Vasculature
- Lymphatic

ST 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.*

FOM3, Ch. 50 Soft Tissue & Articulatory Approach

ST 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

FOM3, Ch. 50 Soft Tissue & Articulatory Approach

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*

FOM3, Ch. 50 Soft Tissue & Articulatory Approach

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.**

FOM3, Ch. 50 Soft Tissue & Articulatory Approach

Response to Soft Tissue Tx

- Mechanical stretch on fibroblasts
  - *Decreases pull on collagen by fibroblasts*
  - *Lengthens collagen*
- Normalizes tone in myofascia
  - *Where muscle spindles are anchored*
- Increases local tissue perfusion
- Improves biochemical millieu
  - *Substances in extravascular space, lymphatics, etc*

Response to Soft Tissue Tx *(Cont'd)*

- Decreases local sympathetic activity
- **Creeping**: Immediate change in muscle length
- **Remodeling**: Plastic changes with more permanent elongation of tissue
- Holding for a position longer allows change in the genetic expression of mechanotransducers

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SOFT TISSUE TECHNIQUES

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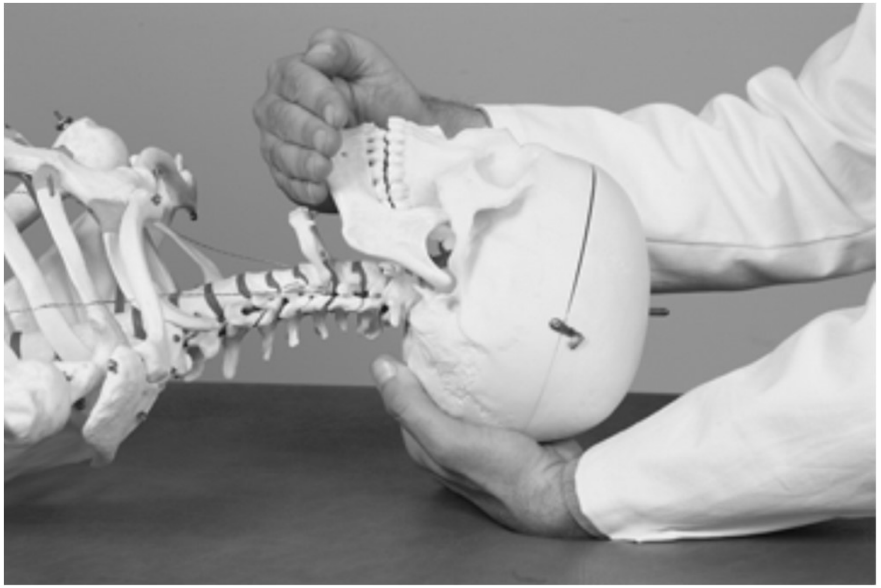
- Efflurage-light stroking
- Petrissage-Kneading
- Tapotment-Striking with thenar
- Skin Rolling
- Inhibition-Deep Pressure
- Parallel Traction-Linear Stretching
- Perpendicular Traction-Lateral Strecthing

Stretch *(parallel traction)*

Increase distance between origin and insertion (parallel with muscle fibers

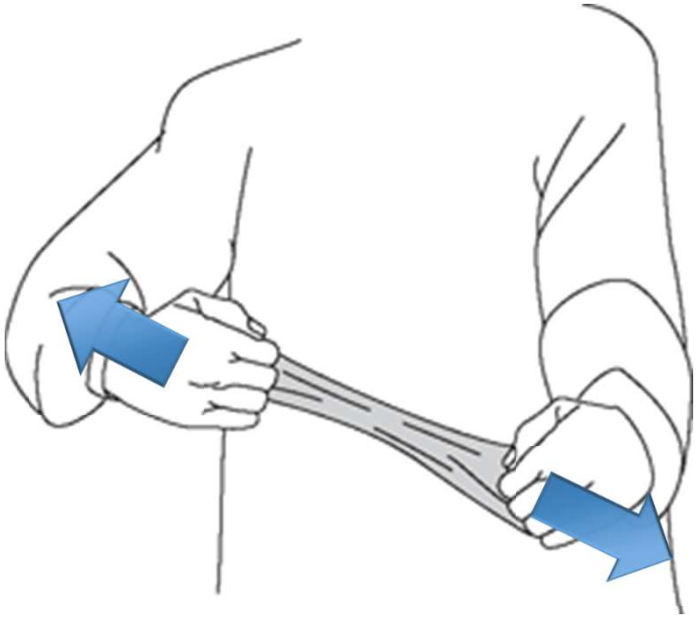


Legend:

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

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)



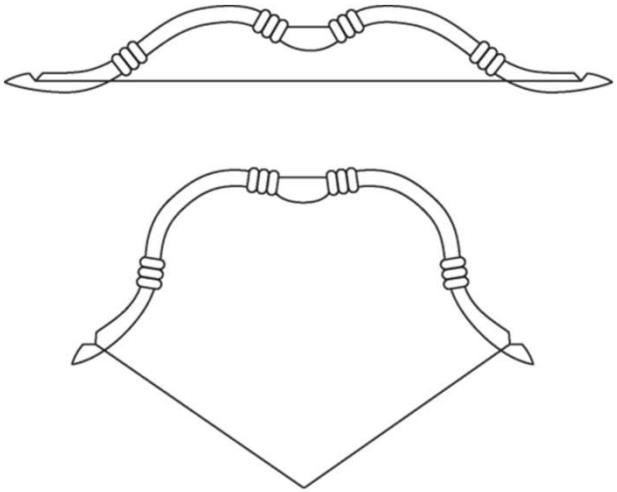
Legend:

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:

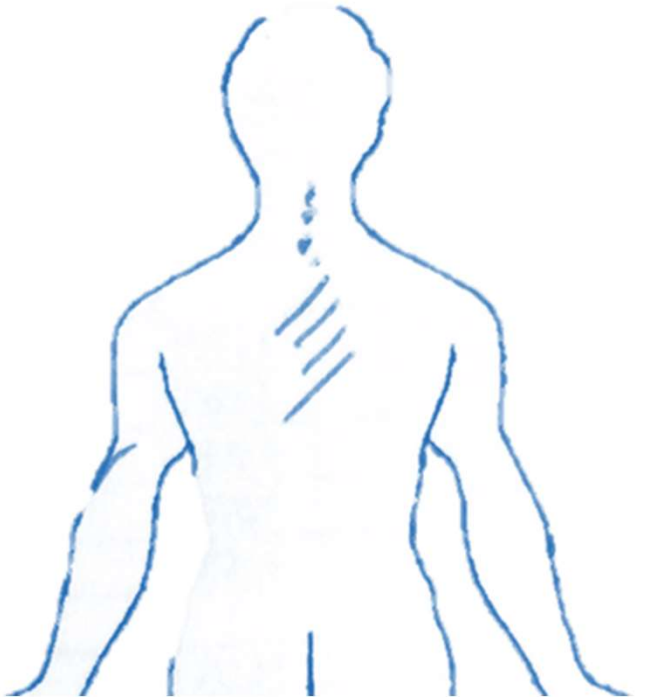
Suboccipital inhibition. (Used from Nicholas & Nicholas. Atlas of Osteopathic Technique. Philadelphia, PA: Lippincott, Williams & Wilkins with permission.)

Thoracolumbar 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



Erector Spinae Pain Patterns

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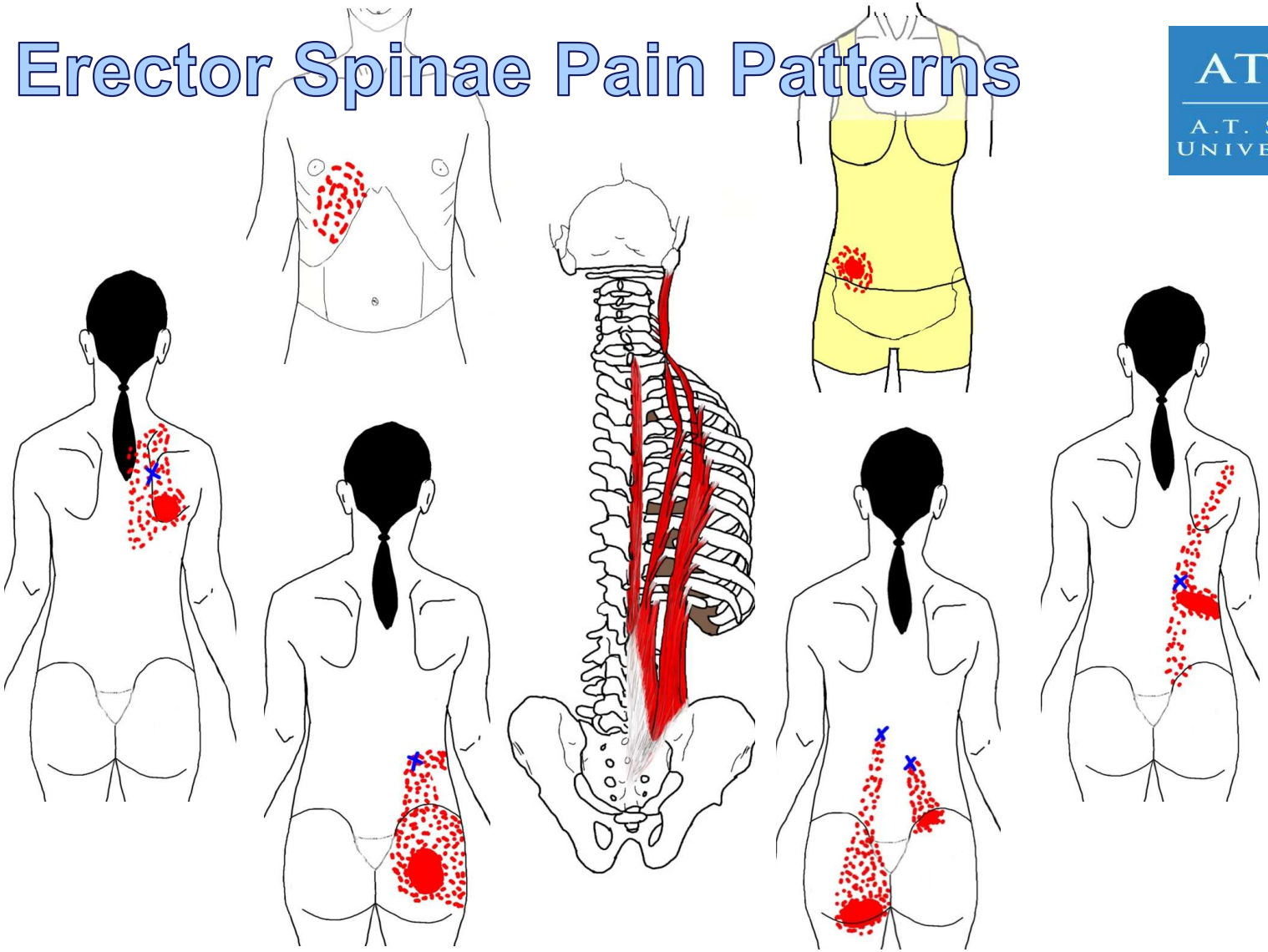
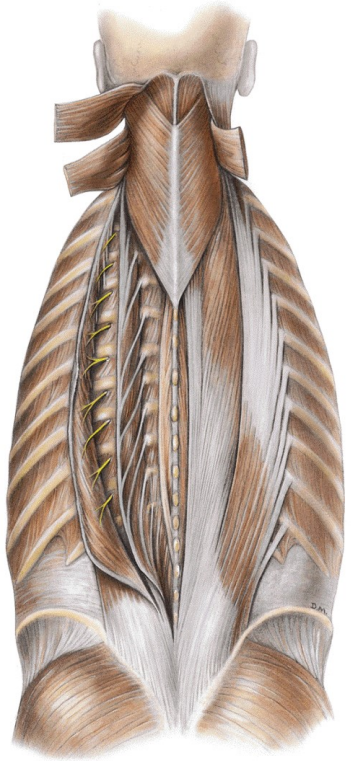


Sympathetic Innervation

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

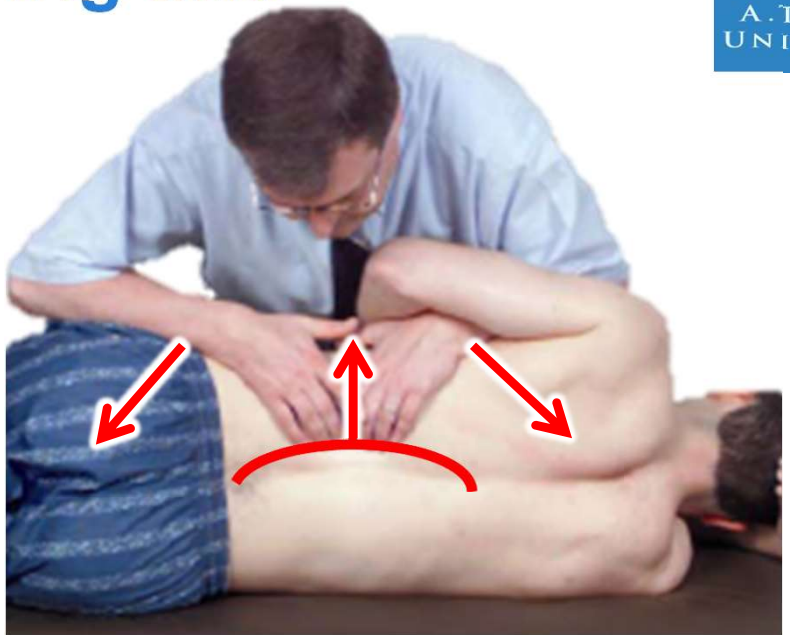
1. Contact the medial aspect of erector spinae muscles
2. Repetitively scoop muscles anteriorly and laterally until softening (response)
3. Recheck

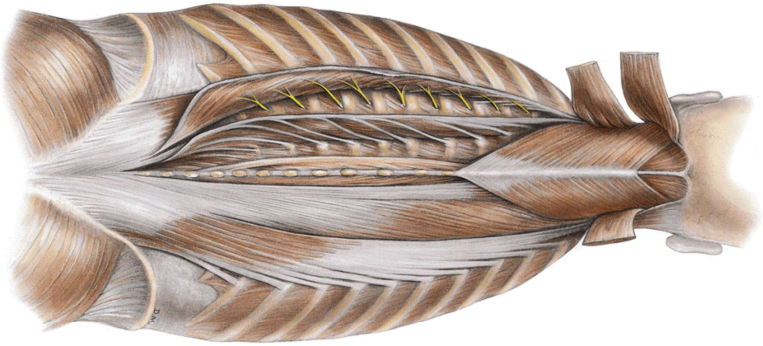


iKM 50 (4812.11A)

Paraspinal Kneading and Stretching

1. Forearms contacting the axilla and iliac crest, fingers contact medial aspect of the erector spinae.
2. Repetitively scoop muscles anterior and superiorly while carrying the shoulder and hip posterior.
3. Recheck



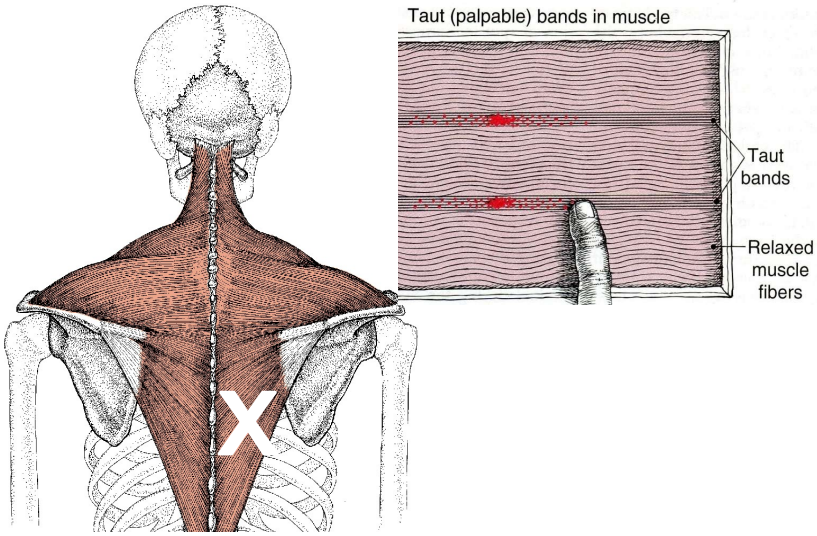


iKM p. 56 (4913.11C)

Paraspinal Inhibition

(4912.11B)

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



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iKM 50 (4812.11A)

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iKM p. 56 (4913.11C)

Paraspinal Inhibition

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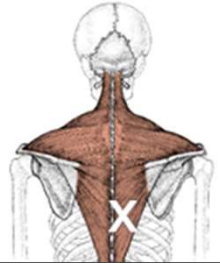
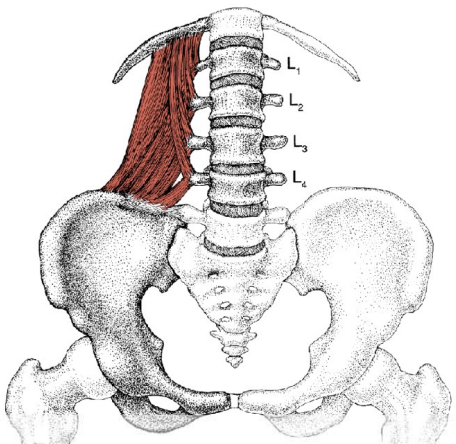
2. Apply repetitive traction perpendicular to paraspinal muscles until softening
3. Slow on, slow off
4. Recheck

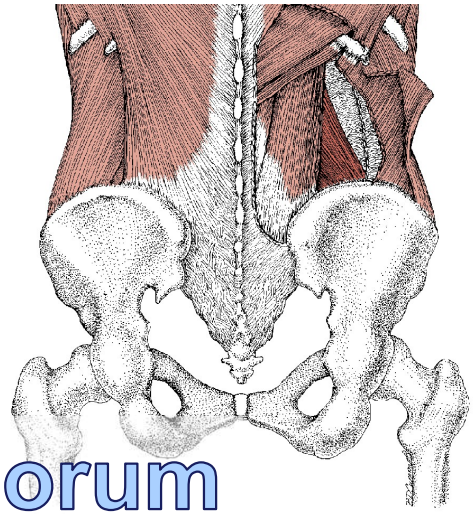
iKM p. 51 (4912.11B)



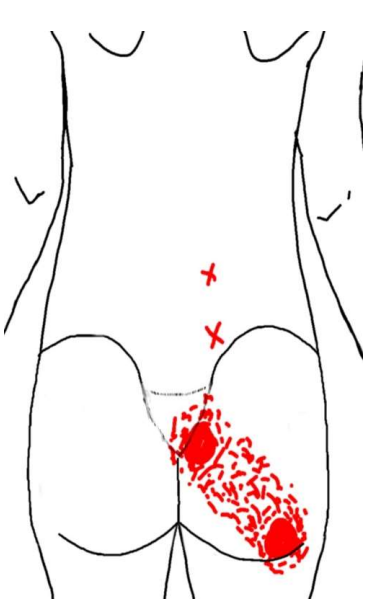
Lumbar Spine

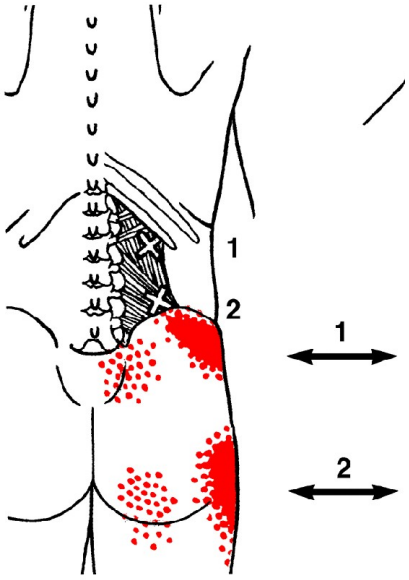
Soft Tissue Technique

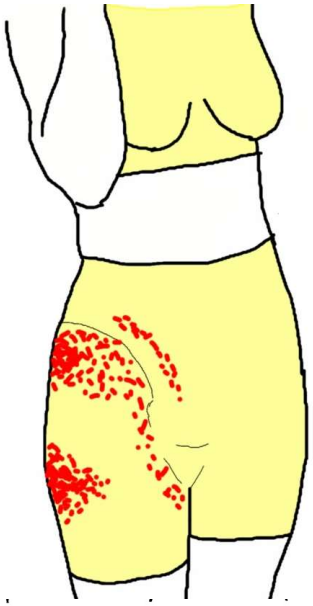




Quadratus Lumborum

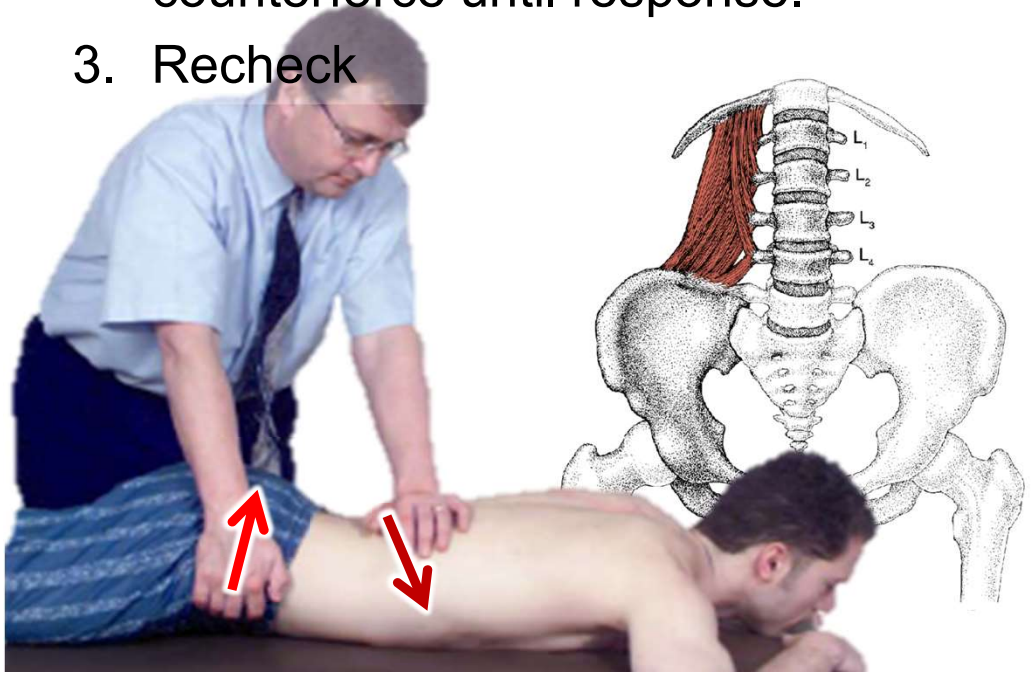


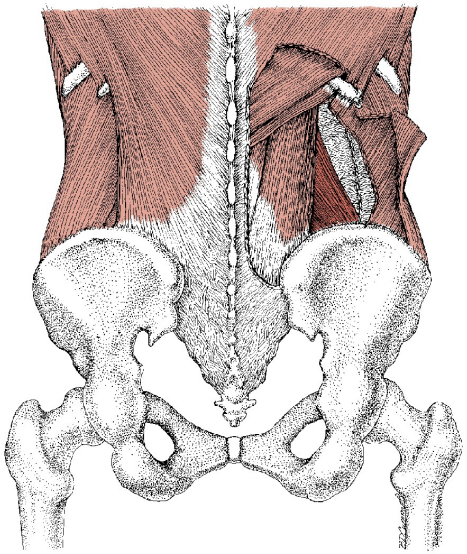




Paraspinal Kneading and Stretching

1. One hand on medial aspect of erector spinae muscles, 2nd hand cups the ASIS
2. Repetitively scoop paraspinal muscles anteriorly and laterally, lifting ASIS as counterforce until response.
3. Recheck





iKM p. 55 (4913.11B)

Paraspinal Kneading and Stretching

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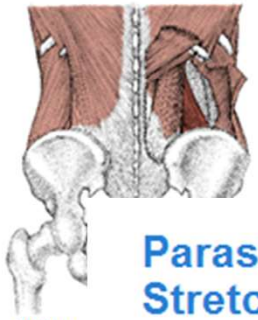
1. Palm on medial aspect of erector spinae muscles, other hand grasp distant shoulder, axilla on ipsilateral shoulder
2. In repetitive, fluid motion: apply force anteriorly and laterally while depressing and translating away the proximal shoulder until tissue response
3. Recheck

iKM p. 58 (4913.11E)

Paraspinal Kneading and Stretching

1. One hand on medial aspect of erector spinae muscles, 2nd hand cups the ASIS
2. Repetitively scoop paraspinal muscles anteriorly and laterally, lifting ASIS as counterforce until response.
3. Recheck



iKM p.

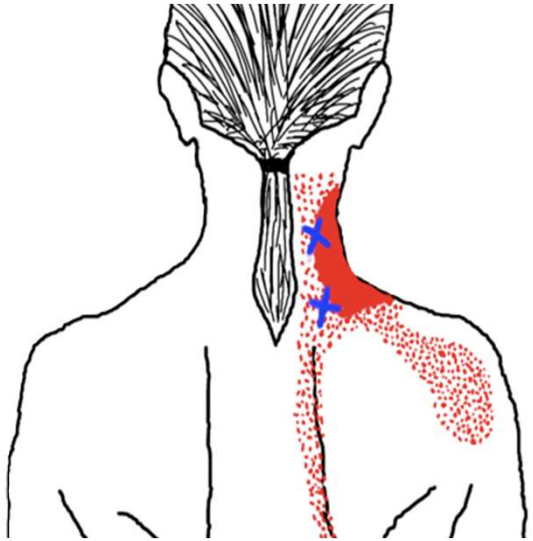
Paraspinal Kneading and Stretching

1. Palm on medial aspect of erector spinae muscles, other hand grasp distant shoulder, axilla on ipsilateral shoulder
2. In repetitive, fluid motion: apply force anteriorly and laterally while depressing and translating away the proximal shoulder until tissue response
3. Recheck

iKM p. 58 (4913.11E)

Suboccipital & Cervicothoracic Spine

Soft Tissue Technique



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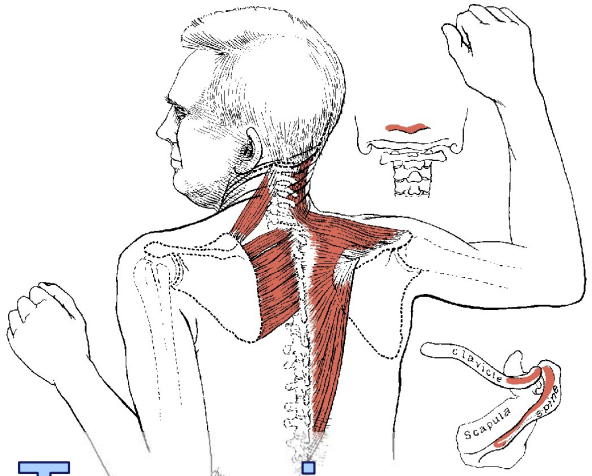
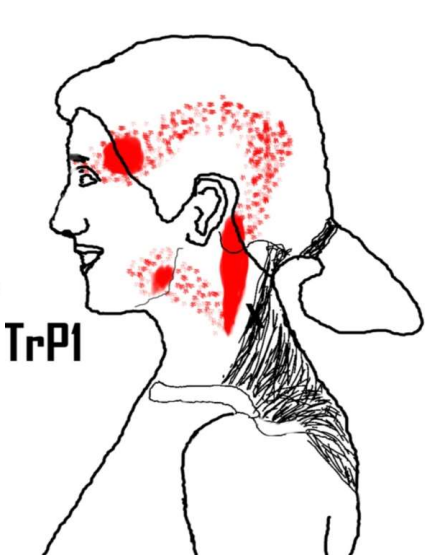
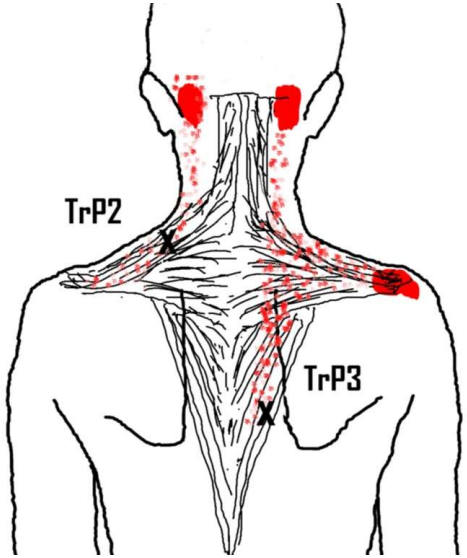
Levator Scapula



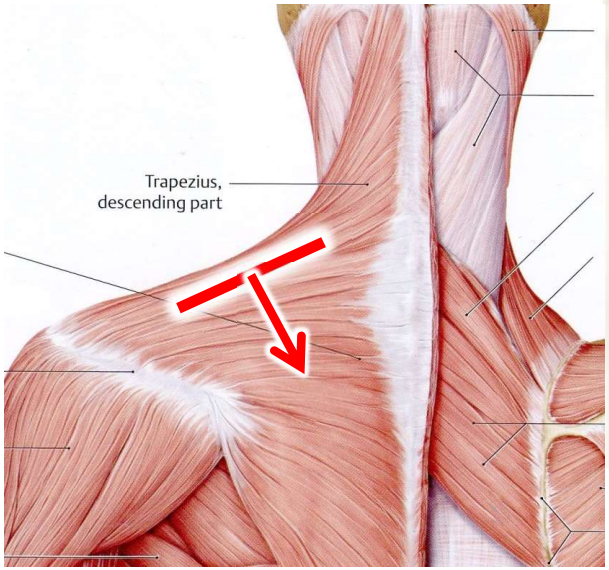


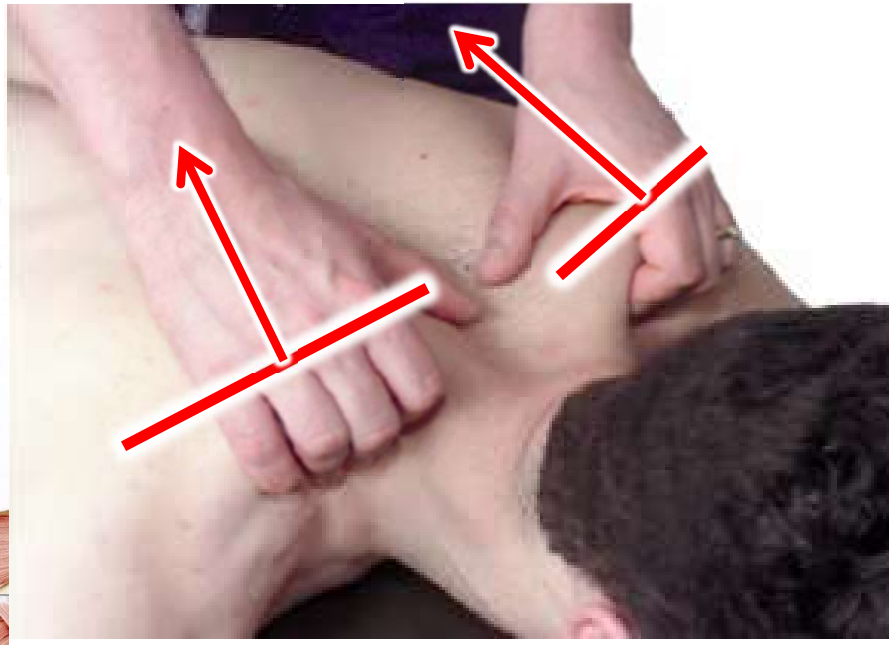


Trapezius

Trapezius Muscle Kneading

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

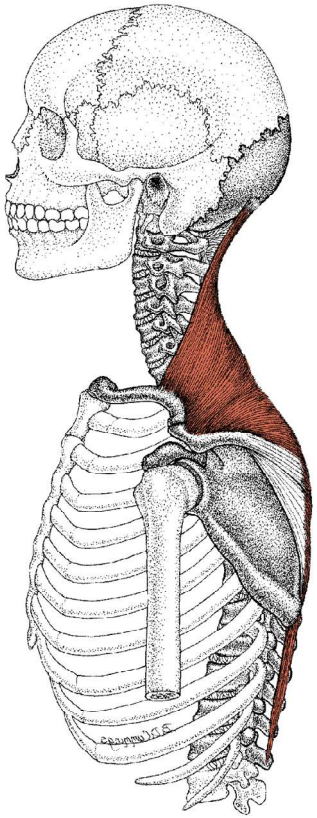




iKM p. 52 (4912.21A)

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

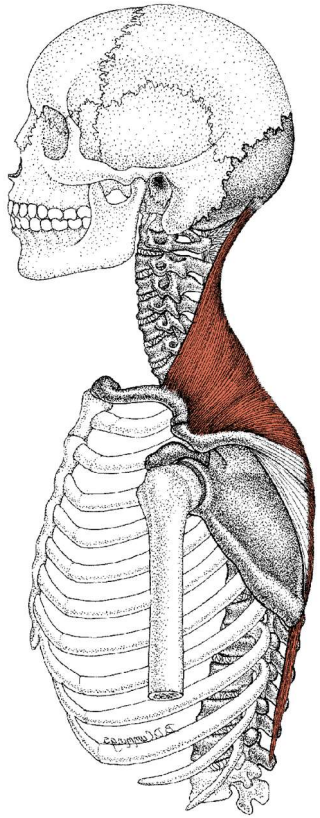


iKM p. 46 (4911.21C)

Paraspinal Stretch - unilateral

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

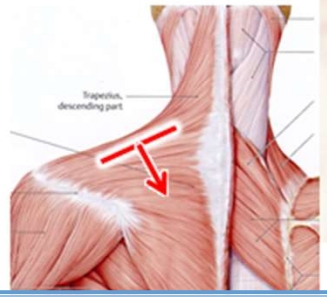
Alternate hold: cradle head in forearm



iKM p. 47 (4911.21D)

Trapezius Muscle Kneading

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



iKM p. 52 (4912.21A)

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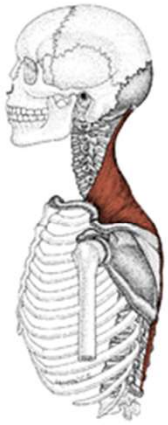

iKM p. 46 (4911.21C)

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3. Recheck

Alternate hold: cradle head in forearm

iKM p. 47 (4911.21D)

Suboccipital Muscles

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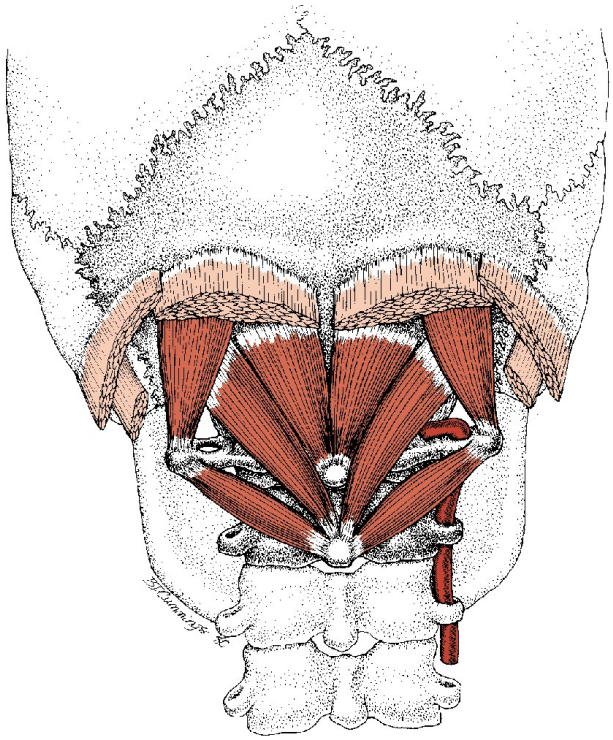
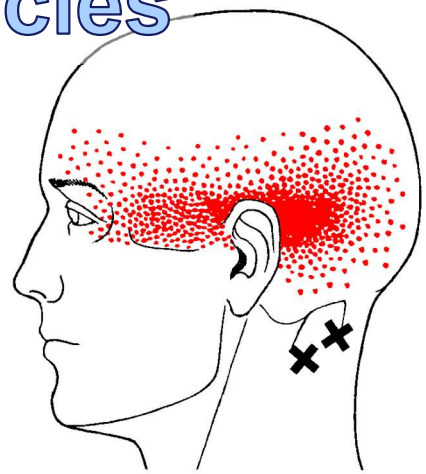
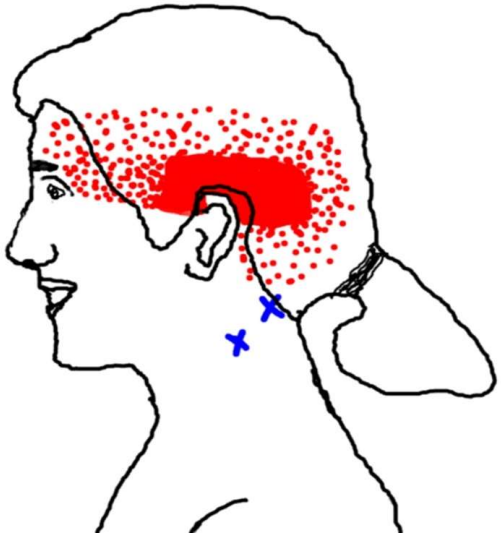


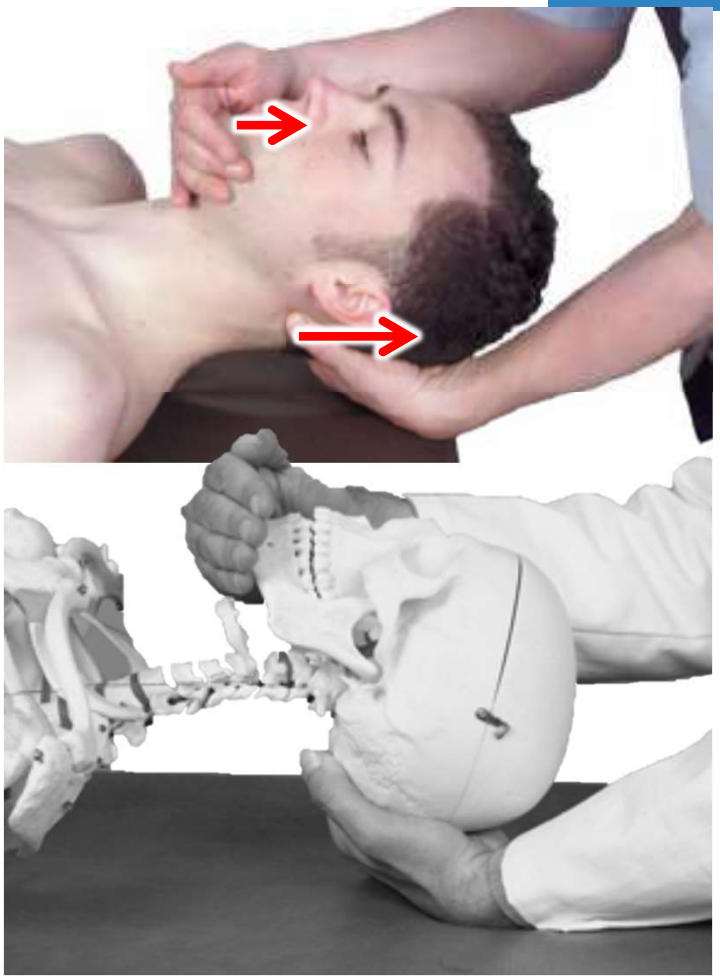




Cervical Traction

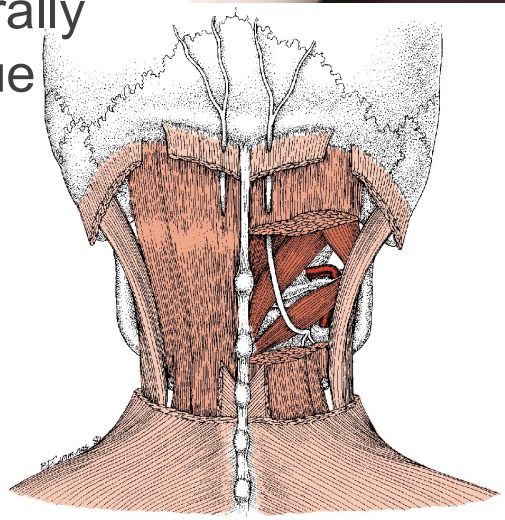
1. Cradle occiput and chin (no squeezing)
2. Apply axial cephalad traction slowly and rhythmically, with gradual increasing amplitudes
3. Continue until desired soft tissue or disc response (2-5 minutes)
4. Recheck

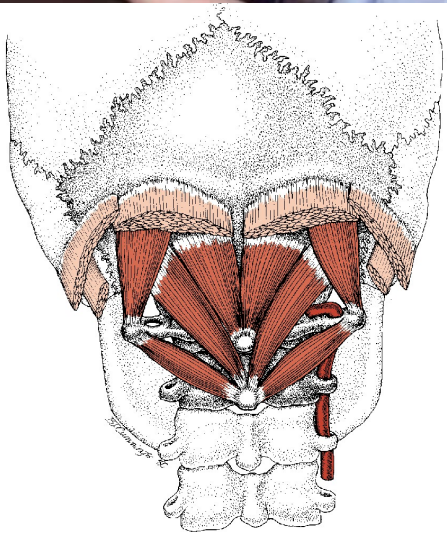
iKM p. 45 (4911.21B)



Suboccipital Kneading and Stretching *(may be used to treat entire c-spine)*

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

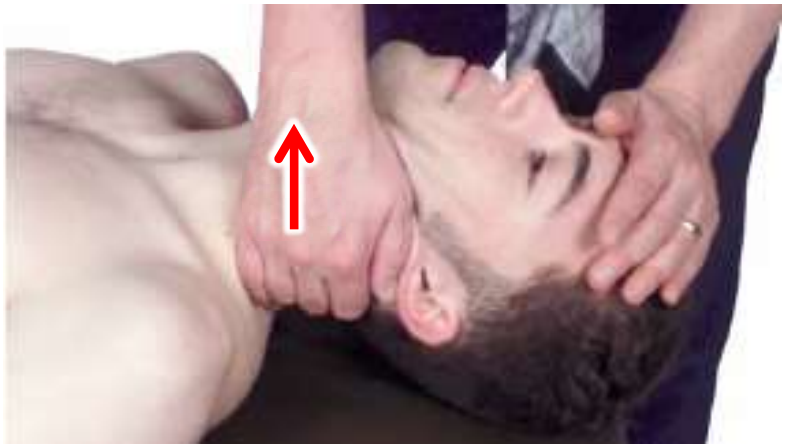


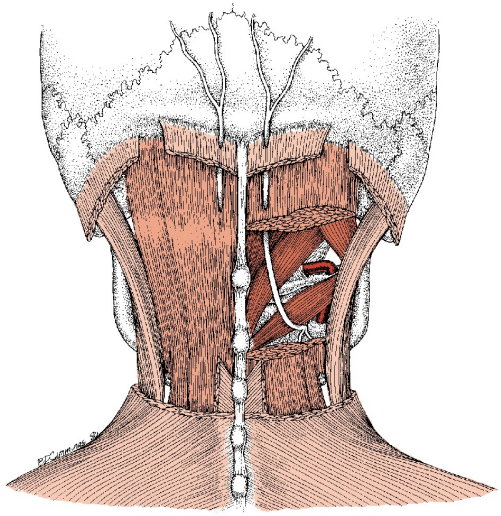


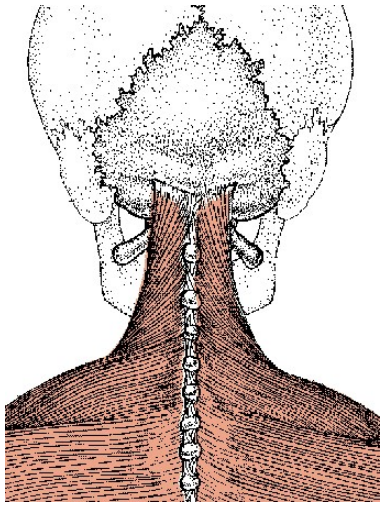
iKM p. 43 (4911.11A)

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





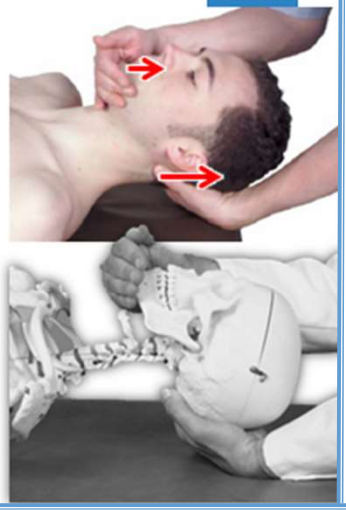


iKM p. 44 (4911.21A)

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

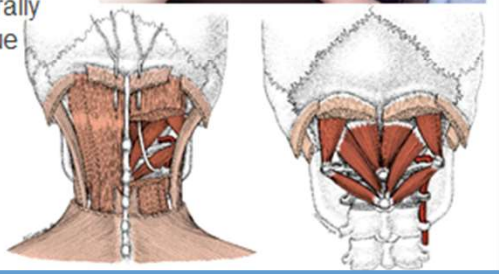
iKM p. 45 (4911.21B)



Suboccipital Kneading and Stretching *(may be used to treat entire c-spine)*

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

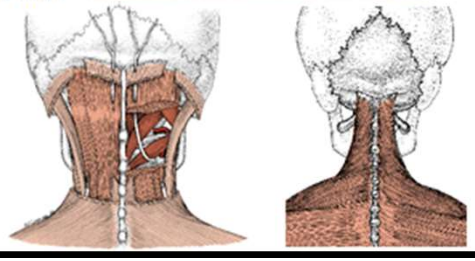
iKM p. 43 (4911.11A)



Paraspinal Kneading and Stretching

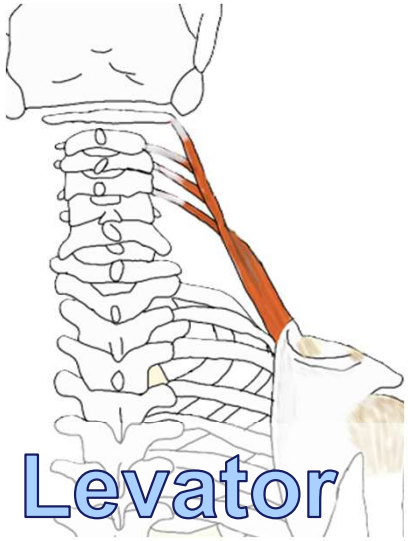
1. Contact medial aspect of cervical paraspinal muscles
2. Repetitively draw fingers anteriorly and rotate toward same side as follow-through
3. Recheck

iKM p. 44 (4911.21A)

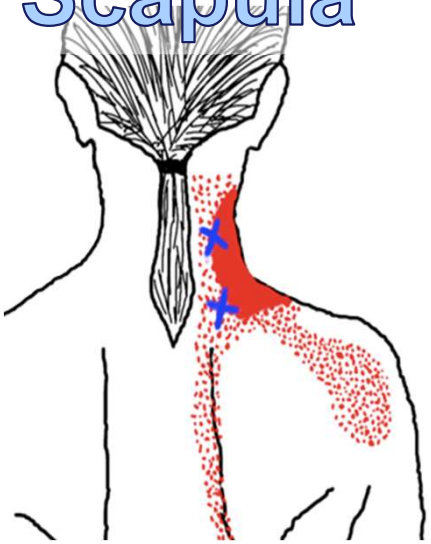


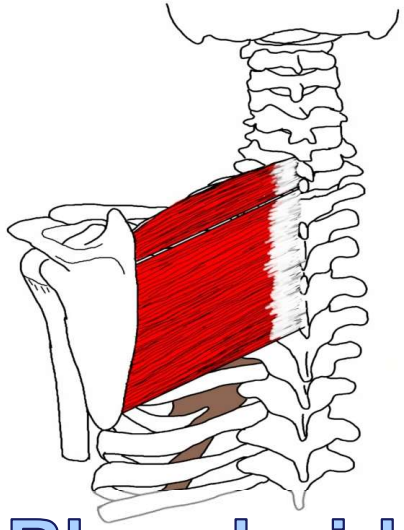
Upper Extremity

Soft Tissue Technique

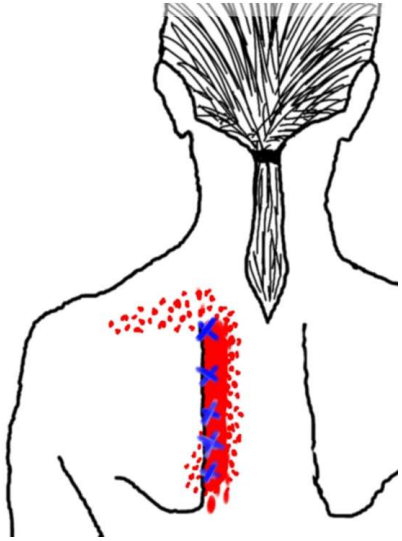


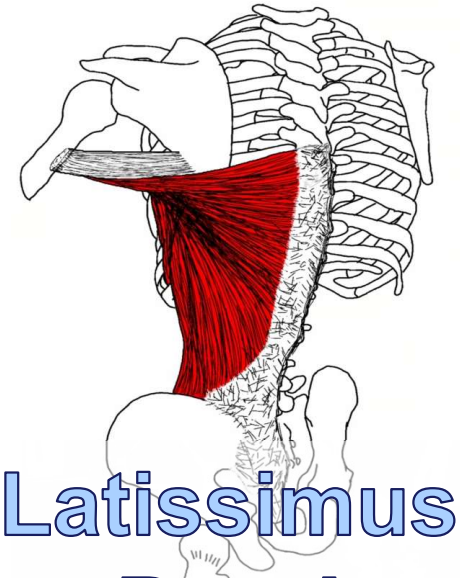
Levator Scapula



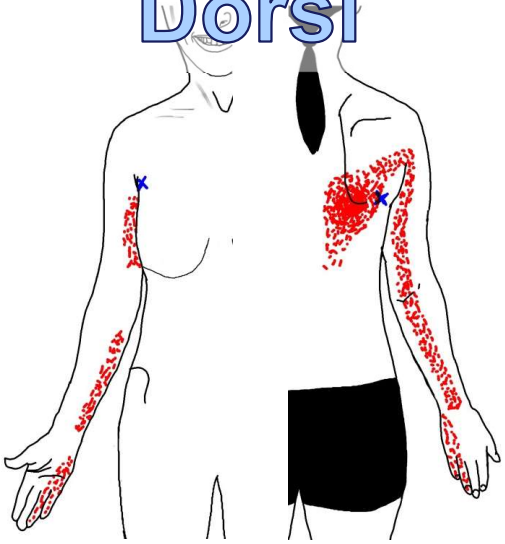


Rhomboids





Latissimus Dorsi



Shoulder: Lateral Recumbent

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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

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

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Summary

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- 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

A 33-yo female presents to your office with neck pain. PE finds bilateral paraspinal hypertonicity. Which of the following OMT techniques most likely addresses the entire cervical spine?

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A. HVLA to C4

B. Suboccipital Kneading & Stretching

C. Cervical Traction

D. Trapezius Muscle Kneading

E. Counterstrain of left AC3