Myofascial Trigger Points

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Myofascial pain syndrome (MPS)

Myofascial pain syndrome (MPS) Diagnostic criteria :

- a localised, dull, pressing, dragging, occasionally burning spontaneous **pain** associated with acute or chronic muscular strain,
- tenderness with typical pain reproduction within a palpable **'taut band'** of muscle,
- a pain which predominantly **radiates** in a distal direction after mechanical stimulation,
- painful **limitation** of movement,
- muscular **weakness** without atrophy.

What is a Trigger Point?

A Trigger Point (TrP) is **a hyperirritable spot, a palpable nodule in the taut bands of the skeletal muscles' fascia.** Direct compression or muscle contraction can elicit:

- jump sign,
- local tenderness,
- local twitch response and
- referred pain which usually responds with a pain pattern distant from the spot.

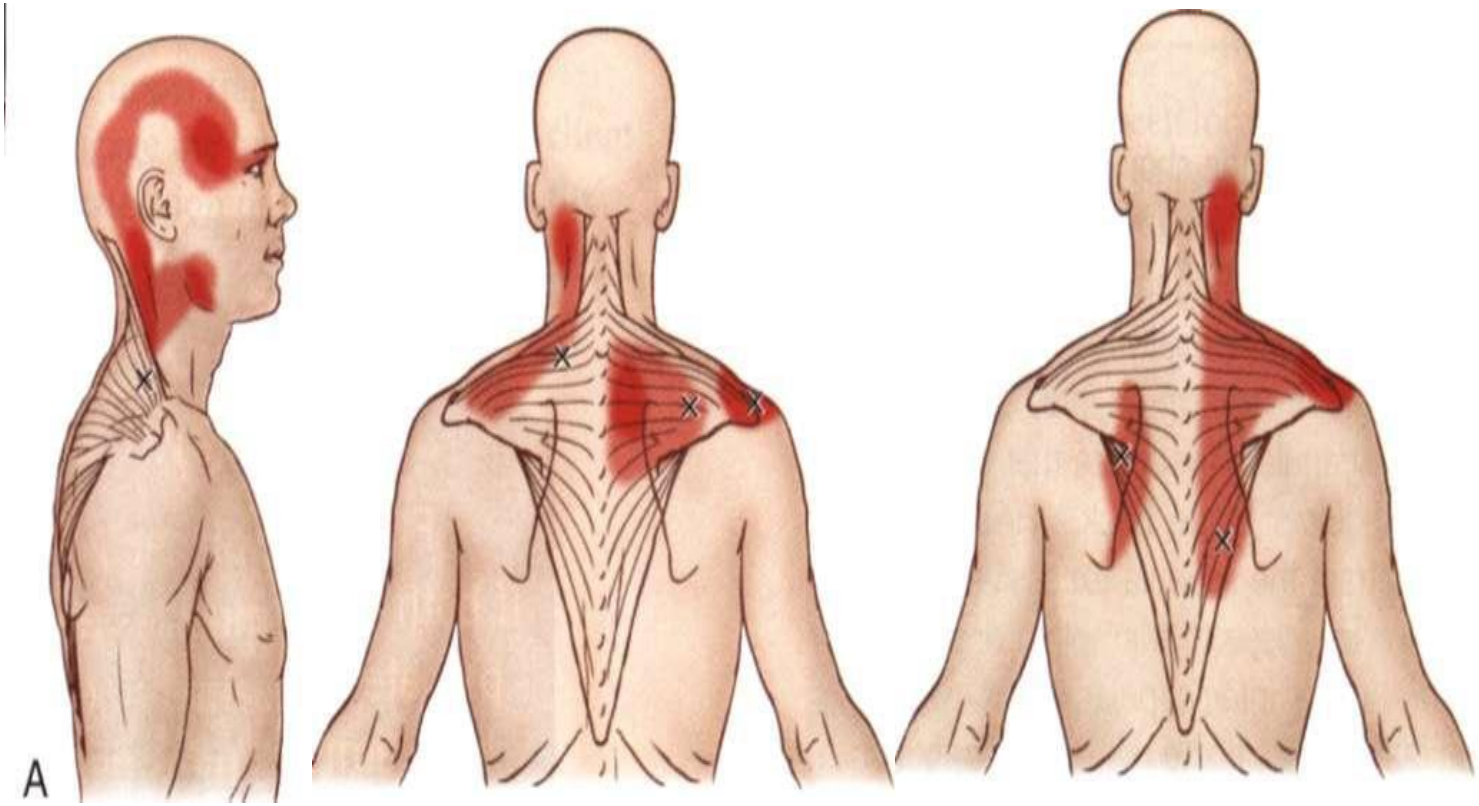
What is a Trigger Point?

A trigger point (TrP) is a **focal area of hyperirritability** that is locally sensitive to pressure and can refer symptoms (usually pain) to other areas of the body.

TrPs are reported to exist in most every soft tissue of the body, including muscle, muscular fascia, periosteum, ligament, and skin.

The term myofascial TrP is used to describe TrPs that exist within skeletal muscle tissue or skeletal muscular fascia (usually the tendon or aponeurosis of a muscle).

Common trapezius TrPs and their corresponding referral zones.



Common trapezius TrPs and their corresponding referral zones. **A** is a lateral view showing the location of a T r P in the most vertical fibers of the upper trapezius. **B** shows another upper trapezius TrP on the left side; the right side illustrates middle trapezius TrP locations. **C** shows two lower trapezius TrPs and their referral zones.

Etiology of Myofascial Trigger Points

Several possible mechanisms can lead to the development of MTrPs, including

1) **low-level muscle contractions,**
2) **uneven intramuscular pressure distribution,**
3) **direct trauma, "energy crisis hypothesis"**
4) **Unaccustomed eccentric contractions, eccentric contractions in unconditioned muscle, and**
5) **maximal or submaximal concentric contractions.**

Classification of TrPs

Primary or Central TrPs

- are those that cause severe pain locally at the pressure with irradiation according to referred pain map.
- Usually are based around the center of a muscle belly.

Secondary or Satellite TrPs

- arise in response to existing central trigger points in surrounding muscles.
- They usually spontaneously withdraw when the central TrP is healed. Can be present in the form of a cluster.

Classification of TrPs

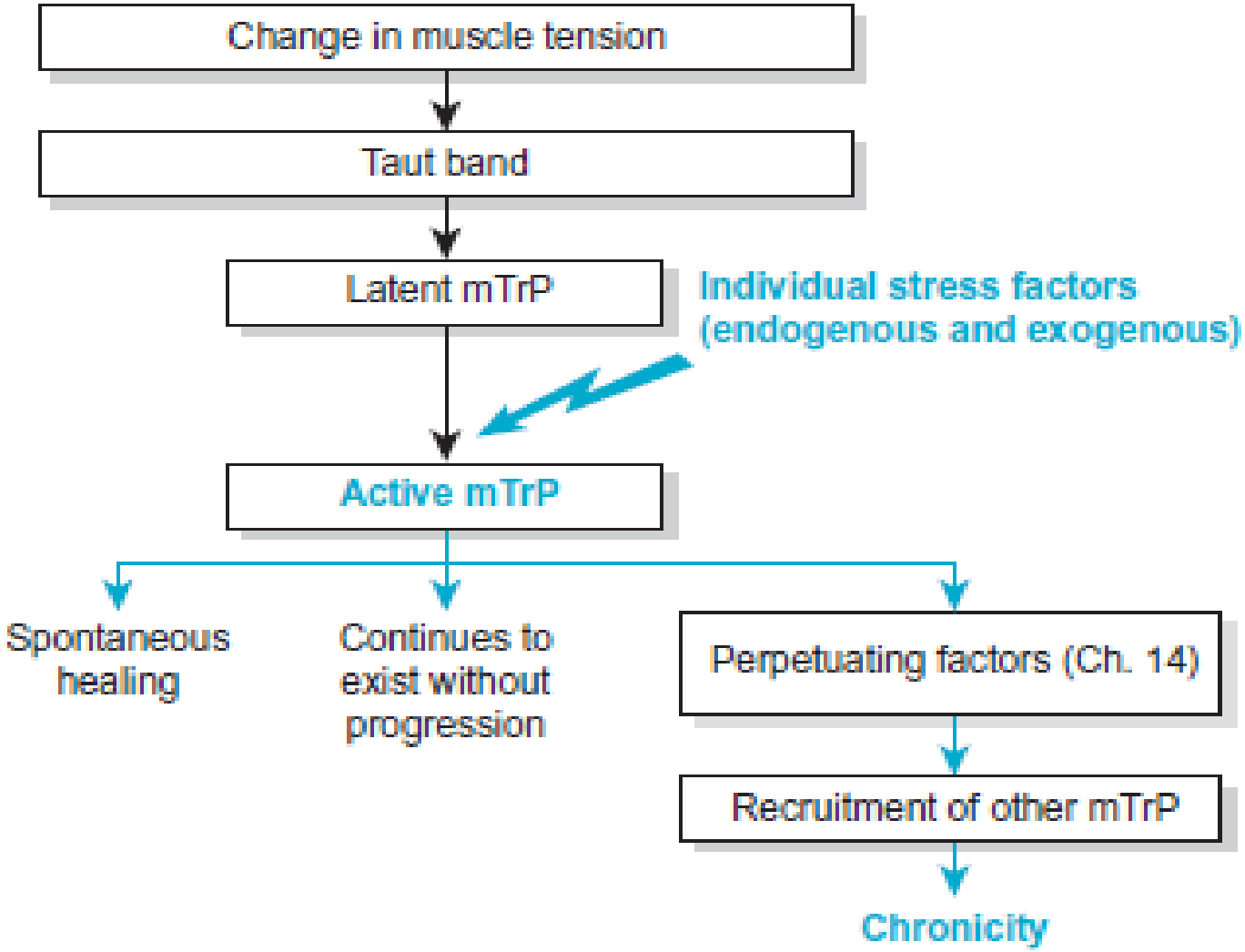
Active TrP

- any point that causes tenderness and referral pain pattern on palpation.
- **Almost always central TrPs are active and some satellite TrPs are also active** (but not necessarily all of them).

Inactive or Latent TrPs

- can develop in anywhere and under fingertips **feel like lumps, but are not painful.** Can increase a **stiffness** of the muscles.
- Inactive TrPs can eventually become active if there is a provocative factor.

Course of myofascial pain



Manual identification of myofascial trigger points:

There are several signs and symptoms that may be used for the TrP diagnosis:

1. Presence of a **palpable taut band** in a skeletal muscle when accessible to palpation,
2. Presence of a **hyperirritable spot** in the taut band,
3. **Palpable local twitch response** on snapping palpation (or needling) of the TrP, and
4. Presence of **referred pain** elicited by stimulation or palpation of the hyperirritable spot.
5. **Muscle weakness**, pain on contraction in the shortened or lengthening position, or **a jump sign.**

Local twitch responses :

1. Local twitch responses are spinal reflexes that appear to be unique to MTrPs.
2. They are characterized **by a sudden contraction of muscle fibers within a taut band when the taut band is strummed manually or needled.** The sudden contractions can be observed visually, can be recorded electromyographically, or can be visualized with diagnostic ultrasound.
3. When a MTrP is needled with a monopolar teflon-coated EMG needle, LTRs appear as high amplitude polyphasic EMG discharges.

More-recent studies found that taut bands and TrPs can be visualized using magnetic resonance and sonographic elastography

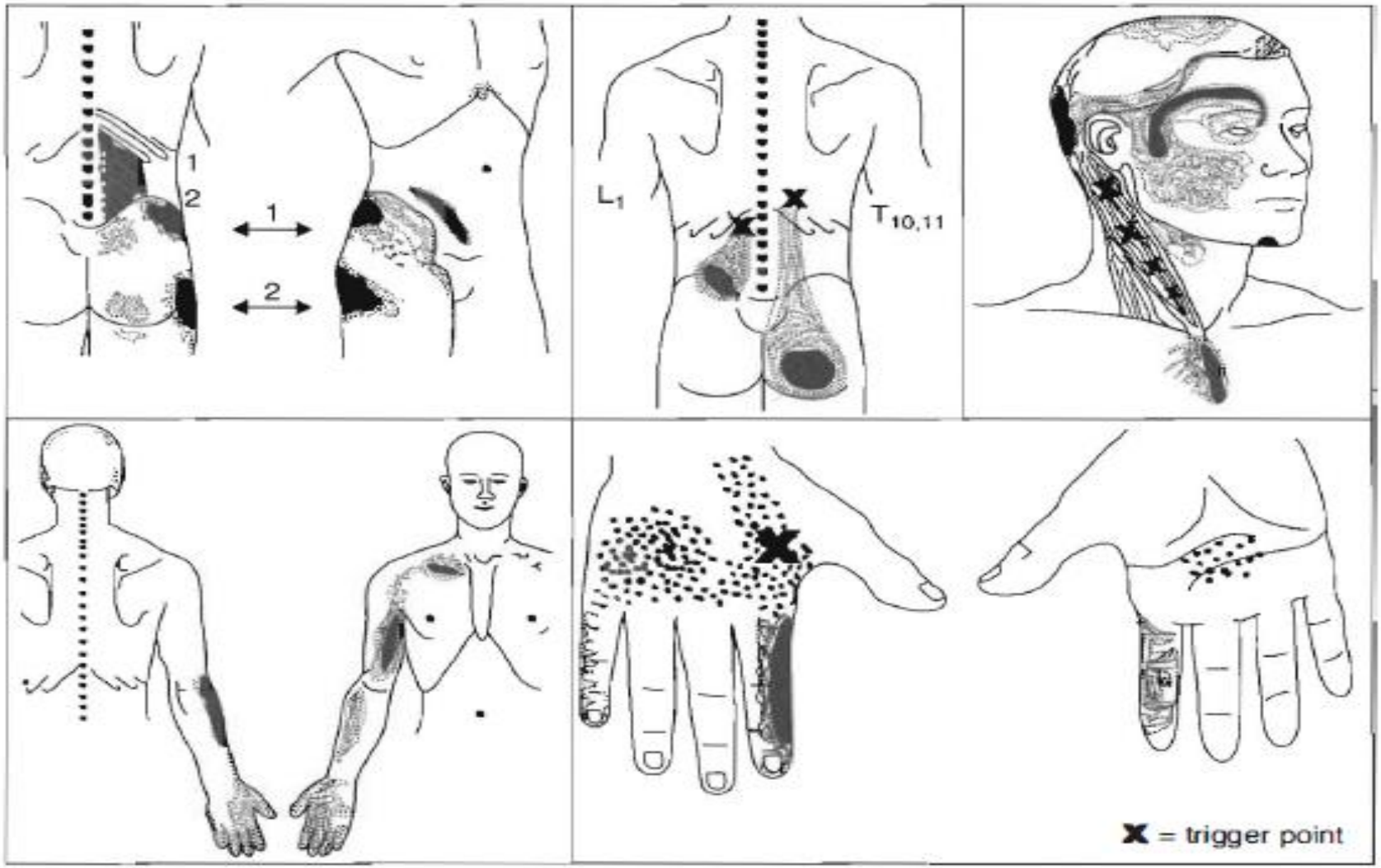
Pressure algometer:

Algometers are devices that can be used to identify the pressure and/or force eliciting a pressure-pain threshold. It has been noted in pressure-pain threshold studies that the rate at which manual force is applied should be consistent to provide the greatest reliability.

Characteristics of the referred pain elicited by muscle trigger points:

1. The referred pain is described as deep, diffuse, burning, tightening or pressing pain.
2. The referred pain can spread cranial / caudal or ventral / dorsal, depending on the TrP.
3. The referred pain can be accompanied by other symptoms, such as numbness, coldness, stiffness, weakness, fatigue and motor dysfunction.
4. Inactivation of active TrPs should effectively relieve the referred pain.

MTrP referred pain patterns.



Treatment interventions for myofascial trigger points

- **Posture training and education about postures and lifestyle,**
- **Passive stretching and/or Foam Roller stretching, few times a day,**
- **Self-massage,** Deep Stroking Massage
- **Strengthening: initially only isometric and then isotonic exercises,**
- **Ischemic Compression Technique** -
- **Taping Technique,**
- **Spray and Stretch Technique by using ethyl chloride spray,**
- **Manual Lymphatic Drainage (MLD),** since TrPs obstacle lymphatic flow,
- **Other proprioceptive neuromuscular techniques:** Reciprocal Inhibition (RI), Post-Isometric Relaxation (PIR), Contract-Relax/Hold-Relax (CRHR), Contract-Relax/Antagonist Contract (CRAC),
- Some specific techniques like **Neuromuscular Technique(NMT), Muscle Energy Technique (MET) and Myotherapy (MT),**
- **Ultrasound, Hot and Cold packs, Diathermy- Tecar therapy, Laser, Ionophoresis.**

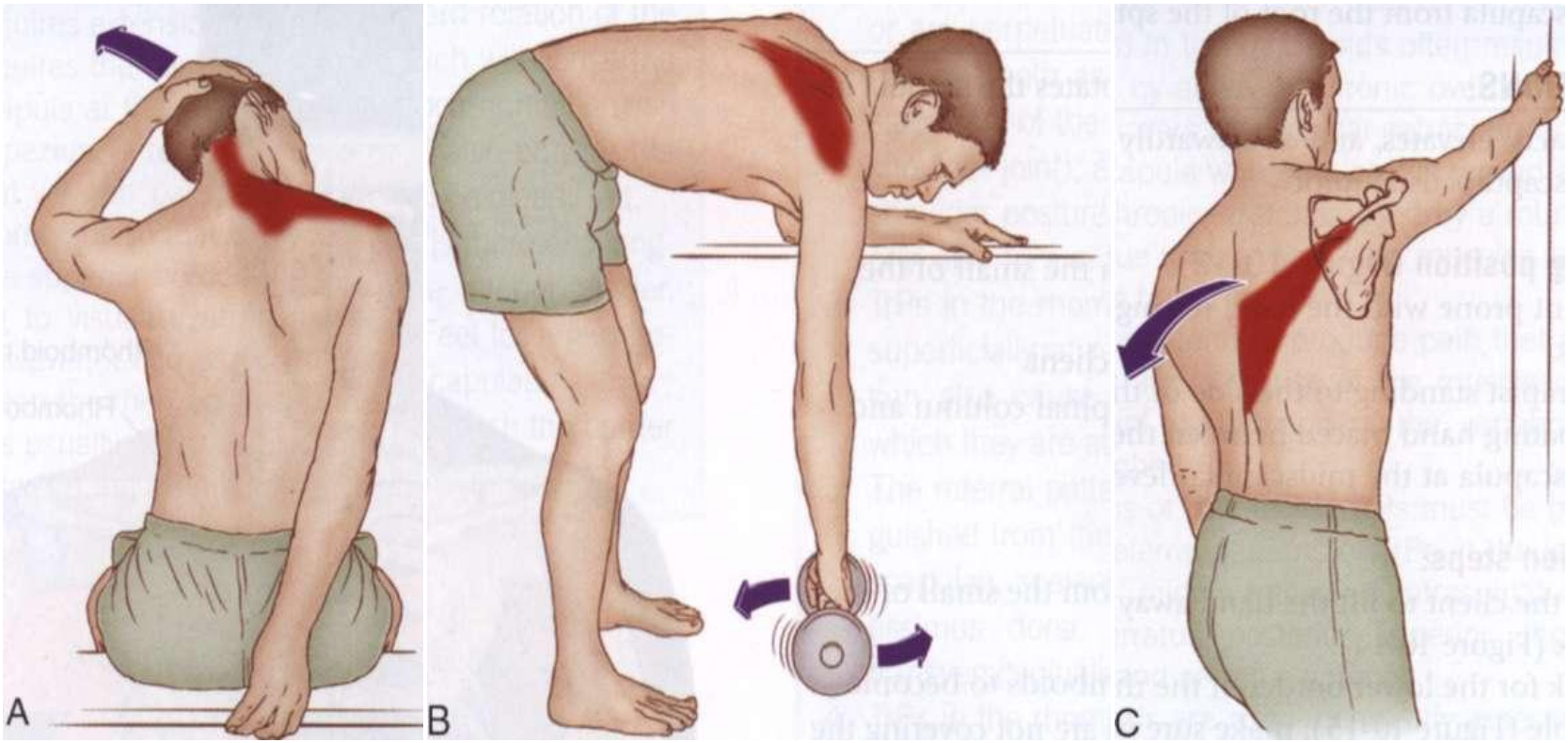
Treatment interventions for myofascial trigger points

1- Compression interventions:	2- medical Massage	3- Stretching interventions:	4- Dynamic interventions:
• **a- Ischaemic compression technique** • **b- The TrP pressure release technique** • **c- Strain / counterstrain technique:**	• **transverse friction massage**	• a. **Passive stretching** • b. **Active stretching** • **c. Post-isometric relaxation.** • **Spray and stretch** • **TrP injections plus stretching**	• manual techniques, such as TrP pressure release or longitudinal stroking, **combined with contraction or stretching** of the affected muscle.

Palpation of the right trapezius.

Starting position for prone palpation of the right trapezius.

Stretches of the three functional parts of the right trapezius.

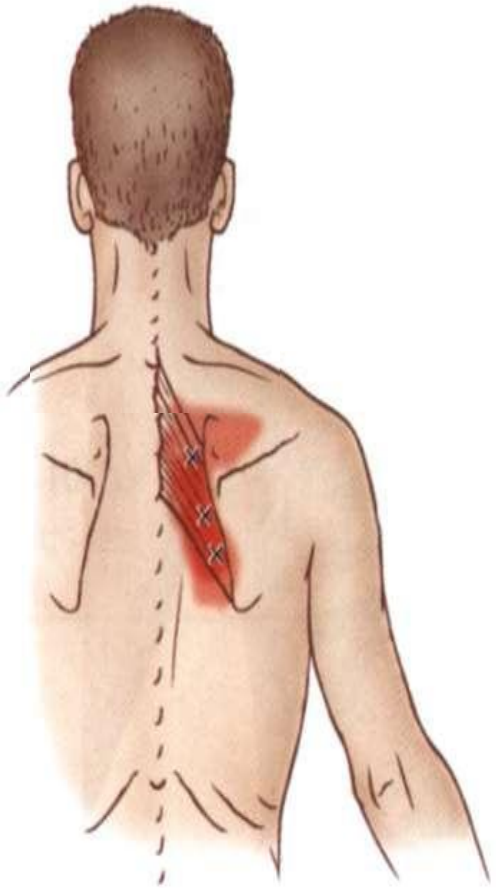


Stretches of the three functional parts of the right trapezius. A shows a stretch of the right upper trapezius. The client's head and neck are flexed, left laterally flexed, and (ipsilaterally) rotated to the right. To keep the shoulder girdle down, the right hand holds on to the bench. B shows a stretch of the right middle trapezius. A weight is held in the right hand; its traction force protracts and stretches the middle trapezius. Medially rotating the right arm will enhance the stretch. C shows a stretch of the right lower trapezius. A pole is grasped at approximately head height and the client leans back, causing protraction and elevation of the scapula.

palpation of the right rhomboids.

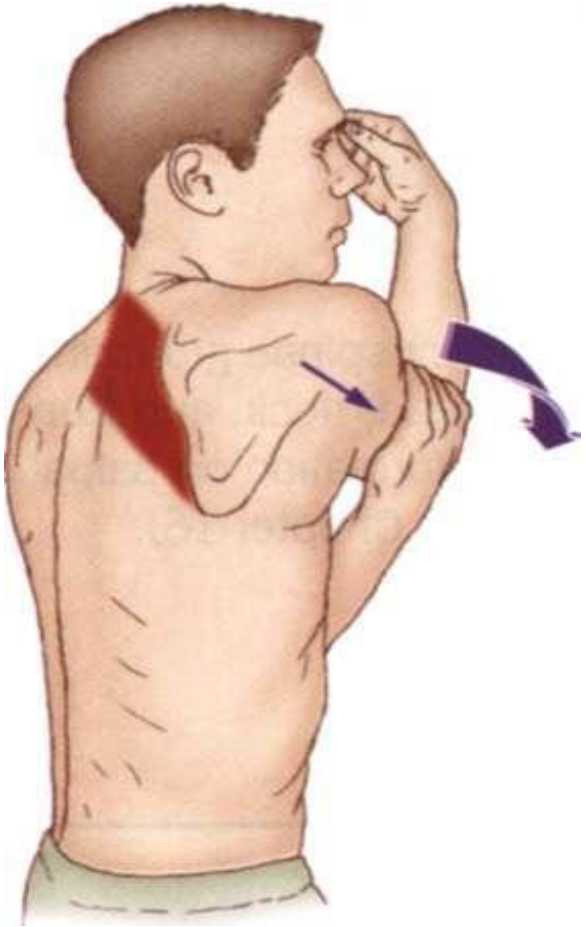
Starting position for prone palpation of the right rhomboids.

Common Rhomboids Trps



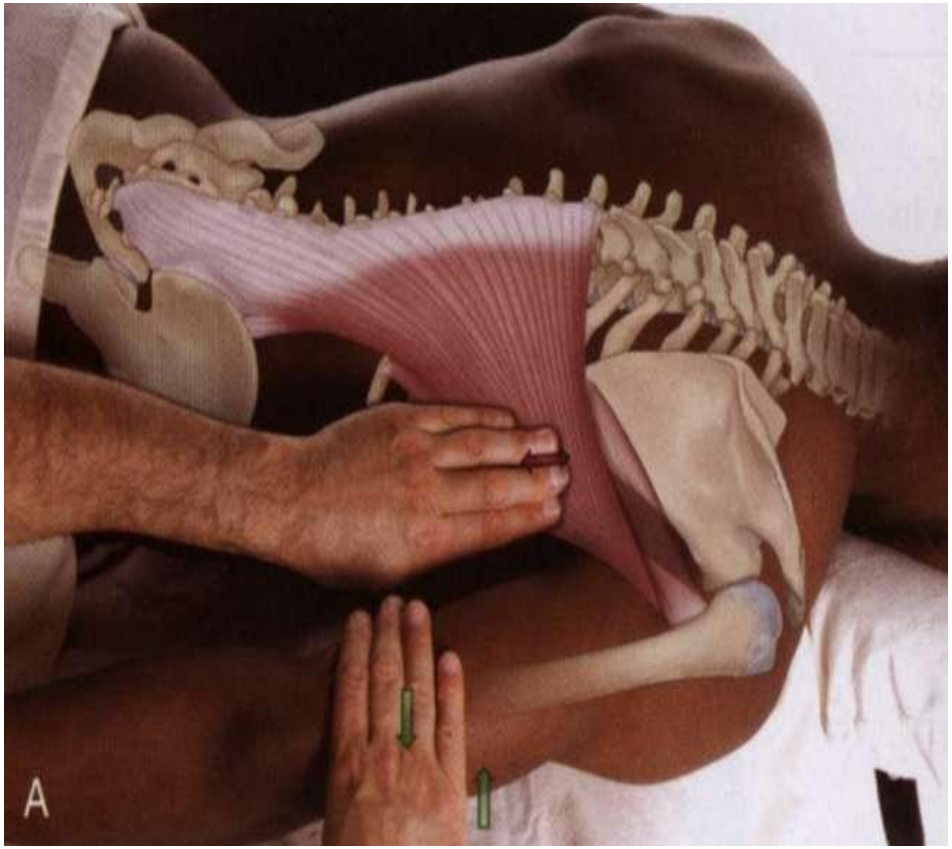
Posterior view illustrating common rhomboids TrPs and their corresponding referral zone.

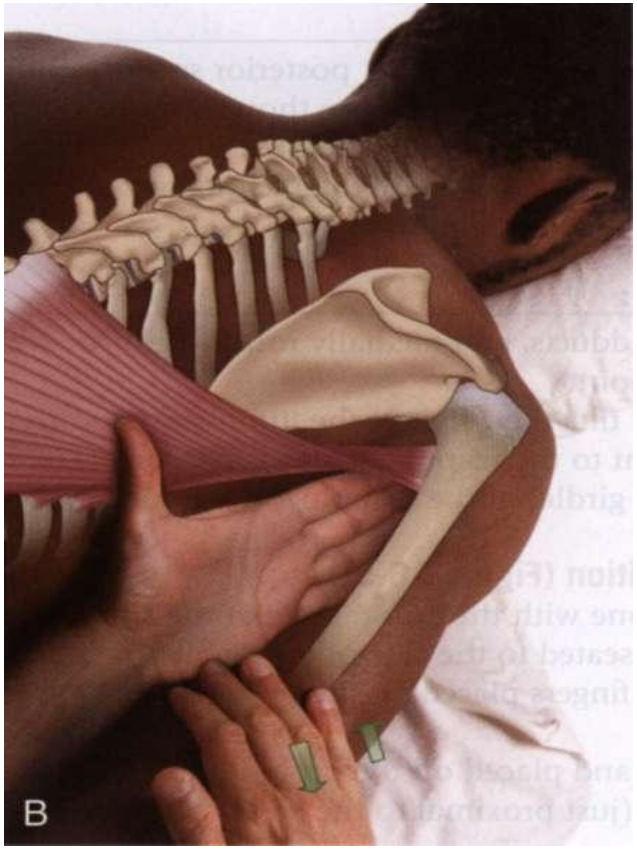
Stretch Of The Right Rhomboids.



A stretch of the right rhomboids. T h e client's arm is used to protract and depress the right scapula.

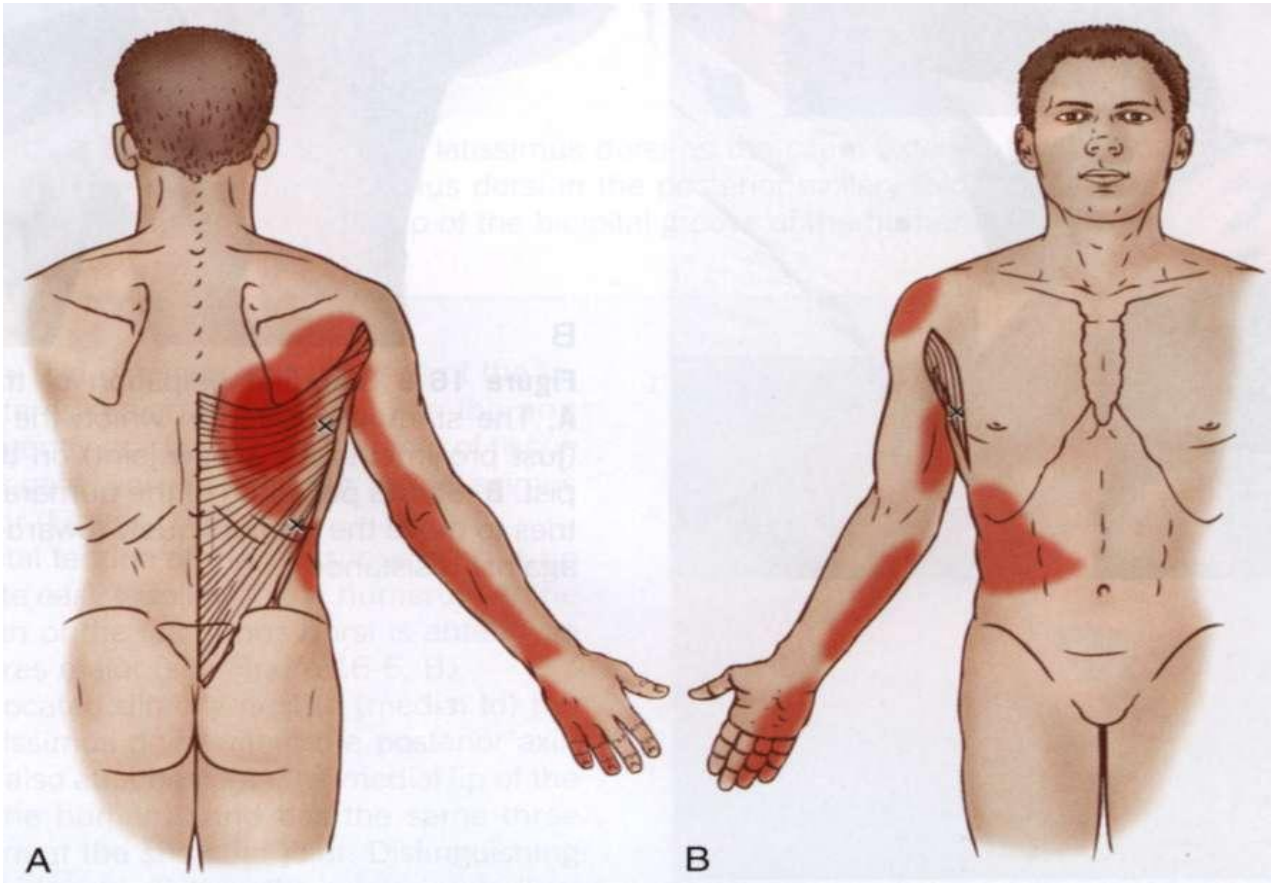
Palpation Of The Right Latissimus Dorsi





Palpation of the right latissimus dorsi as the client extends the a rm against resistance.
A, Palpation of the latissimus dorsi in the posterior axillary fold.
B, Palpation of the humeral attachment at the medial lip of the bicipital groove of the humerus.

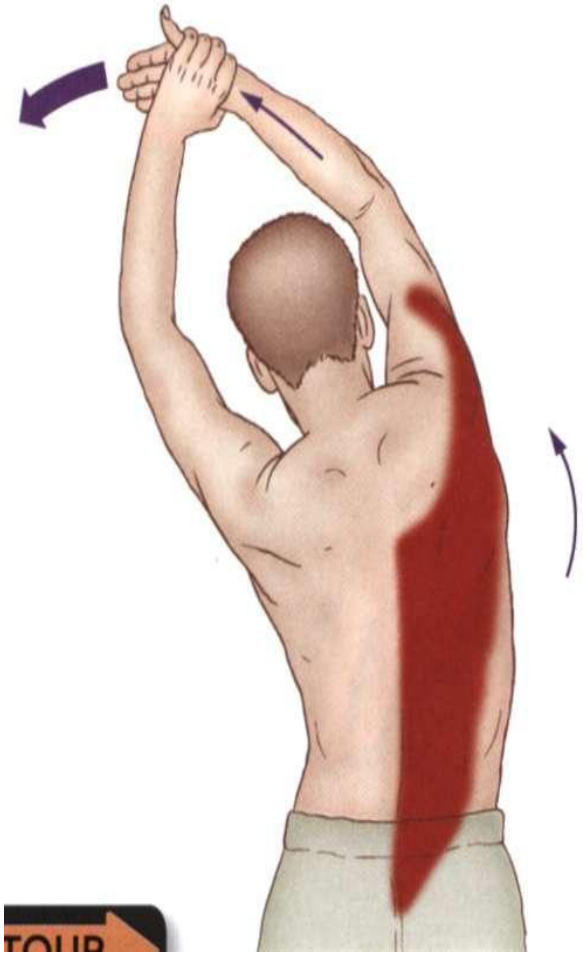
Common Latissimus Dorsi Trps And Their Corresponding Referral Zones.



A, Posterior view illustrating common latissimus dorsi TrPs and their corresponding referral zones.

B, Anterior view showing another common latissimus dorsi TrP and its referral zone.

Stretch Of The Right Latissimus Dorsi.

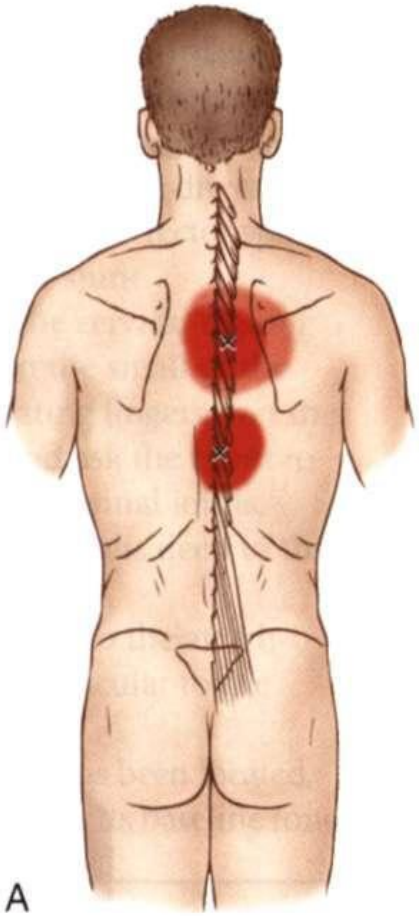


A stretch of the right latissimus dorsi. The client uses the other hand to bring the laterally rotated right arm forward and across the body while left laterally flexing the trunk.

Palpation of the right erector spinae group

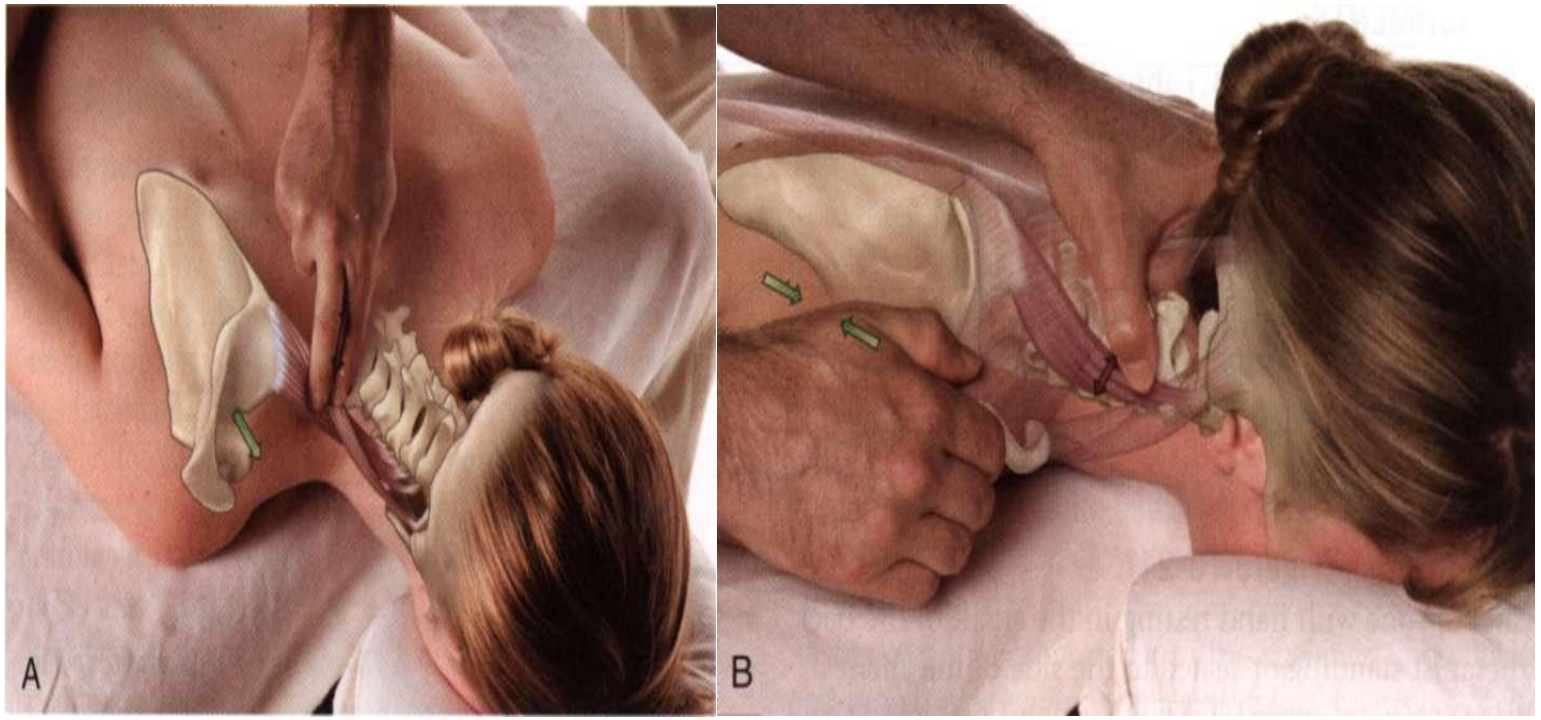
Palpation of the right erector spinae group in the thoracic region. T h e client is asked to extend the head, neck, and trunk to engage the erector spinae musculature.

Thoracic Transversospinalis Trps And Their Corresponding Referral Zones.



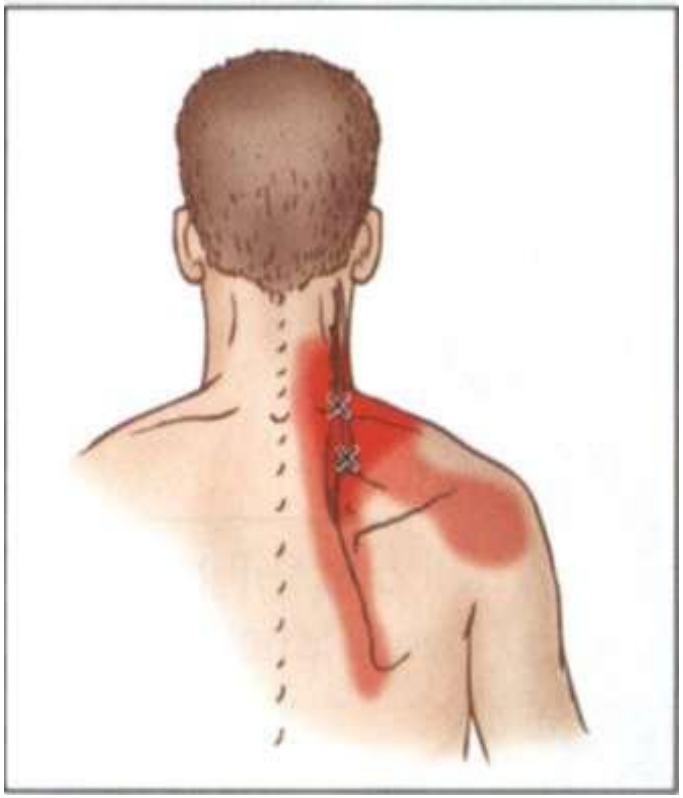
Transversospinalis (multifidus and rotatores) TrPs. Posterior view showing thoracic
transversospinalis TrPs and their corresponding referral zones.

Palpation Of The Right Levator Scapulae.



Palpation of the right levator scapulae. A shows palpation near the superior angle of the scapula (where the levator scapulae is deep to the trapezius). B shows palpation where the levator scapulae is superficial in the posterior triangle of the neck.

Common Levator Scapulae Trps

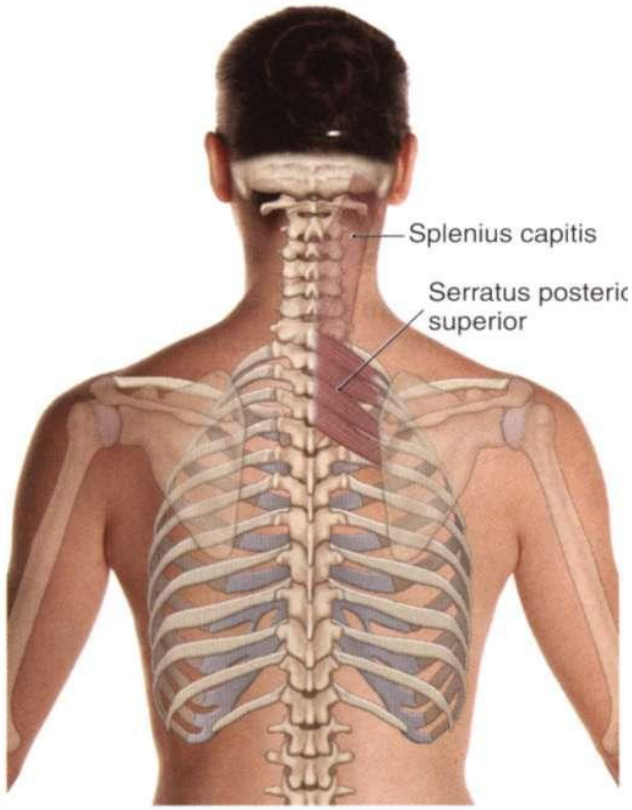


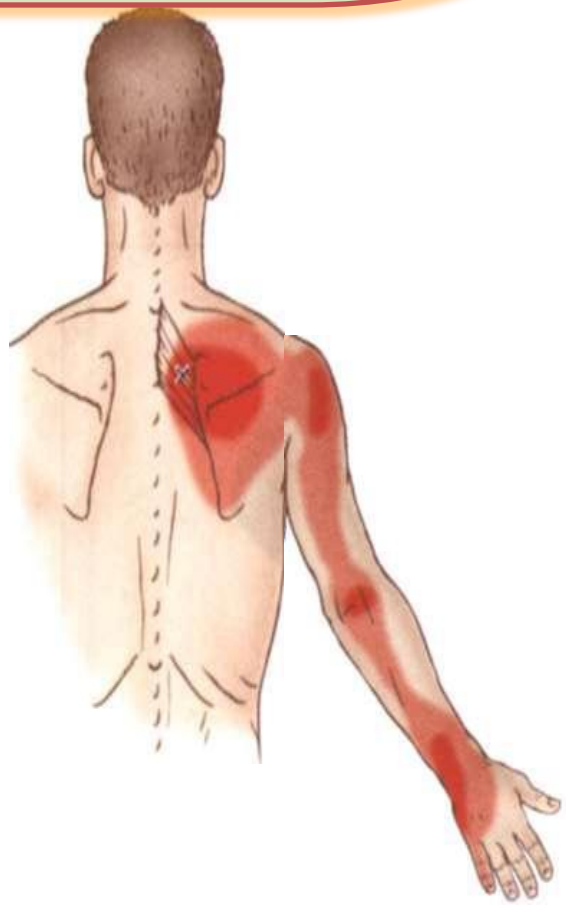
Posterior view illustrating common levator scapulae TrPs and their corresponding referral zone.

Stretch Of The Right Levator Scapulae.

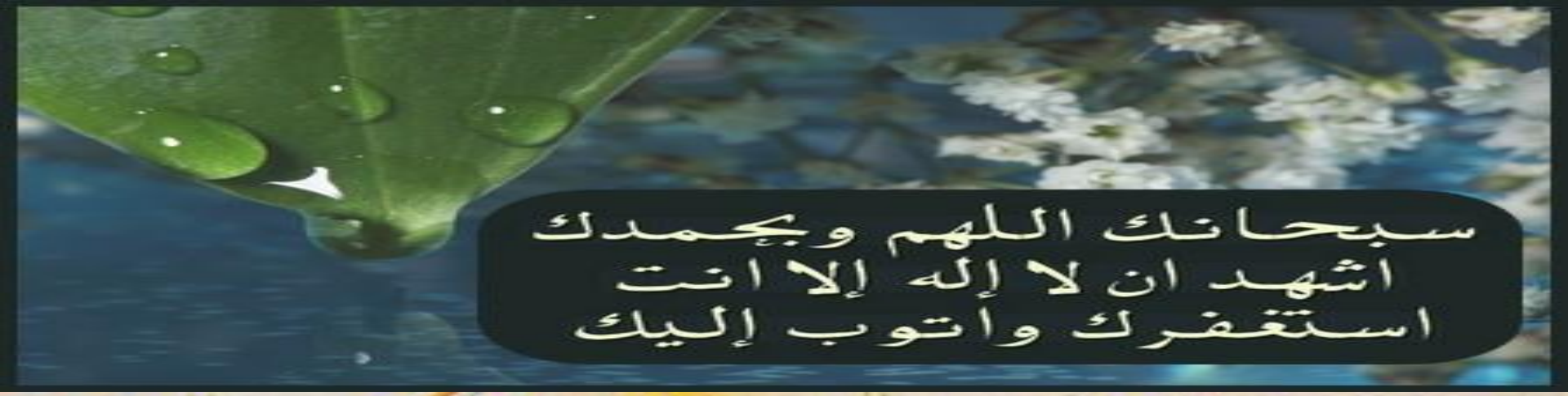
A stretch of the right levator scapulae. T h e client's neck is flexed, left laterally flexed, and rotated (contralateral^) to the left. To keep the shoulder girdle down, the right hand holds on to the bench.

Serratus posterior superior (SPS) & common SPS T rP and its corresponding referral zone.





Serratus posterior superior (SPS). A is a posterior view of the right SPS; the splenius capitis has been ghosted in. T h e SPS attaches f r om the spinous processes of C7- T3 to ribs two through five. B is a posterior view illustrating a common SPS T rP and its corresponding referral zone. C illustrates palpation of the SPS. T h e a rm is hanging off the table to protract the scapula at the scapulocostal joint, exposing the entire SPS.


سبحانك اللهم وبحمدك
اشهد ان لا إله إلا انت
استغفرك واتوب إليك


THANK
You