KORE
medycyna z duszą

Fizjoterapia w dysfunkcjach czynnościowych narządu ruchu – głowa, klatka piersiowa i kręgosłup

Dr n. med. Małgorzata Chochowska

GRUPA MIĘŚNI PODPOTYLICZNYCH

Mięśnie podpotyliczne -anatomia i funkcja

The suboccipital group is composed of the following:

- Rectus capitis posterior major (RCPMaj)
- Rectus capitis posterior minor (RCPMin)
- Obliquus capitis inferior (OCI)
- Obliquus capitis superior (OCS)

- **ATTACHMENTS:**

- RCPMaj: spinous process of C2 *to the* lateral 1/2 of the inferior nuchal line of the occiput
- RCPMin: posterior tubercle of C1 *to the* medial 1/2 of the inferior nuchal line of the occiput
- OCI: spinous process of C2 *to the* transverse process of C1
- OCS: transverse process of C1 *to the* lateral occiput between the superior and inferior nuchal lines

- **ACTIONS:**

- As a group, the suboccipital muscles extend and anteriorly translate the head at the atlanto-occipital joint.
- The obliquus capitis inferior ipsilaterally rotates the atlas at the atlantoaxial joint.

Starting position (Figure 11-57):

- Client supine
- Therapist seated at the head of the table
- Palpating hand placed just superior and slightly lateral to the spinous process of C2 (the axis)

Palpation steps:

1. The easiest suboccipital muscle to palpate is the rectus capitis posterior major (RCPMaj). Begin by finding the spinous process of C2, an easy landmark to locate in the upper neck. Then palpate just superolateral to it and feel for the RCPMaj by strumming perpendicular to its fibers.
2. If located, continue strumming perpendicularly, following it superolaterally toward its occipital attachment (Figure 11-58, A).
3. Repeat the same steps for the rectus capitis posterior minor (RCPMin) by starting just superolateral to the posterior tubercle of C1. Strum perpendicular to locate the muscle; then follow toward the occipital attachment (Figure 11-58, B). It may be helpful to have the RCPMin contract by asking the client to anteriorly translate the head at the atlanto-occipital joint (see Palpation Note #3).
4. To palpate the obliquus capitis inferior (OCI), palpate between the spinous process of C2 and the transverse process of C1, strumming perpendicular to the fibers. It may be helpful to have the OCI contract by gently resisting the client's ipsilateral rotation of the head.
5. The obliquus capitis superior is extremely challenging to palpate and discern from adjacent musculature. To attempt its palpation, feel for it just lateral to the superior attachment of the RCPMaj; if felt, try to continue palpating it inferiorly by strumming perpendicular to it.
6. Once the suboccipital muscles have been located, have the client relax them and palpate to assess their baseline tone.

Mięśnie podpotyliczne -anatomia i funkcja

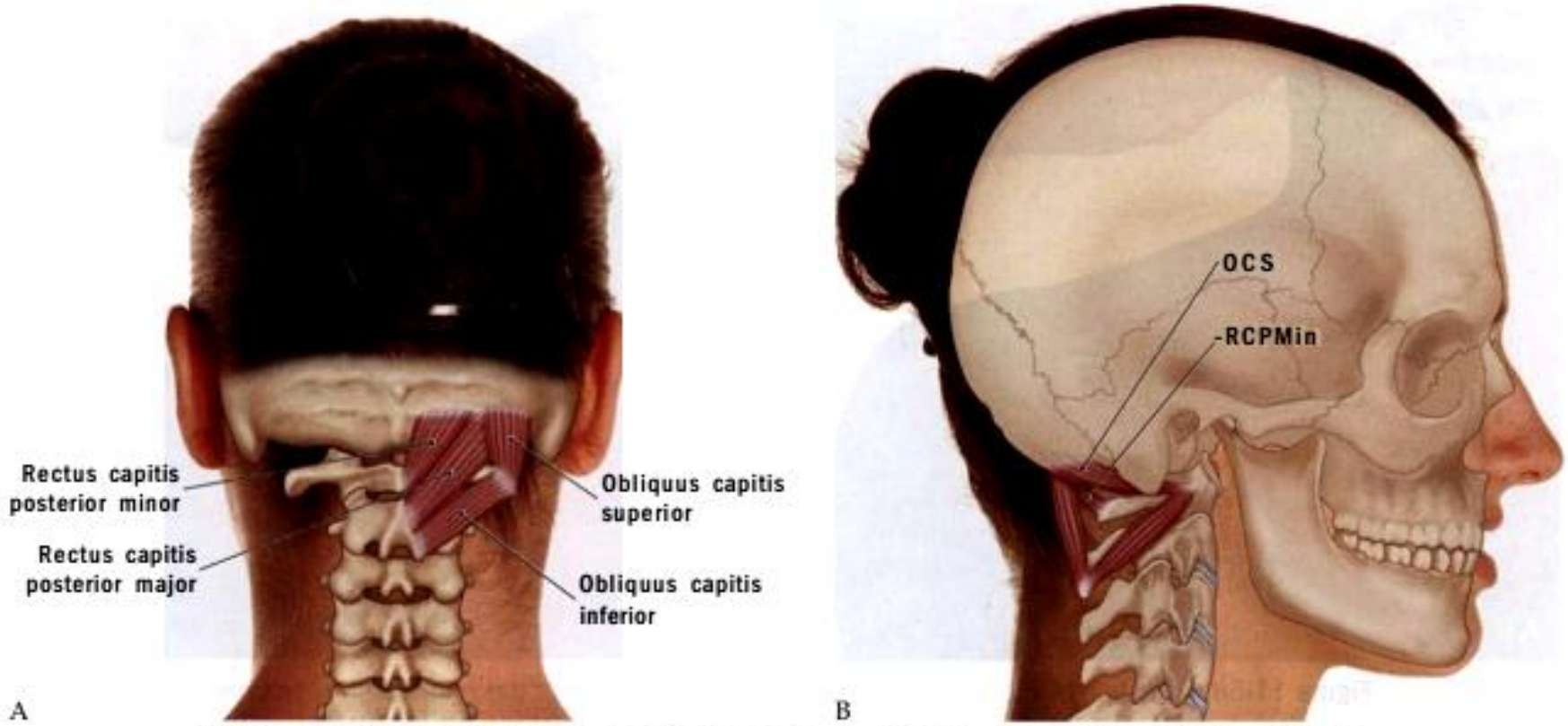


Figure 11-56 Views of the right suboccipital group. **A,** Posterior view. **B,** Lateral view. Note the anterior to posterior horizontal direction of the rectus capitis posterior minor (RCPMin) and the obliquus capitis superior (OCS). This fiber direction is ideal for anterior translation of the head at the atlanto-occipital joint.

Mięśnie podpotyliczne - palpacja

Figure 11-57 Starting position for supine palpation of the right suboccipital muscles.

Mięśnie podpotyliczne - palpacja

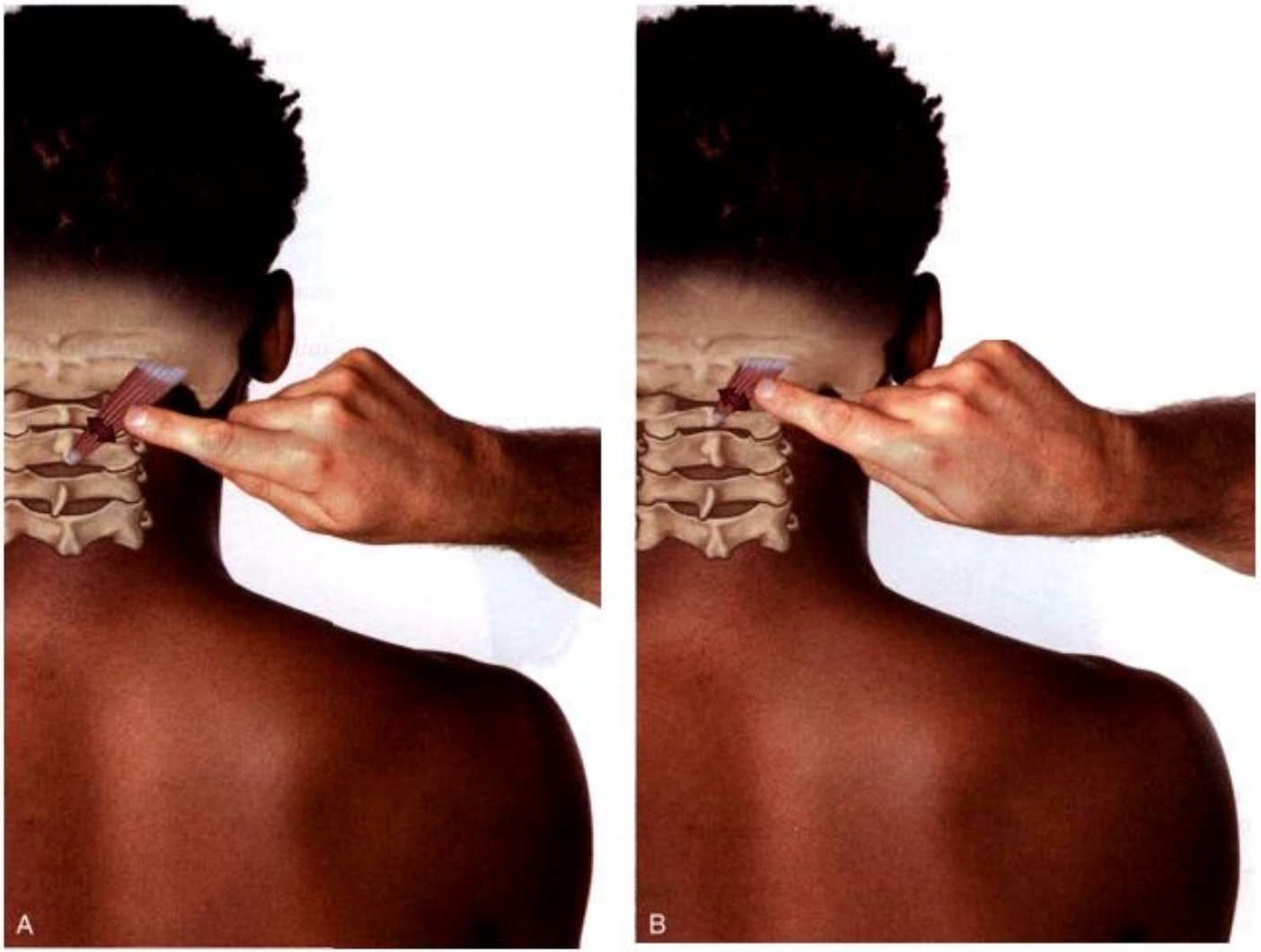


Figure 11-58 Palpation of the suboccipital muscles. **A,** Palpation of the right RCPMaj between the spinous process of the axis (C2) and the occiput. **B,** Palpation of the right RCPMin between the posterior tubercle of the atlas (C1) and the occiput.

Mięśnie podpotyliczne – punkty spustowe i promieniowanie bólu

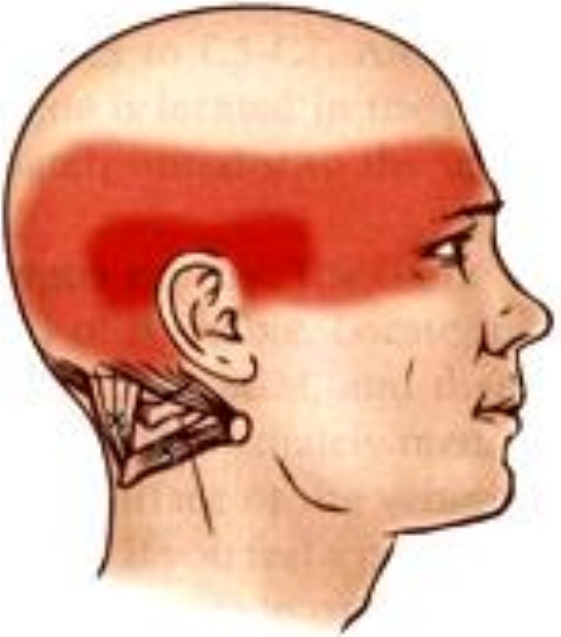


Figure 11-59 Lateral view illustrating common suboccipital TrPs and their corresponding referral zone.

Mięśnie podpotyliczne - stretching

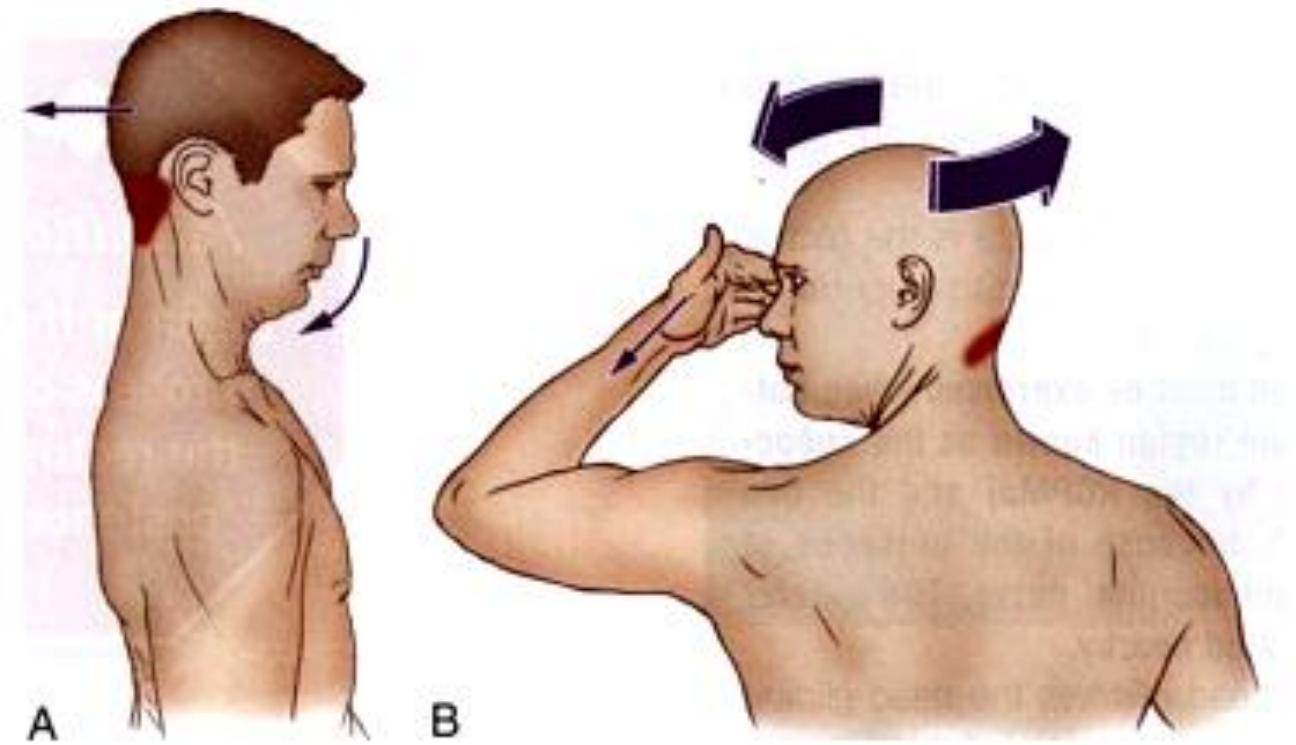


Figure 11-60 Stretches of the suboccipital muscles. **A,** Stretch of the bilateral rectus capitis posterior major and minor muscles as well as the bilateral obliquus capitis superior muscles. The client both flexes the head (by tucking the chin toward the chest) and posteriorly translates the head at the atlanto-occipital joint. To focus this stretch to the right suboccipitals, add left lateral flexion (not shown). **B,** Stretch of the right obliquus capitis inferior. The client rotates as far as possible to the (contralateral) left side.

GRUPA MIĘŚNI GNYKOWYCH

Mięśnie gnykowe – anatomia i funkcja

- **ATTACHMENTS:**
  - Infrahyoids:
    - Sternohyoid: sternum *to the* hyoid
    - Sternothyroid: sternum *to the* thyroid cartilage
    - Thyrohyoid: thyroid cartilage *to the* hyoid
    - Omohyoid: superior border of the scapula *to the* hyoid (with a central tendon attached to the clavicle)
  - Suprahyoids:
    - Digastric: mastoid notch of the temporal bone *to the* mandible (with a central tendon attached to the hyoid)
    - Stylohyoid: styloid process of the temporal bone *to the* hyoid
    - Mylohyoid: hyoid *to the* inner surface of the mandible
    - Geniohyoid: hyoid *to the* inner surface of the mandible

- **ACTIONS:**
  - Hyoid muscle group depresses the mandible at the temporomandibular joints (TMJs)
  - Flexes the head and neck at the spinal joints
  - Infrahyoids depress the hyoid bone; suprahyoids elevate the hyoid bone

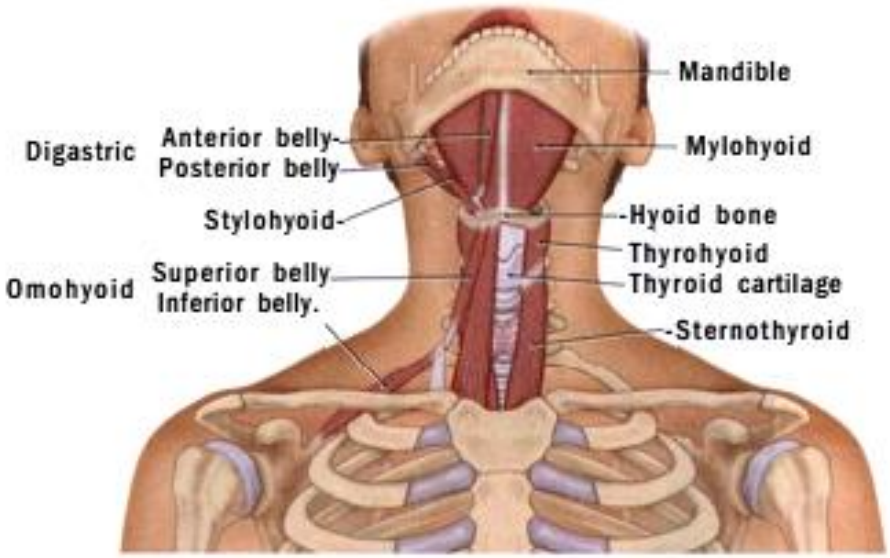


Figure 11-25 Anterior view of the hyoid muscle group. The sternohyoid, omohyoid, stylohyoid, and digastric have been removed on the left.

Mięśnie gnykowe - palpacja

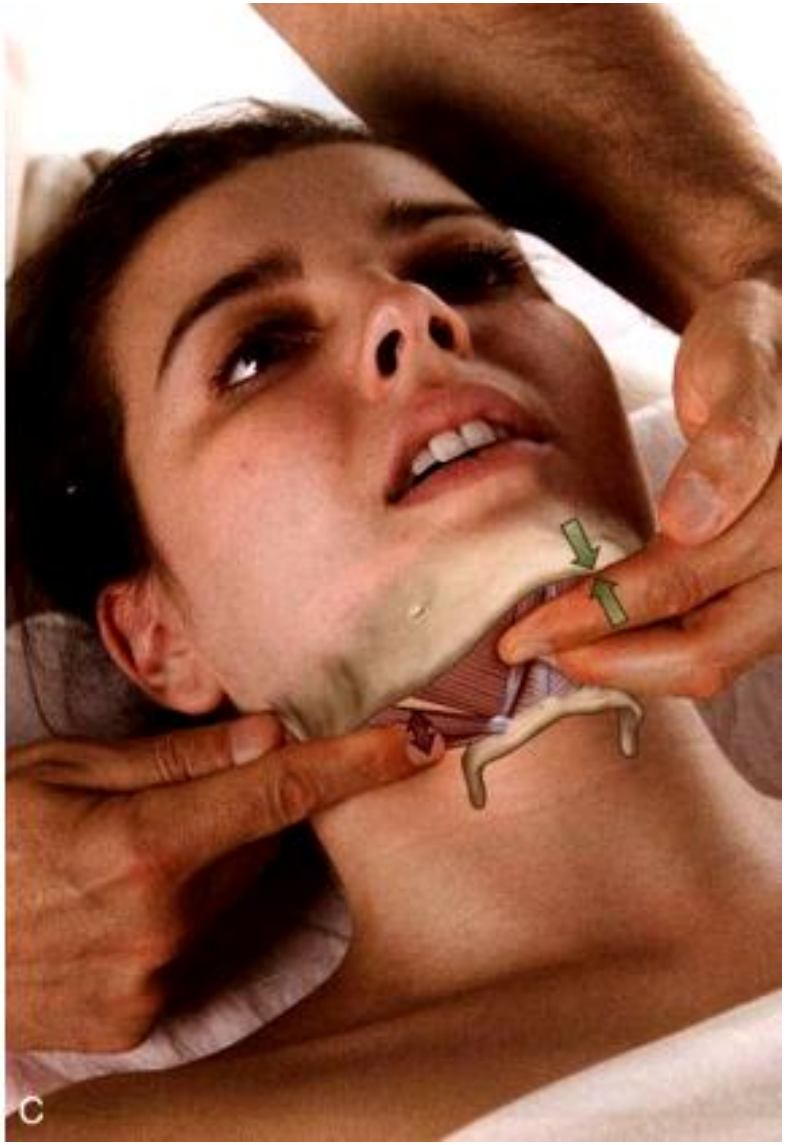
Palpation Key:
Resist depression of the mandible.

Figure 11-26 Starting position for supine palpation of the right hyoid muscles.

Mięśnie gnykowe- palpacja

Mięśnie gnykowe- palpacja

Figure 11-27 Palpation of the right hyoid muscles as the client depresses the mandible against resistance. **A,** Palpation of the right infrahyoids. **B,** Palpation of the right suprahyoids. **C,** Palpation of the right stylohyoid and superior belly of digastric (of the suprahyoid group)



Mięśnie gnykowe – punkty spustowe i promieniowanie bólu

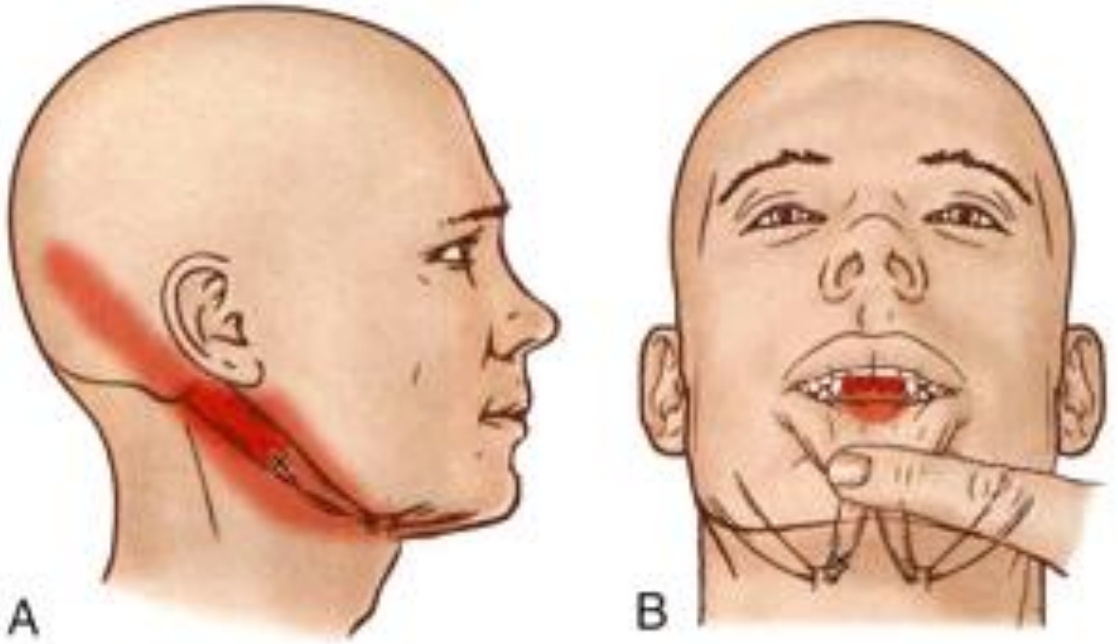


Figure 11-28 Common digastric TrPs and their corresponding referral zones. **A,** Lateral view. **B,** Anterior view.

Mięśnie gnykowe - stretching

Figure 11-29 A stretch of the right hyoids. The client's neck is extended and left laterally flexed.

MIĘSIEŃ ŻWACZ

Mięsień żwacz– anatomia i funkcja

- **ATTACHMENTS:**
  - Inferior margins of the zygomatic bone and the zygomatic arch of the temporal bone *to the* anterior surfaces of the angle, ramus, and coronoid process of the mandible

- **ACTIONS:**
  - Elevates, protracts, and retracts the mandible at the temporomandibular joints (TMJs)

Starting position (Figure 12-16):

- Client supine
- Therapist seated at head of table
- Palpating fingers placed between the zygomatic arch and the angle of the mandible

Palpation steps:

1. Ask the client to alternately contract and relax the masseter; this is accomplished by alternately clenching the teeth and then relaxing the jaw. Feel for the contraction of the masseter as the client clenches the teeth (Figure 12-17).
2. Once the contraction of the masseter has been felt, palpate the entire muscle from the zygomatic arch to the angle of the mandible as the client continues to contract and relax it as indicated in Step 1.
3. Once the masseter has been located, have the client relax it and palpate to assess its baseline tone.

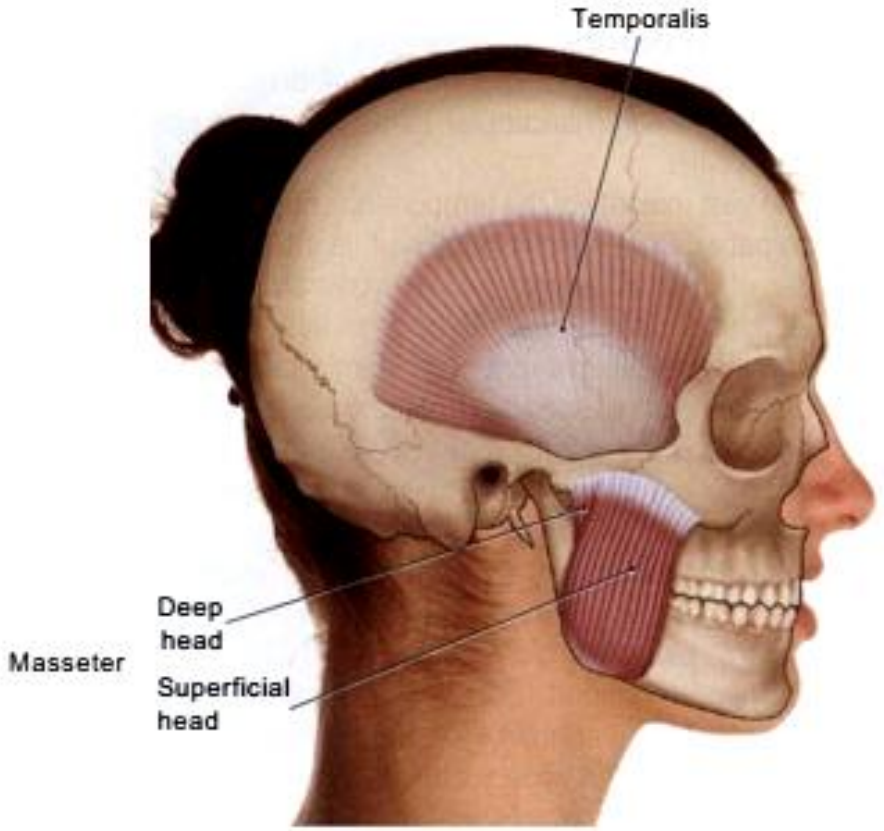


Figure 12-15 Lateral view of the right masseter. The temporalis has been ghosted in.

Mięsień żwacz- palpacja

Figure 12-16 Starting position for supine palpation of the right masseter.

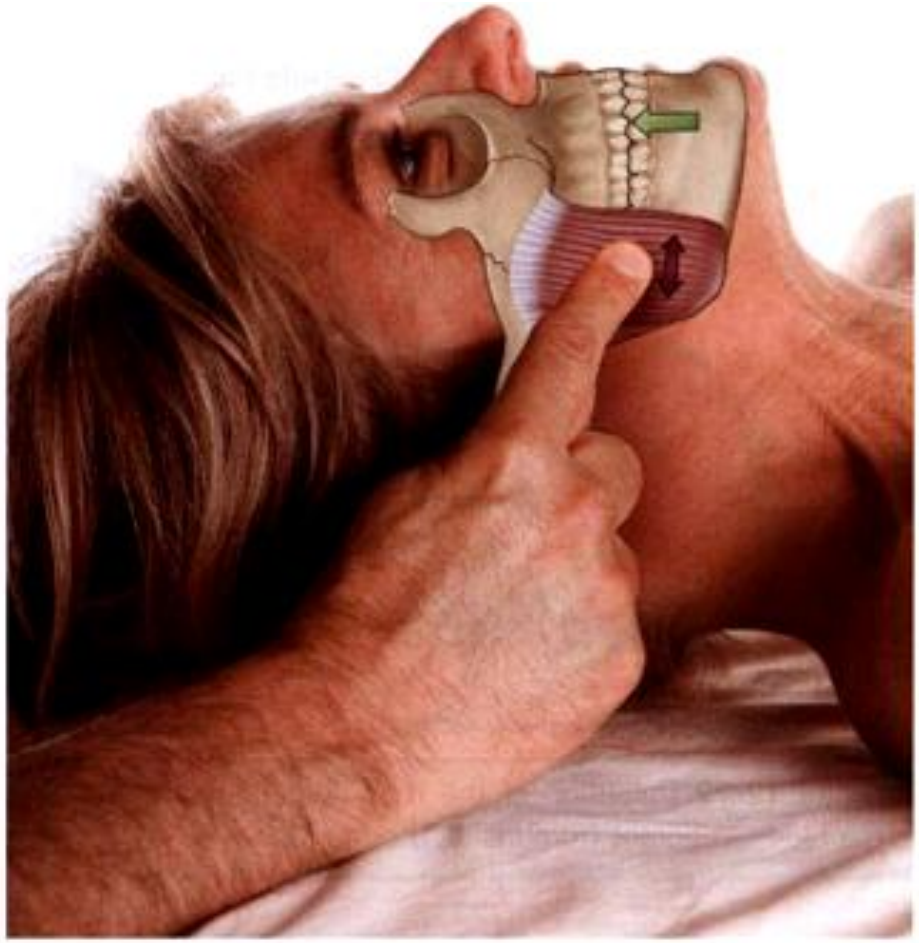


Figure 12-17 Palpation of the right masseter as the client clenches the teeth.

Mięsień żwacz- palpacja

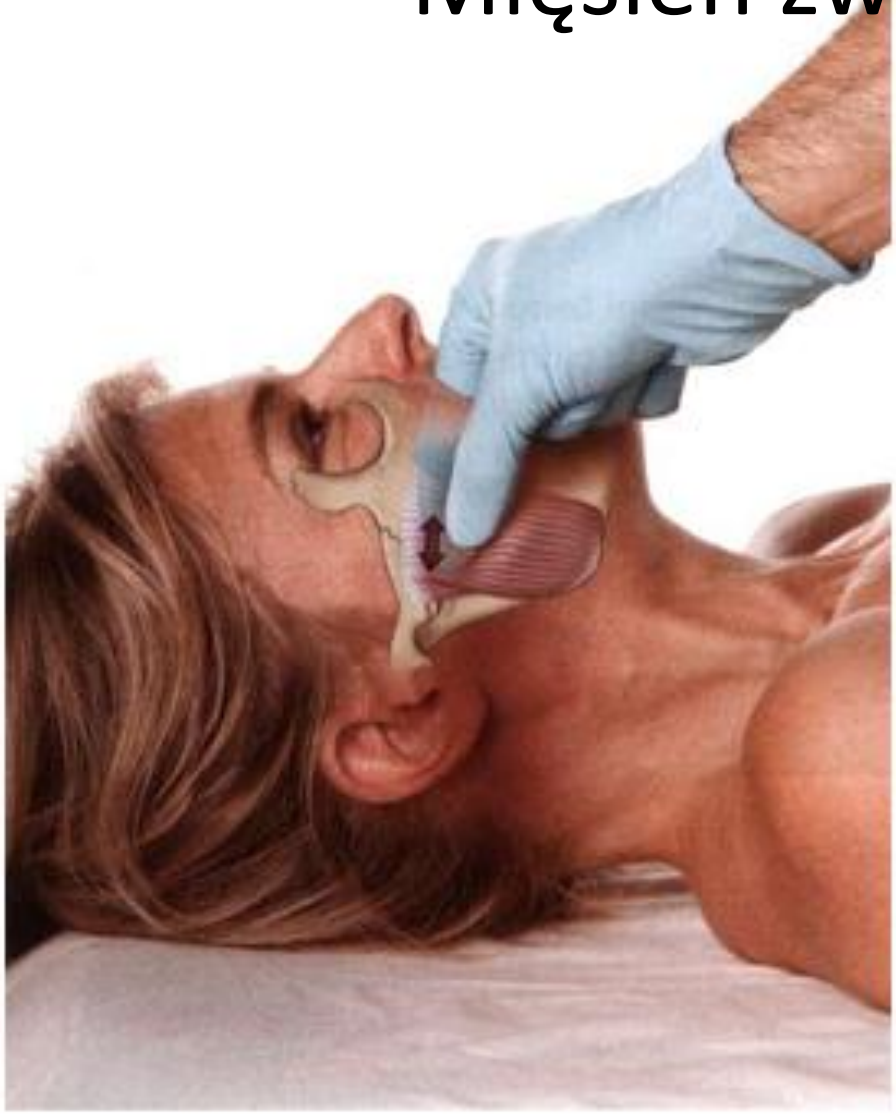


Figure 12-18 Palpation of the right masseter by pinching it between the index finger and thumb.

Mięsień żwacz – punkty spustowe i promieniowanie bólu

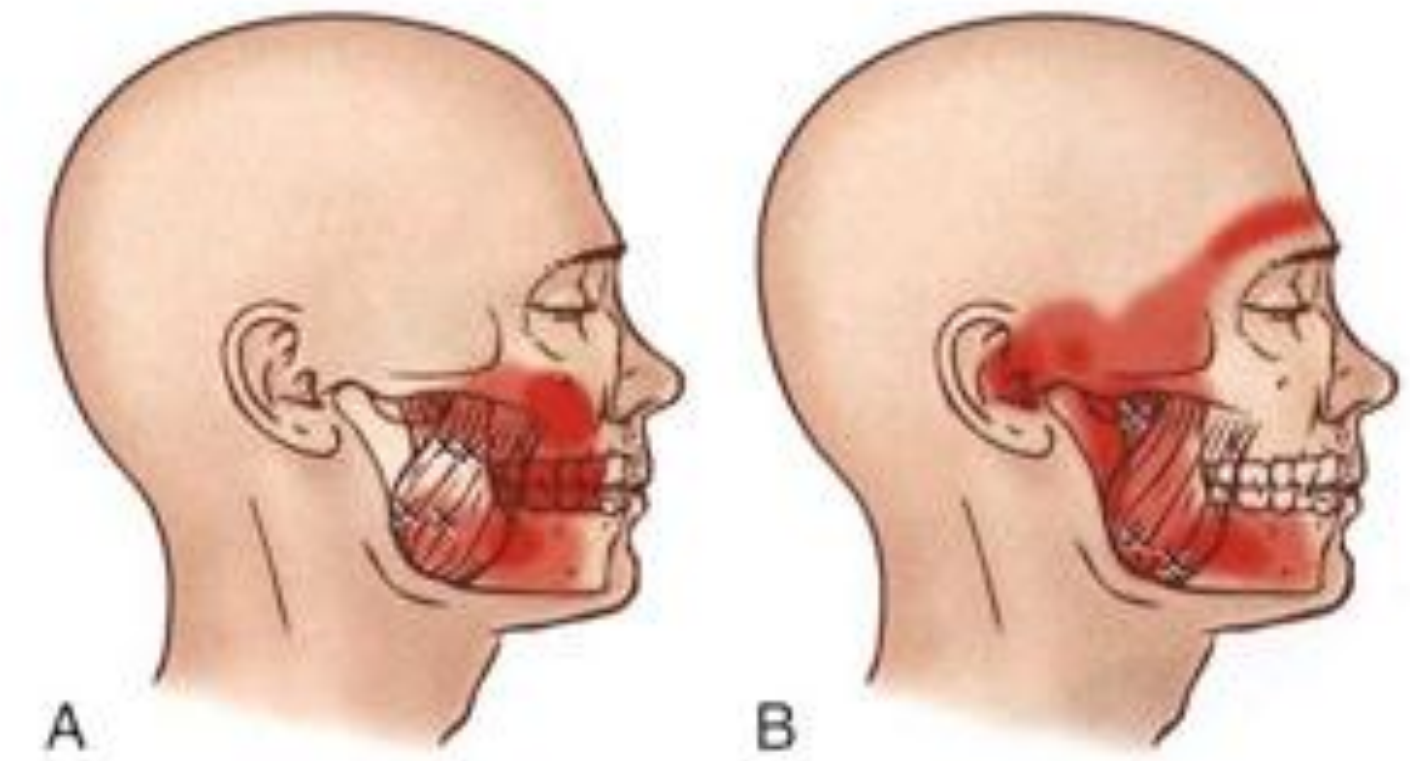


Figure 12-19 Lateral views illustrating common masseter TrPs and their corresponding referral zones.

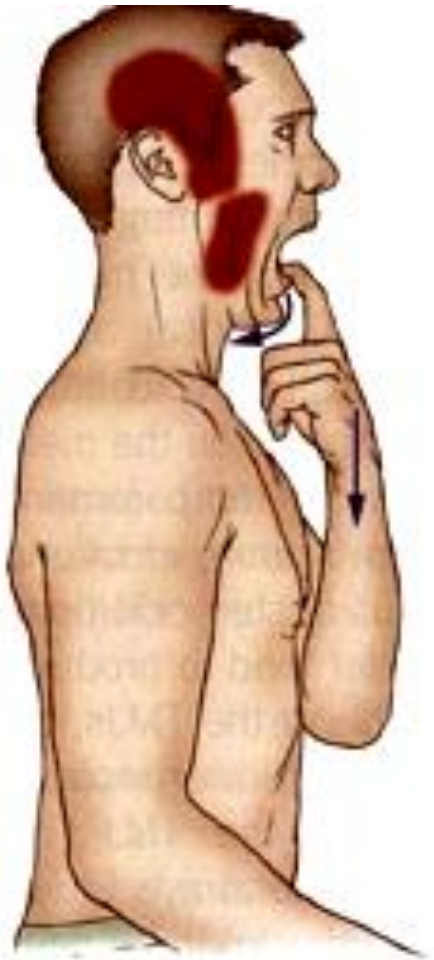


Figure 12-20 A stretch of the right masseter and temporalis. The client opens the jaw as widely as possible; assistance is given with the hand.

Mięsień żwacz - stretching

MIĘSIEŃ SKRONIOWY

Mięsień skroniowy– anatomia i funkcja

- **ATTACHMENTS:**
  - Temporal fossa *to the* coronoid process and the anterosuperior aspect of the ramus of the mandible
- **ACTIONS:**
  - Elevates and retracts the mandible at the temporomandibular joints (TMJs)

Starting Position (Figure 12-10):

- Client supine
- Therapist seated at head of table
- Palpating fingers placed over the temporal fossa

Palpation steps:

1. With palpating fingers over the temporal fossa, ask the client to alternately contract and relax the temporalis; this is accomplished by alternately clenching the teeth and then relaxing the jaw. Feel for the contraction of the temporalis as the client clenches the teeth (Figure 12-11).
2. Once the contraction of the temporalis has been felt, palpate the entire muscle as the client continues to contract and relax it as indicated in Step 1.
3. Once the temporalis has been located, have the client relax it and palpate to assess its baseline tone.

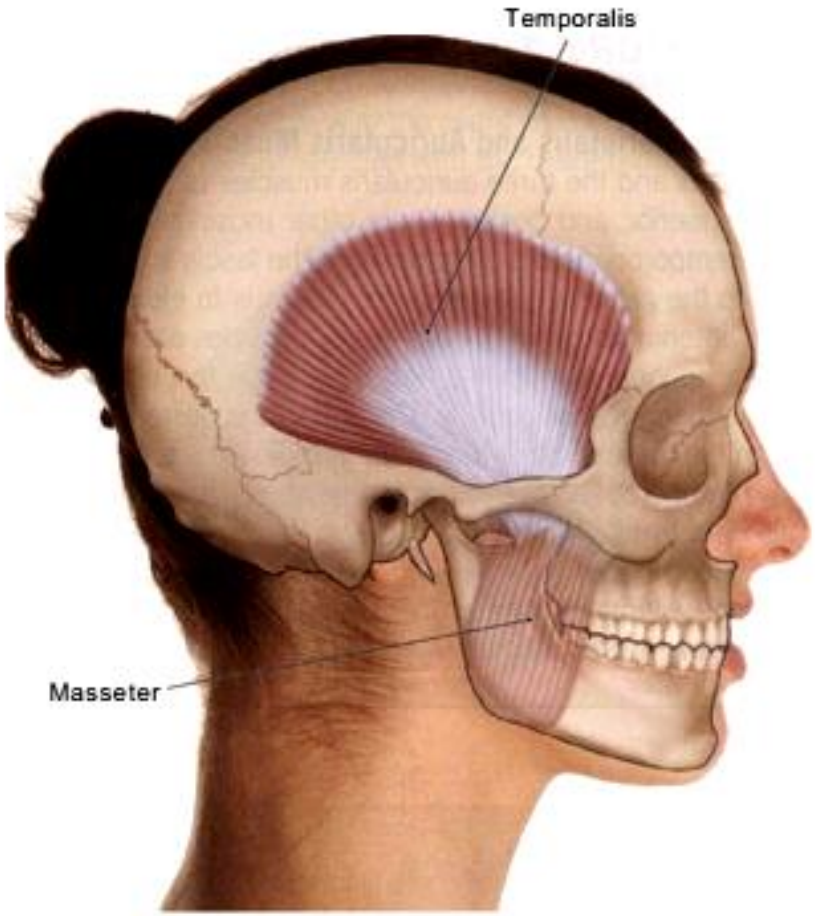


Figure 12-9 Lateral view of the right temporalis. The masseter has been ghosted in.

Mięsień skroniowy- palpacja

Figure 12-10 Starting position for supine palpation of the right temporalis.

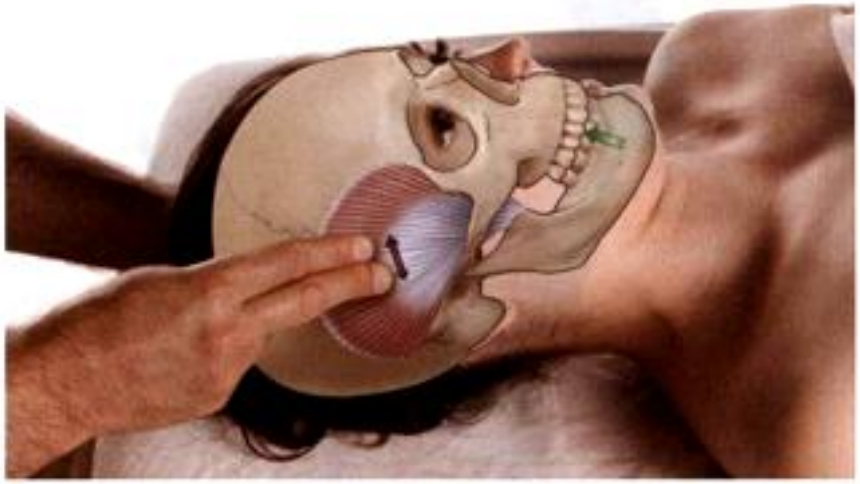


Figure 12-11 Palpation of the right temporalis as the client clenches the teeth.

Mięsień skroniowy- palpacja

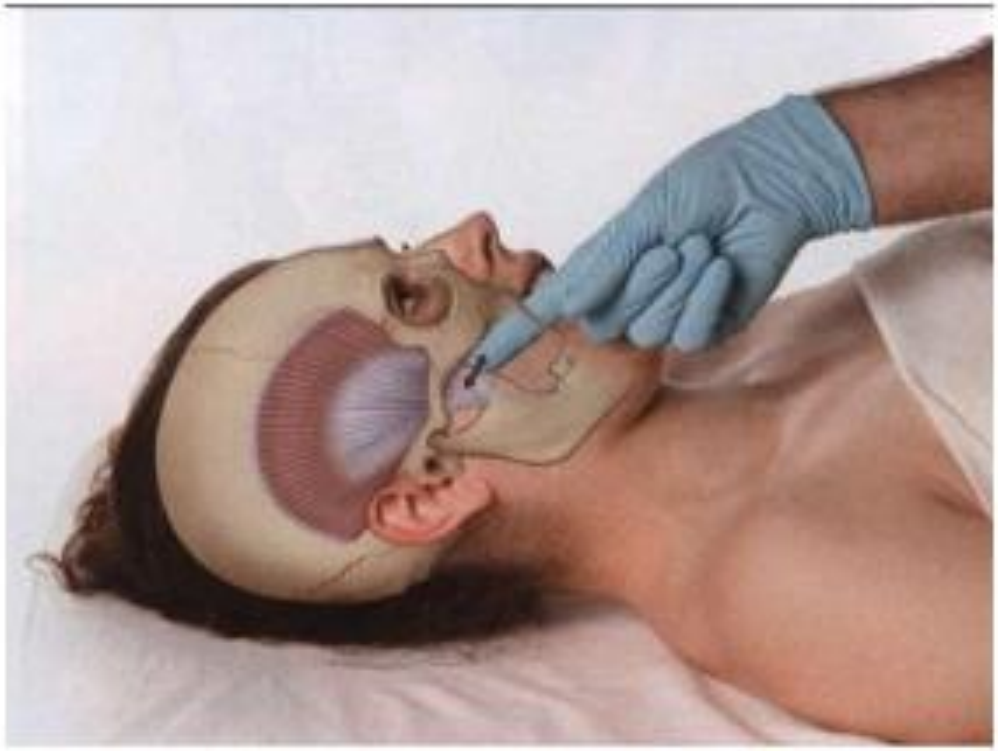


Figure 12-12 Palpation of the mandibular attachment of the right temporalis from inside the mouth.

Mięsień skroniowy – punkty spustowe i promieniowanie bólu

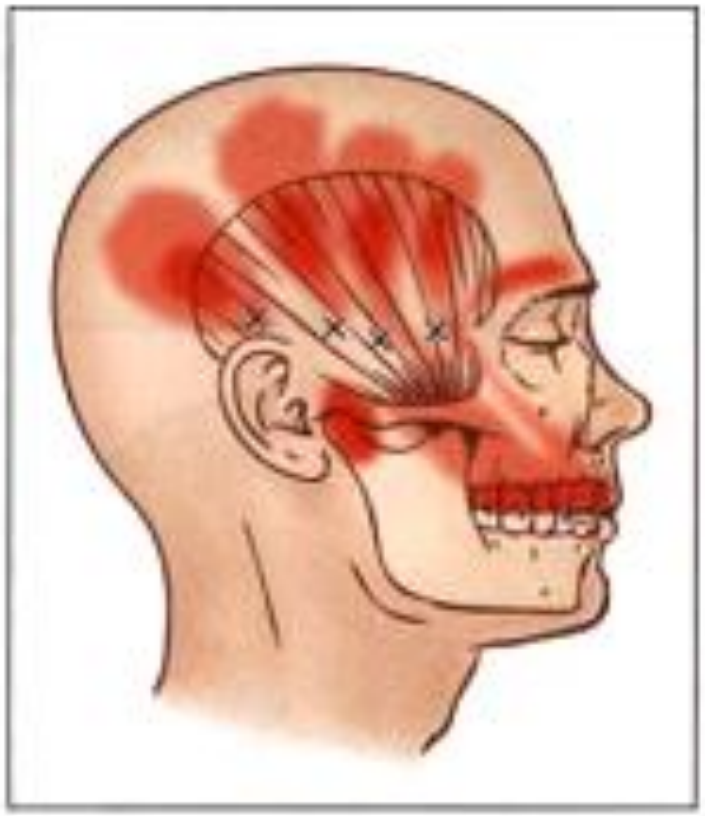


Figure 12-13 Lateral view illustrating common temporalis TrPs and their corresponding referral zones.

Mięsień skroniowy - stretching

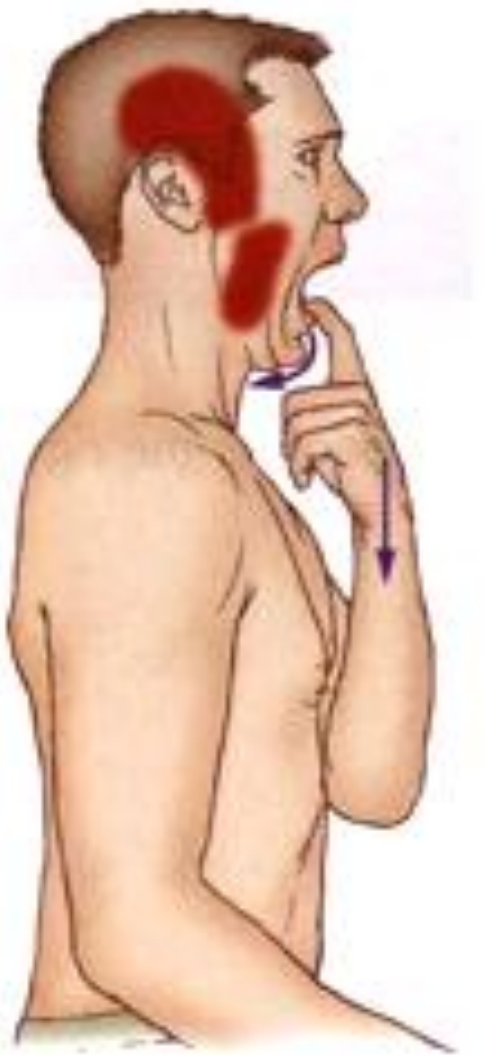


Figure 12-14 A stretch of the right temporalis and masseter. The client opens the jaw as widely as possible; assistance is given with the hand.

MIĘSIEŃ SKRZYDŁOWY BOCZNY

Mięsień skrzydłowy boczny – anatomia i funkcja

- **ATTACHMENTS:**
  - Sphenoid bone *to the* neck of the mandible and the capsule and articular disc of the temporomandibular joint (TMJ)

- **ACTIONS:**
  - Protracts and contralaterally deviates the mandible at the TMJs

Starting position (Figure 12-22, A):

- Client supine
- Therapist seated at the head or the side of the table
- Wearing either a glove or a finger cot, place your palpating finger inside the vestibule of the client's mouth (between the cheeks and the teeth), run along the external surfaces of the upper teeth until you reach the back molars; then press posteriorly and superiorly into a little pocket in the tissue between the gum above the upper teeth and the condyle of the mandible (see Palpation Note #2). You will be on the internal surface of the lateral pterygoid (Figure 12-22, B).

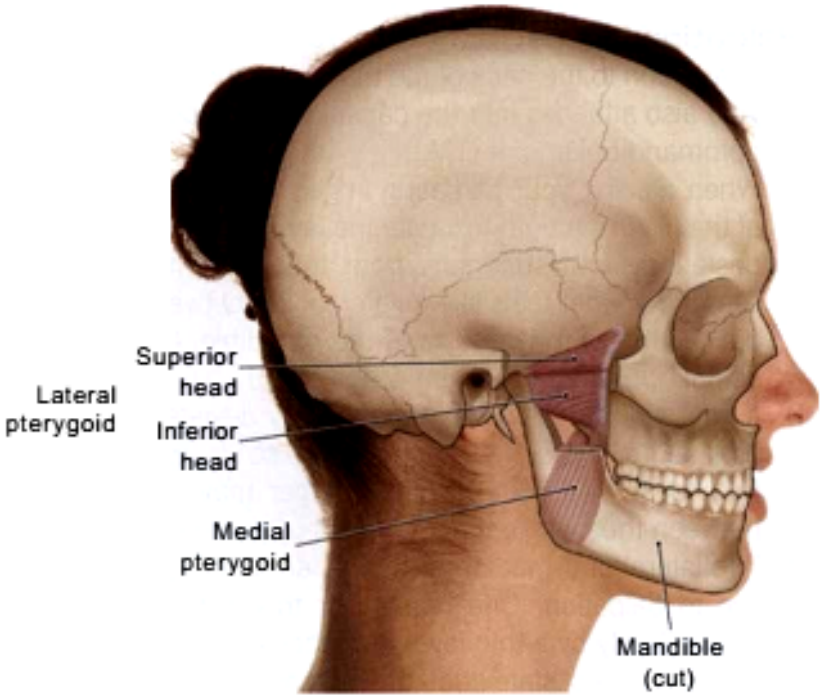


Figure 12-21 Lateral view of the right lateral pterygoid. The medial pterygoid has been ghosted in. Note: The mandible has been cut to better show the lateral pterygoid.

Palpation steps-.

1. With the palpating finger positioned inside the vestibule of the mouth, ask the client to either protract the mandible at the TMJs or to slowly and carefully contralaterally deviate the mandible (deviate it to the opposite side of the body), and feel for the contraction of the lateral pterygoid (Figure 12-23).
2. Once felt, palpate as much of the lateral pterygoid as possible, from the condyle of the mandible to the inside wall of the mouth (above the gum of the upper teeth).

Mięsień skrzydłowy boczny- palpacja

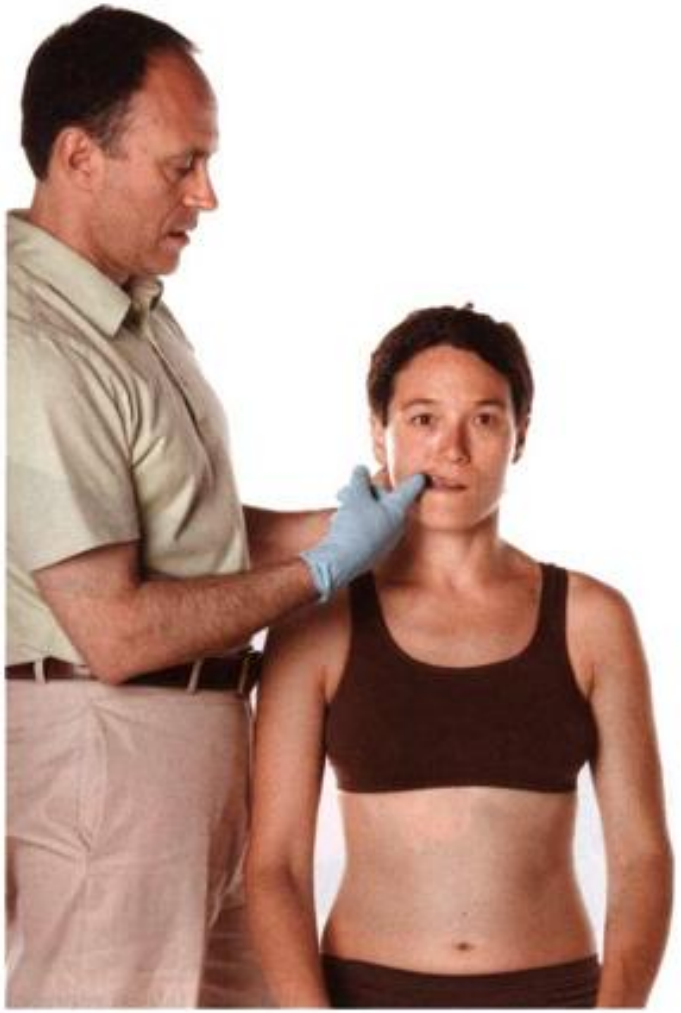


Figure 12-24 The lateral pterygoid is also easily accessed and palpated with the client seated.

Mięsień skrzydłowy boczny- palpacja

Palpation Key:

Find the pocket in the upper vestibule of the mouth where peanut butter gets stuck.

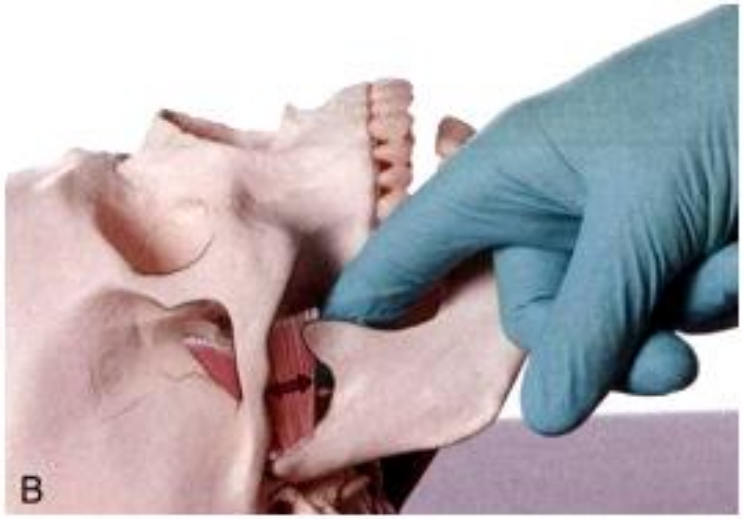


Figure 12-22 Starting position for supine palpation of the right lateral pterygoid. **A,** Palpation with a client. **B,** Palpation with a skull.

Figure 12-23 Supine palpation of the right lateral pterygoid as the client protracts the mandible.

Mięsień skrzydłowy boczny – punkty spustowe i promieniowanie bólu

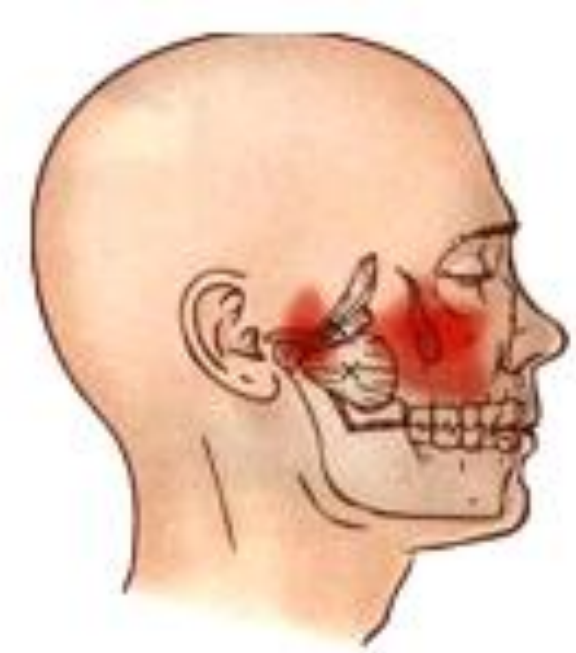


Figure 12-25 Lateral view illustrating common lateral pterygoid TrPs and their corresponding referral zones.

Mięsień skrzydłowy boczny- stretching

Figure 12-26 A stretch of the right lateral pterygoid. The client uses his hand to laterally deviate the jaw to the right (same) side.

MIĘSIEŃ SKRZYDŁOWY PRZYŚRODKOWY

Mięsień skrzydłowy przyśrodkowy– anatomia i funkcja

- **ATTACHMENTS:**
  - Sphenoid and maxillary bones *to the* internal surface of the mandible at the angle and inferior aspect of the ramus
- **ACTIONS:**
  - Elevates, protracts, and contralaterally deviates the mandible at the temporomandibular joints (TMJs)

Starting position (Figure 12-28):

- Client supine
- Therapist seated at the head or the side of the table
- Palpating fingers curled around to the inside surface of the angle of the mandible

Palpation steps:

1. With palpating fingers hooked around to the internal surface of the angle of the mandible, ask the client to elevate the mandible at the TMJs by clenching the teeth, and feel for the contraction of the medial pterygoid (Figure 12-29).
2. Once felt, palpate the medial pterygoid as far superiorly as possible.
3. Once the medial pterygoid has been located, have the client relax it and palpate to assess its baseline tone.

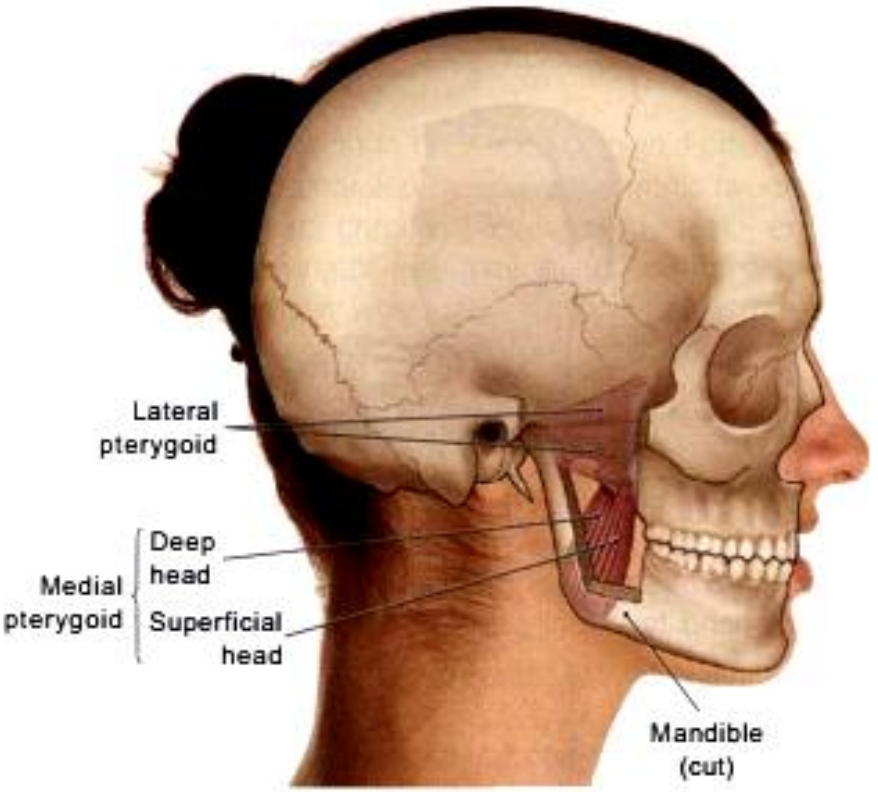
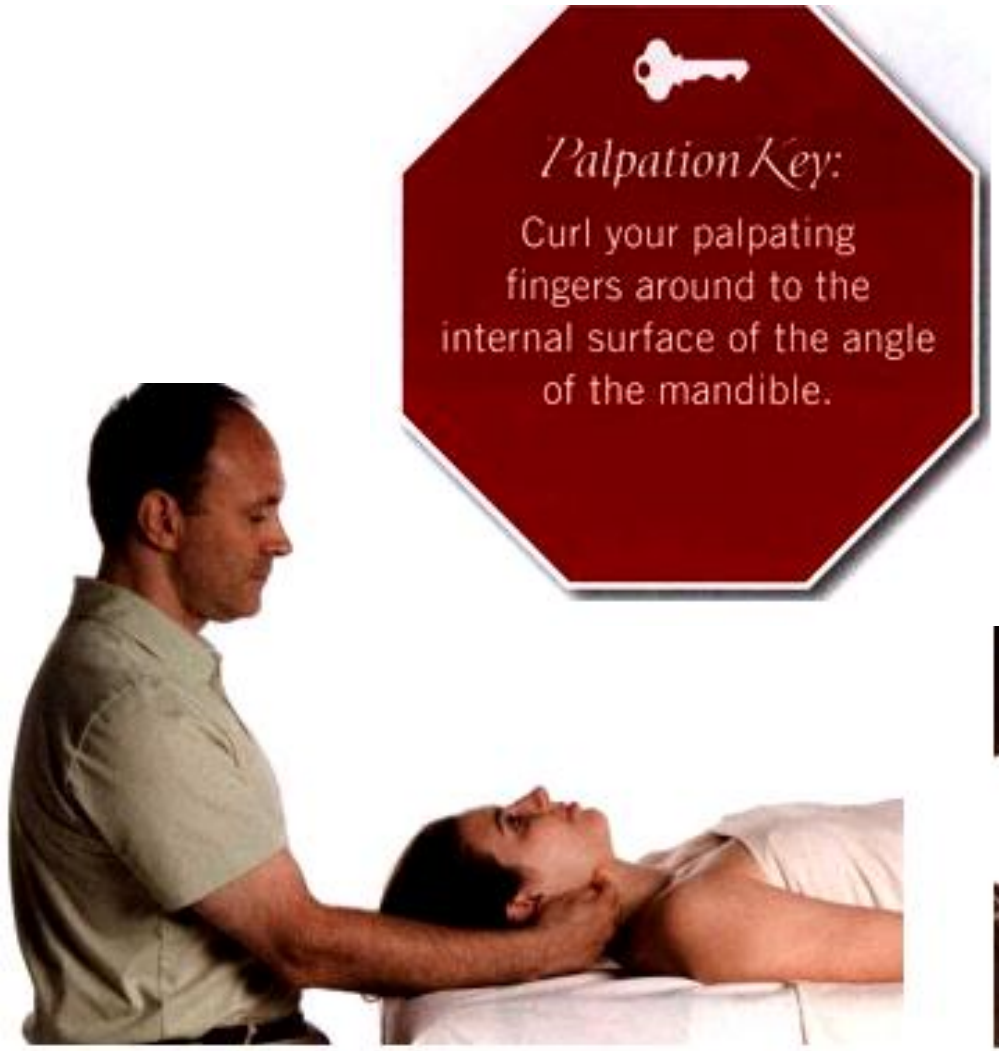


Figure 12-27 Lateral view of the right medial pterygoid. The lateral pterygoid has been ghosted in. Note: The mandible has been cut to better show the medial pterygoid.

Mięsień skrzydłowy przyśrodkowy- palpacja



Mięsień skrzydłowy przyśrodkowy- palpacja

Figure 12-31 The medial pterygoid is also easily accessed and palpated with the client seated.

Figure 12-30 Palpation of the right medial pterygoid from inside the mouth (see Palpation Note #2).

Mięsień skrzydłowy przyśrodkowy- punkty spustowe i promieniowanie bólu

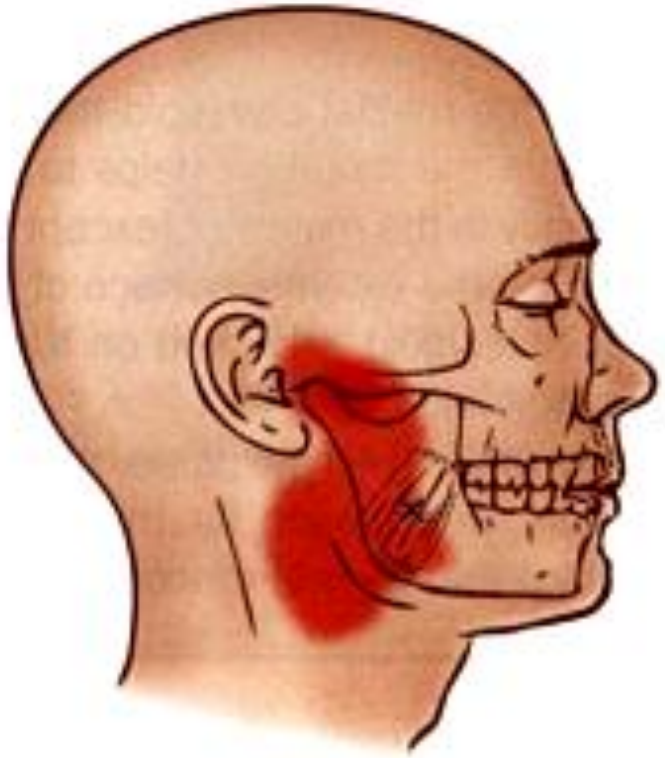


Figure 12-32 Lateral view illustrating a common medial pterygoid TrP and its corresponding referral zone.

Mięsień skrzydłowy przyśrodkowy- stretching

Figure 12-33 A stretch of the right medial pterygoid. The client uses his hand to depress and slightly deviate the jaw laterally to the right (same) side.

MIĘSIEŃ MOSTKOWO-OBOJCZYKOWO-SUTKOWY (MOS)

Mięsień MOS – anatomia i funkcja

- **ATTACHMENTS:**

o Manubrium of the sternum and the medial 1/3 of the clavicle *to the* mastoid process of the temporal bone and the lateral 1/2 of the superior nuchal line of the occiput

- **ACTIONS:**

o Flexes the lower neck and extends the head and upper neck at the spinal joints
o Laterally flexes and contralaterally rotates the head and neck at the spinal joints
o Elevates the sternum and clavicle

Starting position (Figure 11-5):

o Client supine with the head and neck contralaterally rotated
o Therapist seated at the head of the table
o Palpating hand placed just superior to the sternoclavicular joint

Palpation steps:

1. Ask the client to lift the head and neck from the table, and look for the SCM to become visible (Figure 11-6).
2. Although resistance could be added by the support hand, it is often unnecessary because lifting the head and neck against gravity usually provides sufficient resistance.
3. Palpate toward the superior attachment by strumming perpendicular to the fibers.
4. Once the SCM has been located, have the client relax it and palpate to assess its baseline tone.

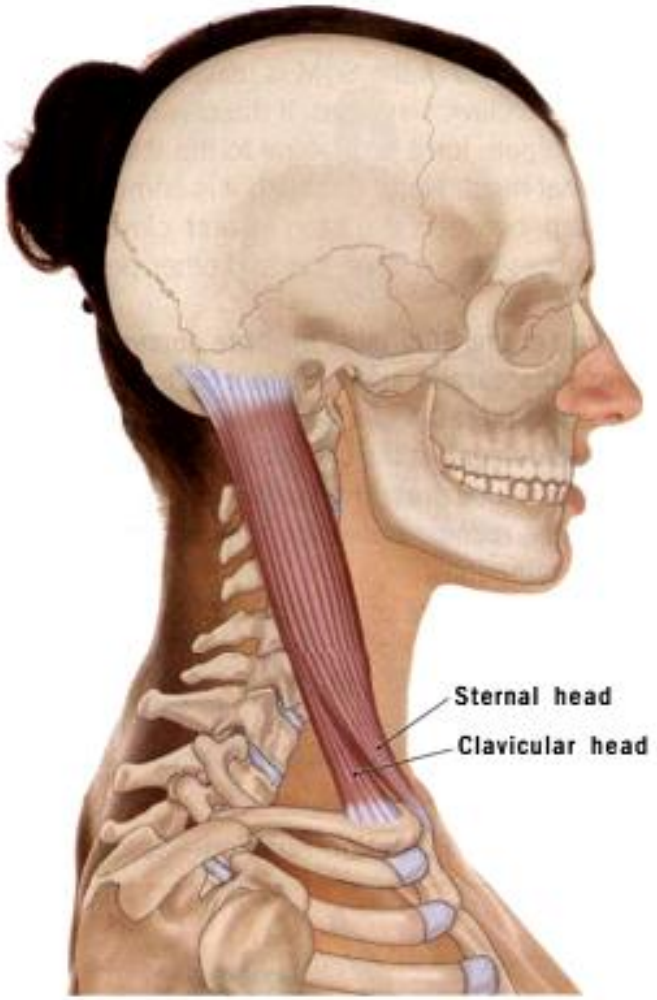


Figure 11-4 Lateral view of the right SCM.

Figure 11-5 Starting position for supine palpation of the right SCM.

Mięsień MOS - palpacja

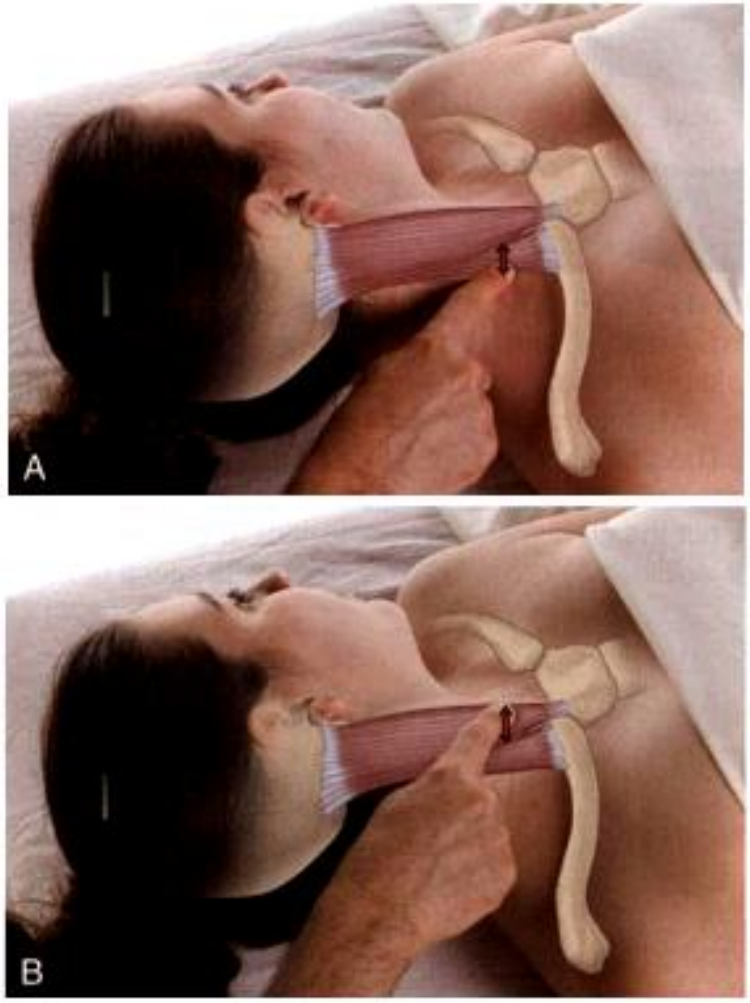


Figure 11-6 Supine palpation of the right SCM as the client raises the head and neck from the table. **A,** Palpation of the clavicular head. **B,** Palpation of the sternal head.

Mięsień MOS - palpacja

Figure 11-7 The SCM can be easily palpated with the client seated. Ask the client to rotate the head and neck to the opposite side (contralaterally rotate) and slightly laterally flex to the same side; then resist any further lateral flexion to the same side. The sternal head will often become visible with contralateral rotation. Resistance to same side lateral flexion will usually bring out the clavicular head (indicated). If the clavicular head is not visible, try increasing the resistance to lateral flexion.

Mięsień MOS – punkty spustowe i promieniowanie bólu

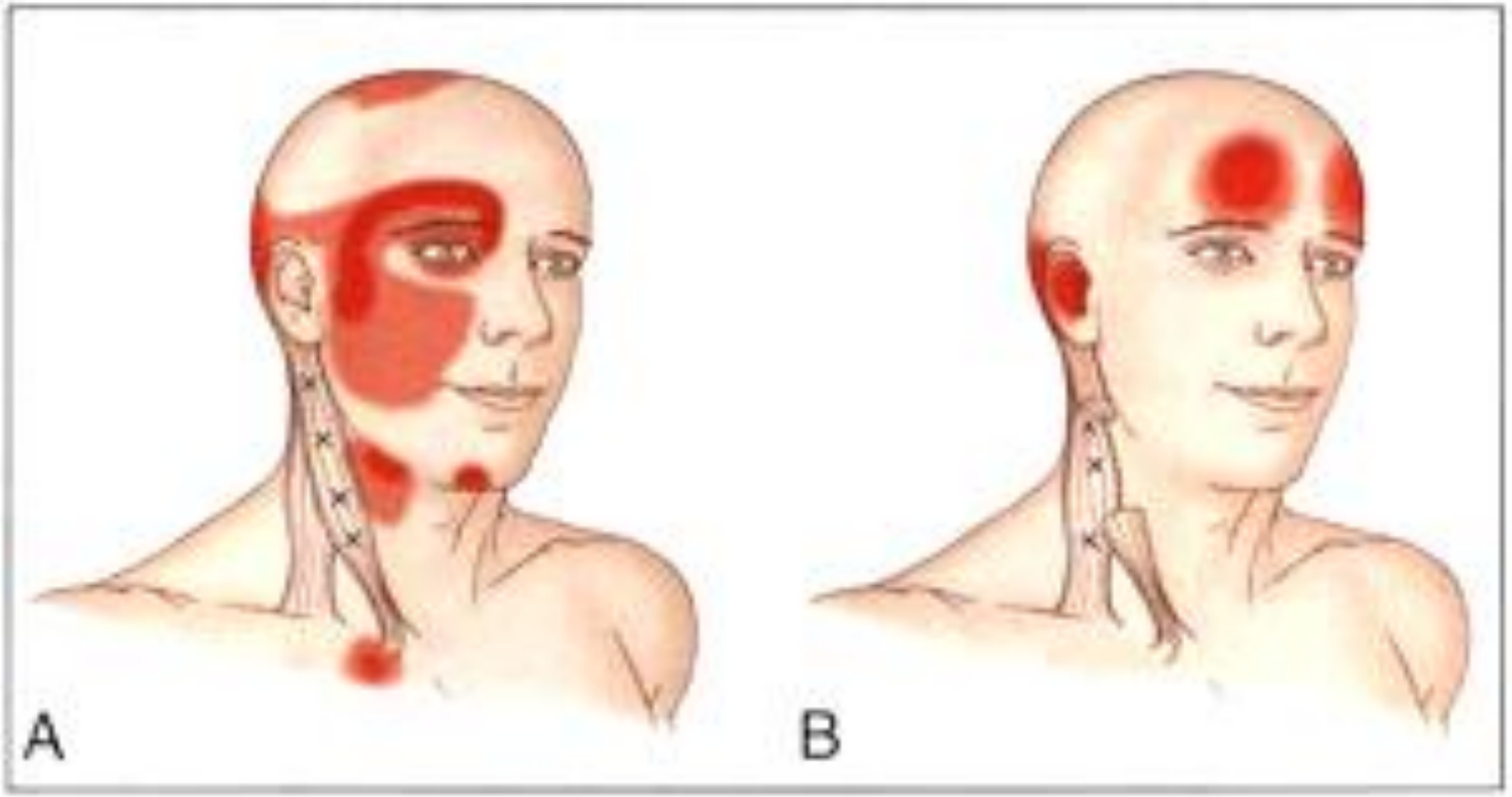
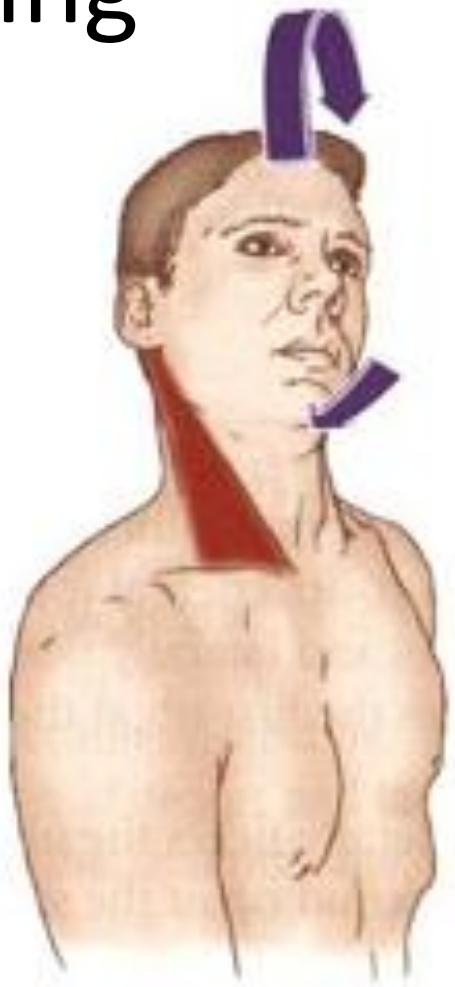


Figure 11-8 Anterolateral views illustrating common sternocleidomastoid (SCM) TrPs and their corresponding referral zones. **A,** Sternal head. **B,** Clavicular head.

Mięsień MOS – stretching

Figure 11-9 A stretch of the right SCM. The client left laterally flexes and right rotates the head and neck, and extends the lower neck but tucks the chin (flexes the head).



MIĘŚNIE POCHYŁE

Mięśnie pochyłe – anatomia i funkcja

- **ATTACHMENTS:**
  - Anterior scalene: first rib *to the* transverse processes of C3-C6
  - Middle scalene: first rib *to the* transverse processes of C2-C7
  - Posterior scalene: second rib *to the* transverse processes of C5-C7

- **ACTIONS:**
  - Anterior scalene: flexes, laterally flexes, and contralaterally rotates the neck at the spinal joints; elevates the first rib at the sternocostal and costovertebral joints
  - Middle scalene: flexes and laterally flexes the neck at the spinal joints; elevates the first rib at the sternocostal and costovertebral joints
  - Posterior scalene: laterally flexes the neck at the spinal joints; elevates the second rib at the sternocostal and costovertebral joints

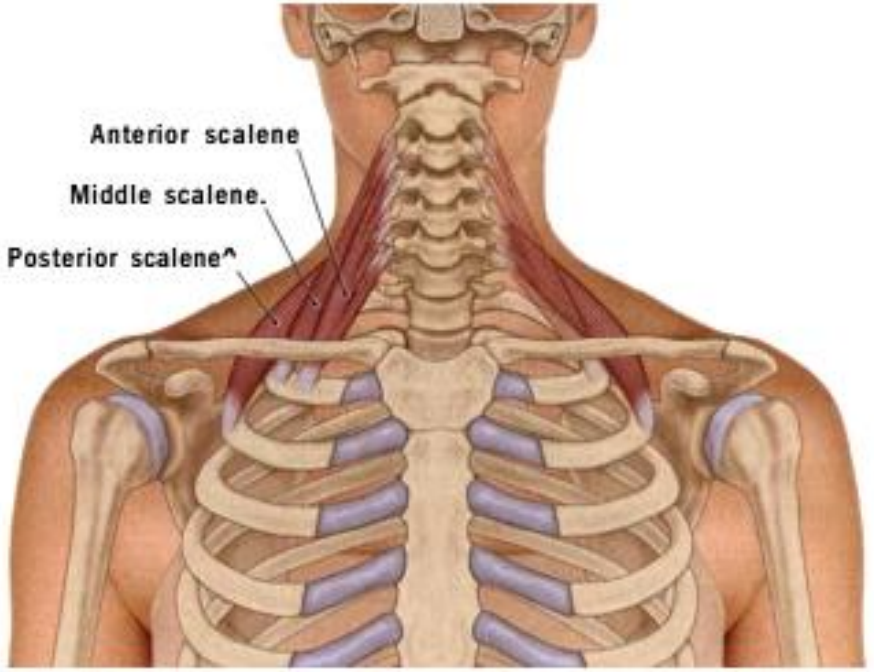


Figure 11-11 Anterior view of the scalenes. All three scalenes are seen on the right; the posterior scalene and ghosted-in middle scalene are seen on the left.

Mięśnie pochyłe- anatomia

Figure 11-12 Starting position for supine palpation of the right scalenes, lateral to the lateral border of the clavicular head of the SCM.

Figure 11-13 Palpation of the right scalenes as the client takes in short, quick breaths through the nose.

Mięśnie pochyłe - palpacja

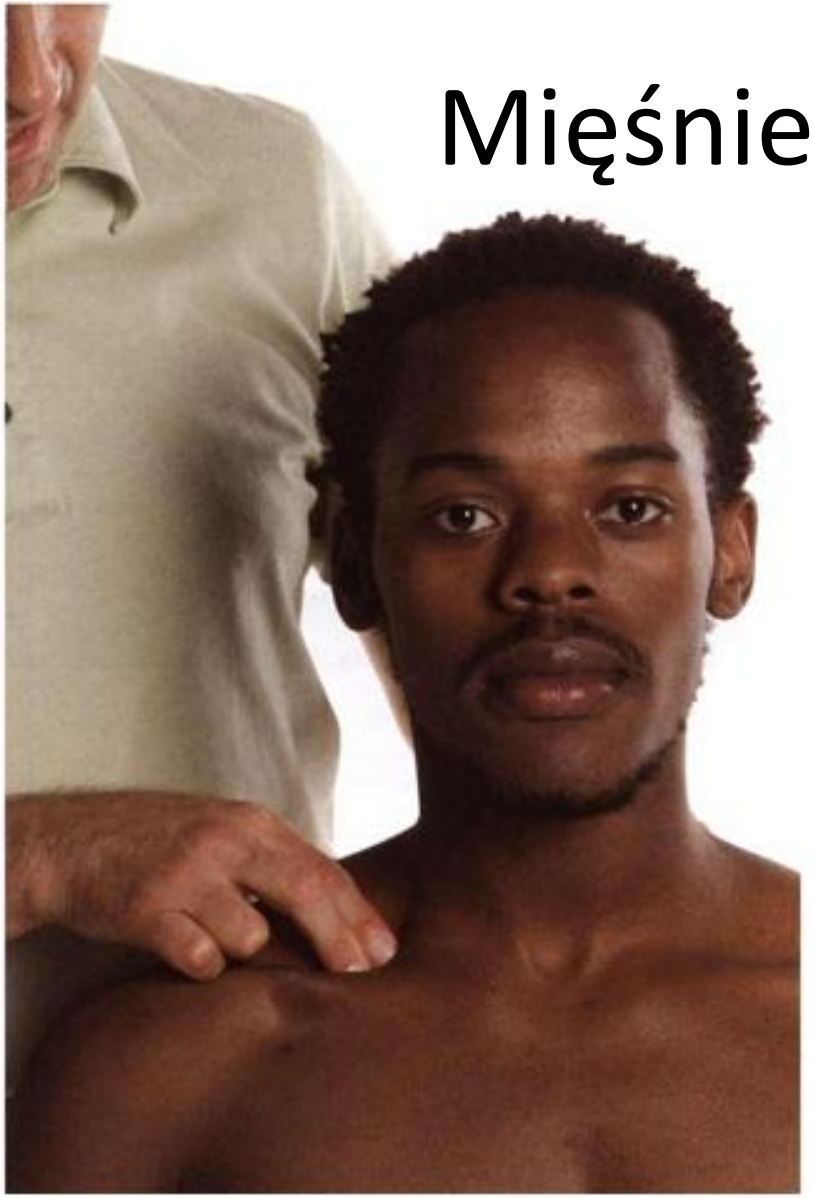


Figure 11-14 The scalenes can be easily palpated with the client seated. Locate the lateral border of the clavicular head of the sternocleidomastoid (SCM) as explained on page 187; then drop off it onto the scalenes and follow the supine scalene palpation directions.

Mięśnie pochyłe– punkty spustowe i promieniowanie bólu

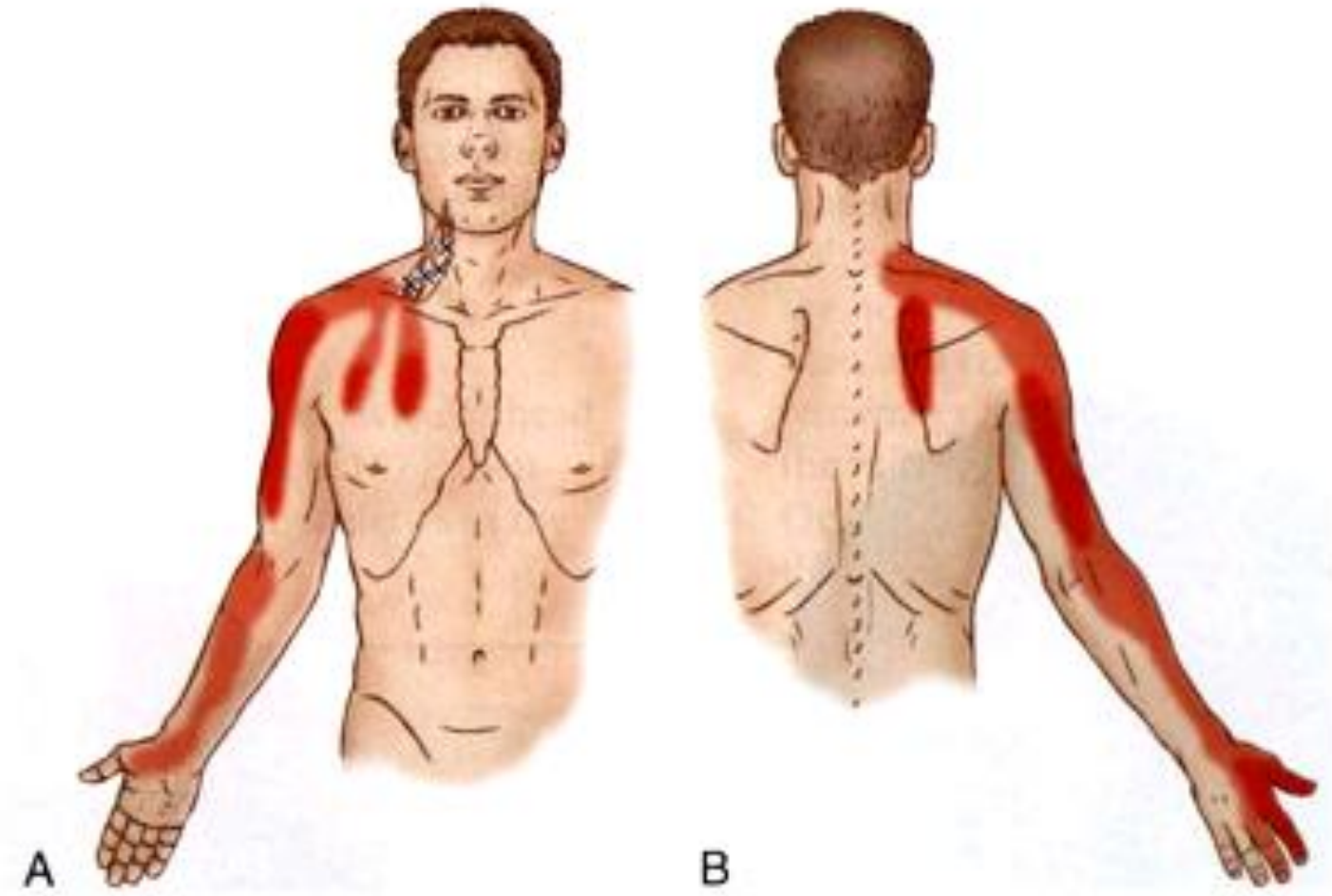


Figure 11-15 **A,** Anterior view illustrating common scalene TrPs and their corresponding referral zone. **B,** Posterior view showing the remainder of the referral zone.

Mięśnie pochyłe- stretching

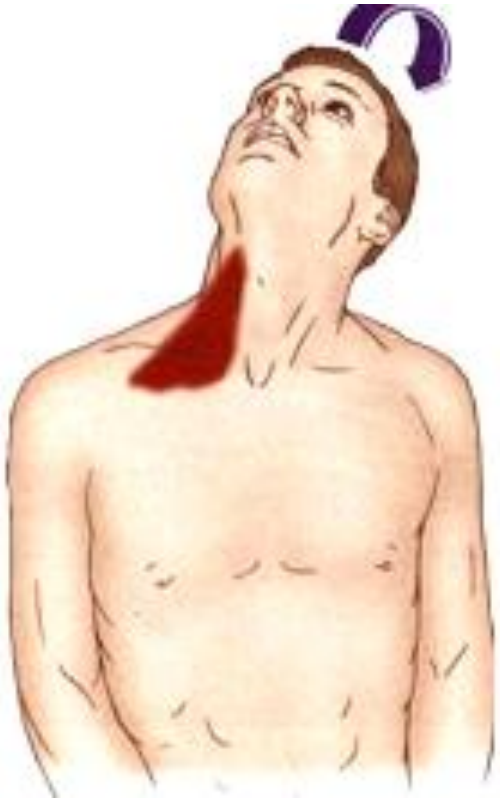


Figure 11-16 A stretch of the right scalene group. The client extends, left laterally flexes, and right (ipsilaterally) rotates the neck. An additional stretch can be obtained by using the left hand to passively move the head and neck further in this direction.

MIĘSIEŃ PODOBOJCZYKOWY

Mięsień podobojczykowy– anatomia i funkcja

- **ATTACHMENTS:**
  - First rib at the junction with its costal cartilage *to the* middle *⅓* of the inferior surface of the clavicle
- **ACTIONS:**
  - Depresses, protracts, and downwardly rotates the clavicle at the sternoclavicular joint
  - Elevates the first rib at the sternocostal and costospinal joints

Starting position (Figure 10-84):

- Client supine with the arm medially rotated at the shoulder joint and resting on the table at the side of the body
- Therapist seated at the head of the table
- Palpating fingers curled around the clavicle so that the finger pads are on the inferior surface of the clavicle

Palpation steps:

1. The subclavius can be challenging to palpate.
2. With the musculature of the region relaxed, feel for the subclavius on the underside of the clavicle.
3. To palpate while engaged, ask the client to depress the clavicle at the sternoclavicular joint (i.e., to depress the shoulder girdle [scapula and clavicle]) and feel for the contraction of the subclavius (Figure 10-85).

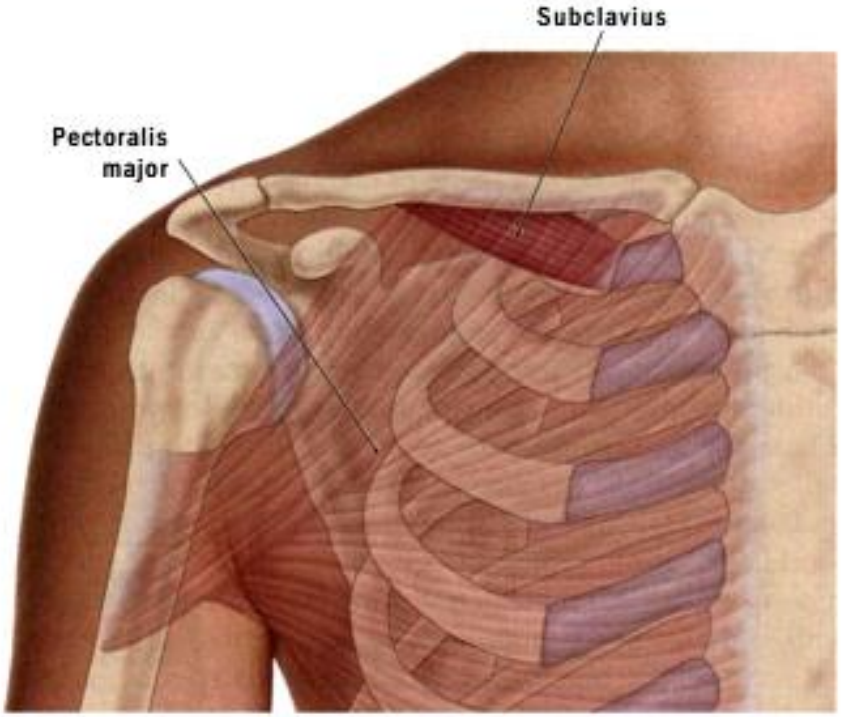


Figure 10-83 Anterior view of the right subclavius. The pectoralis major has been ghosted in.

4. Palpate from attachment to attachment.
5. Once the subclavius has been located, have the client relax it and palpate to assess its baseline tone.

Mięsień podobojczykowy- palpacja

Palpation Key:
Curl your fingertips around the clavicle.

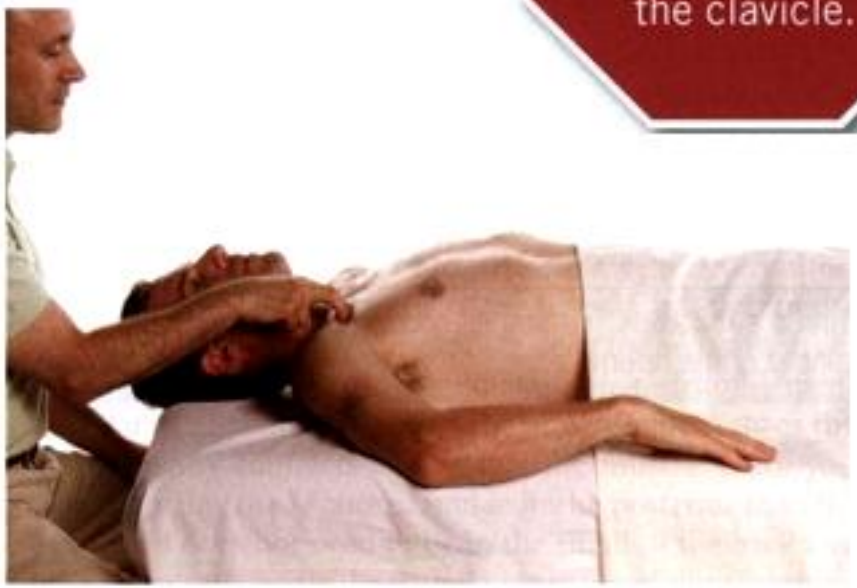


Figure 10-84 Starting position for supine palpation of the right subclavius.

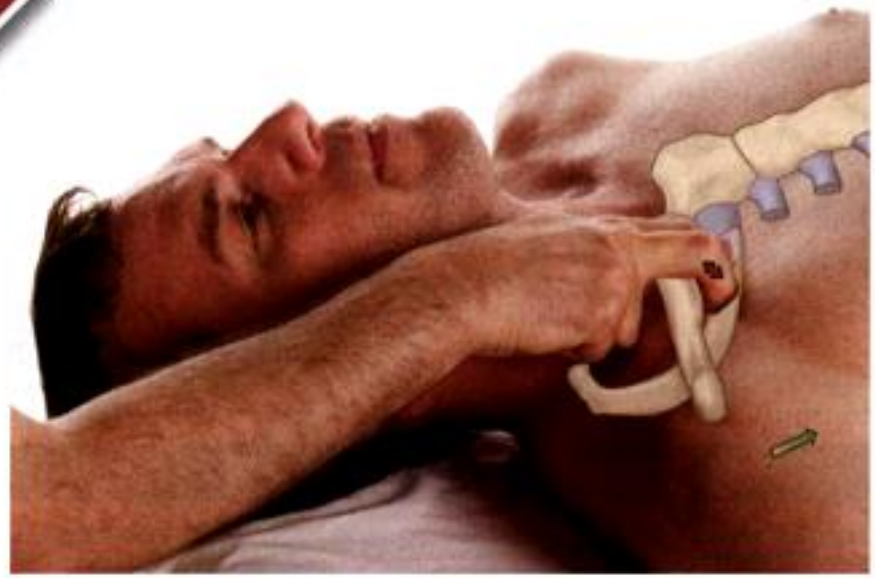


Figure 10-85 Palpation of the right subclavius as the client depresses the shoulder girdle.

Mięsień podobojczykowy – punkty spustowe i promieniowanie bólu

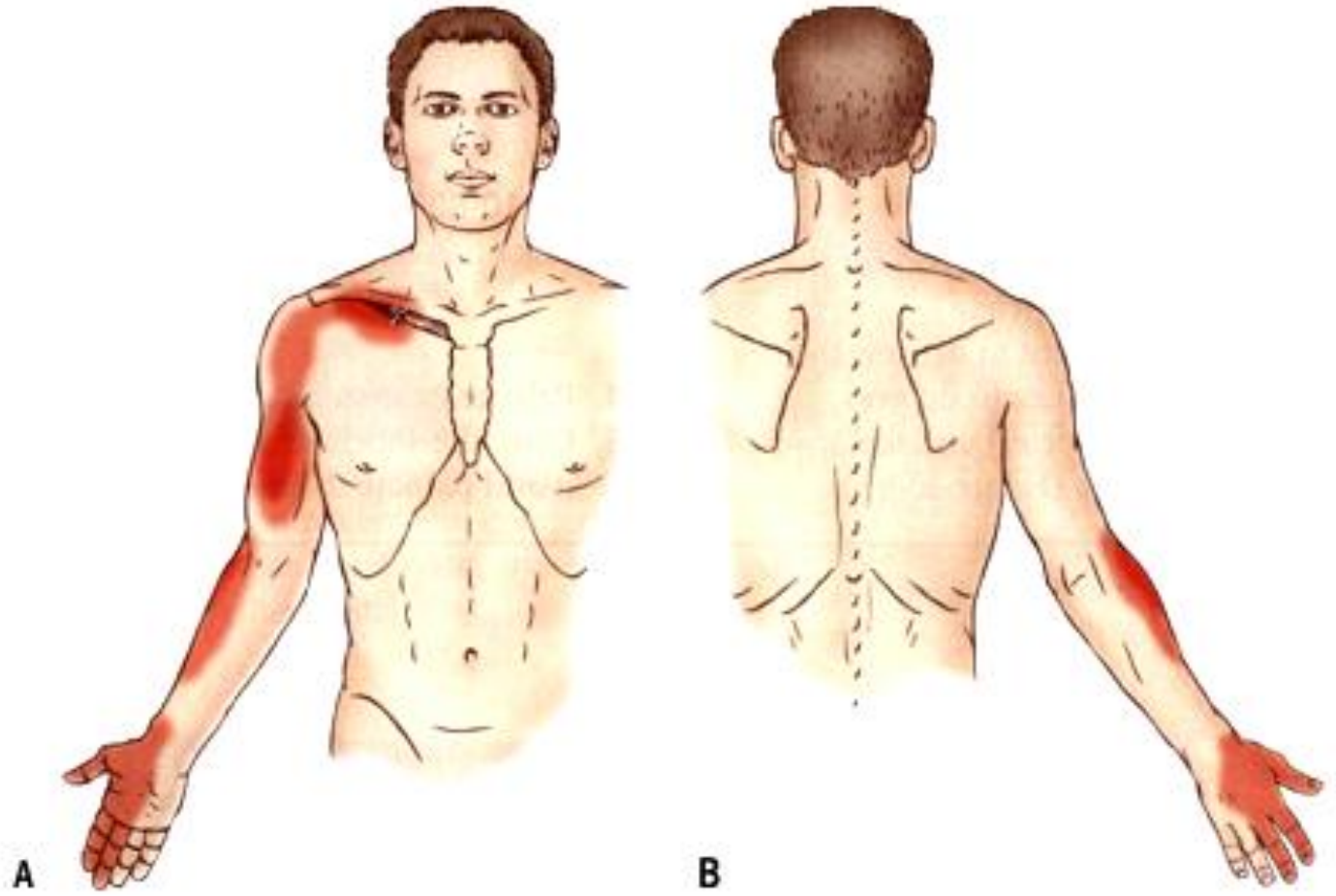


Figure 10-86 **A** is an anterior view illustrating a common subclavius TrP and its corresponding referral zone. **B** is a posterior view showing the remainder of the referral zone.

Miesień podobojczykowy- stretching

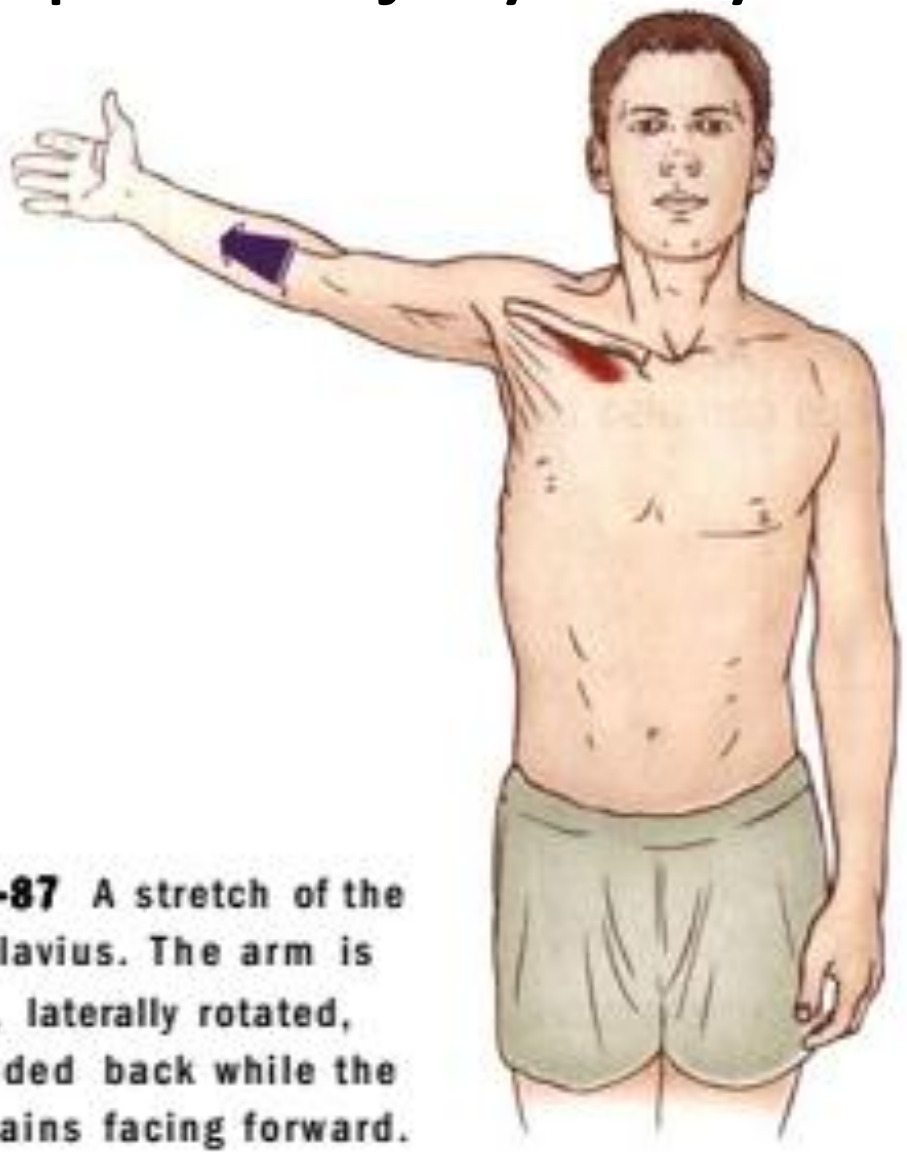


Figure 10-87 A stretch of the right subclavius. The arm is abducted, laterally rotated, and extended back while the trunk remains facing forward.

MIĘSIEŃ PIERSIOWY MNIEJSZY

Mięsień piersiowy mniejszy – anatomia i funkcja

- **ATTACHMENTS:**
  - Ribs three through five *to the* medial surface of the coracoid process of the scapula
- **ACTIONS:**
  - Protracts, depresses, and downwardly rotates the scapula at the scapulocostal joint
  - Elevates ribs three through five at the sternocostal and costospinal joints

Starting position (Figure 10-78):

- Client supine with the hand under the body in the small of the back
- Therapist seated at the head of the table
- Palpating hand placed just inferior to the coracoid process of the scapula

Palpation steps:

1. Ask the client to press the hand and forearm down against the table, and feel for the contraction of the pectoralis minor through the pectoralis major (Figure 10-79).
2. Continue palpating toward the rib attachments by strumming perpendicular to the fibers.
3. Once the pectoralis minor has been located, have the client relax it and palpate to assess its baseline tone.

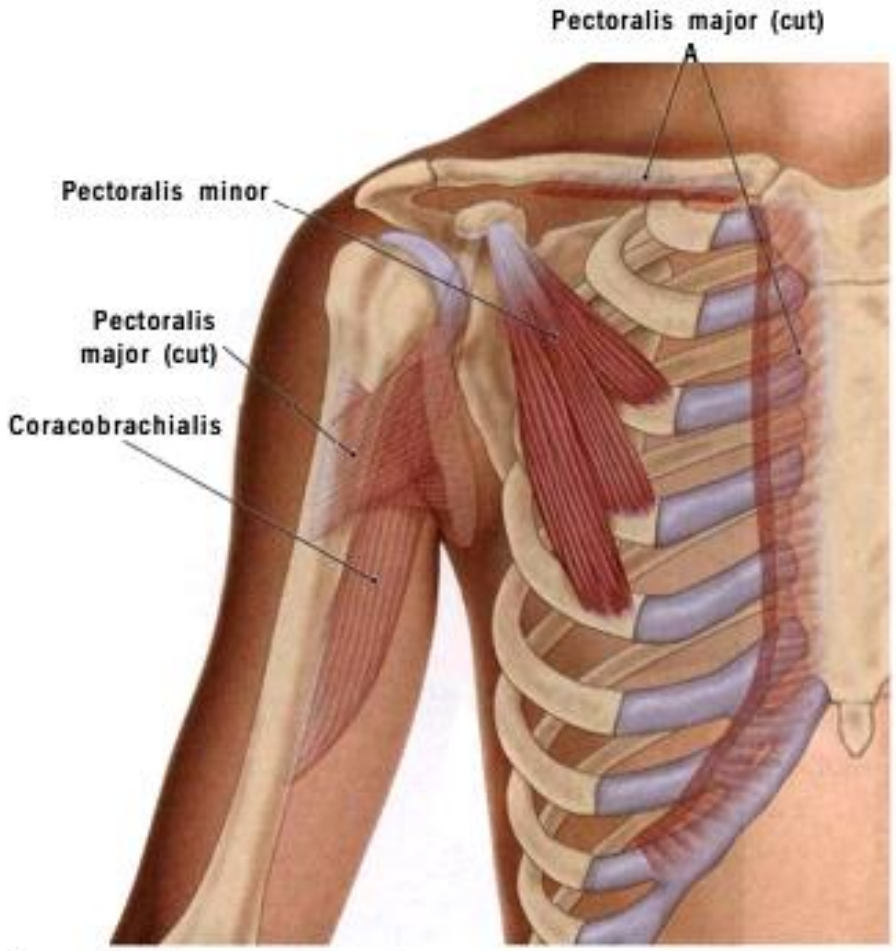


Figure 10-77 Anterior view of the right pectoralis minor. The coracobrachialis and cut pectoralis major have been ghosted in.

Mięsień piersiowy mniejszy - palpacja

Figure 10-78 Starting position for supine palpation of the right pectoralis minor.

Figure 10-79 Palpation of the right pectoralis minor perpendicular to the fibers as the client presses the hand and forearm down against the table.

Mięsień piersiowy mniejszy- palpacja

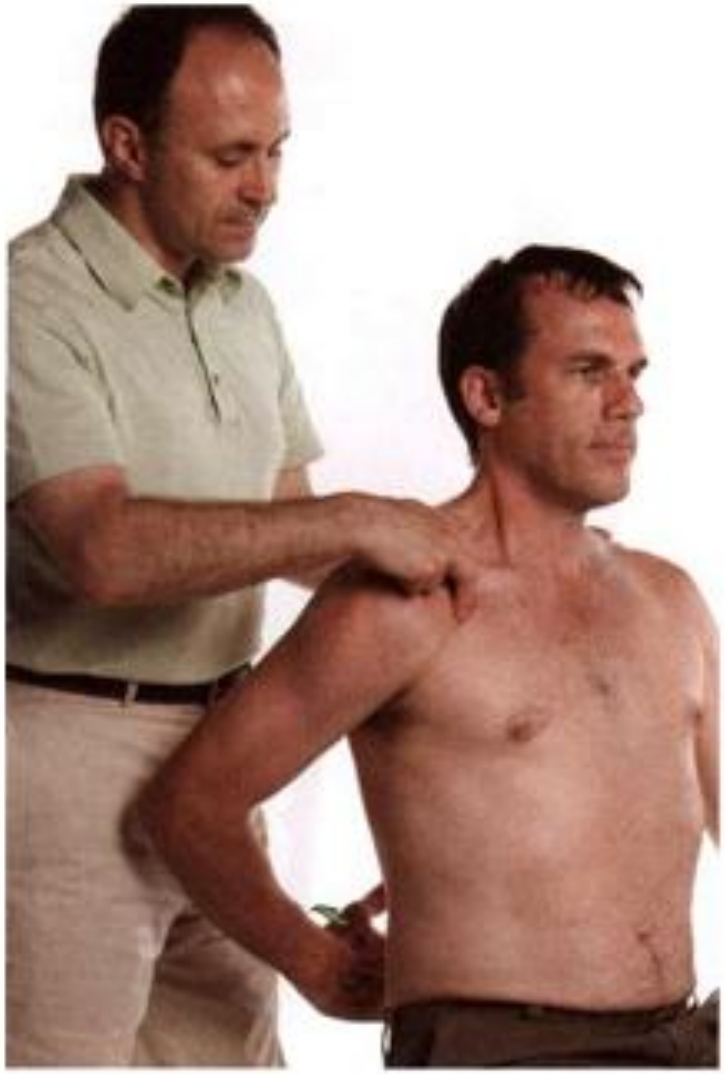


Figure 10-80 Having the client seated is the easiest position for palpating the pectoralis minor, because the client can comfortably place the hand in the small of the back and easily move it posteriorly when asked to do so by the therapist.

Mięsień piersiowy mniejszy – punkty spustowe i promieniowanie bólu

Figure 10-81 Anterior view illustrating common pectoralis minor TrPs and their corresponding referral zone.

Mięsień piersiowy mniejszy- stretching

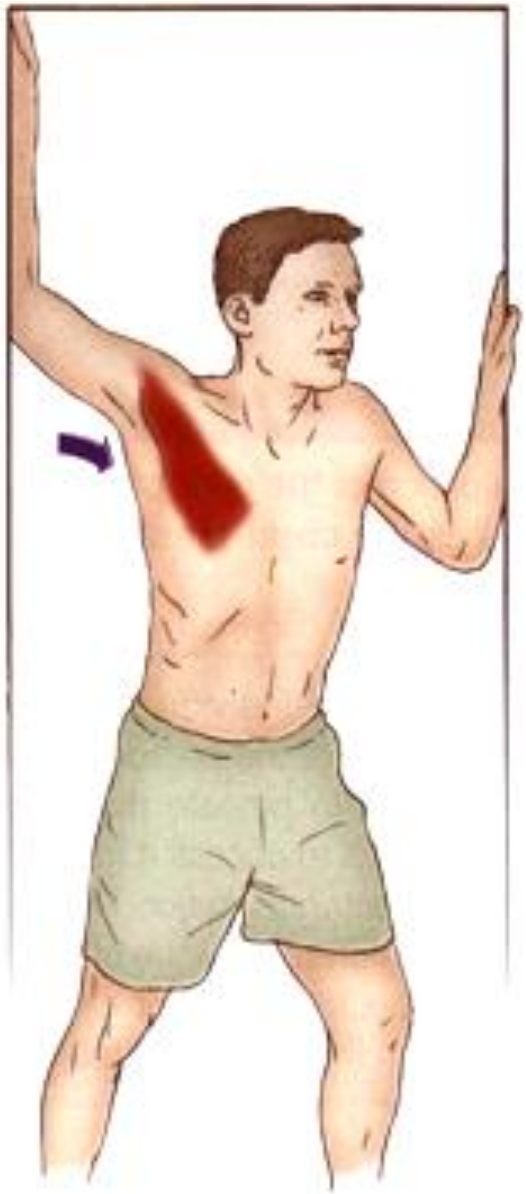


Figure 10-82 A stretch of the right pectoralis minor. The arm is abducted to approximately 135 degrees and the client leans into a doorway.

MIĘSIEŃ PIERSIOWY WIĘKSZY

Mięsień piersiowy większy – anatomia i funkcja

- **ATTACHMENTS:**
  - Medial half of the clavicle, sternum, and the costal cartilages of ribs one through seven *to the* lateral lip of the bicipital groove of the humerus

- **ACTIONS:**
  - Entire muscle: adducts, medially rotates, and horizontally flexes the arm at the shoulder joint; protracts the scapula at the scapulocostal joint
  - Clavicular head: flexes the arm at the shoulder joint
  - Sternocostal head: extends the arm at the shoulder joint (from a position of flexion to anatomic position); depresses the scapula at the scapulocostal joint

Starting position (Figure 10-72):
- Client supine with the arm resting at the side
- Therapist seated to the side of the client
- Palpating hand placed over the lower aspect of the anterior axillary fold of tissue
- Support hand placed on the distal arm, just proximal to the elbow joint

Palpation steps:
1. Begin by palpating the sternocostal head. Ask the client to adduct the arm at the shoulder joint against resistance. Resistance can be added either with your support hand or simply by having the client adduct against his body wall (Figure 10-73, A).
2. Feel for the contraction of the sternocostal head and palpate toward its proximal (medial) attachment.
3. To palpate the clavicular head, place the palpating hand just inferior to the medial clavicle, and ask the client to obliquely move the arm at the shoulder joint between flexion and adduction against resistance. Resistance can be added with your support hand (Figure 10-73, B).
4. Feel for the contraction of the clavicular head and palpate toward the distal attachment by strumming perpendicular to the fibers.
5. Once the pectoralis major has been located, have the client relax it and palpate to assess its baseline tone.

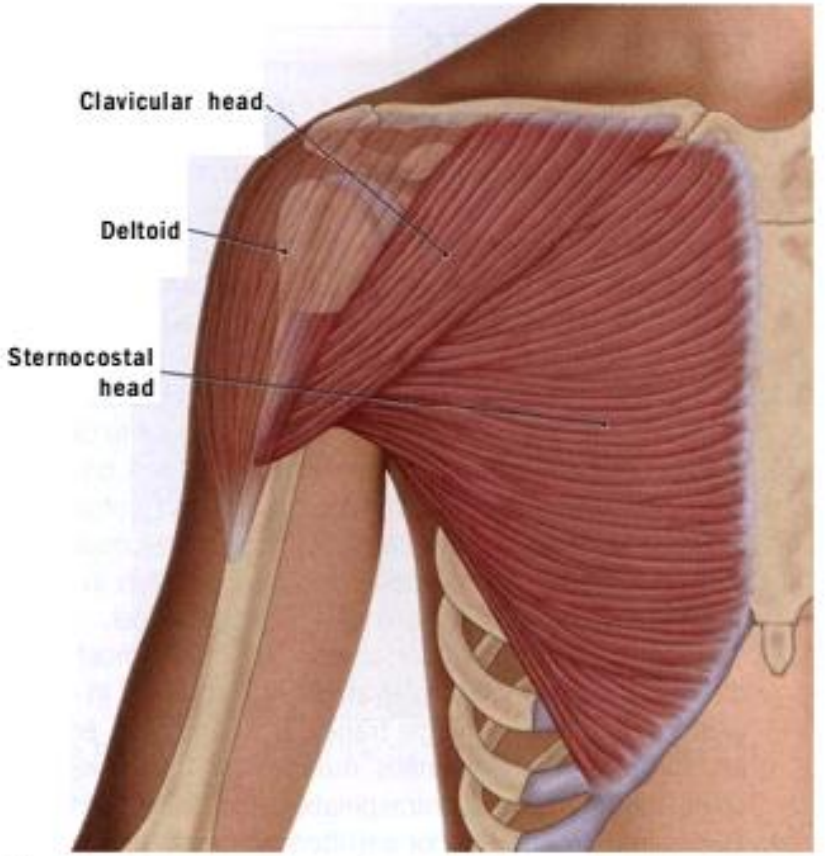


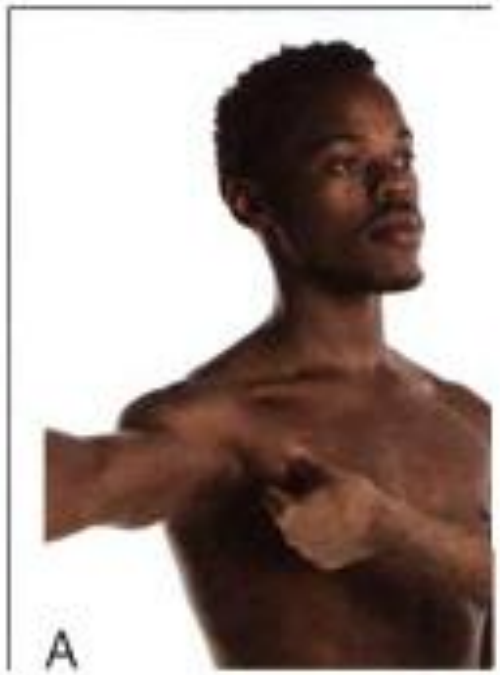
Figure 10-71 Anterior view of the right pectoralis major. The deltoid has been ghosted in.

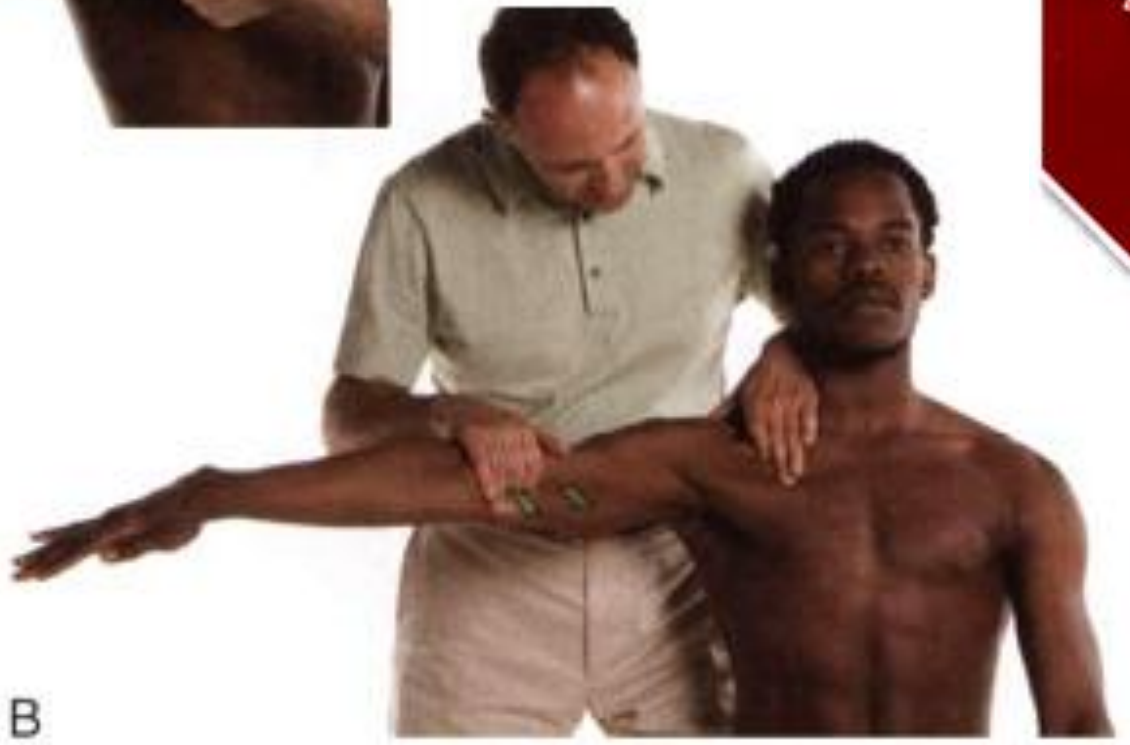
Mięsień piersiowy większy - palpacja

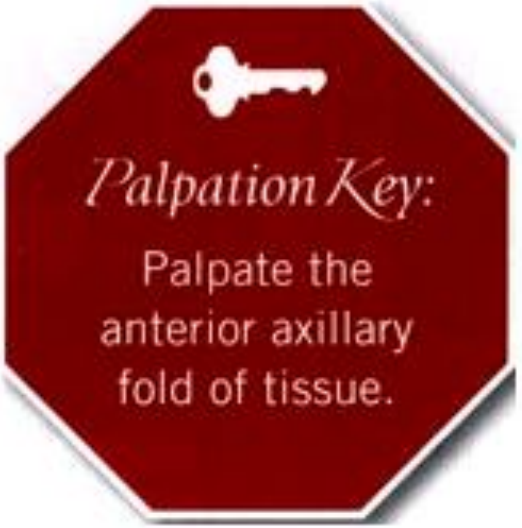
Figure 10-72 Starting position for supine palpation of the right pectoralis major (sternocostal head).

Figure 10-73 Palpation of the right pectoralis major. **A** shows palpation of the sternocostal head as the client performs adduction against resistance. **B** shows palpation of the clavicular head as the client performs an oblique plane motion of flexion and adduction against resistance.

Mięsień piersiowy większy - palpacja







Mięsień piersiowy większy – punkty spustowe i promieniowanie bólu

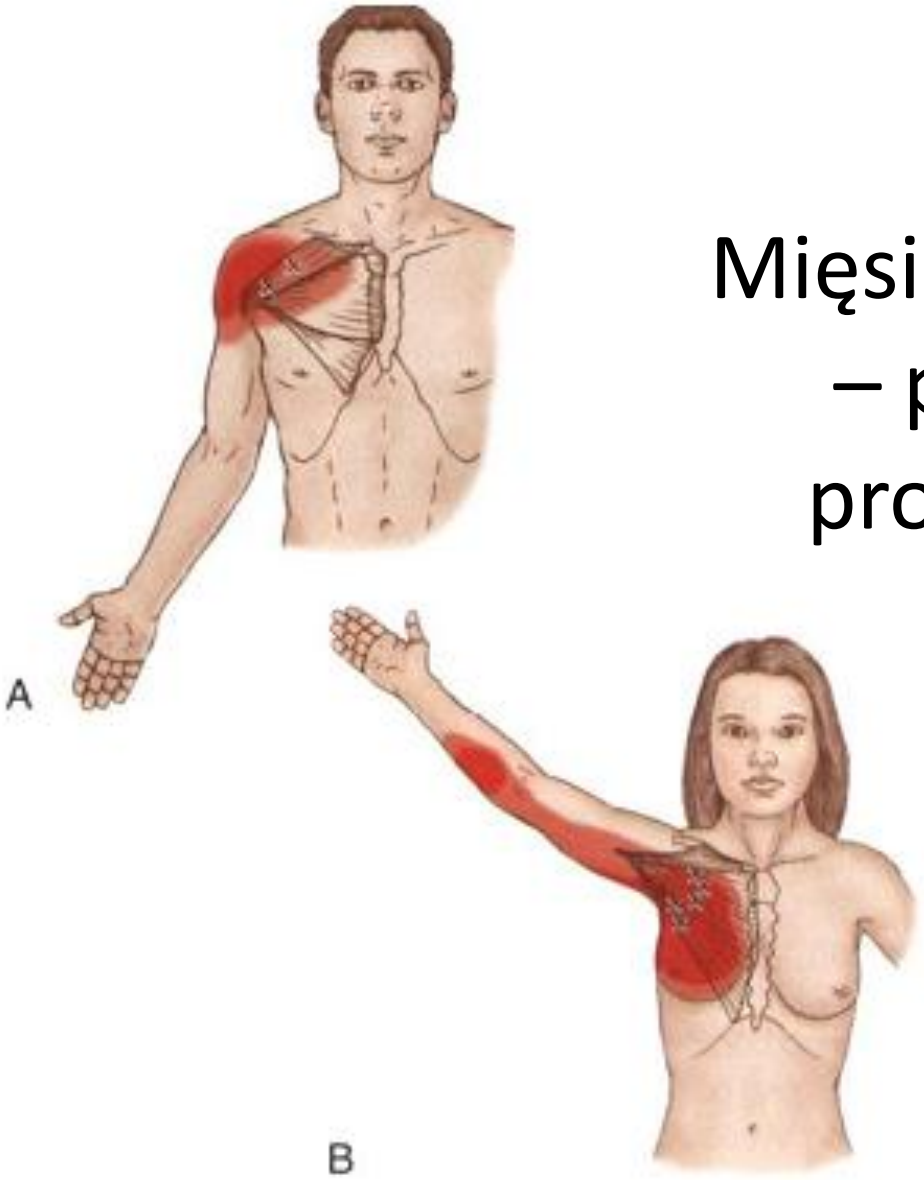


Figure 10-75 Anterior views illustrating common pectoralis major TrPs and their corresponding referral zones. **A** shows the clavicular head; **B** shows the sternocostal head.

Mięsień piersiowy większy - stretching

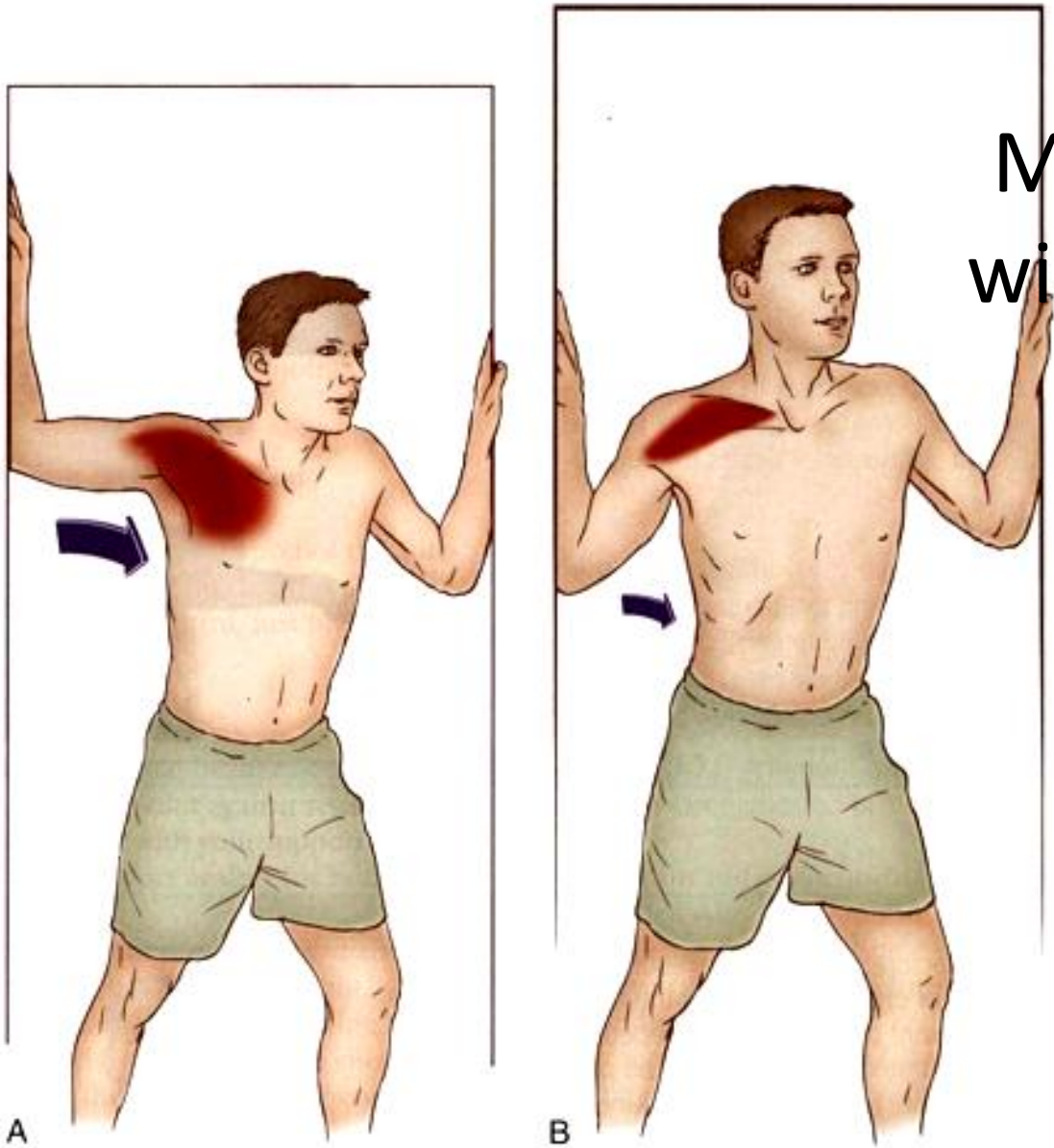


Figure 10-76 Stretches of the two heads of the right pectoralis major. **A** shows a stretch of the sternocostal head. The arm is abducted to approximately 90 degrees and the client leans into a doorway. **B** shows a stretch of the clavicular head. The arm is abducted to approximately 45 degrees and the client leans into a doorway. Note the difference in positions of the arm.

PRZEPONA

Przepona – anatomia i funkcja

- **ATTACHMENTS:**
  - Internal surfaces of the lower six ribs, the xiphoid process of the sternum, and the anterior surfaces of L1-L3 *to the* central tendon of the diaphragm (located in the center of the muscle)
- **ACTIONS:**
  - Increases the volume of the thoracic cavity, allowing the lungs to expand for inspiration

Starting position (Figure 16-58):

- Client supine with a roll under the knees to flex the thighs at the hip joint
- Therapist seated to the side of the client
- Palpating fingers curled under the inferior margin of the anterior ribcage

Palpation steps:

1. With your palpating fingers curled around the inferior margin of the anterior ribcage, ask the client to take in a deep breath and then slowly exhale. As the client exhales, curl your fingertips under (inferior and then deep to) the ribcage and feel for the diaphragm on the internal surface of the ribcage (Figure 16-59).
2. Repeat this procedure anteriorly and posteriorly as far as possible on both sides of the ribcage.
3. Assessment of the diaphragm should only be made when it is totally relaxed, which occurs at the end of the exhalation.

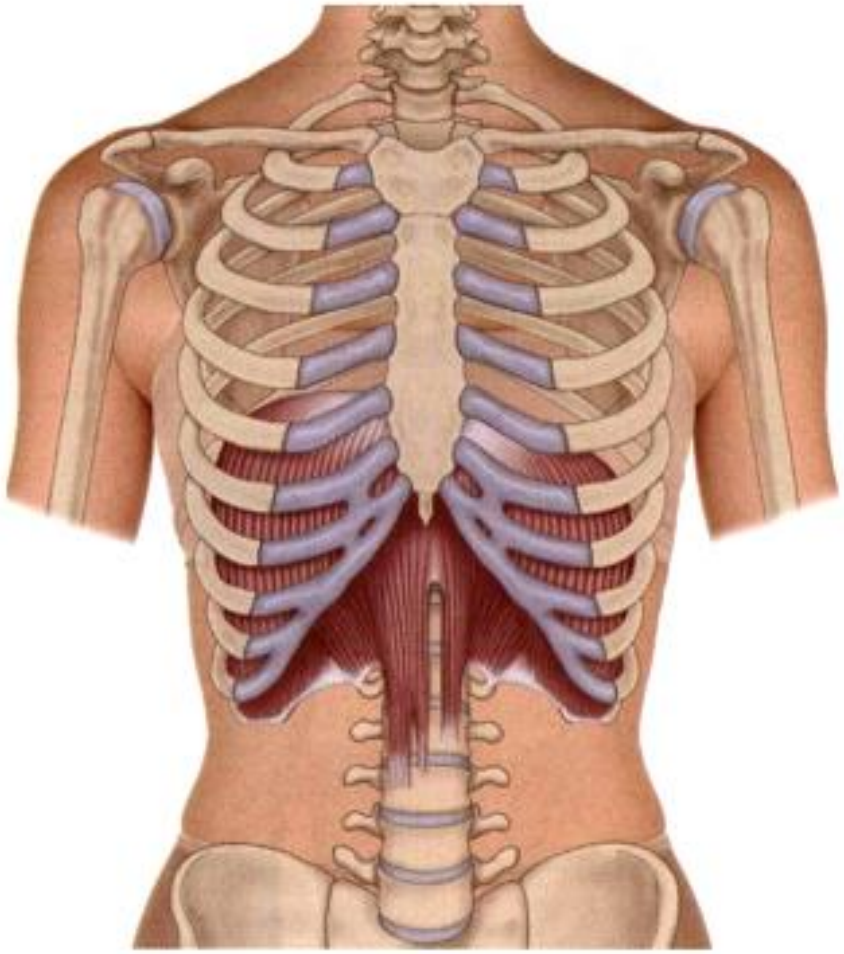


Figure 16-57 Anterior view of the diaphragm.

Przepona - palpacja

Figure 16-58 Starting position for supine palpation of the diaphragm.

Przepona- palpacja

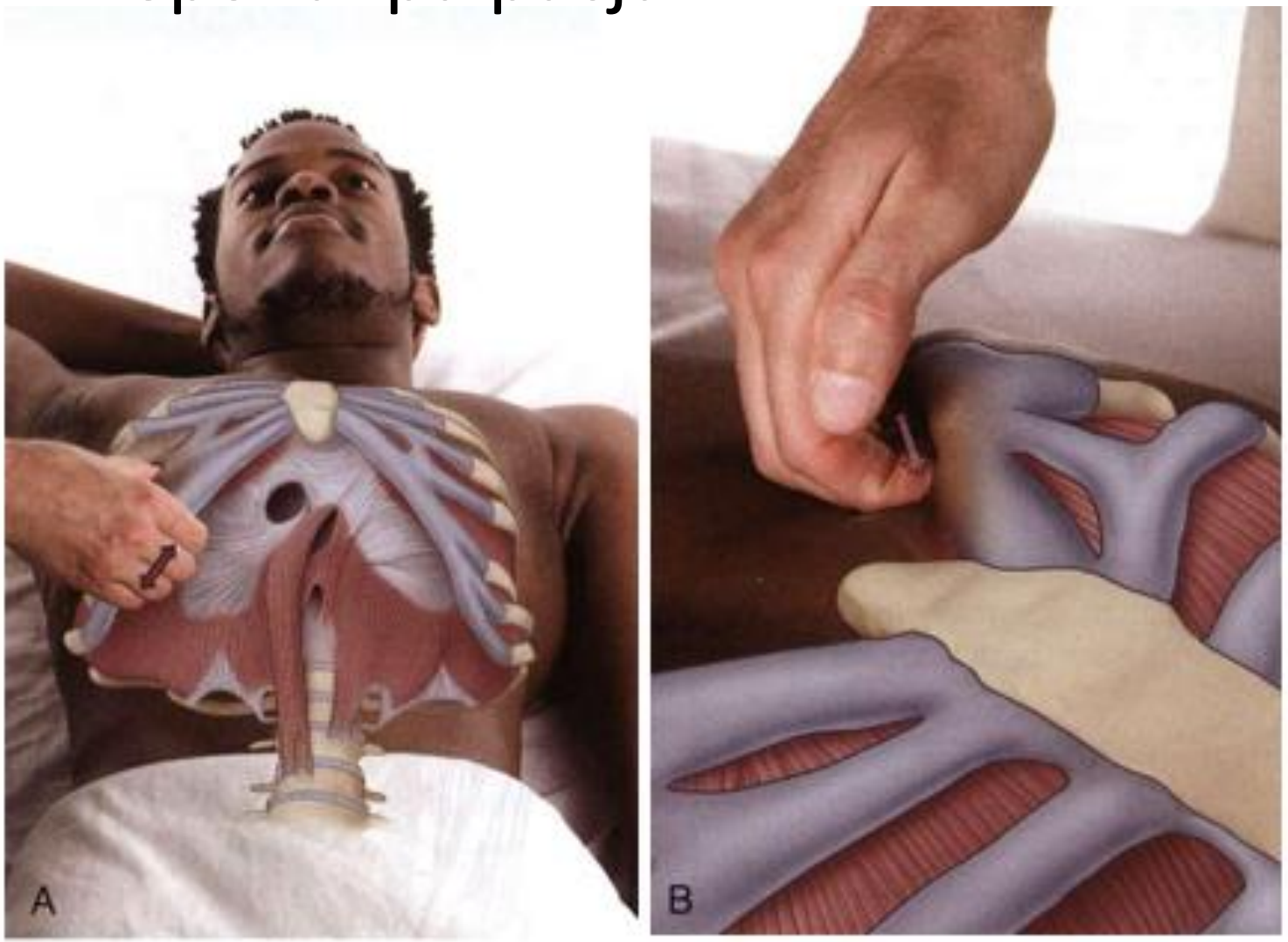


Figure 16-59 Palpation of the diaphragm. **A,** Palpation of the right side of the diaphragm as the client slowly exhales. **B,** Close-up showing palpation of the diaphragm by curling the fingers around the ribcage so that the finger pads are oriented against the muscle.

Przepona - palpacja

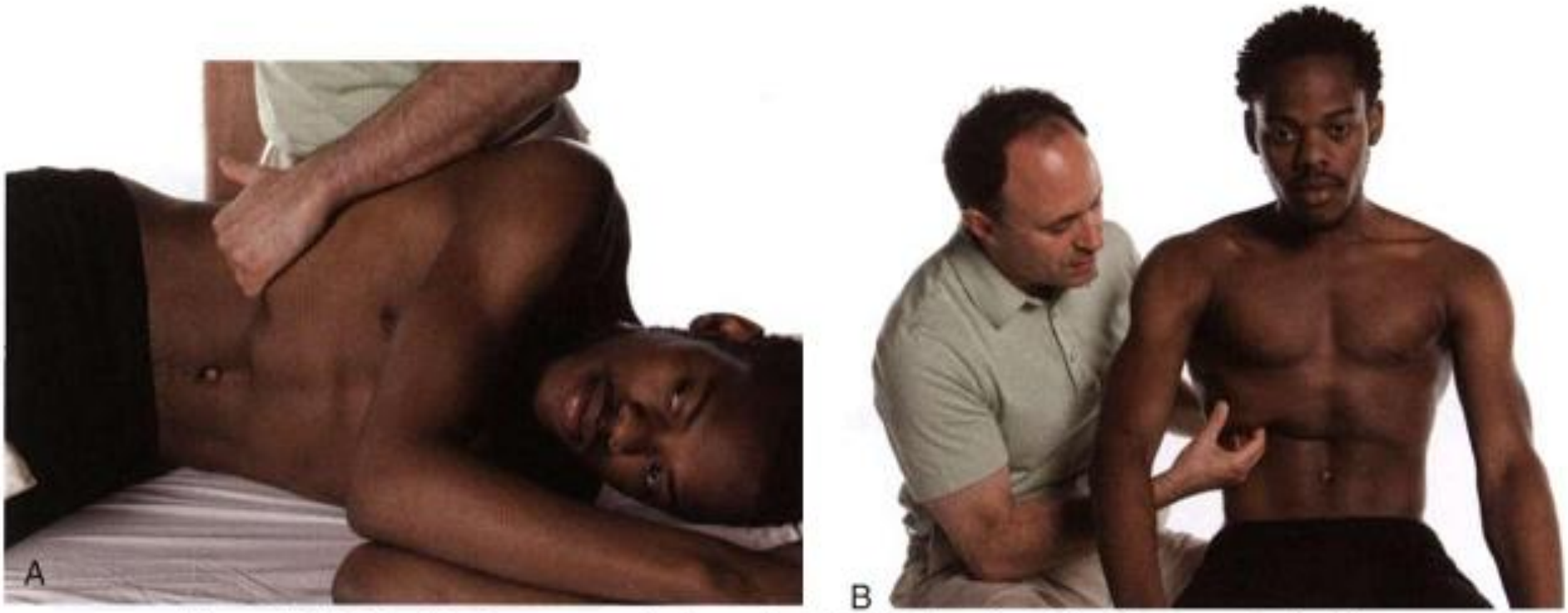


Figure 16-60 The diaphragm can also be palpated with the client side lying or seated. If the client is side lying, have the client's trunk flexed and the thighs passively flexed at the hip joints. This allows for relaxation and slackening of the anterior abdominal wall, allowing better access to the diaphragm. Similarly, if the client is seated, have the client's trunk slightly flexed to slacken the anterior abdominal wall, allowing better access to the diaphragm.

Przepona– punkty spustowe i promieniowanie bólu

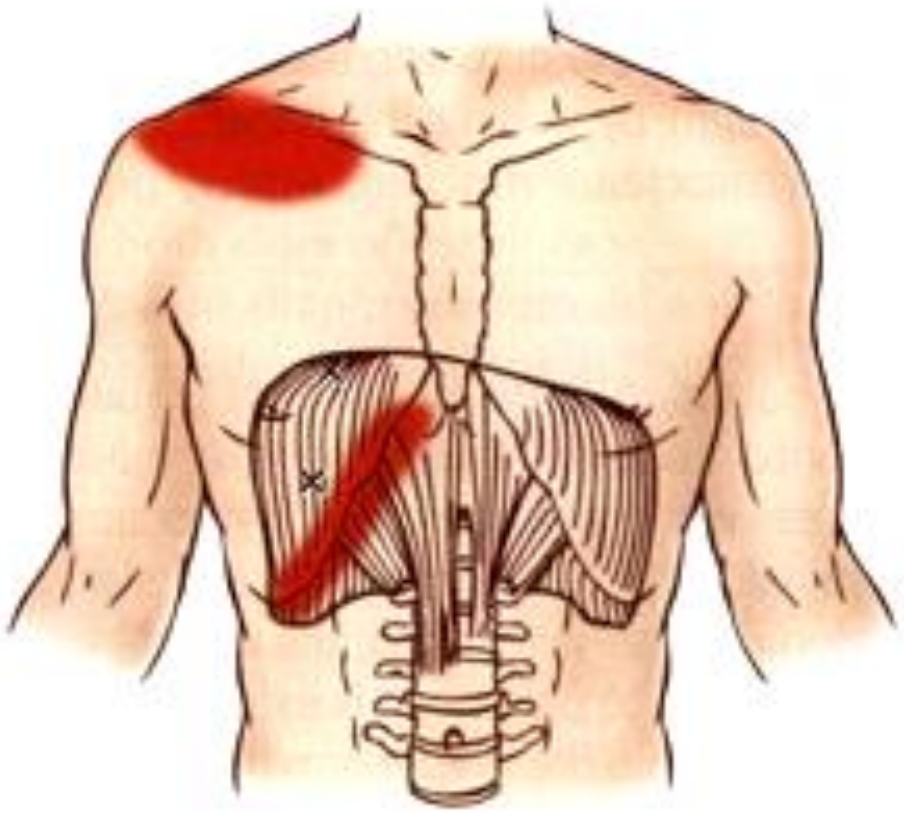


Figure 16-61 Anterior view showing common diaphragm TrPs and their corresponding referral zones.

Przepona- stretching

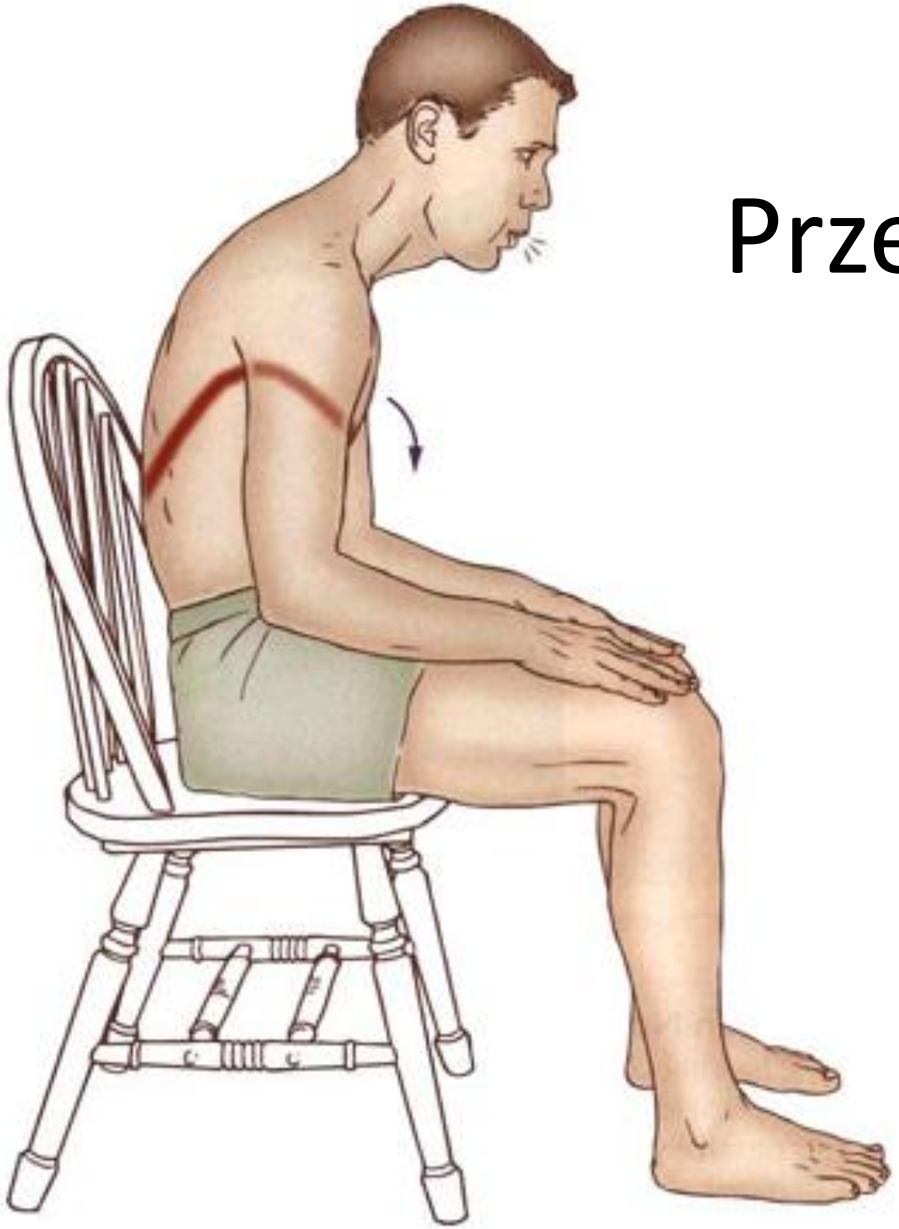


Figure 16-62 A stretch of the diaphragm. The client breathes out forcefully, expelling as much air from the lungs a possible, while slightly flexing the trunk.

MIĘSIEŃ CZWOROBOCZNY LĘDŹWI

Mięsień czworoboczny lędźwi – anatomia i funkcja

- **ATTACHMENTS:**
  - Inferomedial border of the twelfth rib and the transverse processes of L1-L4 *to the* posteromedial iliac crest
- **ACTIONS:**
  - Elevates and anteriorly tilts the pelvis at the lumbosacral joint
  - Extends and laterally flexes the trunk at the spinal joints
  - Depresses the twelfth rib at the costovertebral joint

Starting position (Figure 16-26):

- Client prone
- Therapist standing to the side of the client
- Palpating hand placed just lateral to the lateral border of the erector spinae in the lumbar region
- Support hand sometimes placed directly on the palpation hand for support (not shown)

Palpation steps:

1. First locate the lateral border of the erector spinae musculature (to do so, ask the client to raise the head and upper trunk from the table); then place palpating finger just lateral to the lateral border of the erector spinae.
2. Direct palpating pressure medially, deep to the erector spinae musculature, and feel for the quadratus lumborum (QL).
3. To engage the QL to be certain that you are on it: ask the client to elevate the pelvis on that side at the lumbosacral joint (Note: This involves moving the pelvis along the plane of the table toward the head; in other words, the pelvis should not lift up in the air, away from the table.) and feel for its contraction (Figure 16-27).
4. Once located, palpate medially and superiorly toward the twelfth rib, medially and inferiorly toward the iliac crest, and directly medially toward the transverse processes of the lumbar spine (Figure 16-28).
5. Once the QL has been located, have the client relax it and palpate to assess its baseline tone.

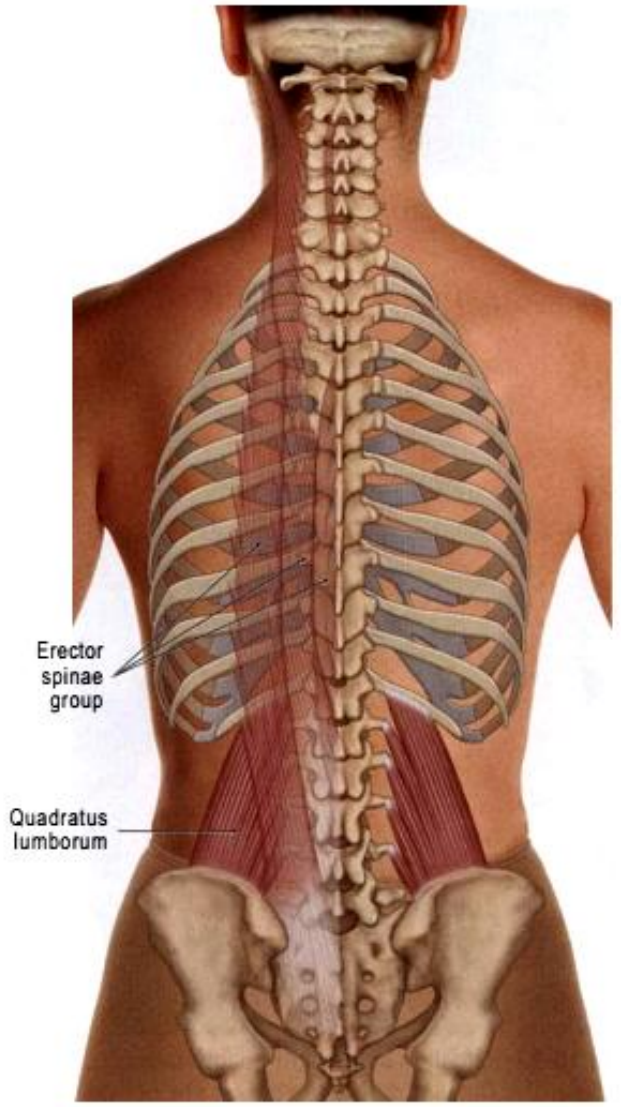


Figure 16-25 Posterior view of the right quadratus lumborum (QL). The left QL and ghosted left erector spinae group have been drawn in as well.

Mięsień czworoboczny lędźwi- palpacja

Figure 16-26 Starting position for prone palpation of the right quadratus lumborum.

Mięsień czworoboczny ledźwi - palpacja

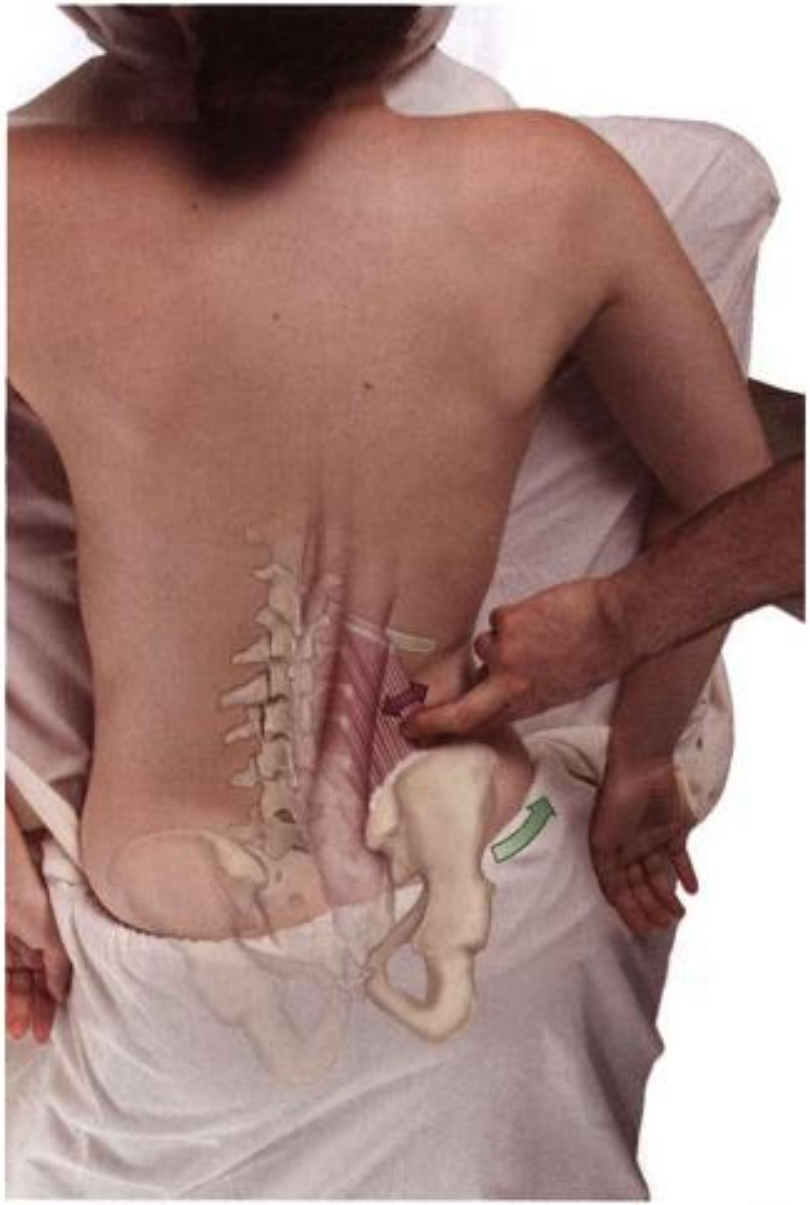


Figure 16-27 Palpation of the right quadratus lumborum as the client elevates the right side of the pelvis. The outline of the right erector spinae group has been ghosted in.

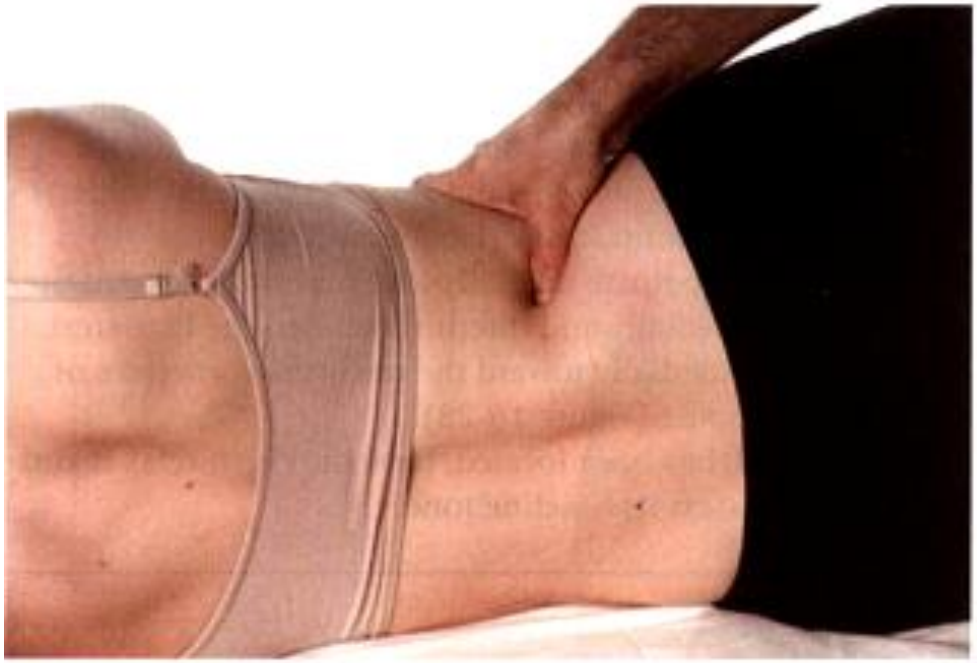


Figure 16-29 The quadratus lumborum (QL) can be easily palpated with the client side lying. As with the prone palpation, be sure that your palpating fingers are first located lateral to the erector spinae musculature. In this position, press down toward the table to access the belly and attachments of the QL.

Mięsień czworoboczny lędźwi - palpacja

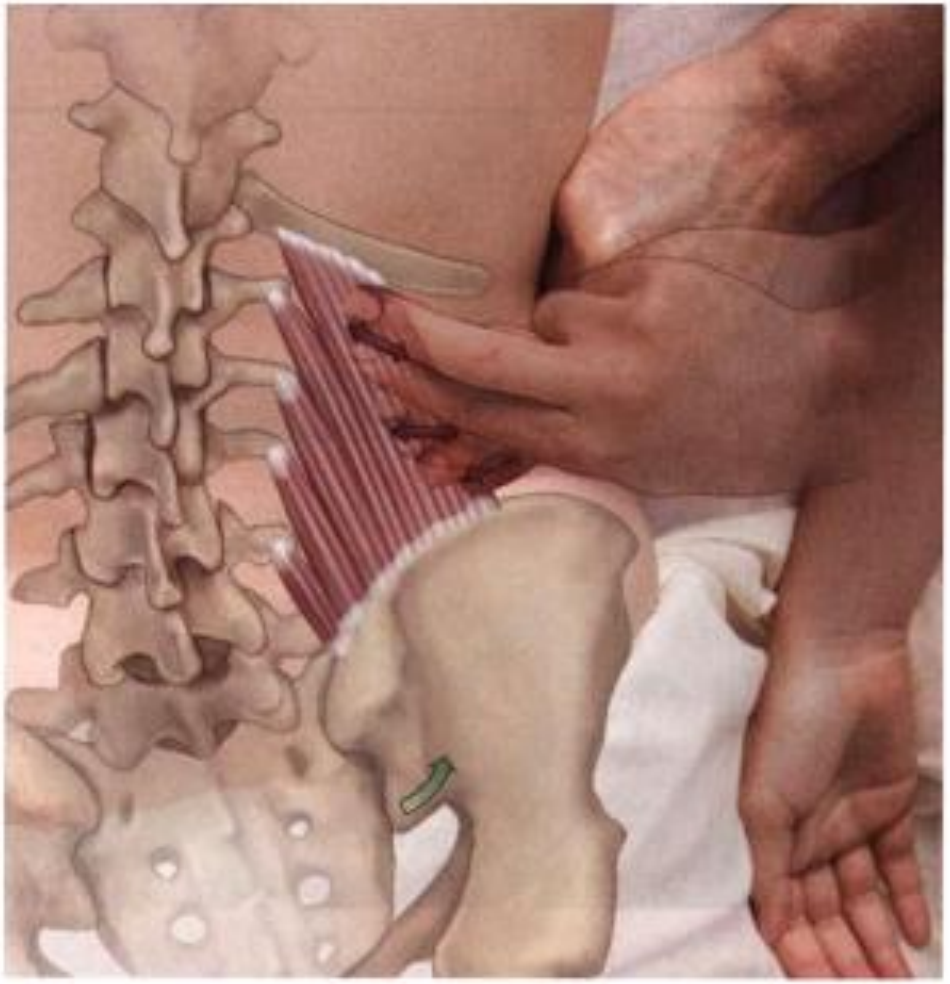


Figure 16-28 Once the quadratus lumborum has been located, palpate in all three directions toward the rib, transverse process, and iliac attachments.

Mięsień czworoboczny lędźwi– punkty spustowe i promieniowanie bólu

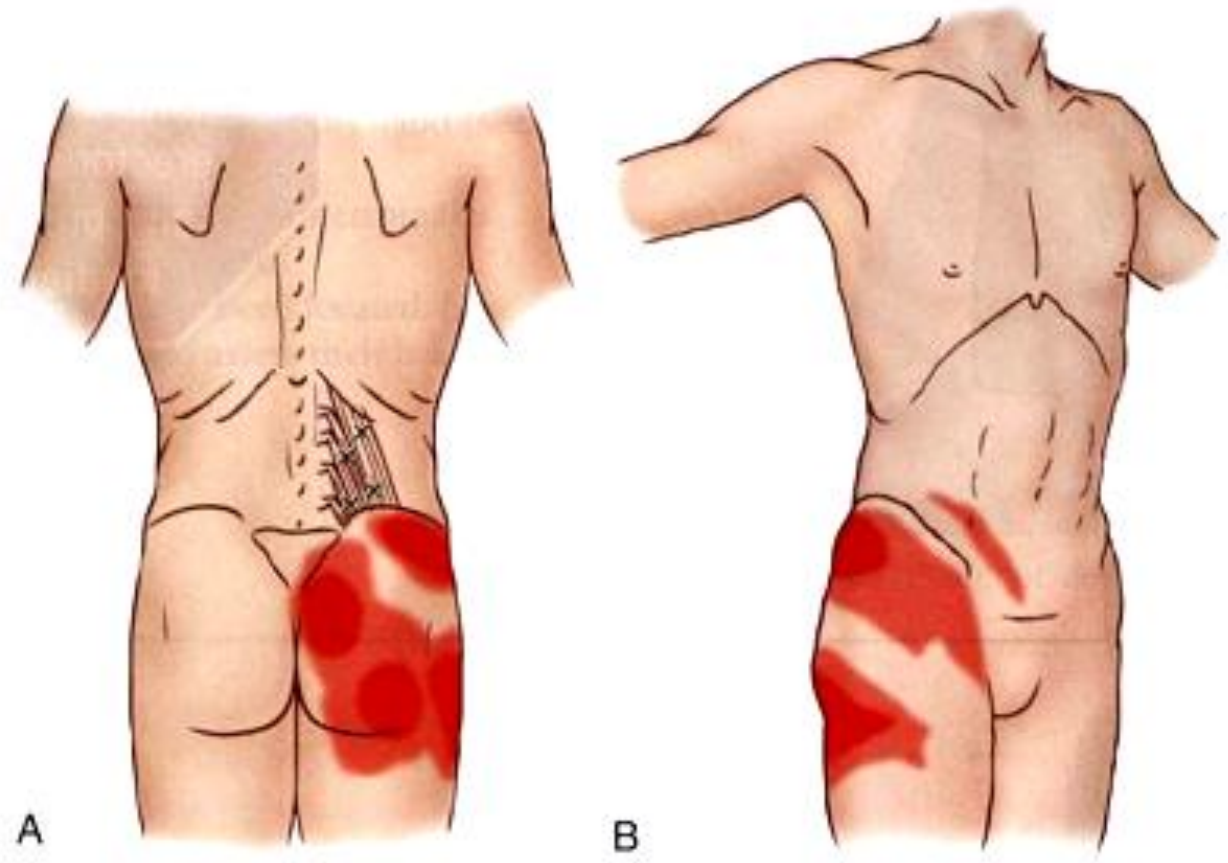


Figure 16-30 A, Posterior view of common quadratus lumborum (QL) TrPs and their corresponding referral zones. **B**, Anterolateral view showing the remainder of the referral zones.

Mięsień czworoboczny lędźwi- stretching

Figure 16-31 A stretch of the right quadratus lumborum. The client places the left foot in front of the right and then left laterally flexes the trunk with the arm raised overhead and brought to the left side. See also page 405, Figure 17-18, for another stretch of the quadratus lumborum.

MIĘSIEŃ BIODROWO-LĘDŹWIOWY

Mięsień biodrowo-lędźwiowy– anatomia i funkcja

- **ATTACHMENTS:**
  - Anterolaterally (bodies, discs, and transverse processes) on vertebrae T12-L5 (psoas major) and the internal surface of the ilium (iliacus) *to the* lesser trochanter of the femur

- **ACTIONS:**
  - The psoas major flexes, laterally flexes, and contralaterally rotates the trunk at the spinal joints,
  - Both the psoas major and the iliacus flex and laterally rotate the thigh at the hip joint, and anteriorly tilt the pelvis at the hip joint.

Starting Position (Figure 16-64):

- Client seated with the trunk slightly flexed
- Therapist seated to the side and slightly to the front of the client
- Palpating hand placed anterolaterally on the client's abdominal wall, approximately halfway between the umbilicus and the ASIS (anterior superior iliac spine); ensure placement is lateral to the lateral border of the rectus abdominis
- Fingers of support hand placed over fingers of palpating hand to increase strength and stability of palpating fingers (not shown in Figure 16-64)

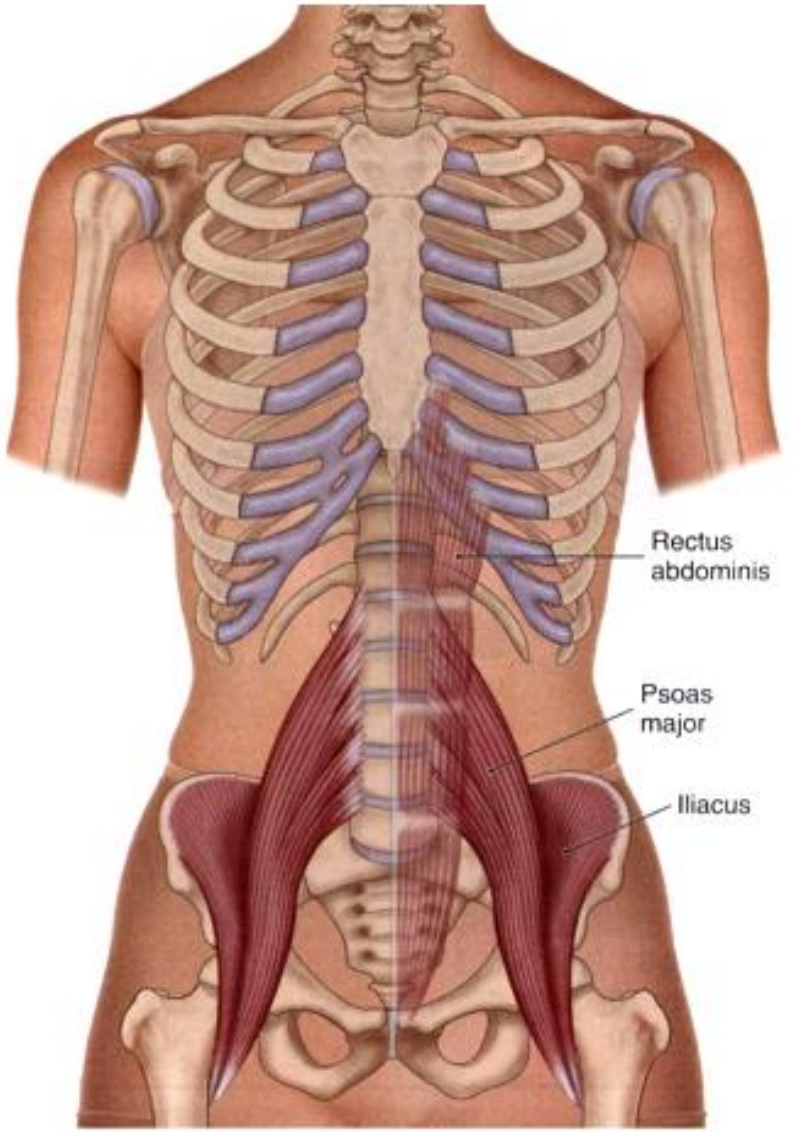


Figure 16-63 Anterior view of the right iliopsoas. The left iliopsoas and ghosted left rectus abdominis have been drawn in as well.

Mięsień biodrowo-lędźwiowy-palpacja

Figure 16-64 Starting position for seated palpation of the right iliopsoas.

Mięsień biodrowo-lędźwiowy-palpacja

Figure 16-65 Palpation of the right psoas major as the client gently flexes the thigh at the hip joint by lifting her foot up slightly from the floor.

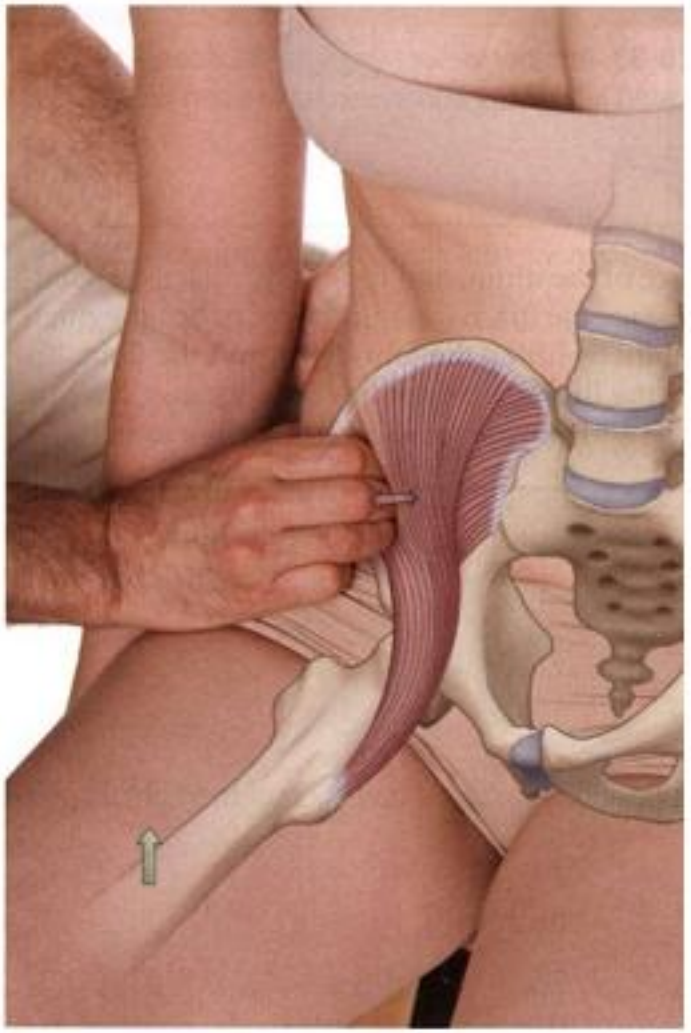


Figure 16-66 The right iliacus is palpated by curling the fingers around the iliac crest so that the finger pads are oriented against the muscle.

Mięsień biodrowo-lędźwiowy– punkty spustowe i promieniowanie bólu

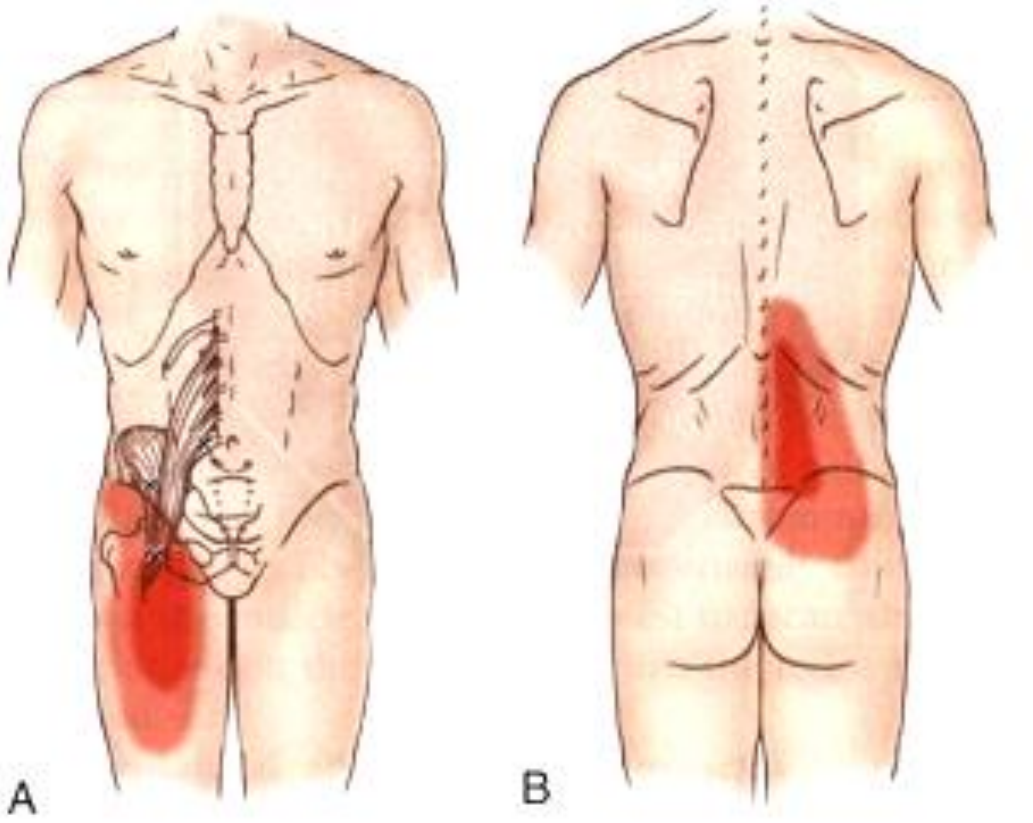


Figure 16-69 **A**, Anterior view showing common iliopsoas TrPs and their corresponding referral zone. **B**, Posterior view showing the remainder of the referral zone.

Mięsień biodrowo-lędźwiowy– stretching

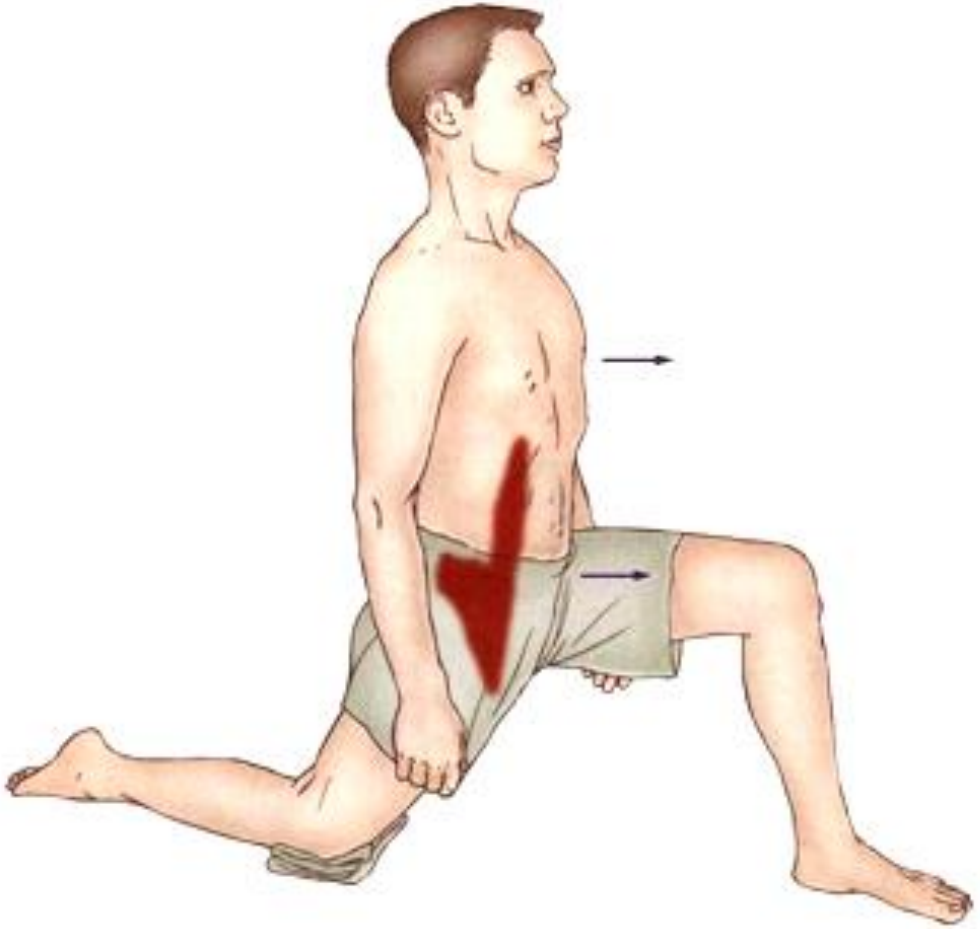


Figure 16-70 A stretch of the right iliopsoas. The client lunges forward with the pelvis and trunk, creating an extension force across the right hip joint. Note: It is important to keep the trunk straight or slightly extended, or the psoas major will not be stretched.

GRUPA MIĘŚNIA PROSTOWNIKA GRZBIETU

Mięsień prostownik grzbietu – anatomia i funkcja

- **ATTACHMENTS:**
  - Onto the pelvis, spine, ribcage, and head
- **ACTIONS:**
  - Extends, laterally flexes, and ipsilaterally rotates the trunk, neck, and head at the spinal joints
  - Anteriorly tilts and elevates the pelvis at the lumbosacral joint

Starting position (Figure 16-15):

- Client prone
- Therapist standing to the side of the client
- Palpating hand placed just lateral to the lumbar spine

Palpation steps:

1. Ask the client to extend the trunk, neck, and head, and feel for the contraction of the erector spinae musculature in the lumbar region (Figure 16-16).
2. Palpate to the inferior attachment on the pelvis and then toward the superior attachment as far as possible by strumming perpendicular to the fibers.
3. Once the erector spinae has been located, have the client relax it and palpate to assess its baseline tone.

Figure 16-14 Posterior view of the right erector spinae group.

Mięsień prostownik grzbietu - palpacja

Figure 16-15 Starting position for prone palpation of the right erector spinae group.

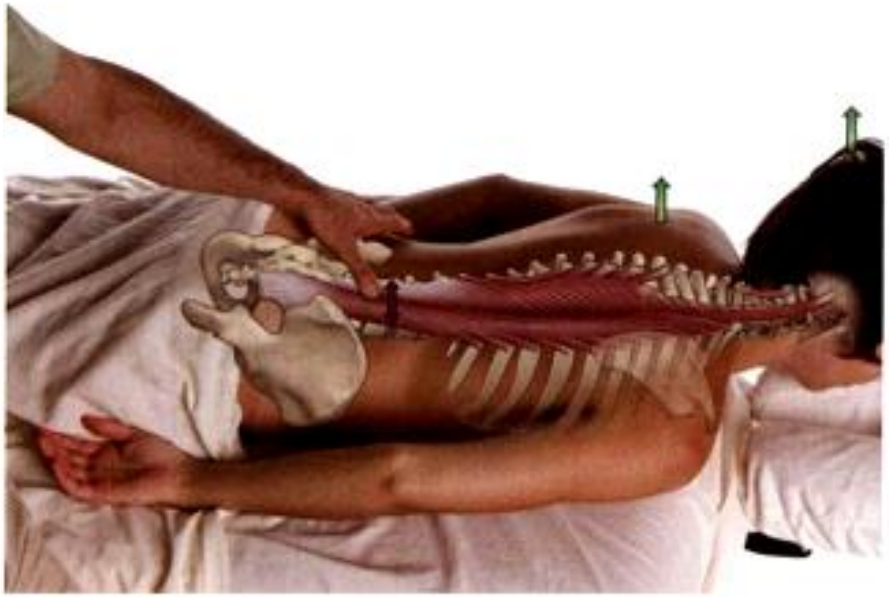


Figure 16-16 Palpation of the right erector spinae group as the client extends the head, neck, and trunk.

Mięsień prostownik grzbietu – punkty spustowe i promieniowanie bólu

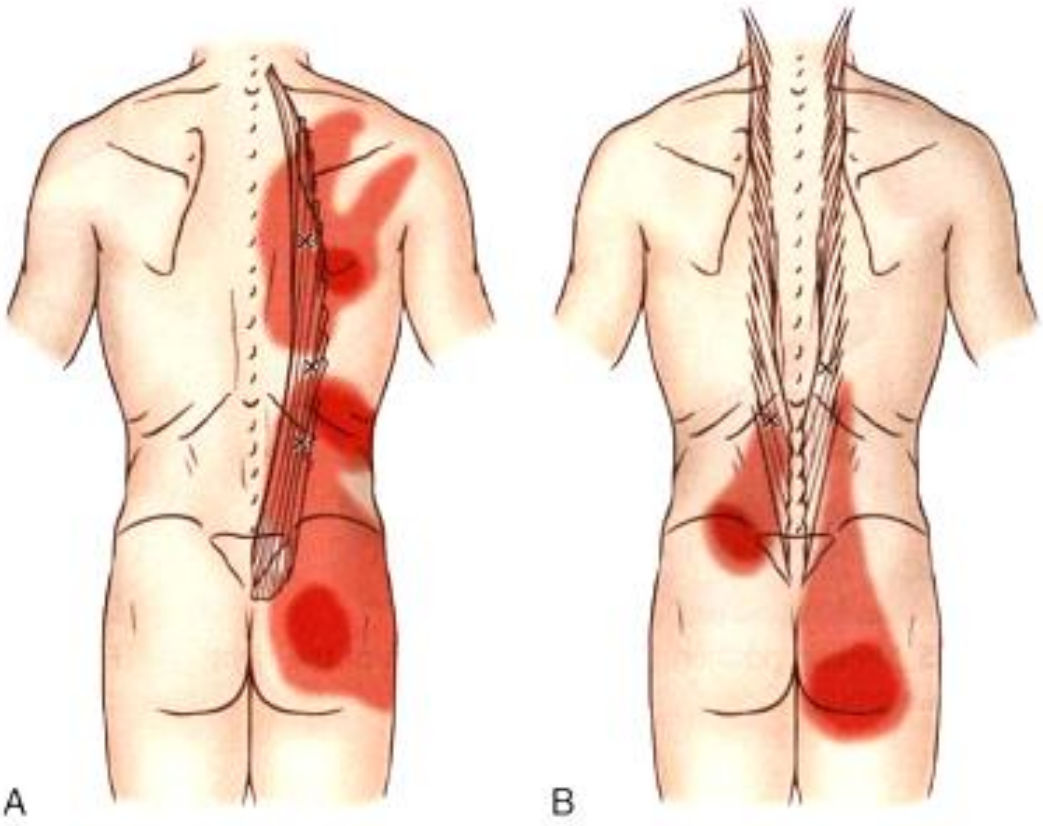


Figure 16-17 Erector spinae (iliocostalis and longissimus) TrPs. **A**, Posterior view showing common iliocostalis TrPs and their referral zones. **B**, Posterior view showing common longissimus TrPs and their referral zones.

Mięsień prostownik grzbietu - stretching

Figure 16-18 A stretch of the bilateral erector spinae groups. The client sits in a chair and slowly lowers himself into flexion. The stretch for one side can be enhanced by adding some lateral flexion to the opposite side. Note: When returning to the seated position, it is best for the client to place his forearms on the thighs, using them to push himself back up.

MIĘSIEŃ NAJSZERSZY GRZBIETU

Mięsień najszerszy grzbietu – anatomia i funkcja

- **ATTACHMENTS:**
  - Spinous processes of T7-L5, posterior sacrum, and the posterior iliac crest (all via the thoracolumbar fascia) to *the* lowest three to four ribs and the inferior angle of the scapula to *the* medial lip of the bicipital groove of the humerus

- **ACTIONS:**
  - Extends, adducts, and medially rotates the arm at the shoulder joint
  - Anteriorly tilts the pelvis at the lumbosacral joint via its attachment to the scapula, it also can depress the scapula (shoulder girdle) at the scapulocostal joint

Starting position (Figure 16-5):

- Client prone with the arm relaxed at the side
- Therapist seated to the side of the client
- Palpating fingers placed on the posterior axillary fold of tissue
- Support hand placed on the posterior aspect of the client's arm (just proximal to the elbow joint)

Palpation steps:

1. Ask the client to extend the arm at the shoulder joint and feel for the contraction of the latissimus dorsi in the posterior axillary fold of tissue (Figure 16-6, A).
2. Palpate toward its inferior attachment as the client alternately contracts and relaxes the latissimus dorsi.
3. Beginning again at the posterior axillary fold of tissue, palpate the distal tendon by strumming perpendicularly into the axilla all the way to the humerus (Figure 16-6, B).
4. Once the latissimus dorsi has been located, have the client relax it and palpate to assess its baseline tone.

Figure 16-4 Posterior view of the right latissimus dorsi.

Mięsień najszerszy grzbietu - palpacja

Palpation Key:

Palpate the posterior axillary fold of tissue.

Figure 16-5 Starting position for prone palpation of the right latissimus dorsi.

Figure 16-7 The posterior axillary fold, which contains the latissimus dorsi and teres major, is being pinched.

Mięsień najszerszy grzbietu - palpacja

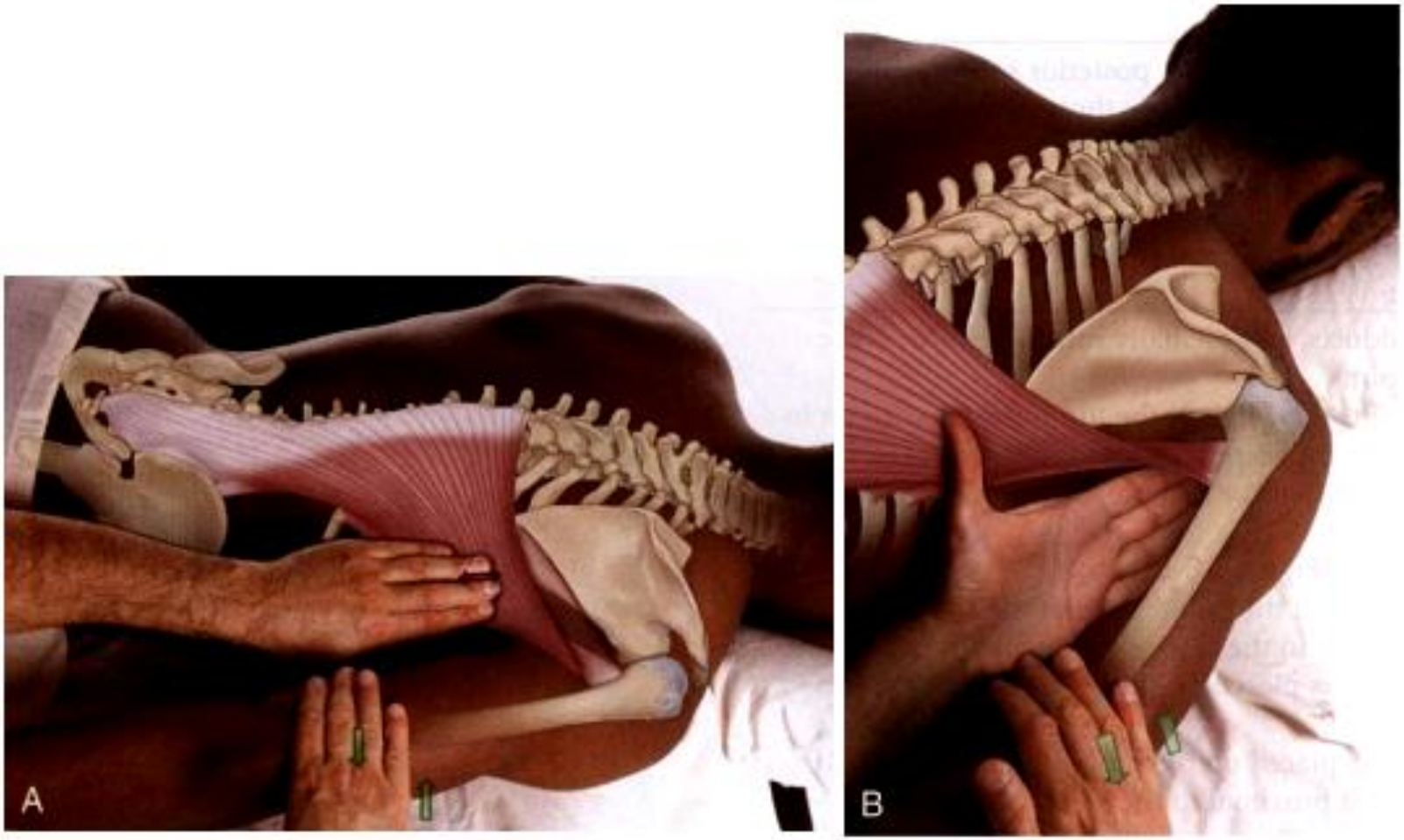
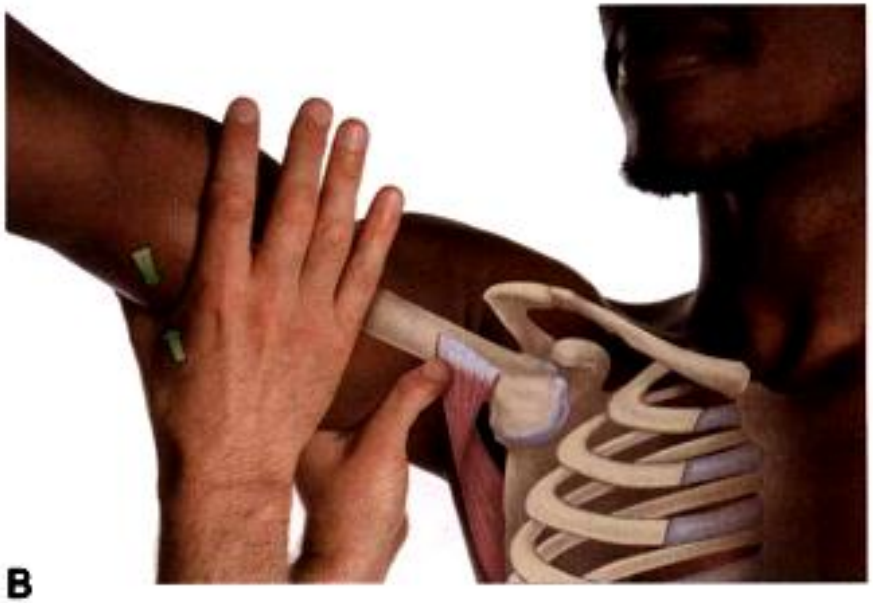


Figure 16-6 Palpation of the right latissimus dorsi as the client extends the arm against resistance. **A**, Palpation of the latissimus dorsi in the posterior axillary fold. **B**, Palpation of the humeral attachment at the medial lip of the bicipital groove of the humerus.

Mięsień najszerszy grzbietu - palpacja

A



B

Figure 16-8 Standing palpation of the right latissimus dorsi. **A**, The starting position in which the client has his distal arm (just proximal to the elbow joint) on the shoulder of the therapist. **B**, Shows palpation of the humeral attachment as the client tries to move the arm obliquely toward extension and adduction against resistance.

Mięsień najszerszy grzbietu –punkty spustowe i promieniowanie bólu

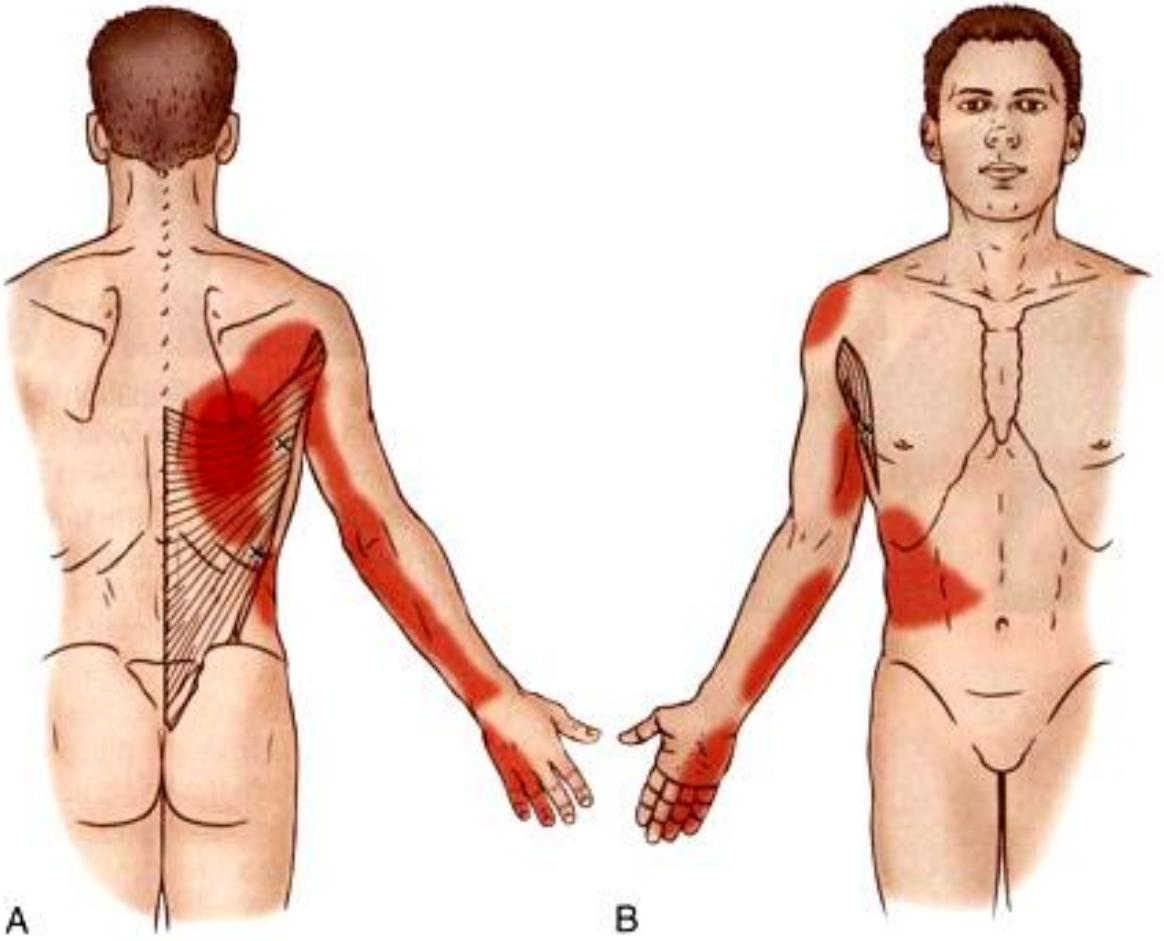
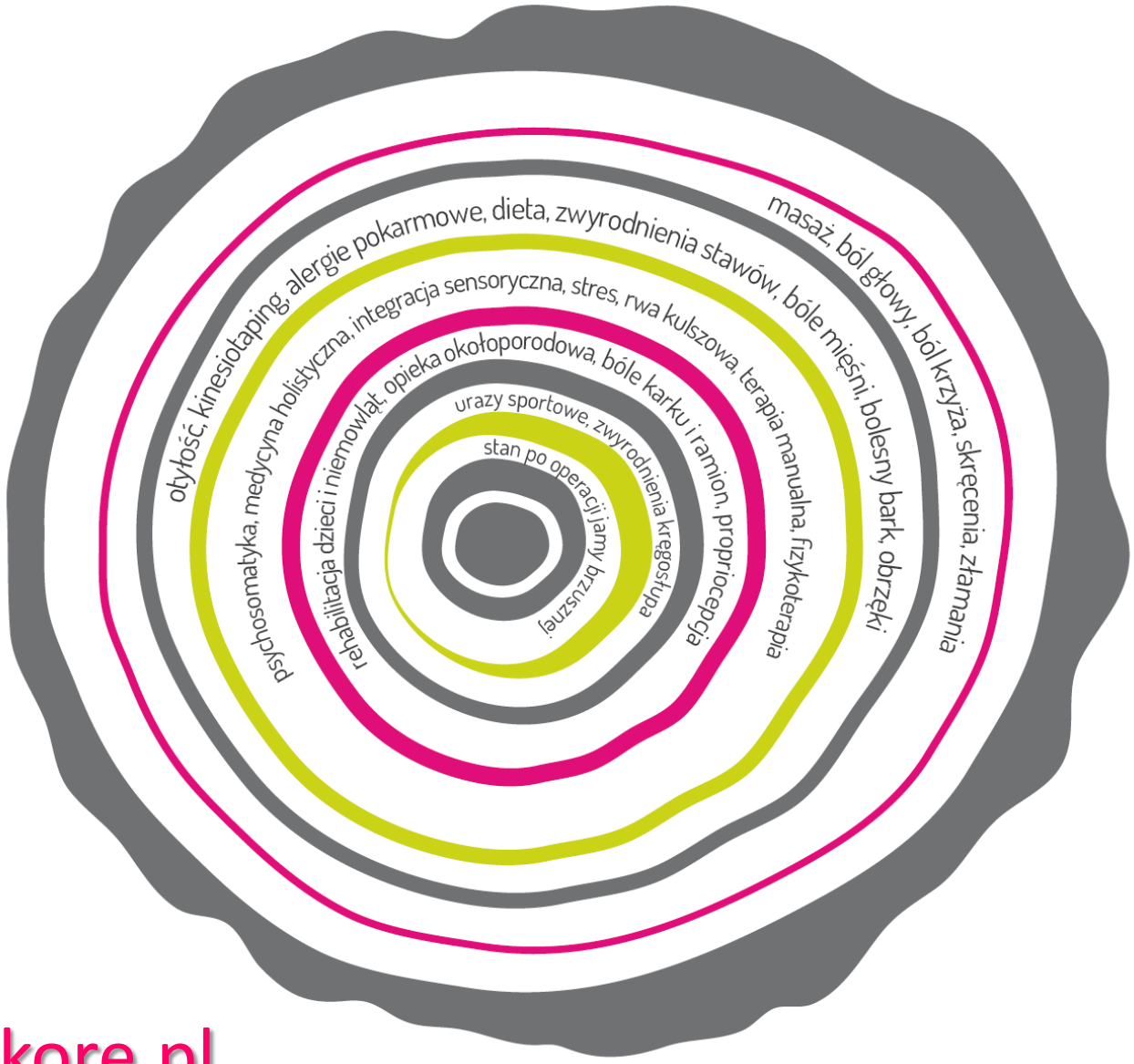


Figure 16-9 A, Posterior view illustrating common latissimus dorsi TrPs and their corresponding referral zones. **B**, Anterior view showing another common latissimus dorsi TrP and its referral zone.

Mięsień najszerszy grzbietu - stretching

Figure 16-10 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. See also Figure 10-43 for another stretch of the latissimus dorsi.



Dziekuję

www.centrum-kore.pl