MYOFASCIAL PAIN AND TRIGGER POINT INJECTIONS

THE UPPER BODY

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Chapter 1: Temporalis

The temporalis is a broad fan-shaped muscle and cover much of the temporal bone and it is involved in mastication (chewing).

Muscle Groups and Attachments

The temporalis muscle originates from the temporal fossa. Specifically, from the temporal lines on the parietal and frontal bones of the skull, as well as from the deep surface of the temporal fascia.

Referred Pain Patterns

TrPs in the temporalis muscle are responsible for upper incisors, supraorbital ridge, maxillary teeth, mid-temple, and temporomandibular joint (TMJ) pain. Some indications are hypersensitivity of teeth, bruxism, sinusitis pain, or tickling in cheek area.

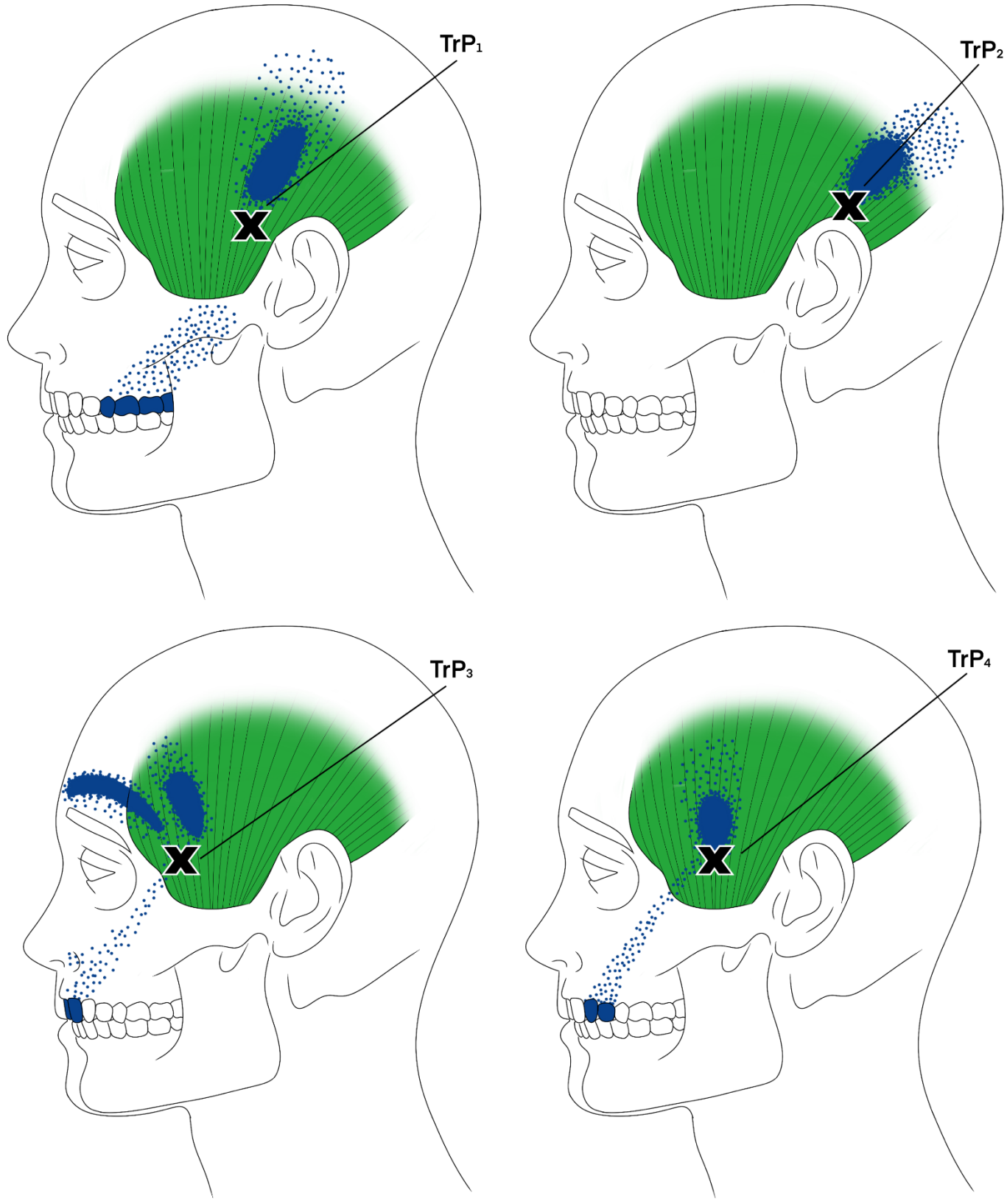

Figure 1: Trigger Points and Pain Patterns in the Temporalis.

Chapter 2: Masseter

The masseter is the most superficial muscle of mastication, easily felt when the jaw is clenched.

Muscle Groups and Attachments

The masseter muscle originates from the zygomatic arch, specifically from the anterior two-thirds of the lower border of the arch. It inserts onto the lateral surface of the ramus of the mandible and the angle of the mandible.

The masseter muscle primarily functions to elevate the mandible (jaw), closing the mouth during the biting and chewing process.

Referred Pain Patterns

Patients with TrPs in the superficial layer of the masseter muscles complain of pain in the eyebrows, maxilla, mandibula (anterior), and upper and lower molar teeth. The TrP in the deep layer of the muscle can be responsible for pain in the ear and the emporomandibular joints (TMJ).

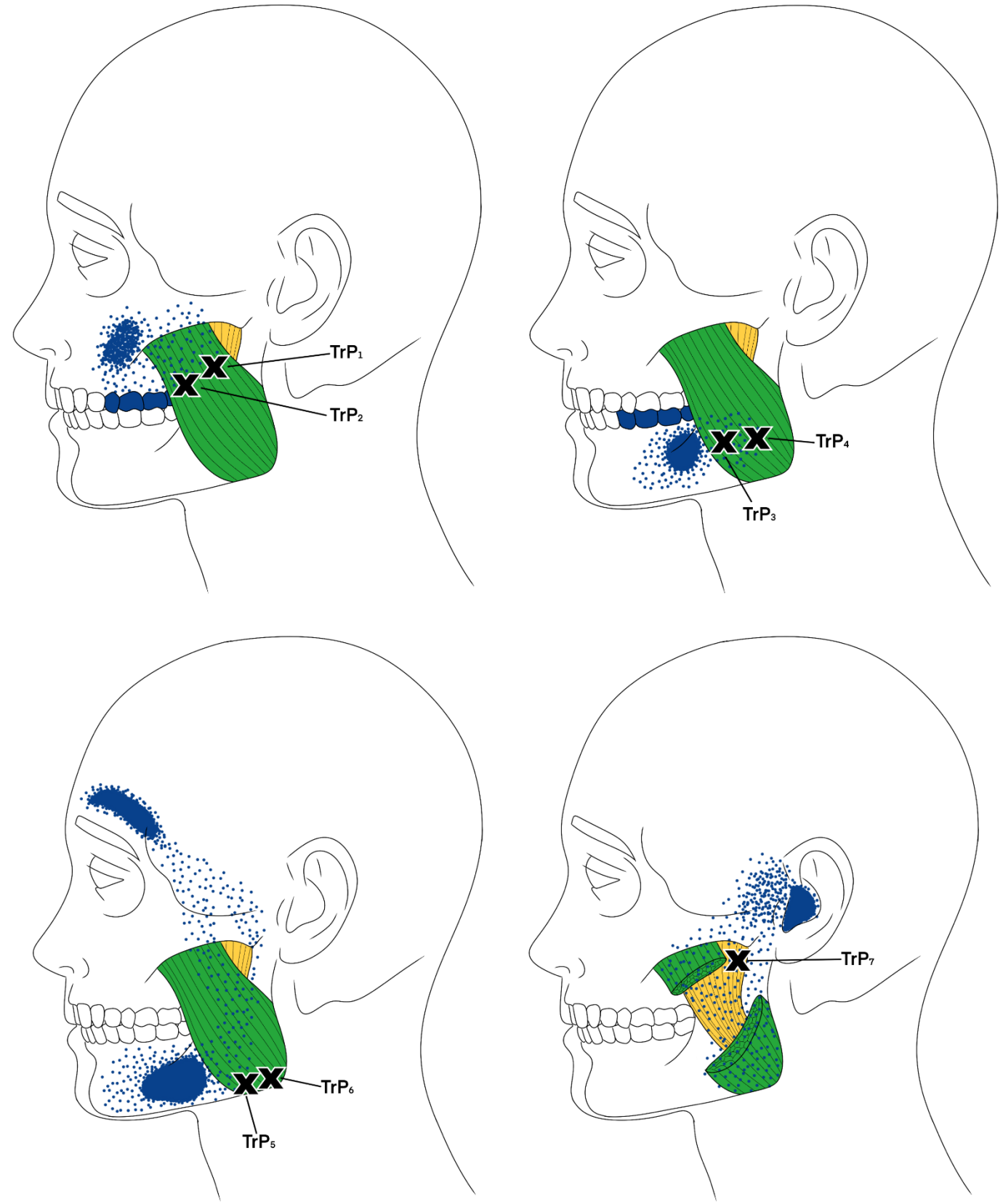

Figure 2: Trigger Points and Pain Patterns in the Masseter.

Chapter 3: Sternocleidomastoid

The sternocleidomastoid muscle is a complex muscle frequently containing a variety of TrPs either related to the sternal or clavicular areas. Both areas can be involved simultaneously. It is common for pain; referred pain and proprioceptive activity to be noted by the patient.

Muscle groups and Attachments

This head of this long muscle attaches to the mastoid process and along the superior nuchal line. The anterior and diagonal muscle division attaches posterior and lateral to the clavicular.

Referred Pain Pattern

Pain is often referred from either the sternal or the clavicular areas. The sternal area refers pain to the vertex, occiput, laterally across the cheek, over the eye; to the throat down to the sternum. Clavicular involvement refers pain to frontal headaches, earaches and can even cause dizziness, and altered spatial and proprioception issues.

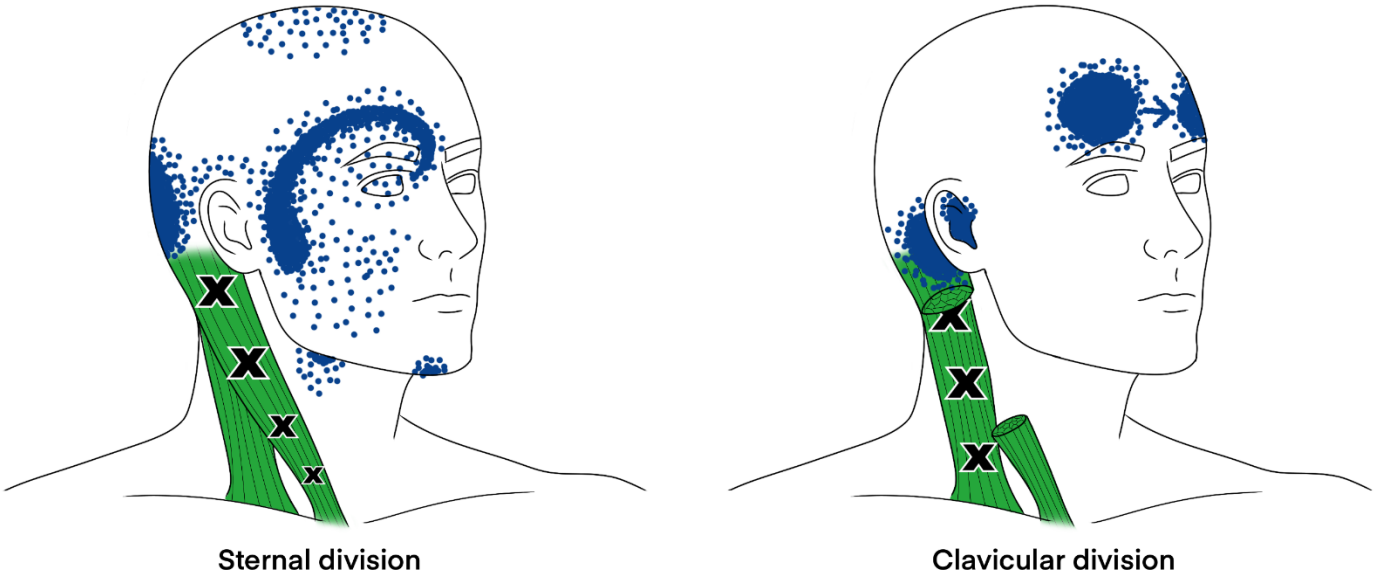

Figure 3: Trigger Points and Pain Patterns in the Sternocleidomastoid.

Chapter 4: Scalene Muscles

This group of muscles provide stability to the cervical spine with lateral movement and rib stability with inhalation. The scalene muscles and their TrPs contributes to the shoulder-girdle and upper arm pain. TrPs along this muscle group can also contribute to thoracic outlet entrapment.

Muscle Groups and Attachments

The three major scalene muscles attach above to the transverse process at the cervical vertebrae and below the anterior and medias attach to the first rib and posterior connects to the second rib.

Referred Pain Pattern

The anterior scalene radiates pain to the pectoral region, often described as aching. Lateral scalene referred pain down the front and back of the arm, medially to the forearm, even as far as the thumb and index finger. Posteriorly, pain is referred along the scapular boarder.

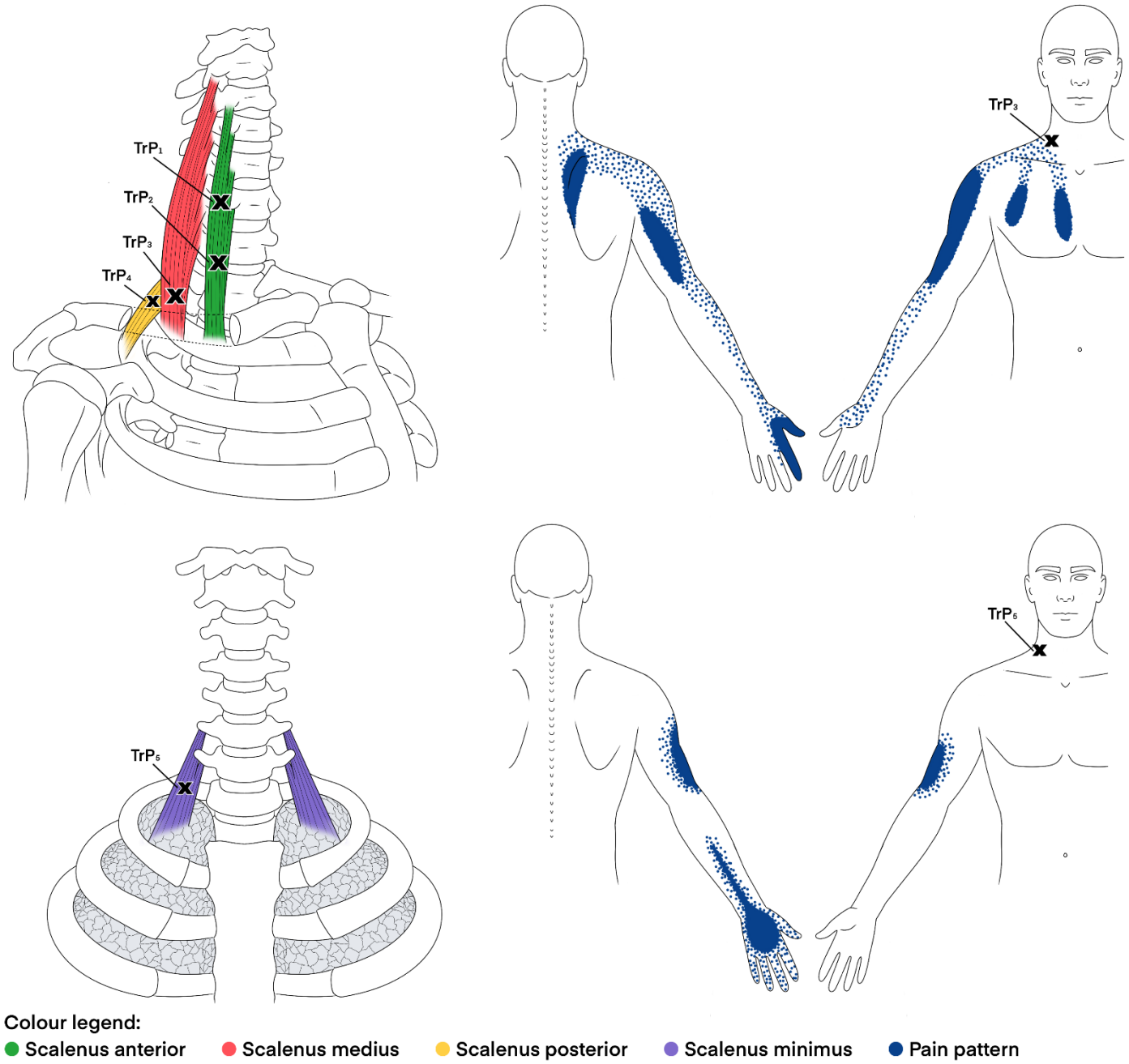

Figure 4: Trigger Points and Pain Patterns in the Scalene.

Chapter 5: Trapezius Muscle

It is a tripartite muscle, meaning it has three different directions that muscle fibers run, therefore presenting with different areas of referred pain and TrPs.

Muscle Groups and Attachments

The trapezii are a paired muscle group forming a diamond shape from the occiput above inserting to T12 below. It reaches anteriorly to the lateral clavicle and posteriorly throughout the length of the spine to the scapula.

Referred Pain Pattern

Common areas of referred pain involving the upper trapezium are to the posterolateral area of the neck, behind the ear or radiating to the temple. TrPs in the lower trapezius muscle refer pain to the posterior neck, mastoid, suprascapular area and the intrascapular region. Less common involved are pain referred from the middle trapezium toward the spine and intrascapular areas.

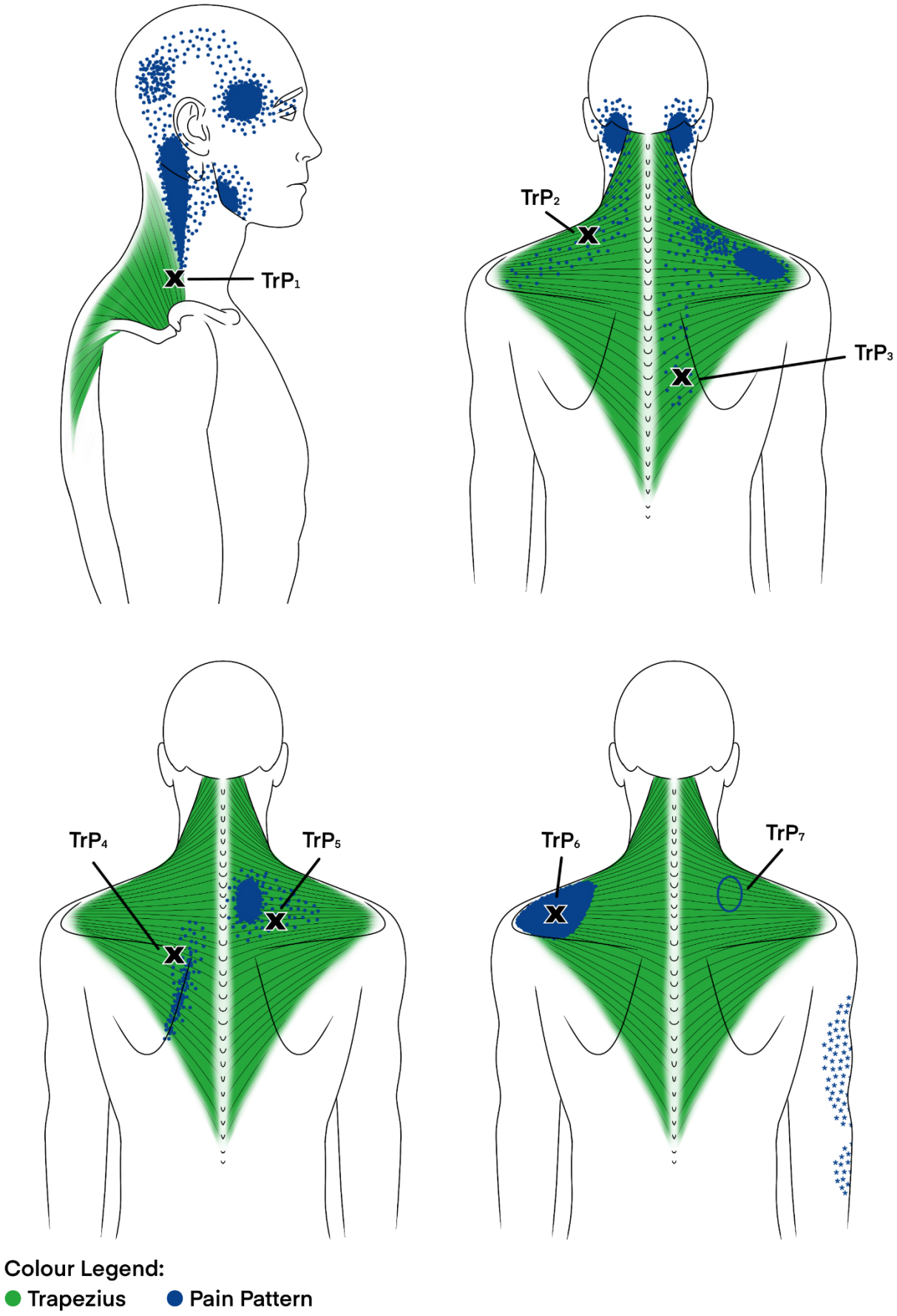

Figure 5: Trigger Points and Pain Patterns in the Trapezius Muscle.

Chapter 6: Levator Scapulae Muscle

The levator scapulae are responsible for rotating the scapula downwards and can lift the scapula. It is also responsible, in part, in assisting the neck to rotate side to side and helps with control and flexion of the neck.

Muscle Groups and Attachments

The group of muscles attaches to the transverse processes at C1 to C4 and below to the area of the superior angle of the scapula.

Referred Pain Pattern

Patients complaining of a stiff neck with limited rotation likely have TrPs in the levator scapula. Referred pain is from the angle of the neck along the vertebral boarder of the scapula.

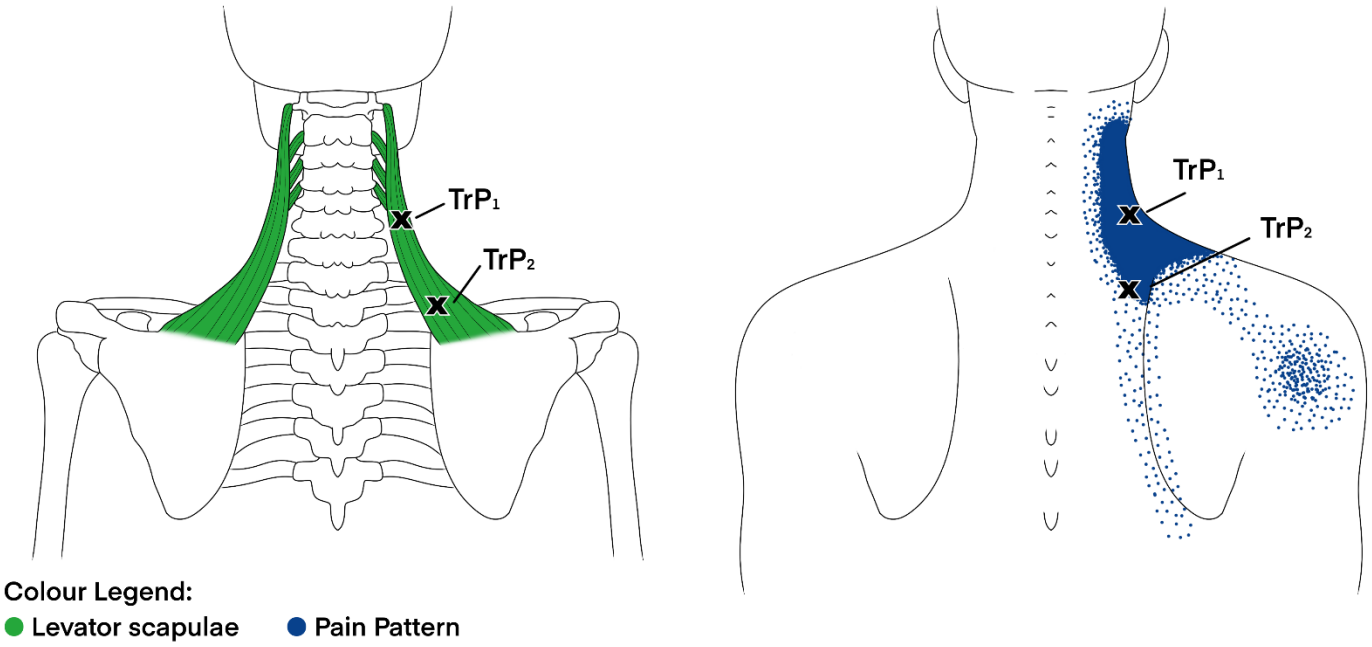

Figure 6: Trigger Points and Pain Patterns in the Levator Scapulae.

Chapter 7: Rhomboid Major and Minor Muscles

The rhomboids are responsible for adducting the scapula and medially rotating it, which turns the glenoid fossa downwards. Patients present with tightened and shortened muscles leading to hunched and rounded shoulder appearance.

Muscle Groups and Attachments

This muscle group attach from the spinous processes from C7 through T5 and below and laterally to the vertebral boarder of the scapula. The rhomboid minor attaches above from C7 to T1 and below to the boarder of the scapula. The rhomboid major attaches above from T2 to T5 and below to the lower scapular boarder.

Referred Pain Pattern

The referred pain pattern is felt vertically long the scapular boarders and may spread upwards over the supraspinous portion of the scapula. Patients should not complain of pain in the neck or have restricted neck rotation as that is linked to levator scapular TrPs.

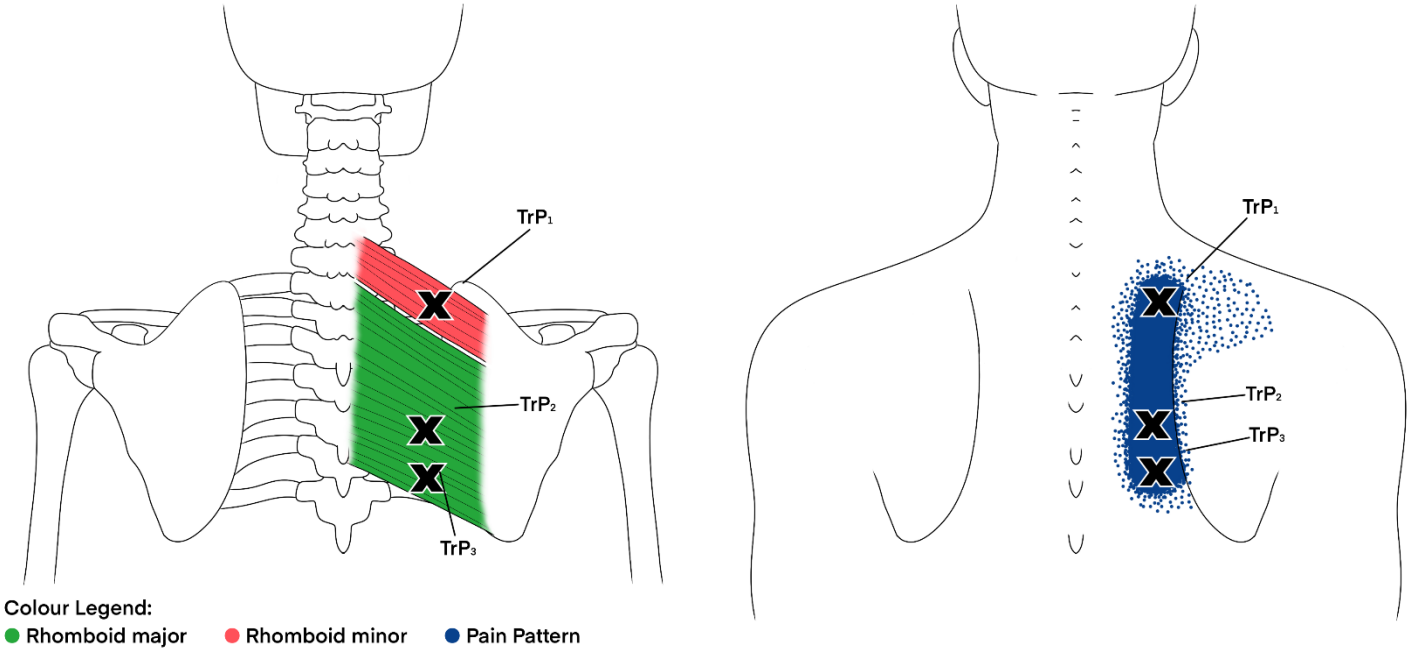

Figure 7: Trigger Points and Pain Patterns in the Rhomboid.

Chapter 8: Serratus Posterior Superior and Inferior Muscles

The main job these muscles are responsible for are to assist in inhalation both shallow and deeply. Patients complain of increased pain symptoms when reaching their hands forward.

Muscle Groups and Attachments

The serratus posterior superior muscle attaches above to the dorsal midline fascia from C6 to T2 or T3 and below and laterally to second through fifth ribs. It lies at a 45-degree angle and beneath the rhomboid and trapezius muscle groups.

Referred Pain Pattern

Patients describe pain from activated TrPs in the serratus posterior superior as a deep scapular pain. Deep under the upper scapular pain is intensified and can radiate across the back of the shoulder, over the triceps, the elbow, down the ulnar side of the arm to the fifth finger.

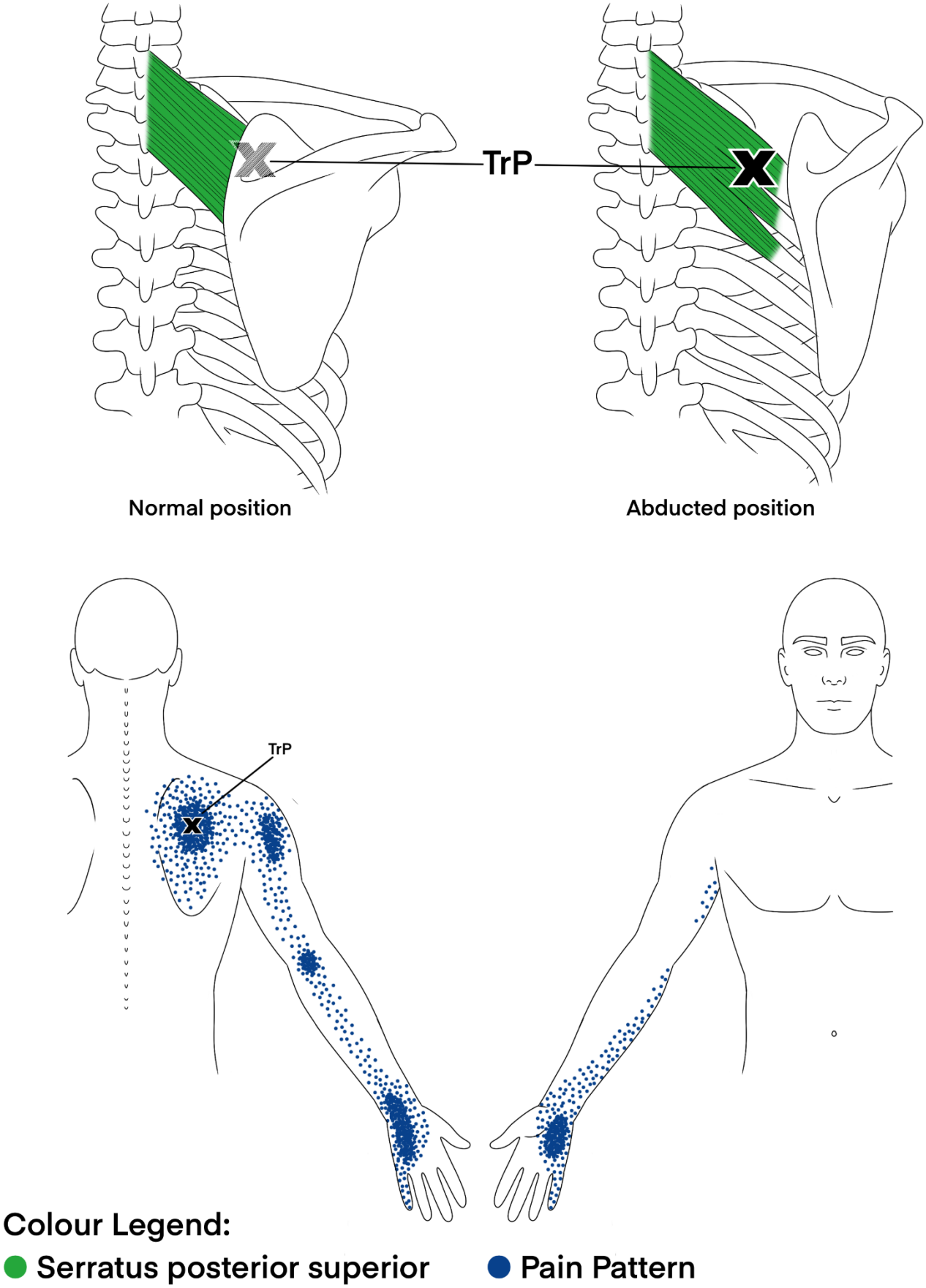

Figure 8: Trigger Points in the Serratus Posterior Superior.

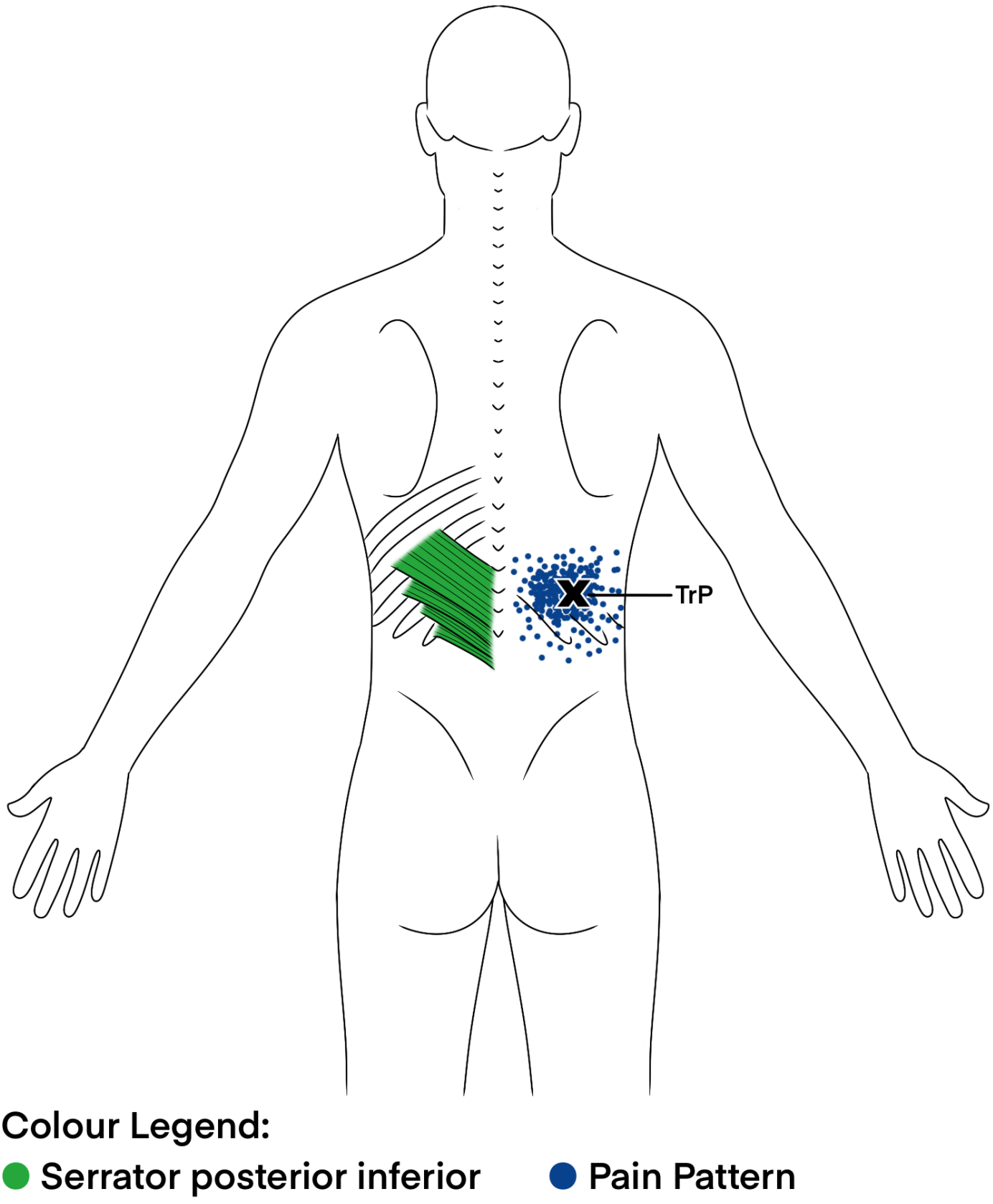

Figure 9: Trigger Point and Pain Patters in the Serratus Posterior Inferior.

Chapter 9: Latissimus Dorsi Muscle

The latissimus dorsi muscle is responsible for aiding in adduction, extension and medial rotation of the arm at the site of the shoulder joint and forceful depression of the shoulder girdle. It is not uncommon that patients complain of unrelenting pain in the back even with position changes.

Muscle Groups and Attachments

This muscle attaches to the spine in the formation of a fan cumulating under the arm. Below, the latissimus dorsi attaches to the spinous process of the lower six thoracic and all the lumbar vertebrae, sacrum, posterior iliac crest and the last three to four lower ribs. Above, it attaches near the teres major at the intertubercular groove.

Referred Pain Pattern

Typically, referred pain from activated TrPs of the latissimus dorsi concentrates that the inferior angle of the scapula. Pain can also extend along the back of the shoulder, down the back of the arm along the ulnar to the ring and middle fingers.

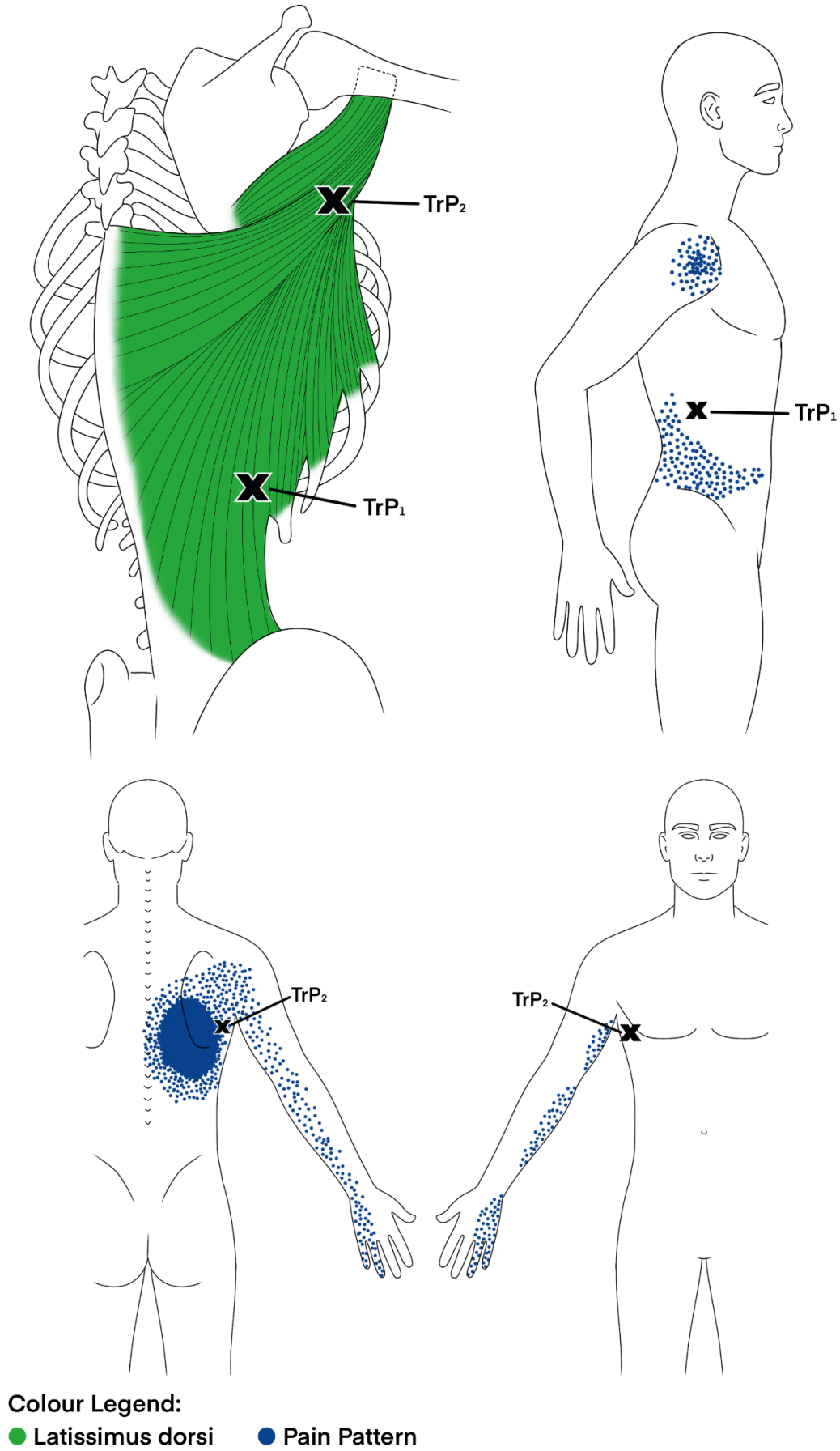

Figure 10: Trigger Points and Pain Patterns in the Latissimus Dorsi.

Chapter 10: Splenius Capitis and Splenius Cervicis

These muscles work together to extend the head and neck and contribute to the ability to rotate the head to either side. Patients can complain of headache or neck pain and can contribute to blurred vision.

Muscle Group and Attachments

The splenii attach to the spinous processes of the lower cervical and upper thoracic vertebrae. The upper splenius cervicis attaches to the transverse process of the upper cervical vertebrae and the splenius capitis attaches to the mastoid process of the skull. Both the splenius cervicis and the capitis lie deeply under the trapezius and posteriorly and medially to the levator scapulae.

Referred Pain Pattern

Pain can be referred from the splenius capitis TrPs to the vertex of the head. Pain referred from TrPs associated with the splenius cervicis occurs to the occiput, diffusing over the sides of the skull. Patients can complain of ‘deep aching pain’ inside of the skull. Pain from splenius cervicis can also radiate down to the shoulder or the angle of the neck.

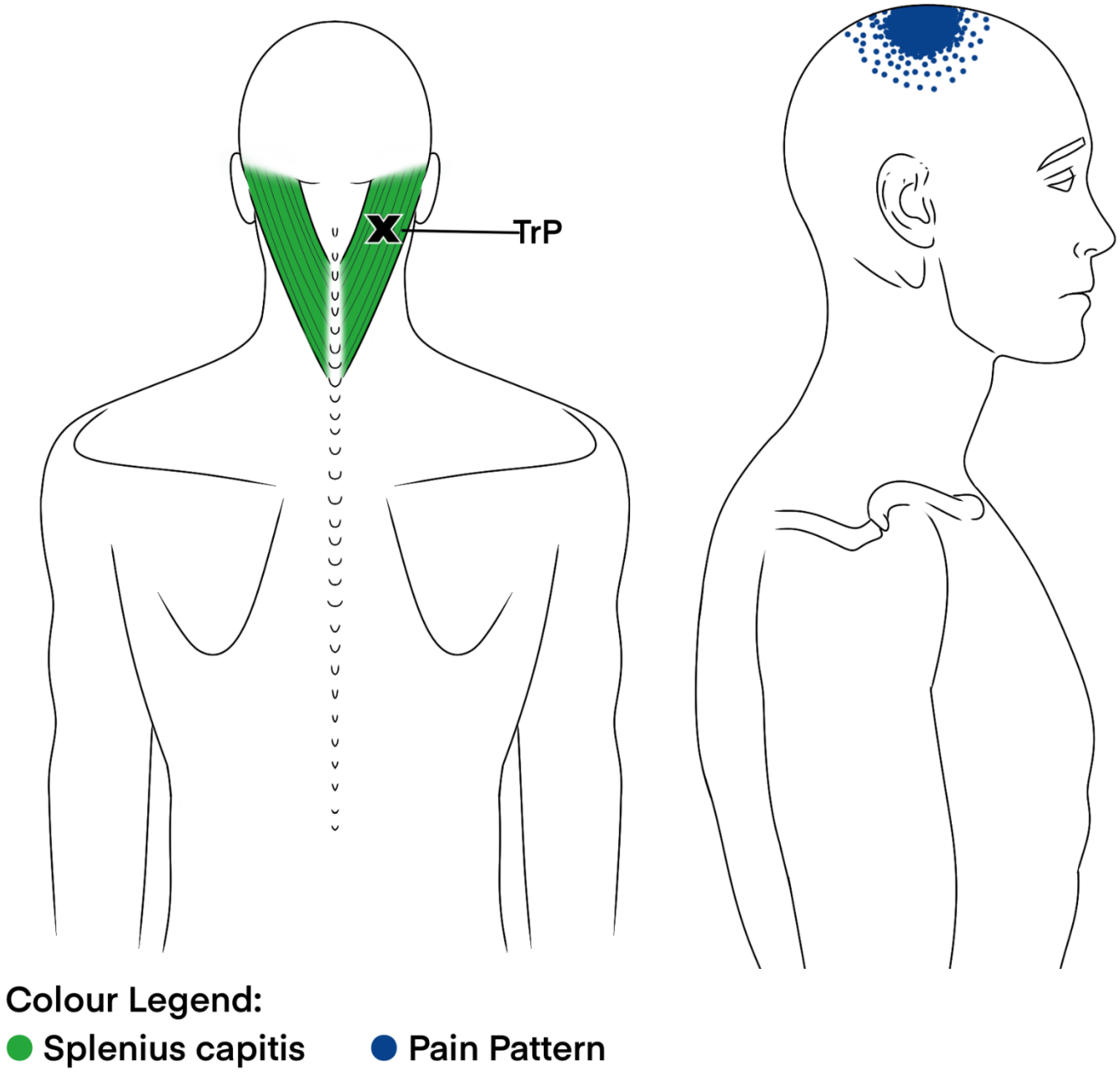

Figure 11: Trigger Points and Pain Patterns in the Splenius Capitis Muscle.

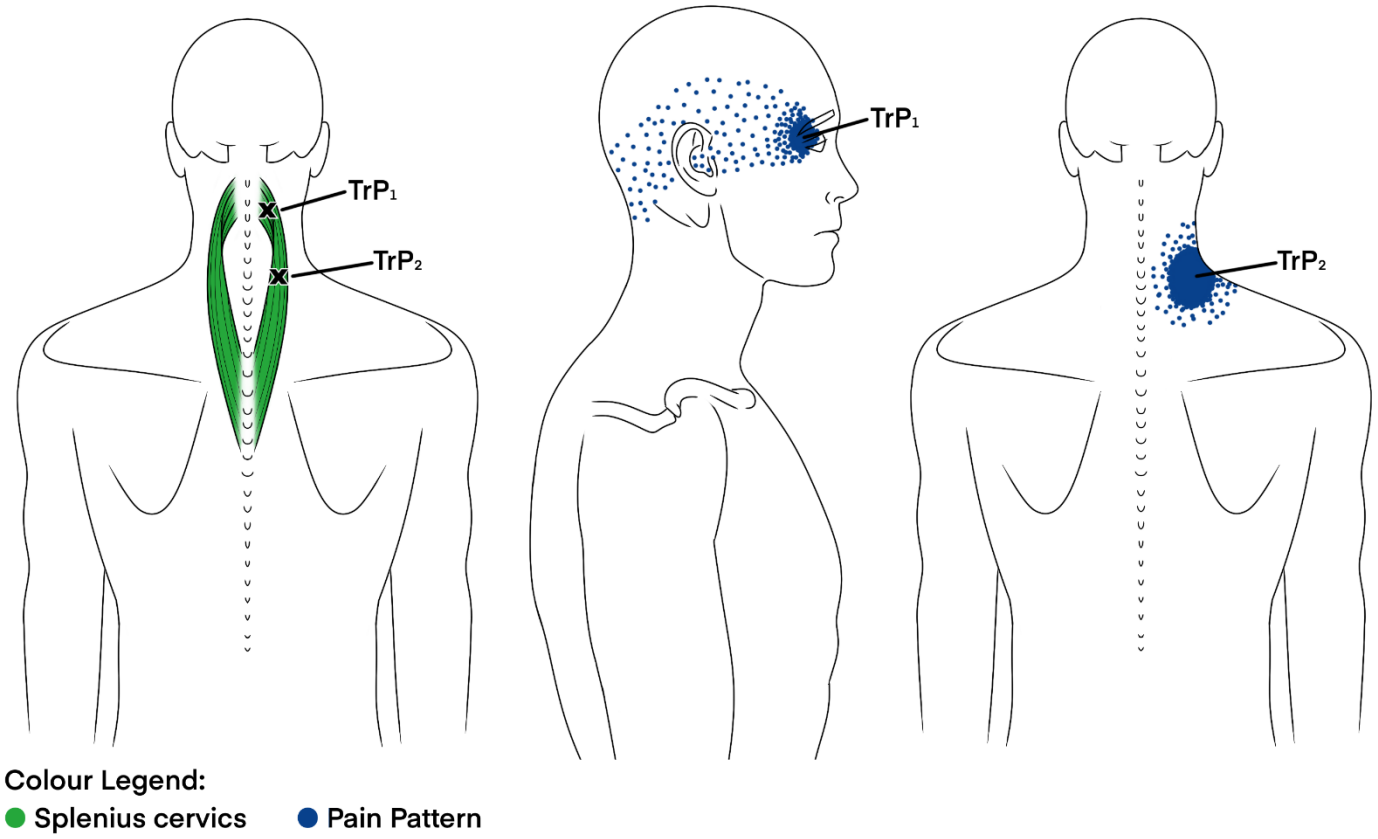

Figure 12: Trigger Points and Pain Patterns in the Splenius Cervicis Muscle.

Chapter 11: Posterior Cervical Muscles and Multifidi

The posterior cervical muscles are made up of the semispinalis capitus, longissimus capitus, semispinalis cervicis, multifidi and rotators. This group of muscles main function is to allow for the extension of the head and neck by the longer more superficial fibers and the longer and deeper more diagonal fibers.

Muscle Groups and Attachments

The semispinalis capitis lies overtop of the semispinalis cervicis and attaches below to the transverse processes beneath the articular processes of the cervical vertebrae from C4 to C6 and through the transverse processes from T1 to T6. The muscle fibers of semispinalis capitis run parallel as comparted to semispinalis cervicis the runs in a reverse 'v' formation. Longissimus capitis attaches below C3 or C4 vertebrae and to the T4 or T5 of the thoracis vertebrae and attaches above to the skull along the mastoid process and sternocleidomastoid muscles. Semispinalis cervicis attaches below to the transverse processes of T1 to T5-6 and above to the spinous process of C 2 to C5. The cervical multifidi attach above to the spinous process of C2 to C5 and below to the articular processes C4 to C7. The cervical rotators are the shortest and deepest paraspinal muscles and they begin at C2 and continue downwards to connect to the adjacent vertebrae.

Referred Pain Pattern

Referred pain from the semispinalis capitis is felt in a band-like sensation above the eyes to the sides of the head that can radiate to the posterior occiput. The longissimus capitis has referred pain behind or below the ear. Referred pain from multifidi TrPs occurs along the suboccipital area downward along the neck or even to the shoulder girdle.

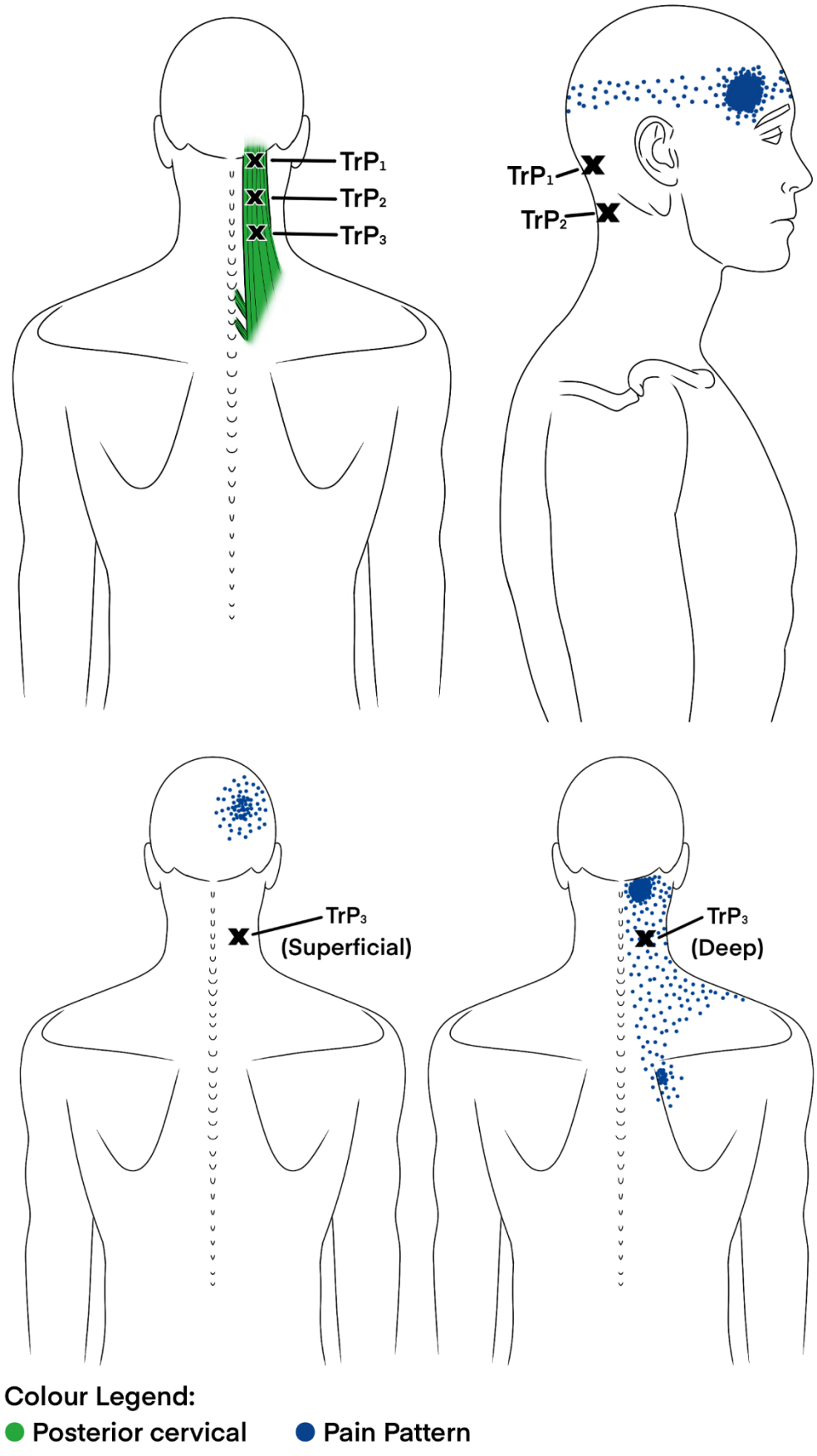

Figure 13: Trigger Points and Pain Patterns in the Posterior Cervical.

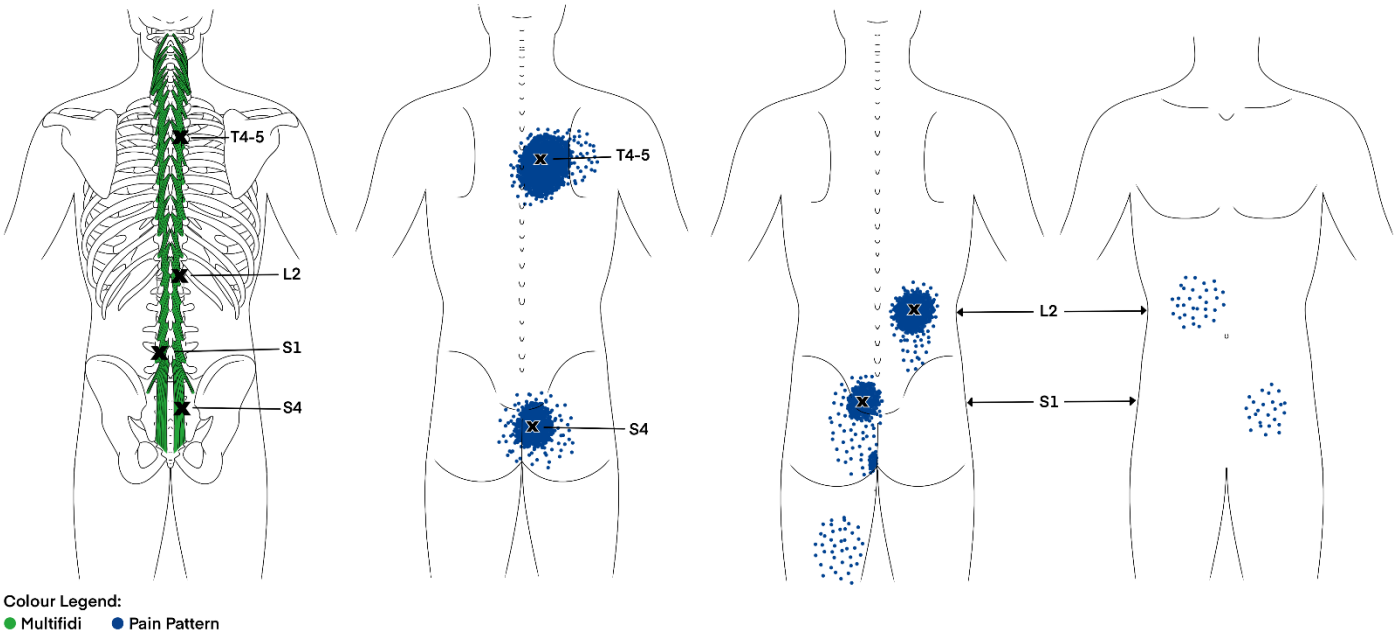

Figure 14: Trigger Points and Pain Patterns in the Multifidi.

Chapter 12: Pectoralis Major Muscle

This complex muscle to the front chest is responsible for adduction of the arm in conjunction with the teres major and minor, the deltoids and the subscapularis muscles.

Muscle Groups and Attachments

This muscle group presents in a complex pattern of multiple over-lapping laminae and is divided into regions. They include the clavicular, sternal, costal and abdominal sections. The regions all attach medically as four separate sections to the clavicle, sternum, costal fibers of the second to sixth ribs and abdominal fibers.

Referred Pain Patterns

There are multiple referred pain regions to the pectoralis muscle. They can include: sub-sternal pain; anterior or breast pain; pain may radiate down the ulnar portion of the arm to the fourth or fifth fingers. It is important to use palpation of the clavicular, sternal and costal sections noting tender nodules with firm bands and prompt twitch responses. Injection of trigger points to this area requires extreme caution as to prevent pneumothorax. Pincer grasp is used whenever possible for ensured safety.

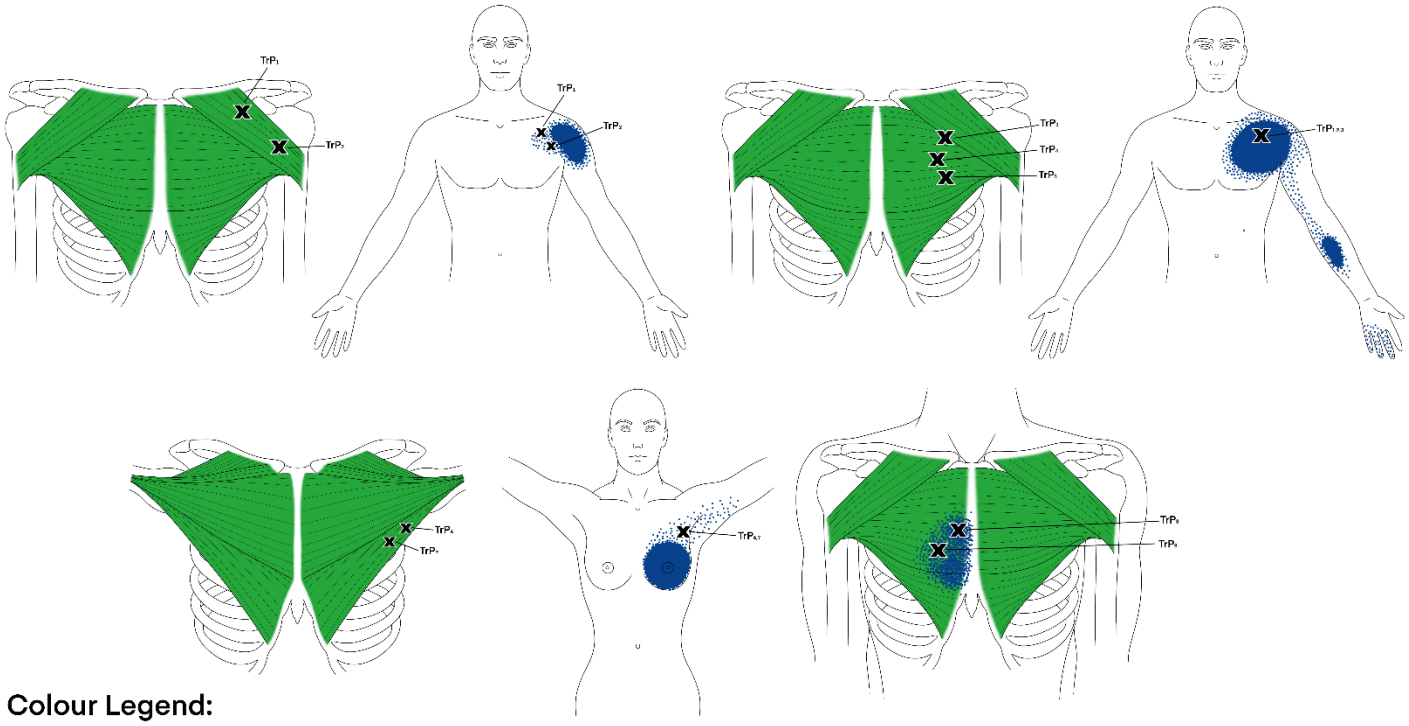

Figure 15: Trigger Points and Pain Patterns in the Pectoralis Major.

Chapter 13: Pectoralis Minor Muscle

This muscle works to pull the scapula and shoulder down and forward and assists the upper chest muscles with forced inhalation. Patients present with a rounded shoulder posture and has restrictions reaching forward or upwards.

Muscle Groups and Attachments

This muscle differs from the majora as it connects to the anterior rib cage and to the coracoid process rather than to the humerus.

Referred Pain Pattern

When TrPs are activated in this muscle it can entrap the axillary artery and brachial plexus mimicking cervical radiculopathy. If the TrP is on the left side it can mimic myocardial ischemia, referring pain over the front of the chest and over to the shoulder.

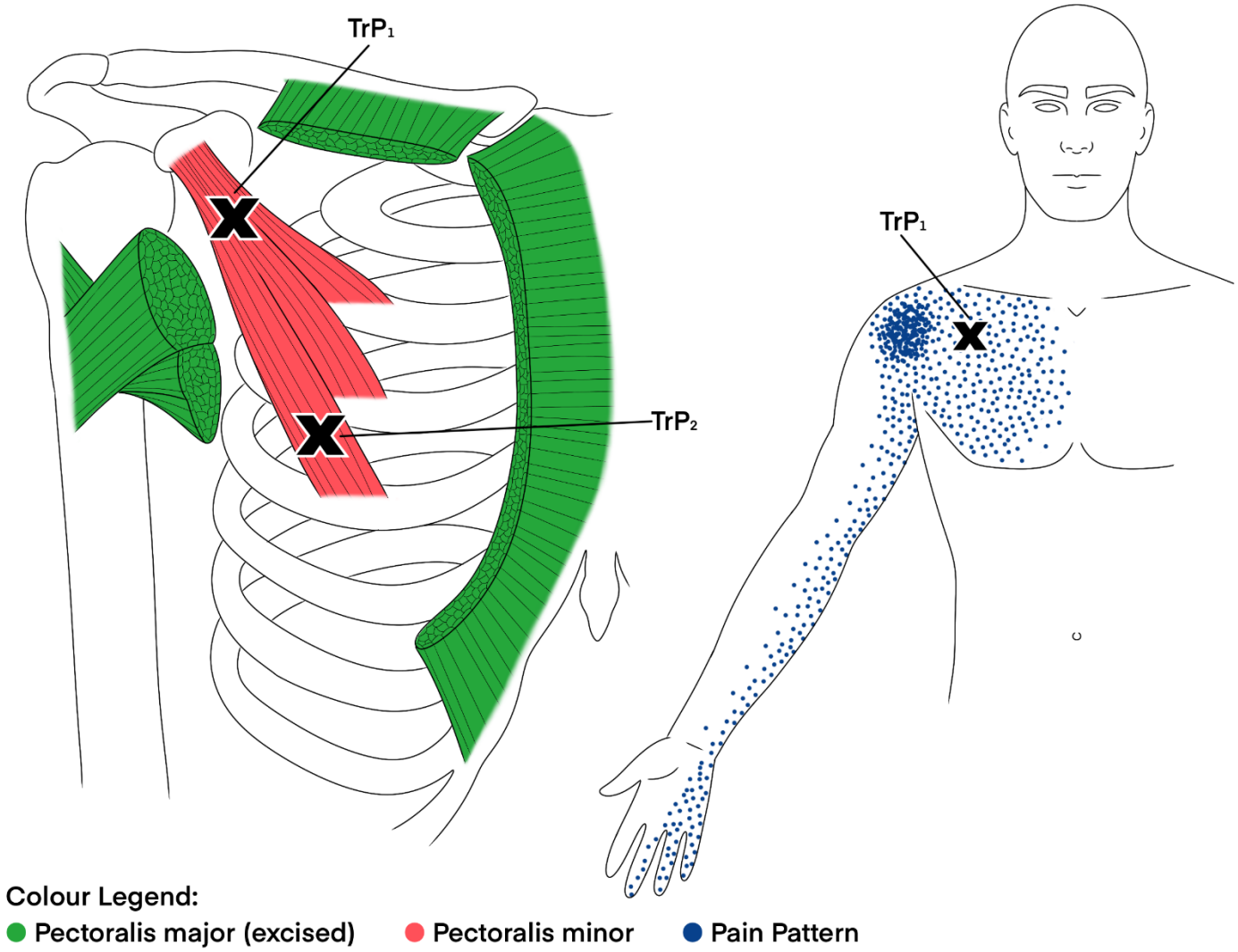

Figure 16: Trigger Points and Pain Patterns in the Pectoralis Minor.

Chapter 14: Rectus Abdominis Muscle

The rectus abdominis muscle, commonly known as the "abs," plays a crucial role in core stabilization, trunk flexion, and pelvic tilt. Situated in the anterior abdomen, this paired muscle extends vertically from the pubic symphysis to the xiphoid process and lower ribs.

Primarily responsible for flexing the lumbar spine, the rectus abdominis assists in various movements such as sitting up, bending forward, and bringing the ribcage closer to the pelvis. Its activation is integral in activities requiring trunk stability and controlled movement, including lifting, twisting, and maintaining posture.

Muscle Groups and Attachments

Distinct from its counterparts, the rectus abdominis attaches to the pubic crest and symphysis, as well as the cartilage of the fifth to seventh ribs and the xiphoid process of the sternum. Its segmented appearance, marked by tendinous intersections, gives rise to the "six-pack" aesthetic.

Referred Pain Pattern

Trigger points in the rectus abdominis can refer pain locally within the abdomen, manifesting as a deep, aching sensation. Additionally, referred pain may radiate laterally towards the flanks or upwards towards the lower ribs and sternum. In some cases, trigger points in the rectus abdominis may mimic visceral pain, leading to diagnostic confusion with gastrointestinal or reproductive system disorders.

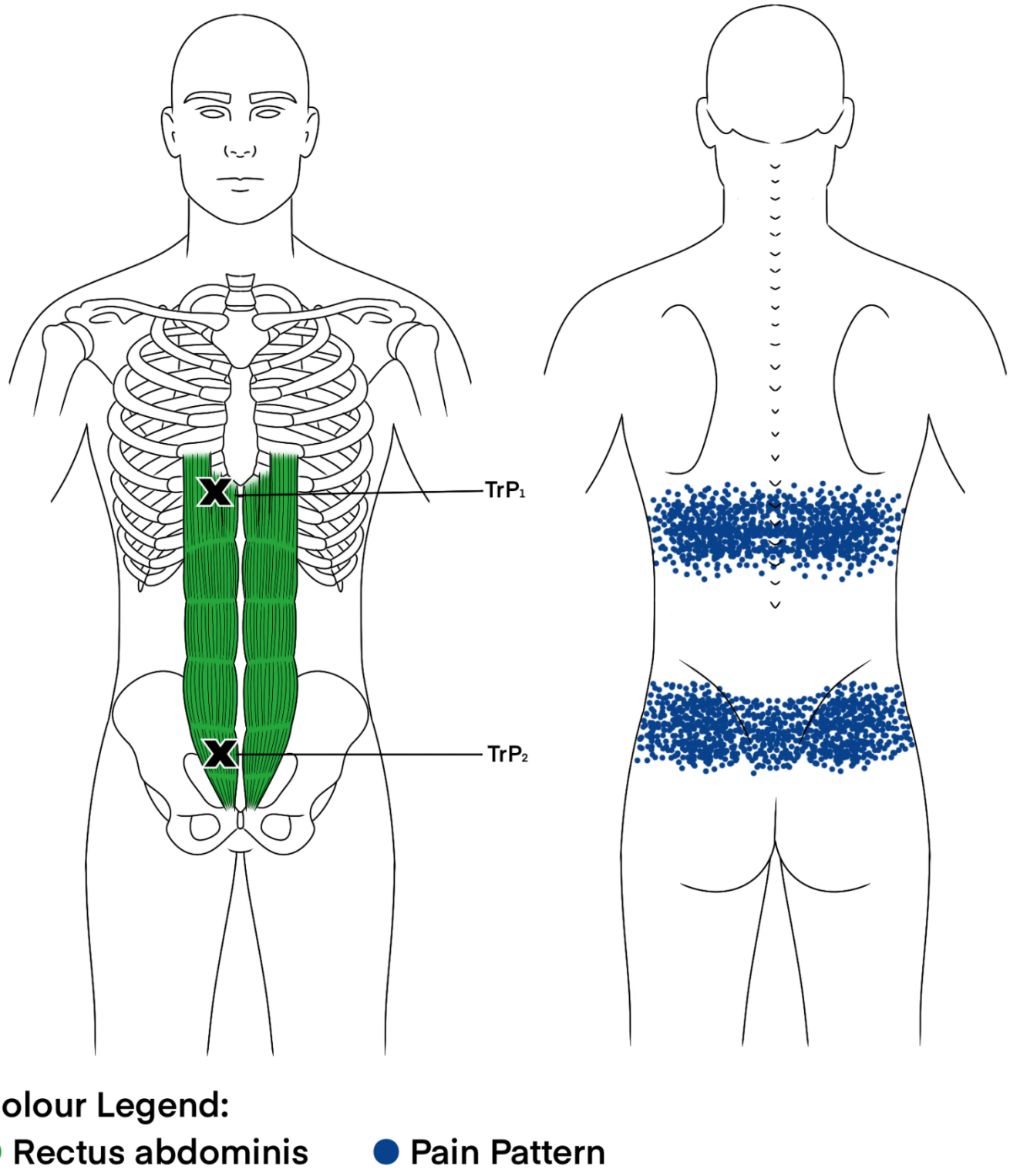

Figure 17: : Trigger Points and Pain Patterns in the Rectus Abdominis

Chapter 15: Supraspinatus

This muscle positions the humeral head in the glenoid fossa correctly and it keeps it stabilized with use. This is the major muscle in diagnosis with the rotator cuff.

Muscle Groups and Attachments

The major attachments of the supraspinatus are medially to the supraspinatus fossa and laterally to the humerus.

Referred Pain Pattern

Activated TrPs refer pain to the mid-deltoid area of the shoulder and is often described as a deep ache. The second most referred pain pattern is to the lateral epicondyle. Rarely, pain can radiate to the wrist.

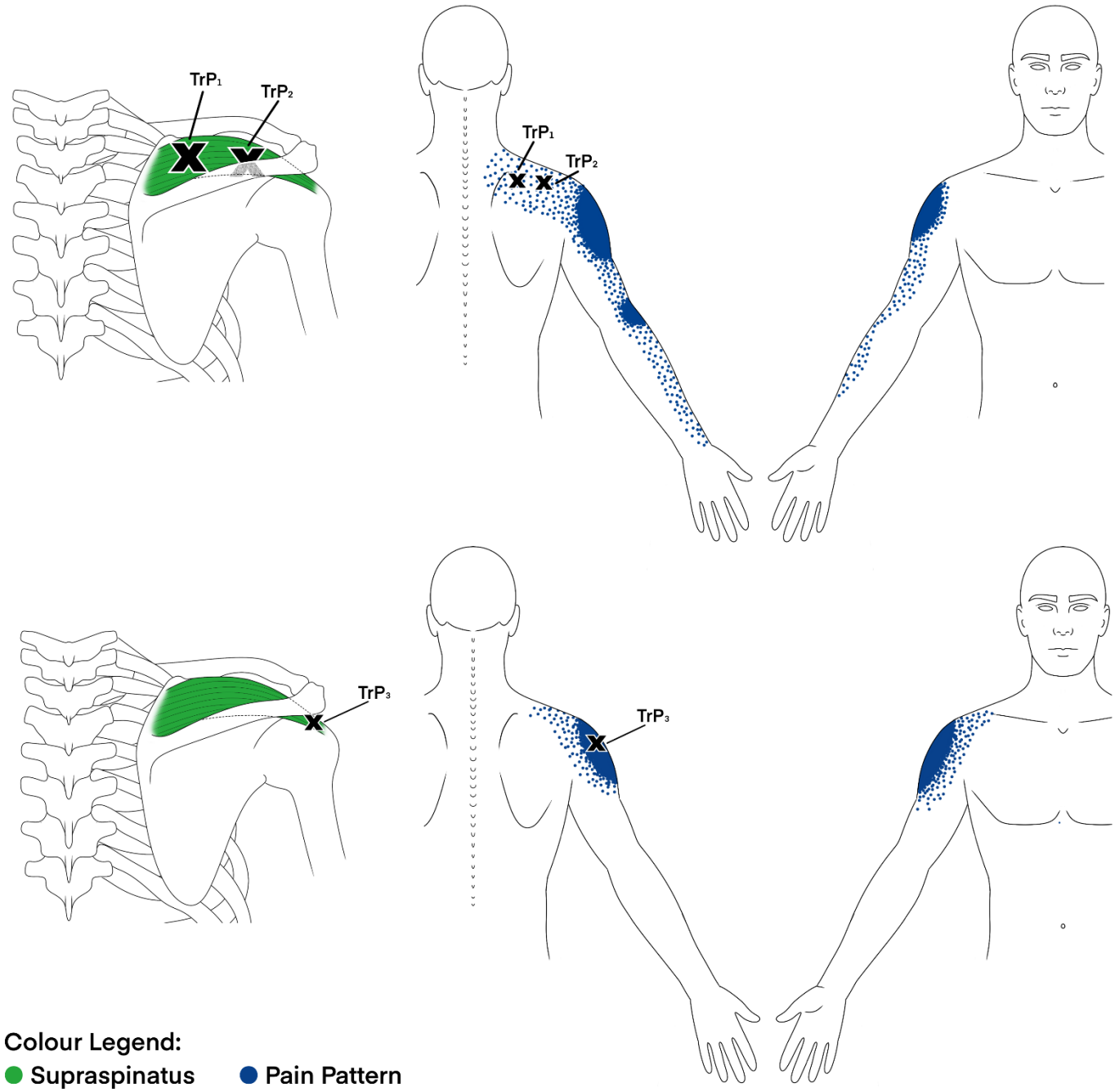

Figure 18: Trigger Points and Pain Patterns in the Supraspinatus.

Chapter 16: Infraspinatus Muscle

As part of the rotator cuff, the infraspinatus muscle provides stabilization to the humerus within the glenoid cavity during movement and provides support with lateral rotation of the arm in the glenohumeral joint.

Muscle Groups and Attachments

The infraspinatus attaches medially from the infraspinous fossa to the scapula and laterally at the greater tubercle of the humerus.

Referred Pain Pattern

Patients complain of difficulty side sleeping, pain with reaching into back pockets (or hooking a bra) or brushing the back of their hair. Pain be referred from a variety of TrPs across the deltoid and shoulder joint, radiating down the front of the arm, the forearm or along the boarder of the scapula.

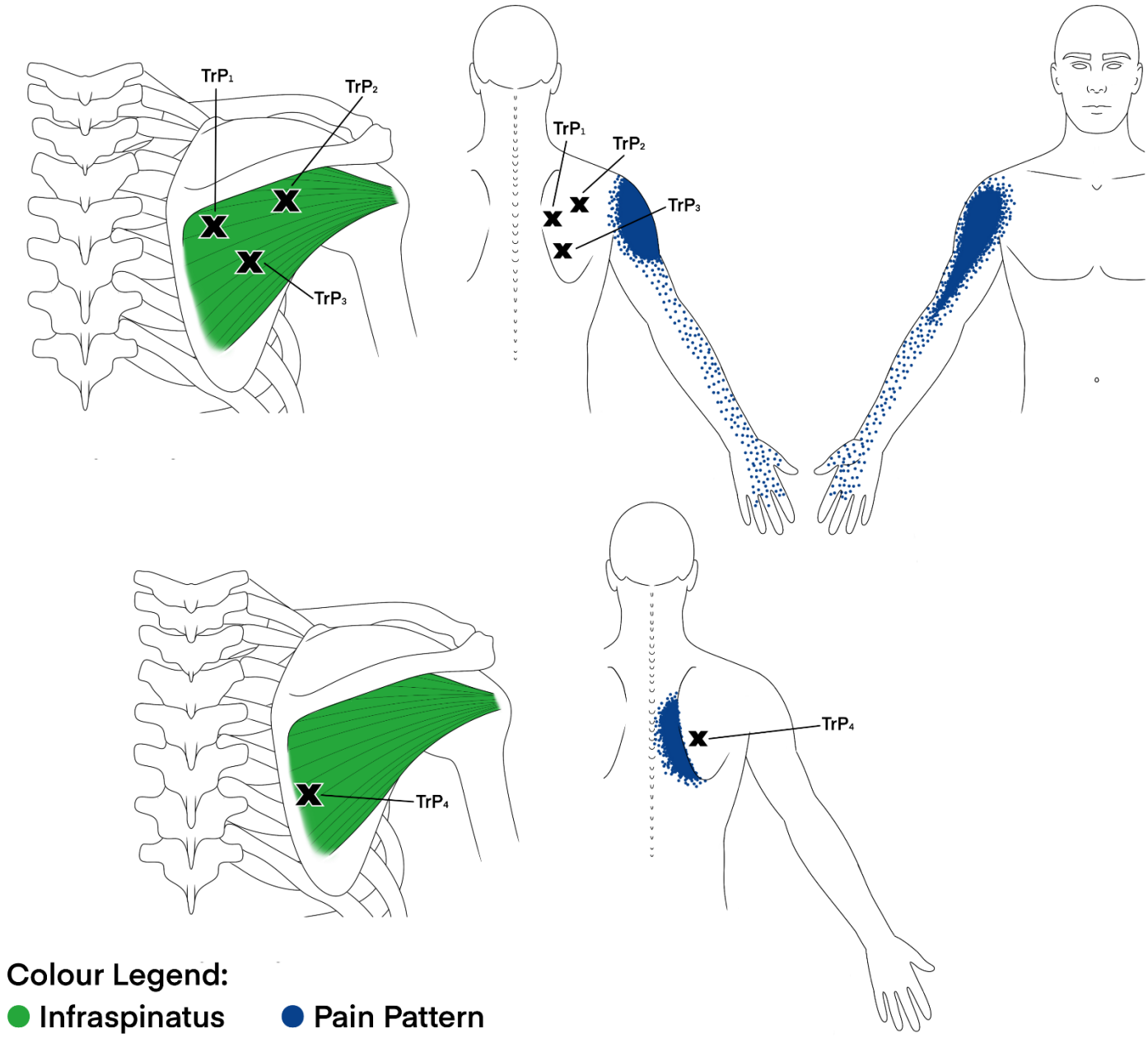

Figure 19: Trigger Points and Pain Patterns in the Infraspinatus.

Chapter 17: Teres Minor Muscle

Teres Minor muscle mirrors the function of the infraspinatus muscle, in that, it provides stabilization of the humerus in the glenoid cavity with arm movements.

Muscle Groups and Attachments

It attaches adjacently and slightly below those of the infraspinatus from the greater tuberosity to the scapula.

Referred Pain

The referred pain from the teres minor muscle is often through residual pain from the inactivation of TrPs from of the infraspinatus muscle. The pain is localized near the musculotendinous attachment with typical complaint of numbness and tingling to the outer fourth and fifth fingers.

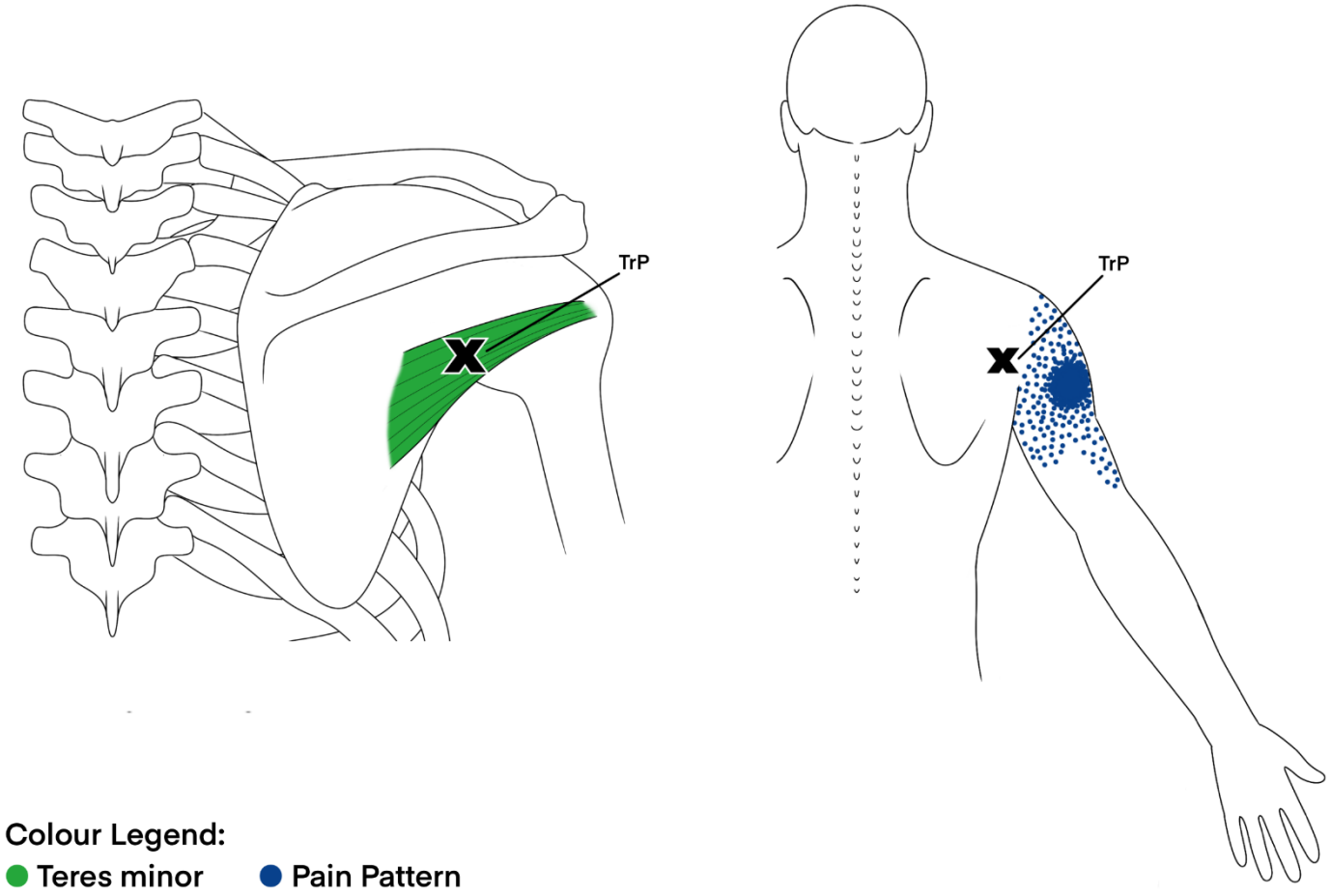

Figure 20: Trigger Points and Pain Patterns in the Teres Minor.

Chapter 18: Teres Major Muscle

This muscle assists in the adduction, medial rotation and extension of the arm from a flexed position when the motion is resisted. It plays a major role in adducting the arm across the back. Patients complain of pain with reaching forward and up.

Muscle Groups and Attachments

The tendon of the teres major merges with the latissimus dorsi and then attaches medially to the intertubercular groove of the humerus. Medially, the teres major attaches to the scapula.

Referred Pain Pattern

When TrPs are activated in the teres major muscle then pain is felt as a deep penetrating pain to the posterior deltoid area.

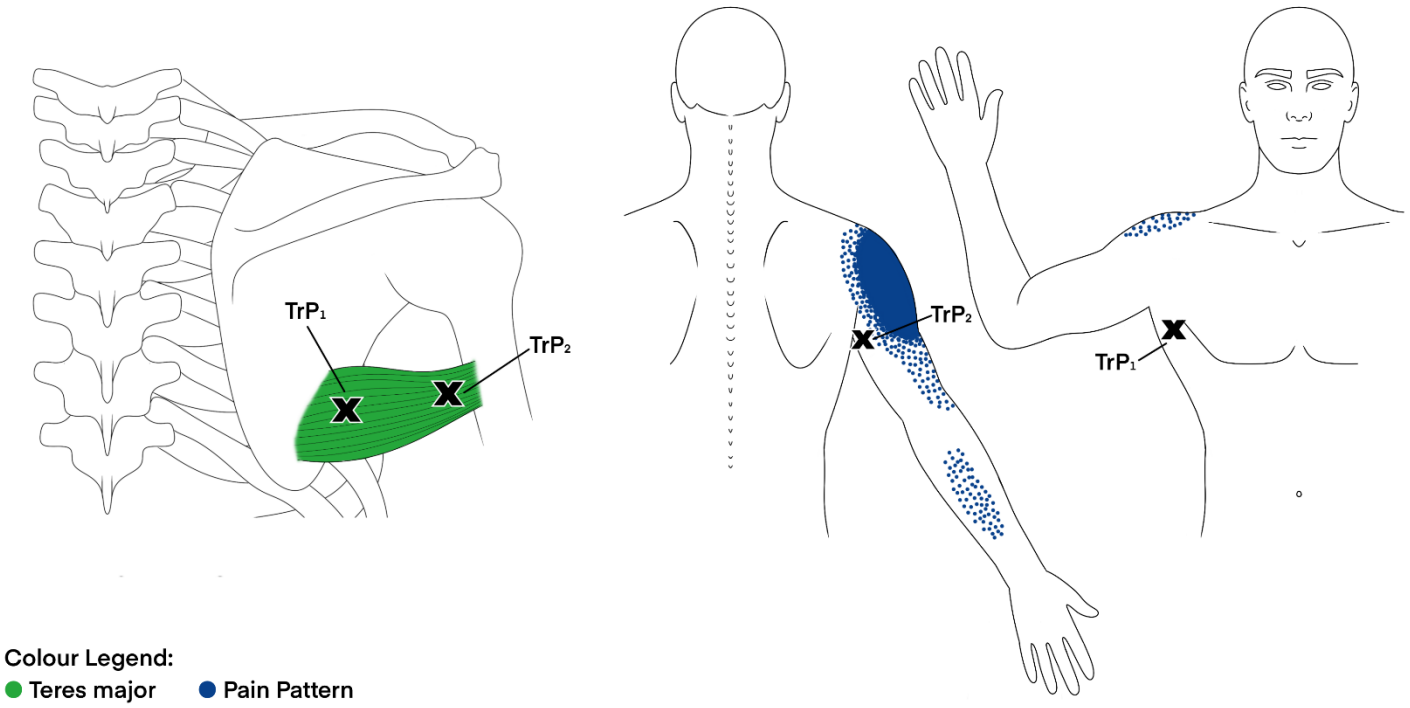

Figure 21: Trigger Points and Pain Patterns in the Teres Major.

Chapter 19: Triceps Muscle

All the muscle of the triceps are responsible for the extension of the forearm at the elbow joint. TrPs are common in any of the three muscle heads contributing to increased muscle tension, dysfunction and pain.

Muscle Groups and Attachments

The medial and lateral muscles attach to the humerus proximally and the olecranon process of the ulna distally. The long head attaches proximally to the scapula and distally it merges with the common tendon along with the medial and lateral heads.

Referred Pain Pattern

The three heads of the triceps muscle can develop TrPs in five locations with each having its own referred pain pattern. Pain is most often concentrated to the posterior of the arm to the lateral epicondyle. Pain can even radiate as far down as the fourth and fifth fingers. TrPs to the long head can refer pain to the scapular region.

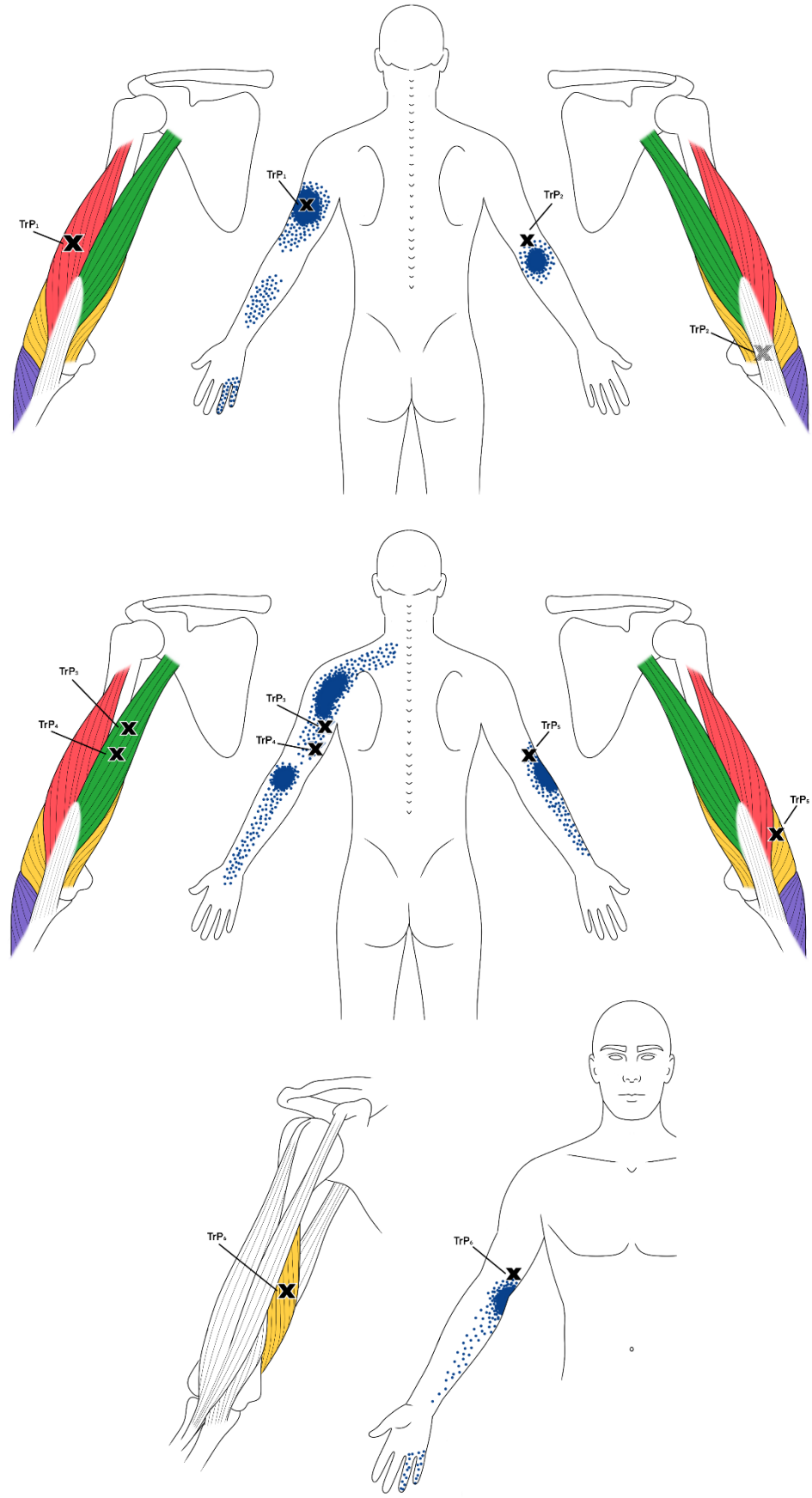

Figure 22: Trigger Points and Pain Patterns in the Triceps Brachii.

Chapter 20: Deltoid Muscle

The anterior area of the deltoid muscle covers the head of the humerus, has a fusiform arrangement and works in conjunction with the clavicular portion of the pectoralis major and is responsible for arm flexion. The mid-deltoid muscle is arranged in multipennate fiber arrangement and is responsible for abduction. The posterior portion of the deltoid is arranged in fusiform arrangement provides extension along with the latissimus dorsi, teres major, and the triceps barchii muscles.

Muscle Groups and Attachments

The deltoid muscle attaches above at the clavicle, acromion and spine of the scapula and below they all attach to the deltoid prominence of the humerus.

Referred Pain Pattern

TrPs are common in the deltoid muscle, but the pain is not often referred. Anteriorly and middle deltoid TrPs concentrate pain to those muscle areas. Posterior deltoid TrPs can have some radiation to back of the shoulder.

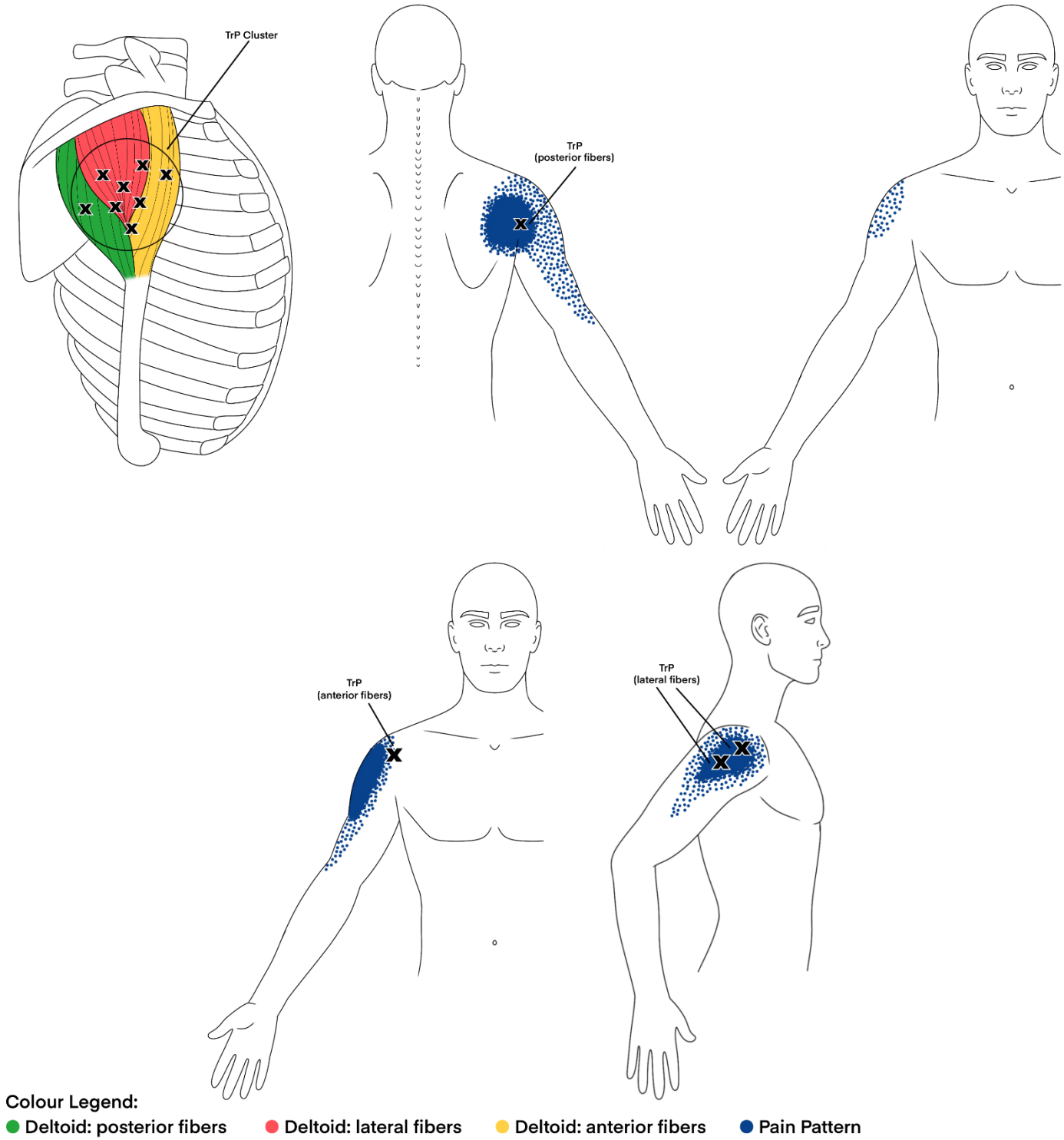

Figure 23: Trigger Points and Pain Patterns in the Deltoid.

Chapter 21: Subscapularis Muscle

The main job of this muscle is to keep the head of the humerus in the glenoid fossa during arm use and through abduction motions. The key to the typical 'frozen shoulder' often lies in releasing the TrPs of the subscapularis muscle.

Muscle Groups and Attachments

The subscapularis attaches to the inner surface of the scapula medially and laterally to the lesser tubercle of the humerus.

Referred Pain

Pain is felt in the back part of the shoulder and restriction of the full range of motion with any abduction or lateral rotation movements of the arm. The referred pain pattern is chiefly felt at the back of the deltoid and radiate medially over the scapula, down the back of the arm then down in a band around the wrist.

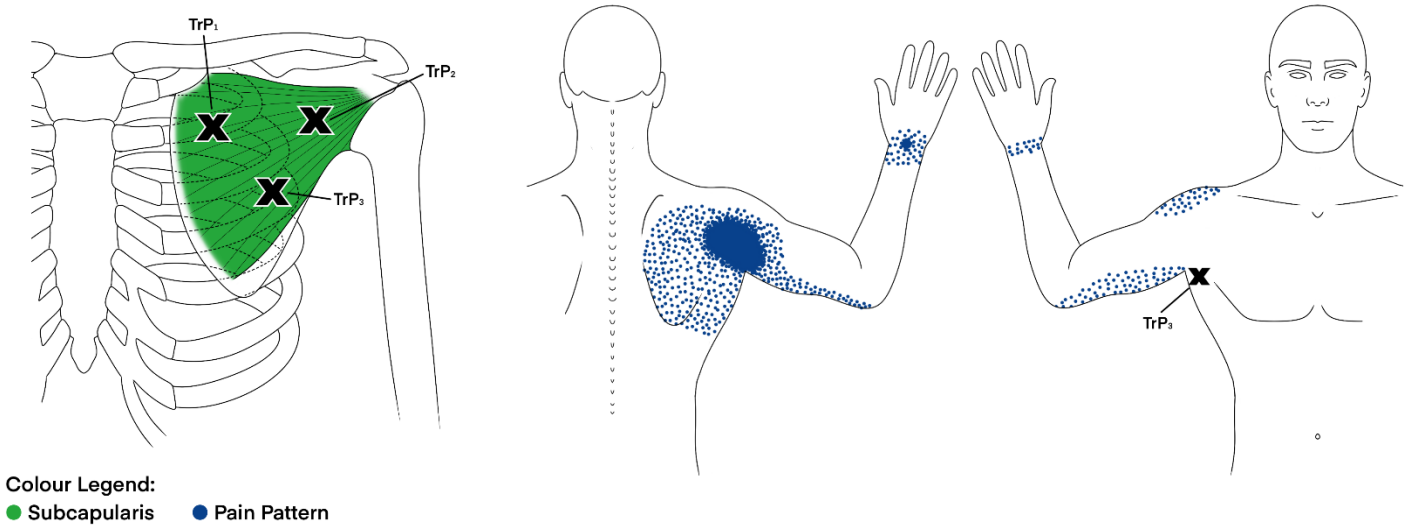

Figure 24: Trigger Points and Pain Patterns in the Subscapularis.

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Chapter 22: Coracobrachialis Muscle

This muscle is responsible for assisting in flexion and adduction of the arm at the glenohumeral joint. For the practitioner, identification and management of TrPs to this muscle can take some time and skill to develop because active TrPs to anterior deltoid, bicep brachii and the triceps brachii must be managed initially before TrPs to the coracobrachialis is apparent.

Muscle Groups and Attachments

The coracobrachialis muscle attaches above to the coracoid process and below to the mid humerus.

Referred Pain Pattern

Common patterns of referred pain occur anteriorly over the shoulder, down the back of the arm, along the forearm as far as the top of the hand to middle finger. Pain typically skips the elbow and wrist regions.

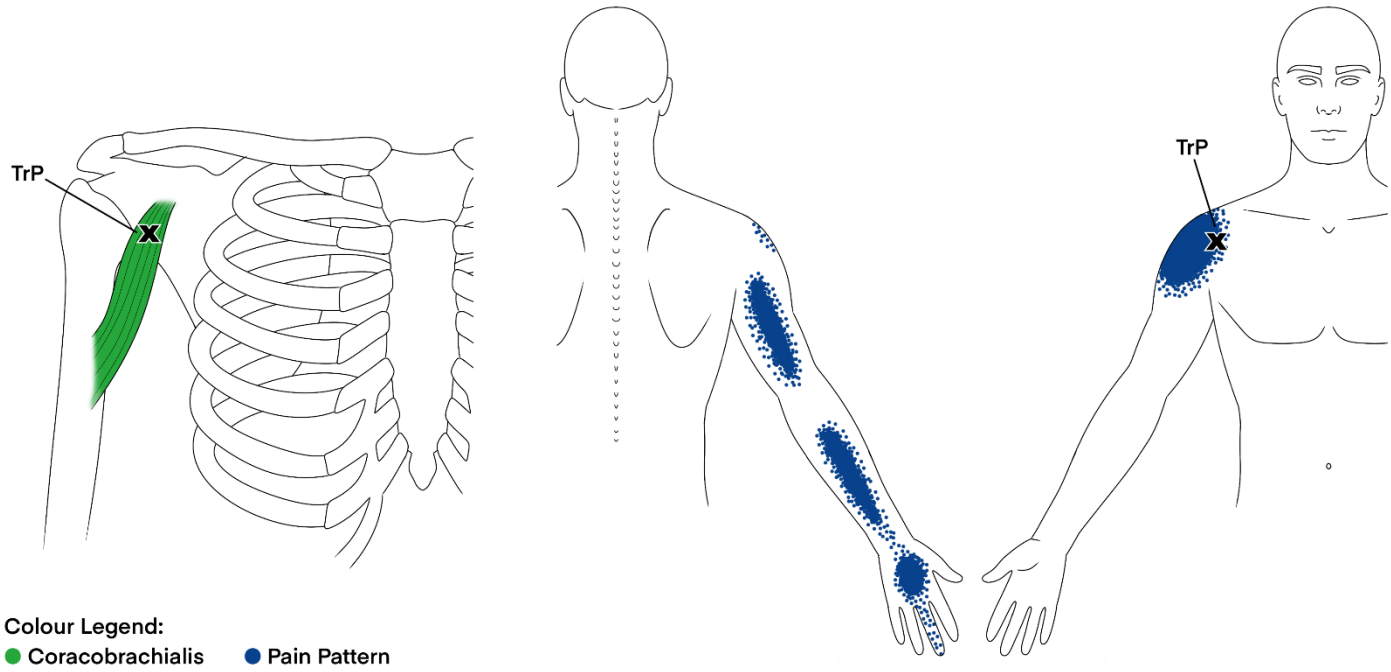

Figure 25: Trigger Points and Pain Patterns in the Coracobrachialis.

Chapter 23: Bicep Brachii Muscle

These two-headed multi-joint muscles are responsible for flexion of the forearm at the elbow, helps with flexion of the arm at the shoulder and assists with lateral rotation. It also provides supination of the forearm while it is in flexion. Patients can present with aching of the anterior shoulder or the bicep region.

Muscle Groups and Attachments

The long head of the bicep attaches proximally to the superior margin of the glenoid cavity and the short head to the coracoid process. Both the long and short heads attach distally to the tuberosity of the radius.

Referred Pain Pattern

Active TrPs cause pain in either mid muscle or may radiate over the anterior deltoid region. Rarely, pain can be referred to the antecubital space.

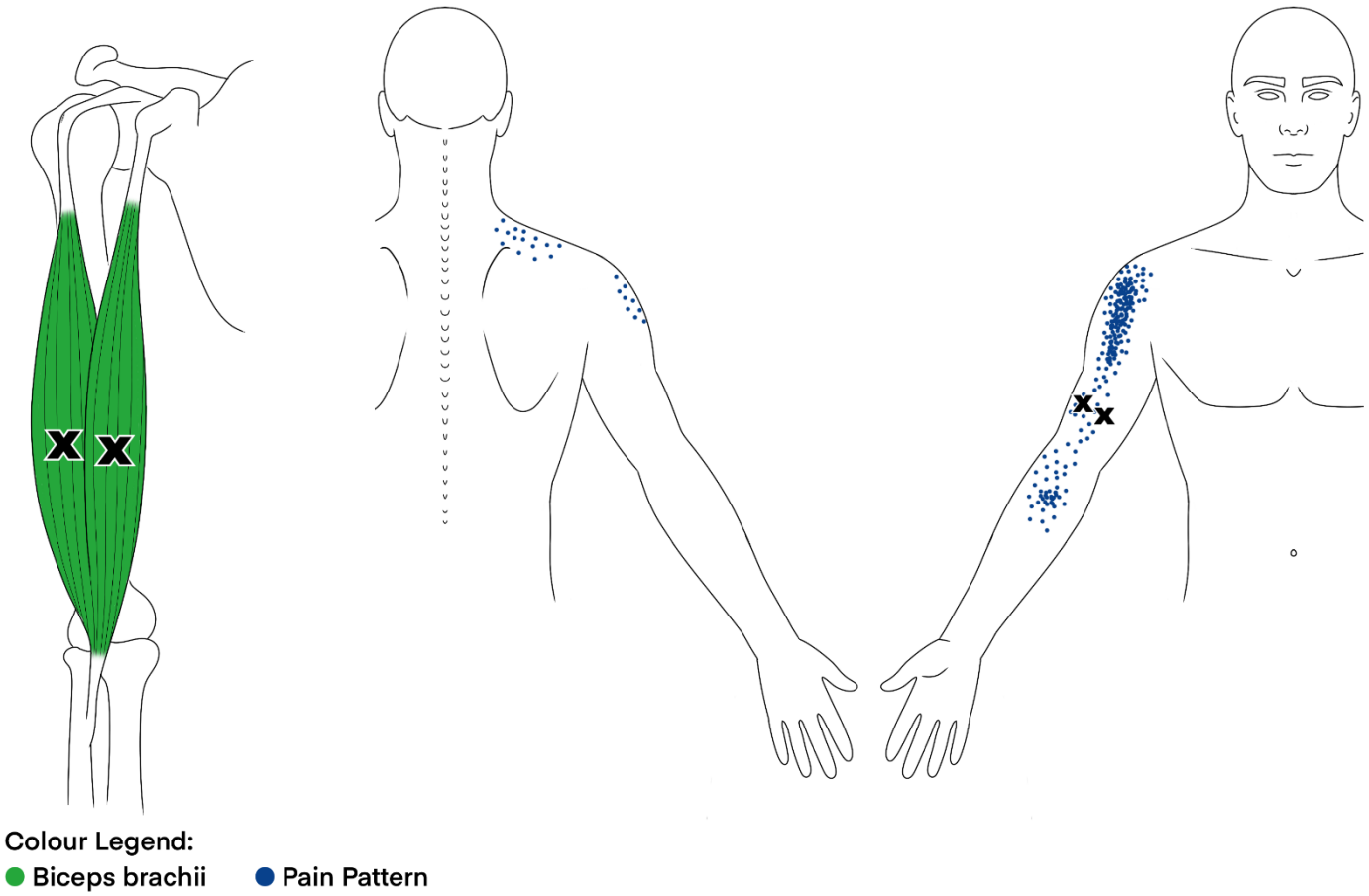

Figure 26: Trigger Points and Pain Patterns in the Biceps Brachii.

Chapter 24: Brachialis Muscle

This muscle is responsible for flexion of the forearm in towards the humerus. It allows for the humerus to flex and rotate at the elbow joint when the forearm is fixed, as in a pull-up exercise.

Muscle Groups and Attachments

Proximally, the brachialis attaches to the mid humerus and distally to the ulna.

Referred Pain Pattern

The chief area of pain is referred to the carpometacarpal of the thumb of the affected arm or to the antecubital space. Less often pain can be referred to the anterior shoulder.

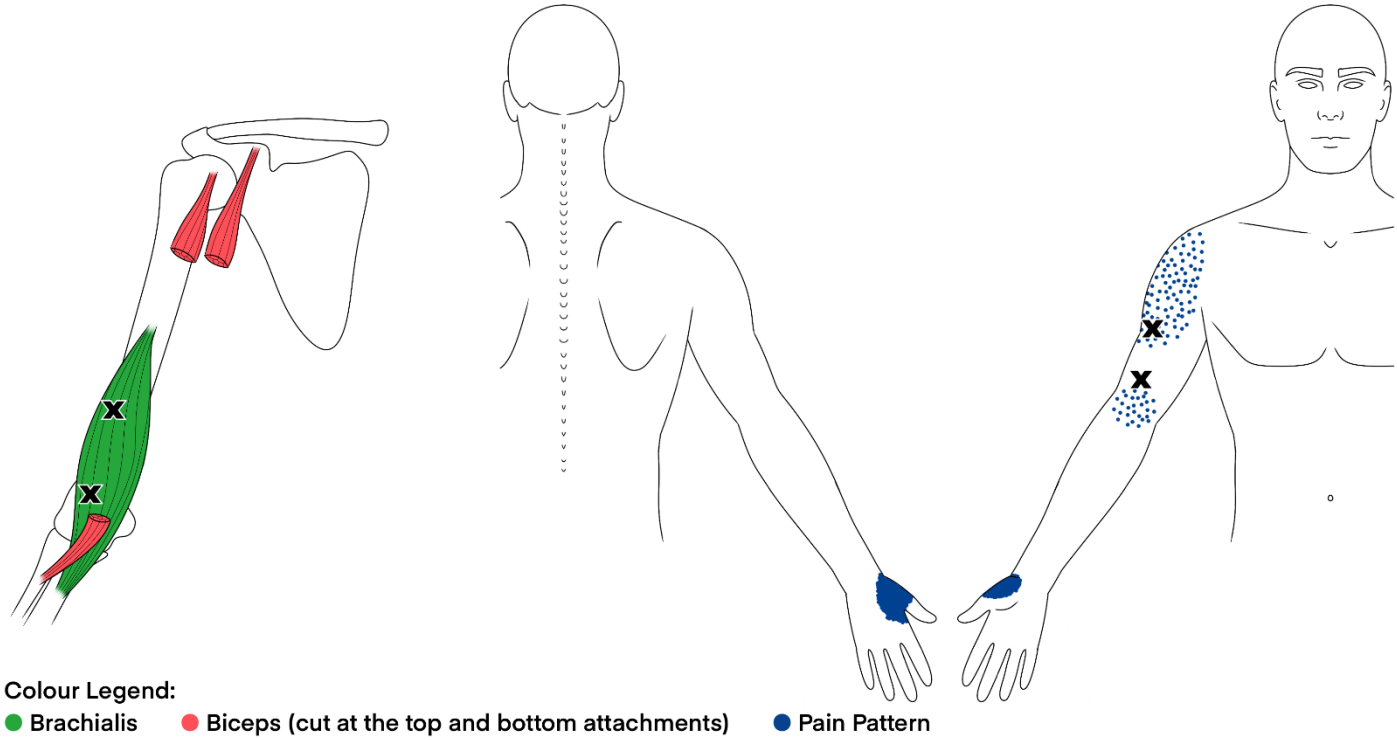

Figure 27: Trigger Points and Pain Patterns in the Brachialis.

Chapter 25: Hand Extensors and Brachioradialis Muscle

A variety of forearm muscles make up the wrist extensors including: capri radialis longus, brevis and carpi ulnaris along with the brachioradialis muscle.

The wrist extensors prevent the wrist from flexion when the fingers are being used for grasping. The capri radialis longus allows for radial deviation of the hand. The brevis is responsible for hand extension while carpi ulnaris provides hand movement to the ulnar side. Patients with a 'weak grip' experience difficulty with the extensor's carpi radialis longus and brevis.

Muscle Groups and Attachments

The extensor carpi radialis longus attaches proximally to the lateral suprcondylar ridge of the humerus and distally to the base of the second metacarpal bone. The extensor carpi radialis brevis attach proximally to the lateral epicondyle and distally to the base of the third metacarpal bone. The extensor carpi ulnaris attaches proximally to the common tendon of the epicondyle and distally to the ulnar side of the fifth metacarpal bone. The brachioradialis attaches proximally the lateral supracondylar ridge and distally to the styloid process of the radius.

Referred Pain Patterns

Referred pain from TrPs in the carpi radialis longus and brevis occur over the lateral epicondyle and the dorsal forearm. The extensor carpi ulnaris refers pain to the dorsal ulnar wrist area and the brachioradialis refers pain to the lateral epicondyle over the dorsal forearm as far as the web of the thumb.

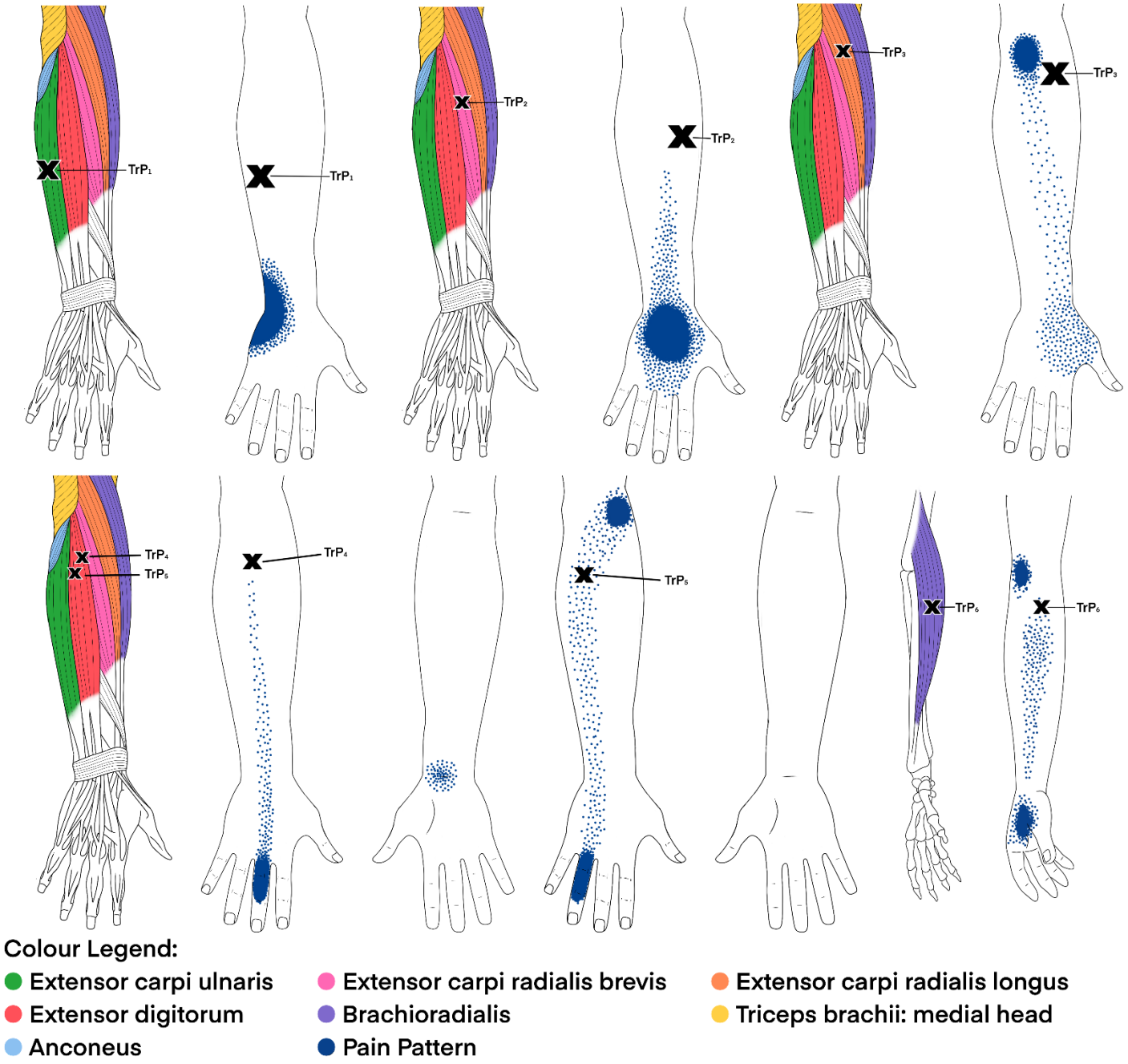

Figure 28: Trigger Points and Pain Patterns in the Hand Extensors and Brachioradialis

Chapter 26: Supinator Muscle

As the name implies, the supinator muscle is responsible for supinating the forearm and assists with elbow flexion. Patients complain of tenderness if tapping is done to the lateral epicondyle and traditional “Tennis Elbow” pain. Pain is felt both at rest and when the arm is used carrying heavier objects.

Muscle Groups and Attachments

The supinator muscle attaches along the dorsal surface of the ulna and wraps around to the lateral surface of the radius.

Referred Pain Patterns

The pain that is referred from the TrPs is localized to the lateral epicondyle and often to the dorsal web of the thumb and rarely to the dorsal forearm.

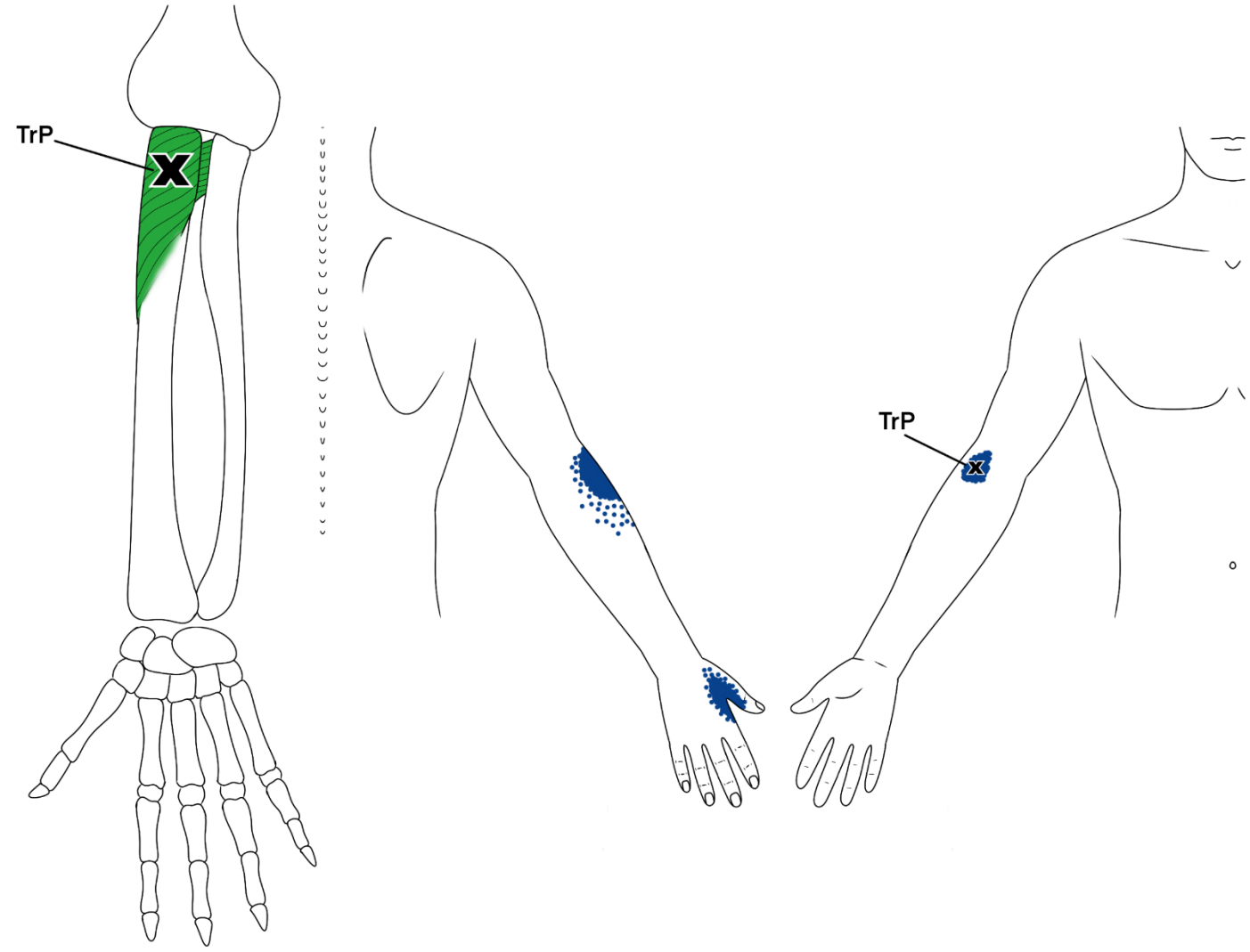

Figure 29: Trigger Points and Pain Patterns in the Supinator.

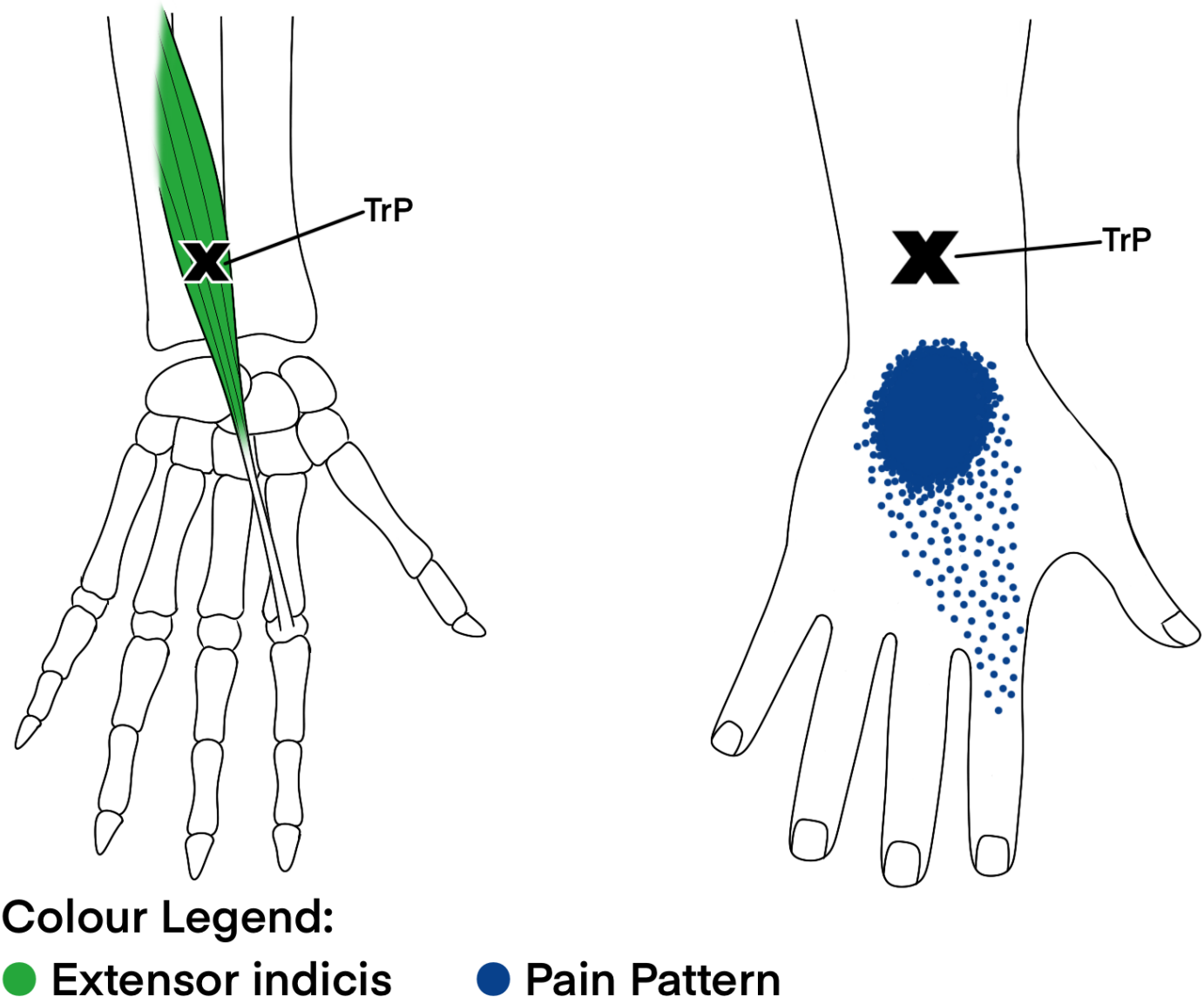

Figure 30: Trigger Points and Pain Patterns in the Supinator.

Chapter 27: Pronator Teres

The pronator teres is a superficial muscle in the forearm and plays a significant role in forearm pronation, responsible for functions such as pouring liquid from a container, and turning a doorknob.

Muscle Groups and Attachments

The pronator teres muscle originates from two distinct heads: the humeral head arises from the medial epicondyle and adjacent supra-epicondylar ridge; and the ulnar head arises from the medial border of coronoid process.

This muscle inserts into the mid-lateral surface of radius bone (pronator tuberosity).

Referred Pain Patterns

Patients with this TrP present with strong pain "deep" into the palmar region of the wrist (lateral), radiating up the anterolateral forearm.

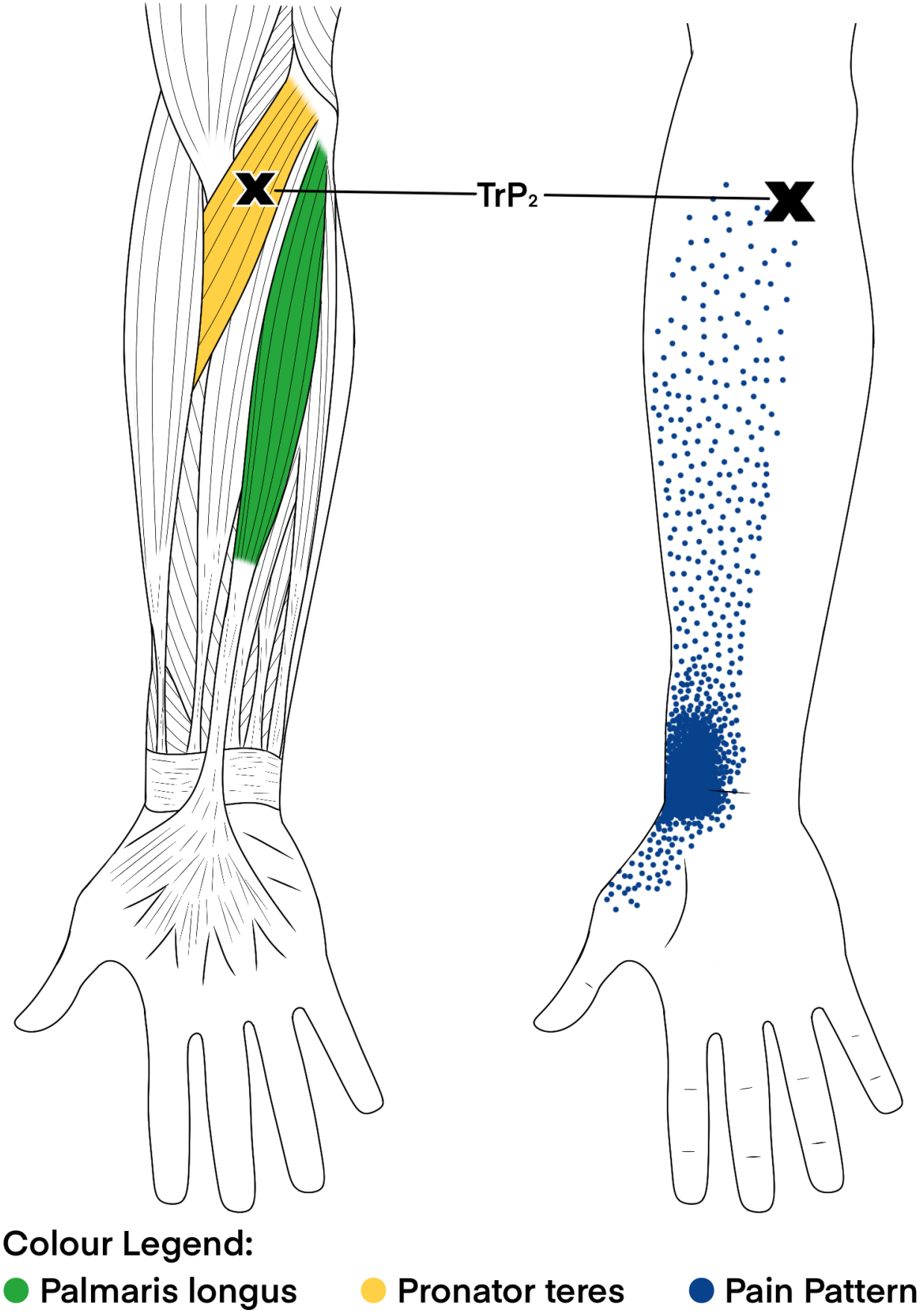

Figure 31: Trigger Points and Pain Patterns in the Pronator Teres.

Chapter 28: Palmaris Longus Muscle

This muscle allows the palm to make a ‘cup’ formation, as well as helps the flex the wrist.

Muscle Groups and Attachments

The palmaris longus attaches proximally to the medical epicondyle of the humerus and distally to the palmar fascia.

Referred Pain Patterns

Patients with TrPs to this muscle complain of a distinctive, prickling and tingling sensation to the palm in contrast to the deep aching pain felt in other muscle groups. It is not uncommon to have tenderness to the palm area that begins at the base of the thumb and radiates to the crease of the palm, though it does not include the fingers. With proper injection of TrPs patients will note relief of mild hand contracture with the injection.

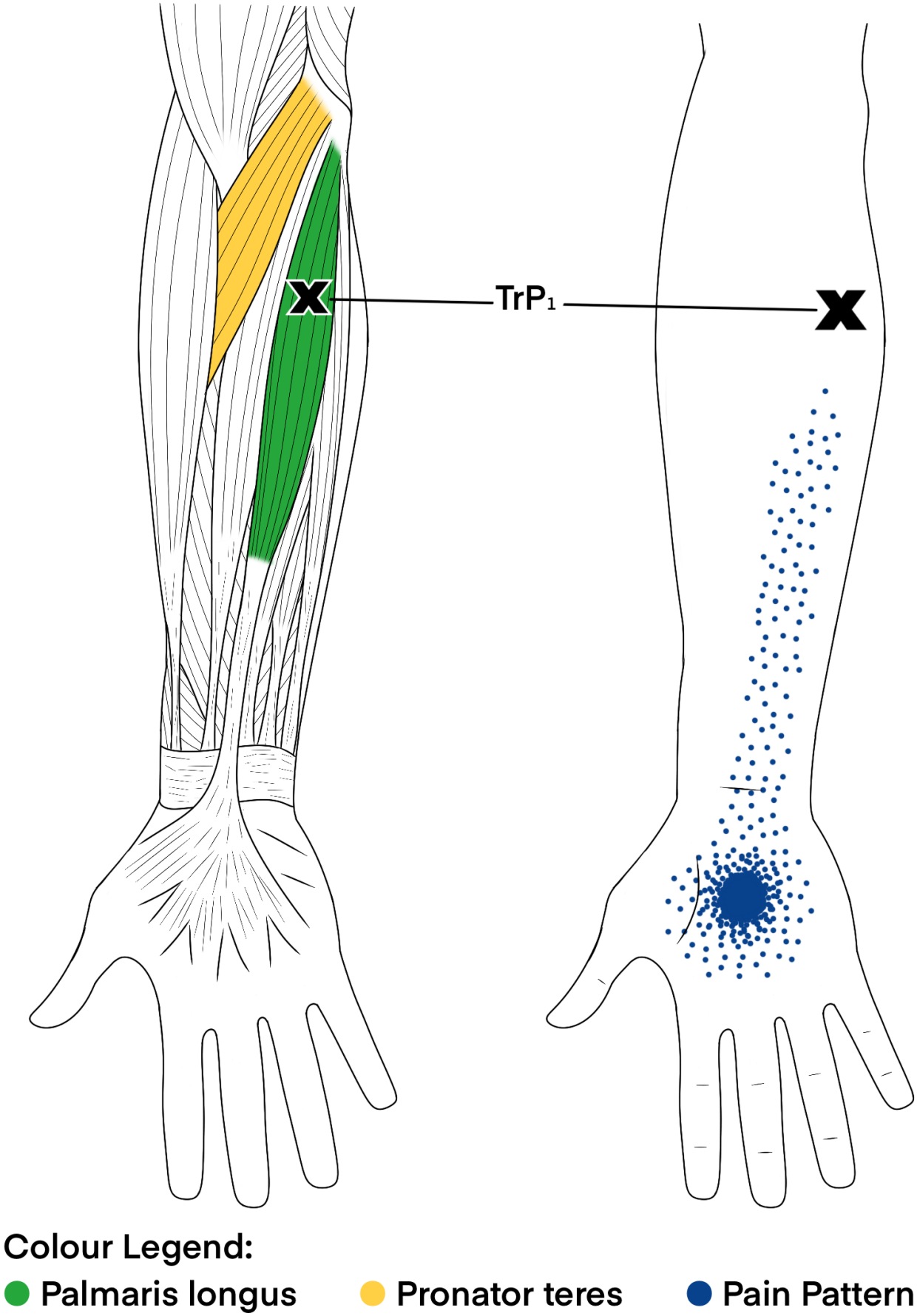

Figure 32: Trigger Points and Pain Patterns in the Palmaris Longus.

Chapter 29: Extensor Indicis Muscle

The extensor indicis muscle is a slender skeletal muscle located in the deep layer of the posterior forearm. It plays a crucial role in extending the index finger, aiding in various hand movements and gestures. Dysfunction or trigger point activation in this muscle can lead to specific patterns of pain and movement limitations.

The primary function of the extensor indicis muscle is to extend the index finger at the metacarpophalangeal and interphalangeal joints. This action is essential for tasks requiring precise finger movements and grip strength.

Muscle Groups and Attachments:

Unlike its neighboring extensor muscles, the extensor indicis muscle originates from the posterior surface of the ulna and interosseous membrane. It travels along the forearm, running parallel to the other extensor muscles, and inserts into the extensor expansion of the index finger. This unique attachment allows for its specialized function in extending the index finger.

Referral Patterns:

Trigger points in the extensor indicis muscle can refer pain to surrounding areas, including the dorsal aspect of the hand and wrist. In some cases, referred pain may radiate proximally along the forearm.

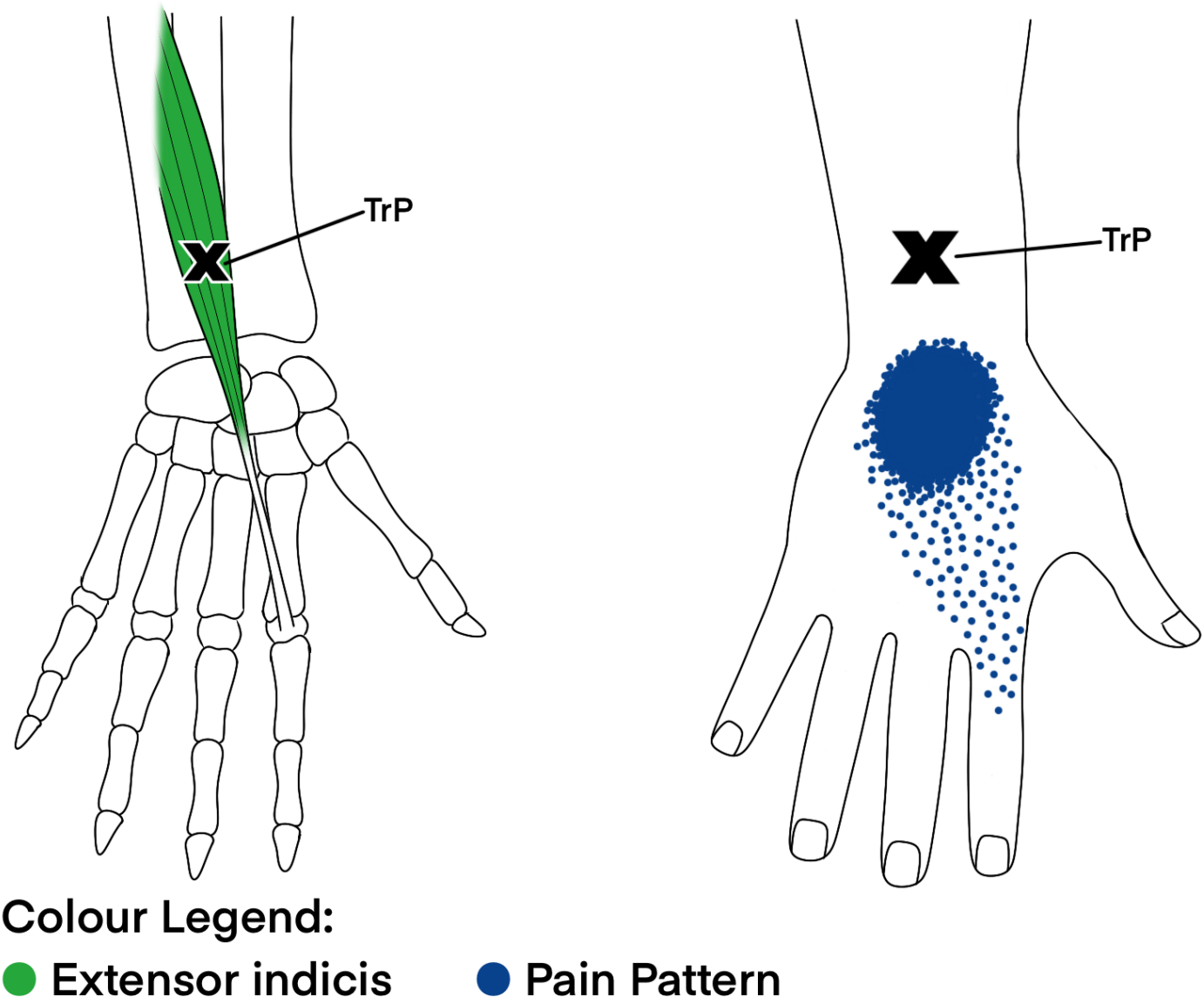

Figure 33: Trigger Points and Pain Patterns in the Extensor Indicis

Chapter 30: Adductor Pollicis Muscle

The adductor pollicis muscle is a prominent skeletal muscle located in the hand, specifically within the thenar eminence. It plays a vital role in the adduction of the thumb, which is crucial for grasping objects and performing various hand movements. Dysfunction or trigger point activation in this muscle can lead to specific patterns of pain and movement limitations.

The primary function of the adductor pollicis muscle is to adduct the thumb towards the palm, bringing it in contact with the fingers. This action is essential for tasks requiring a strong grip and precision, such as holding objects, pinching, and manipulating small items.

Muscle Groups and Attachments:

The adductor pollicis muscle is unique in that it consists of two distinct heads: the transverse head and the oblique head. The transverse head originates from the anterior surface of the third metacarpal bone. The oblique head originates from the bases of the second and third metacarpals, the capitate, and the adjacent carpal bones.

Both heads converge and insert into the medial side of the base of the proximal phalanx of the thumb and the extensor expansion of the thumb. This dual-head structure allows for powerful thumb adduction and contributes to the stability of the thumb during various hand functions.

Referral Patterns:

Trigger points in the adductor pollicis muscle can refer pain to the thumb and the web space between the thumb and index finger. In some cases, referred pain may extend to the palmar aspect of the hand. This can result in difficulty with thumb movements, such as gripping and pinching, and can significantly affect hand function.

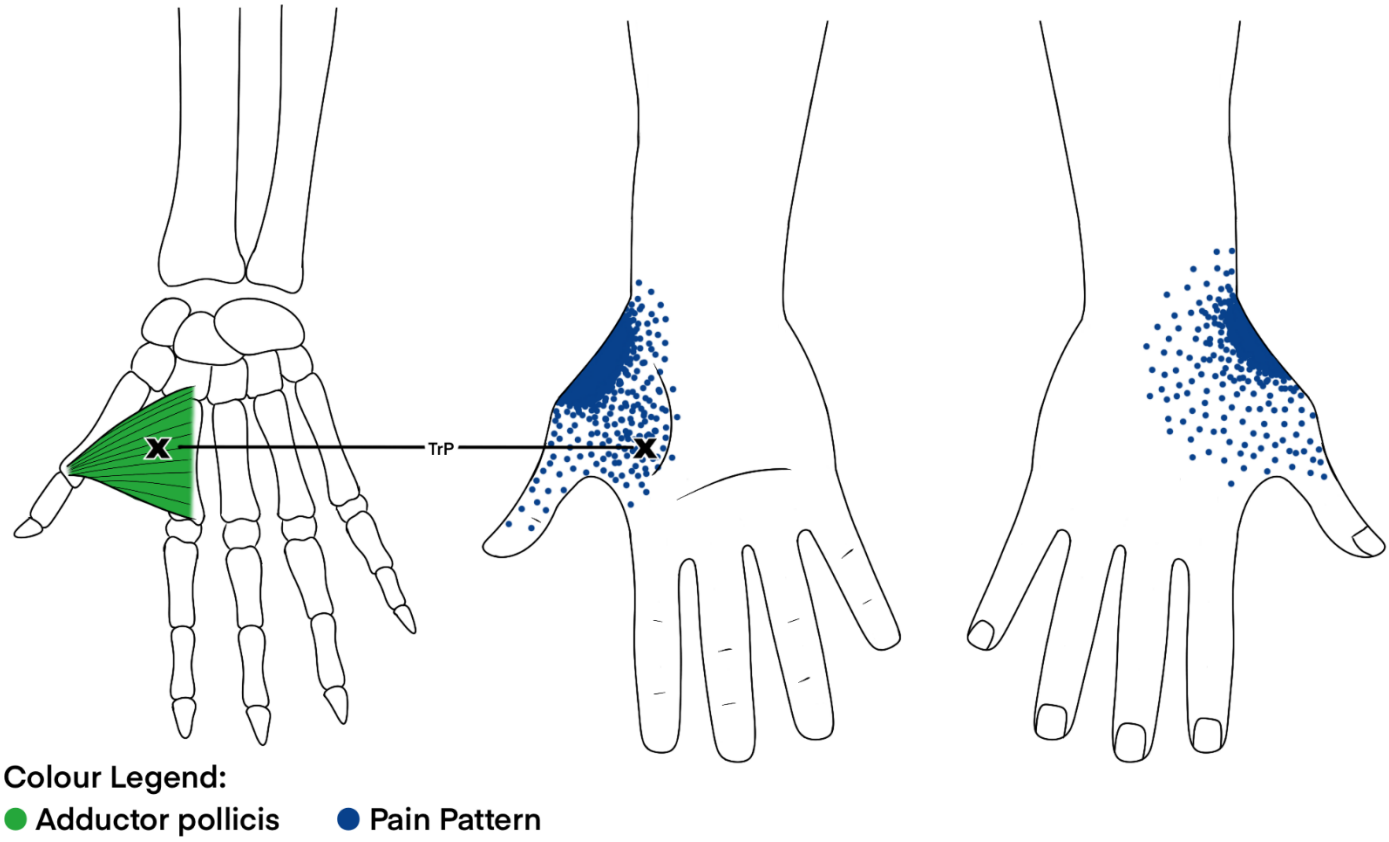

Figure 34: : Trigger Points and Pain Patterns in the Adductor Pollicis

Reference

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Travell, J. G., & Simons, D. G. (1999). Myofascial Pain and Dysfunction: The Trigger Point Manual (Vol. 2). Williams & Wilkins.

Drawings by Gabi Westphal.