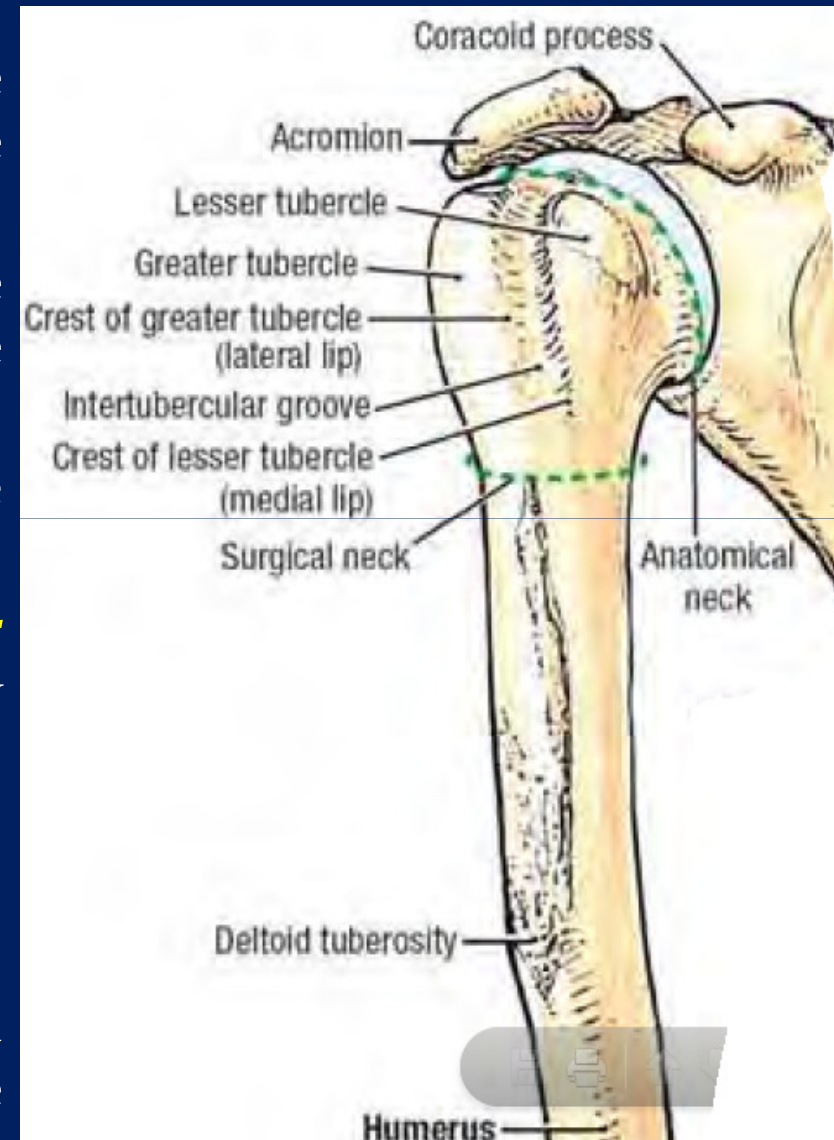


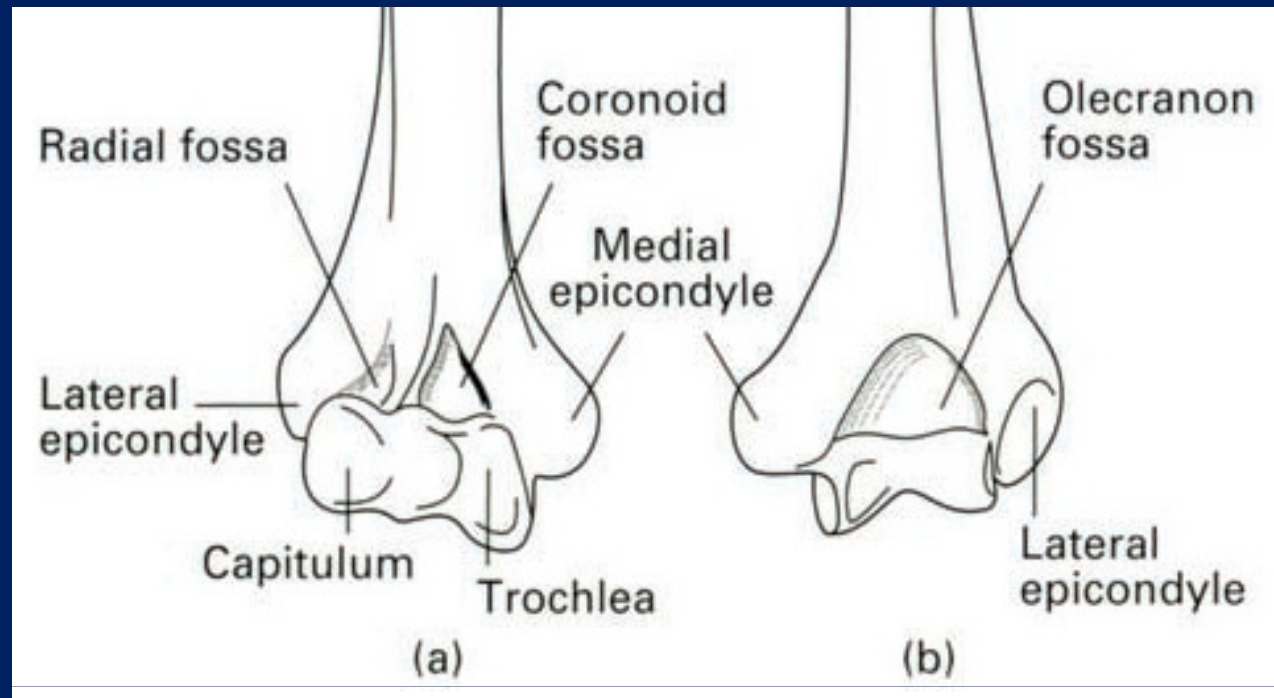


Humerus

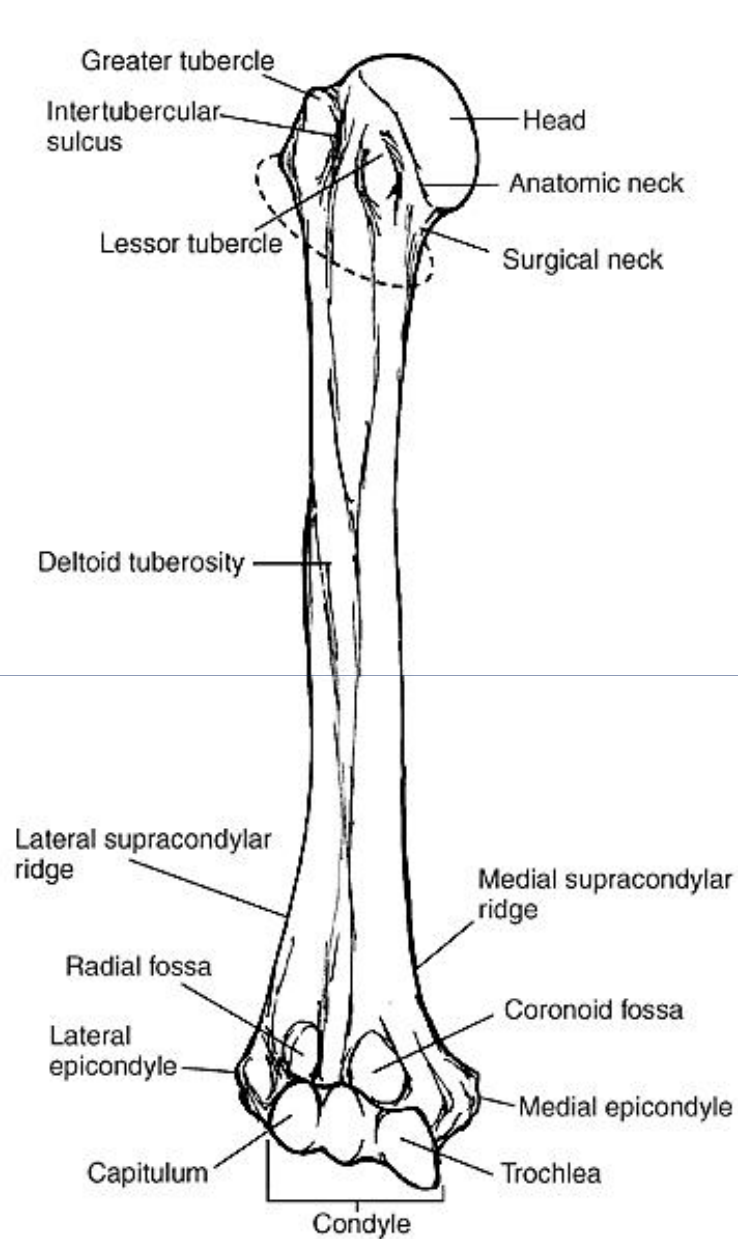
- ❑ The **humerus** articulates with the **scapula** at the **shoulder joint** and with the **radius** and **ulna** at the **elbow joint**.
- ❑ The upper end (**proximal end**) of the humerus has a head articulates with the glenoid cavity of the scapula.
- ❑ Immediately below the head is the **anatomic neck**.
- ❑ Below the neck are the **greater** and **lesser** tuberosities, separated from each other by the **bicipital** groove.
- ❑ (**shaft**) About halfway down the lateral aspect of the shaft is a roughened elevation called the **deltoid tuberosity**. Behind and below the tuberosity is a **spiral groove**, which accommodates the radial nerve .



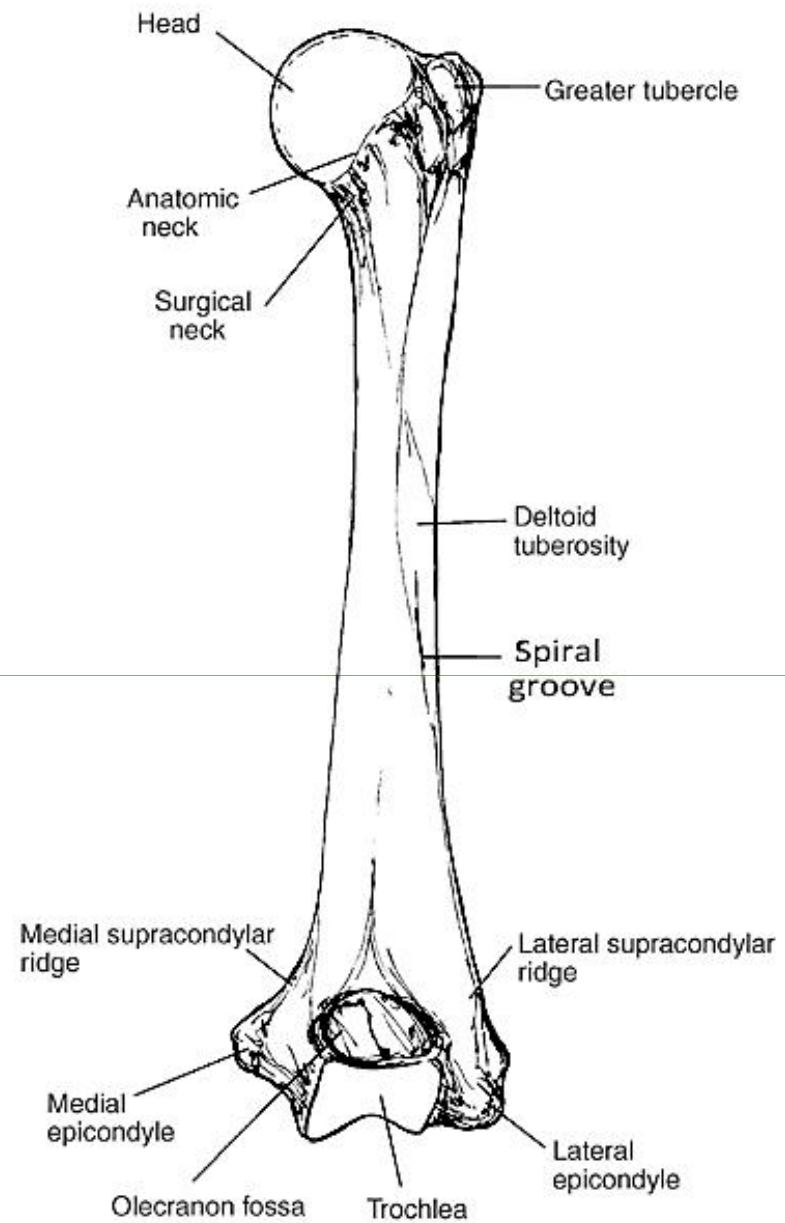
❑ The lower end (distal end) of the humerus the **medial** and **lateral** epicondyles for the attachment of muscles and ligaments, the rounded **capitulum** for articulation with the head of **radius**,



and the pulley-shaped **trochlea** for articulation with the **trochlear notch** of the **ulna**. Above the capitulum is the **radial fossa**, which receives the head of the **radius** when the elbow is flexed. Above the trochlea anteriorly is the **coronoid fossa**, which during the same movement receives the **coronoid** process of the **ulna**. Above the trochlea posteriorly is the **olecranon fossa**, which receives the **olecranon** process of the **ulna** when the elbow joint is extended.



Anterior



Posterior

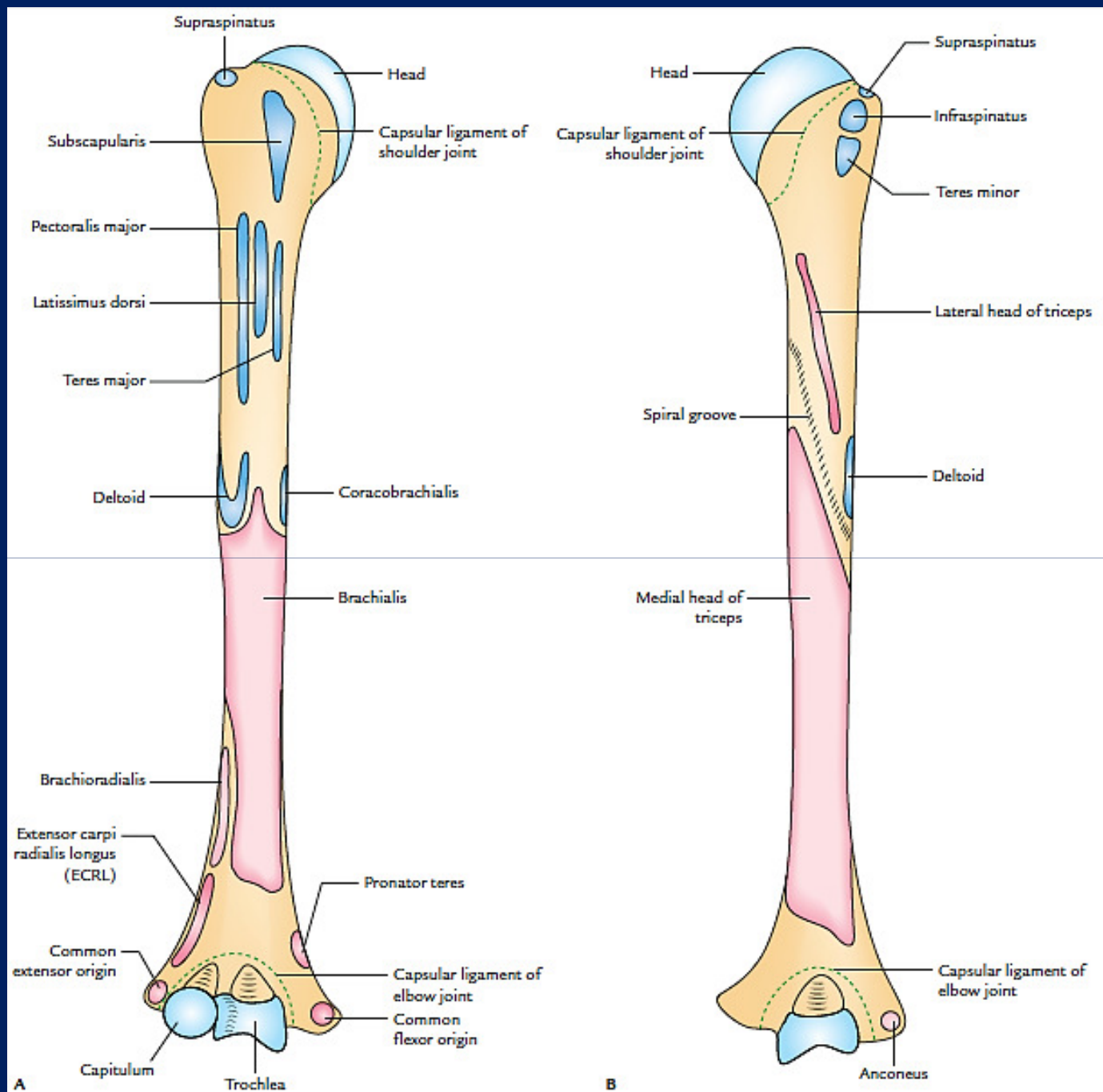
Muscular attachments

➤ Muscles inserted into the humerus are attached to its proximal half and include;

- ➤ Supraspinatus.
- ➤ Infraspinatus.
- ➤ Teres minor.
- ➤ Subscapularis.
- ➤ Pectoralis major.
- ➤ Teres major.
- ➤ Latissimus dorsi.
- ➤ Coracobrachialis.
- ➤ Deltoid.

➤ Muscles which take origin from the humerus do so from its distal half;

- ➤ Brachialis.
- ➤ Lateral head of triceps.
- ➤ Medial head of triceps.
- ➤ Pronator teres.
- ➤ Brachioradialis.
- ➤ Extensor carpi radialis longus.
- ➤ Anconeus.
- ➤ The common flexor tendon.
- ➤ The common extensor ten.



Muscles Connecting the Upper Limb to the Thoracic Wall

Muscle	Origin	Insertion	Nerve Supply	Nerve Roots ^a	Action
Pectoralis major	Clavicle, sternum, and upper six costal cartilages	Lateral lip of bicipital groove of humerus	Medial and lateral pectoral nerves from brachial plexus	C5, 6, 7, 8 ; T1	Adducts arm and rotates it medially; clavicular fibers also flex arm
Pectoralis minor	Third, fourth, and fifth ribs	Coracoid process of scapula	Medial pectoral nerve from brachial plexus	C6, 7, 8	Depresses point of shoulder; if the scapula is fixed, it elevates the ribs of origin
Subclavius	First costal cartilage	Clavicle	Nerve to subclavius from upper trunk of brachial plexus	C5, 6	Depresses the clavicle and steadies this bone during movements of the shoulder girdle
Serratus anterior	Upper eight ribs	Medial border and inferior angle of scapula	Long thoracic nerve	C5, 6, 7	Draws the scapula forward around the thoracic wall; rotates scapula

^a The predominant nerve root supply is indicated by boldface type.

Pectoralis major

■ Origin:

- ◆ Clavicle, sternum and upper six costal cartilages

■ Insertion:

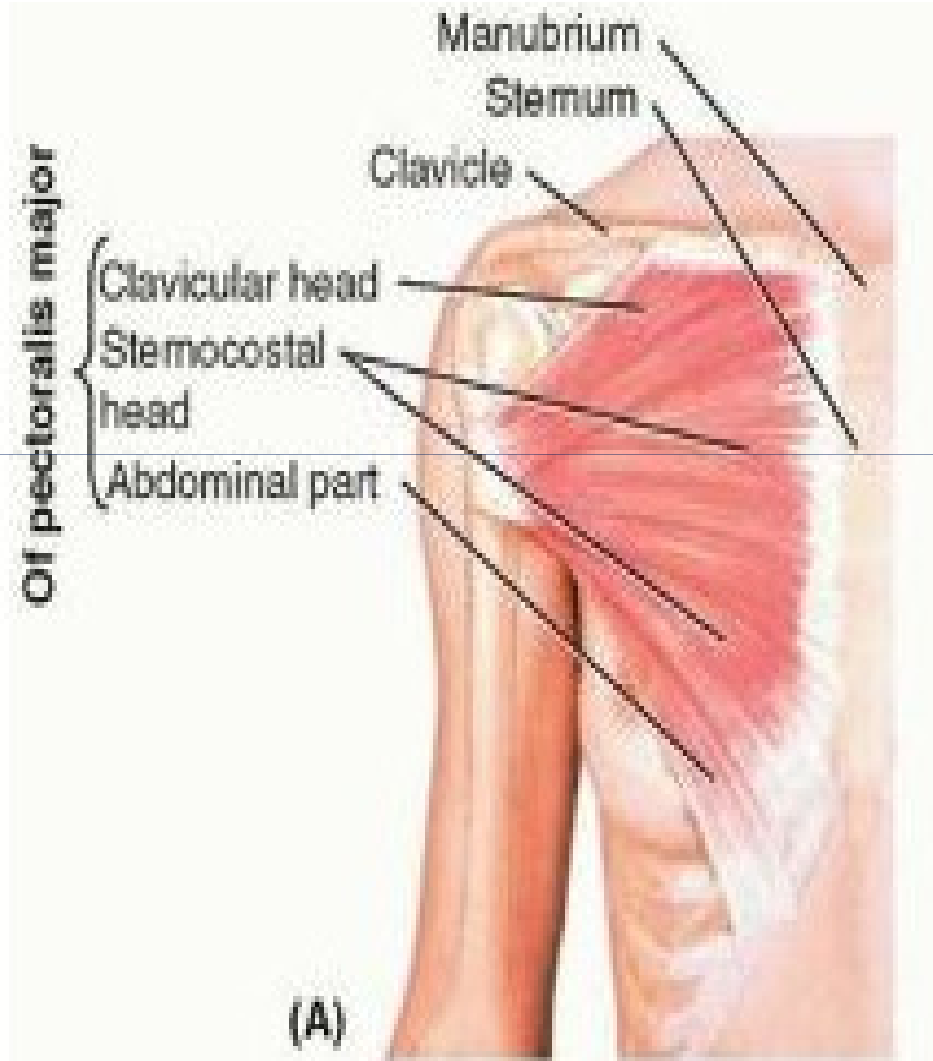
- ◆ Lateral lip of bicipital groove of humerus

■ Nerve supply:

- ◆ Medial and lateral pectoral nerves from brachial plexus
- ◆ C5, 6, 7, 8; T1

■ Actions:

- ◆ Adducts arm and rotates it medially; clavicular fibers also flex arm



Pectoralis minor

■ Origin:

- ◆ 3rd, 4th, and 5th ribs

■ Insertion:

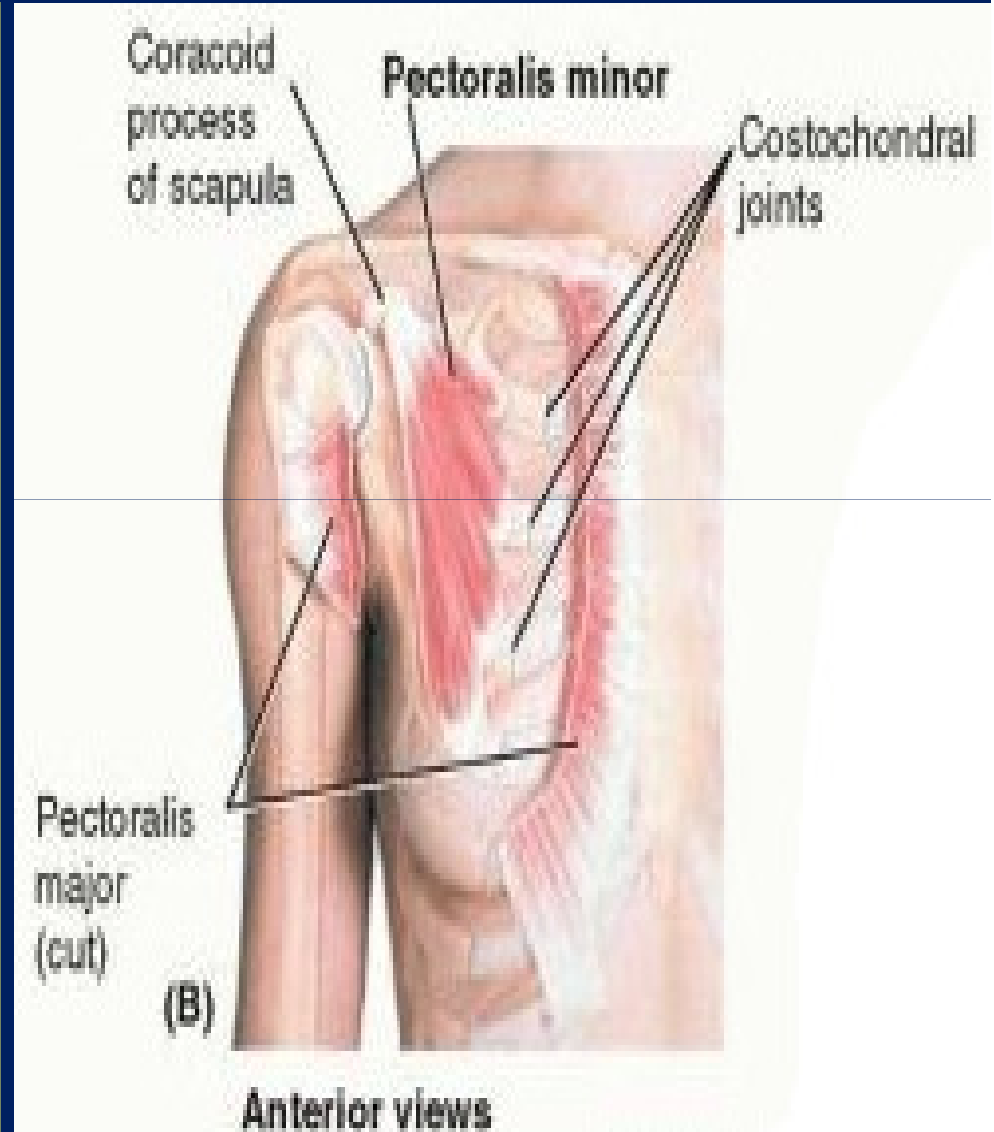
- ◆ Coracoid process of scapula

■ Nerve supply:

- ◆ Medial pectoral nerve from brachial plexus
- ◆ C6, 7, 8

■ Actions:

- ◆ Depresses point of shoulder; if the scapula is fixed, it elevates the ribs of origin



Subclavius

■ Origin:

- ◆ 1st costal cartilage

■ Insertion:

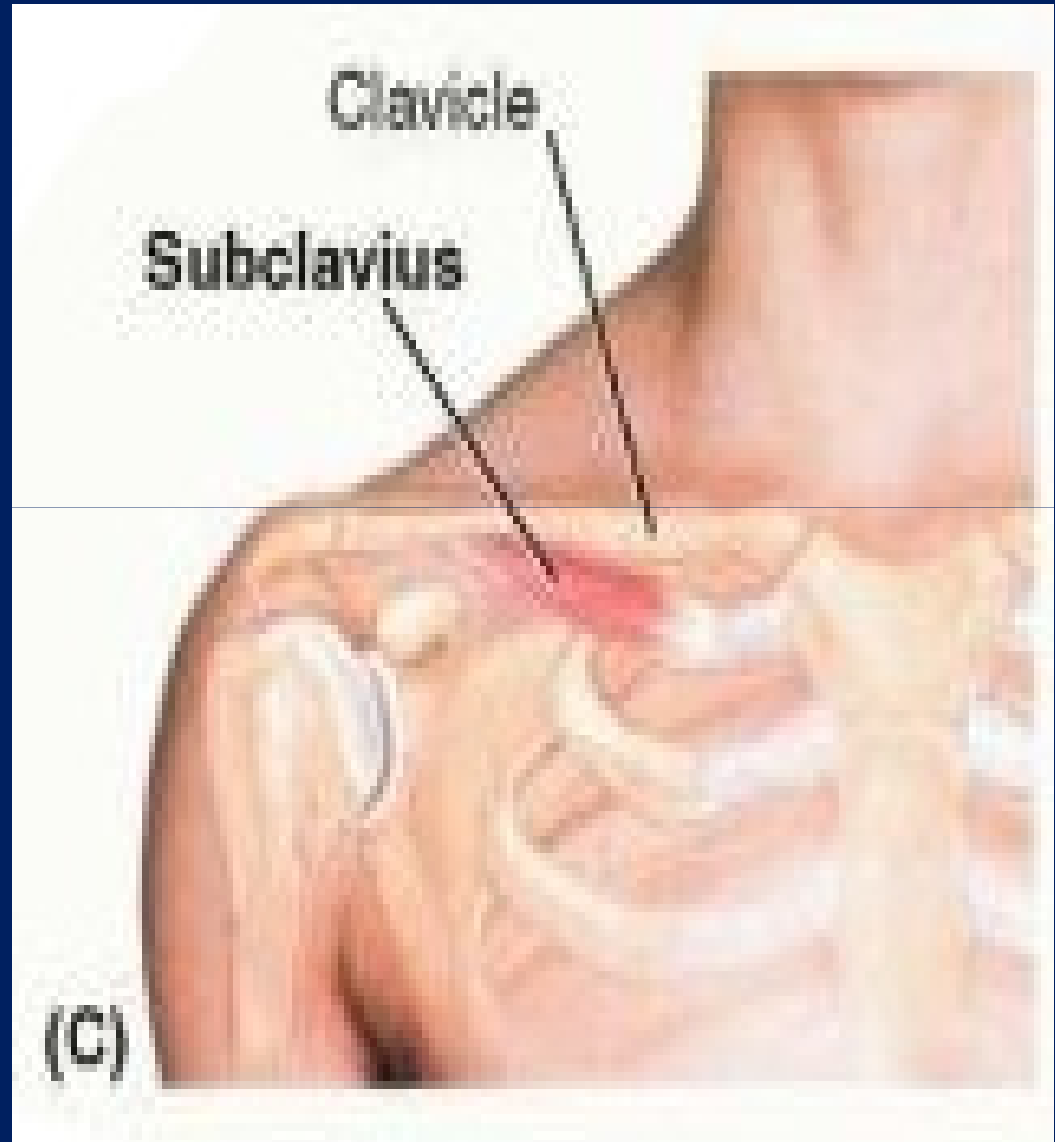
- ◆ Clavicle

■ Nerve supply:

- ◆ Nerve to subclavius from upper trunk of brachial plexus
- ◆ C5, 6

■ Actions:

- ◆ Depresses the clavicle and steadies this bone during movements of the shoulder girdle



Serratus anterior

■ Origin:

- ◆ Upper eight ribs

■ Insertion:

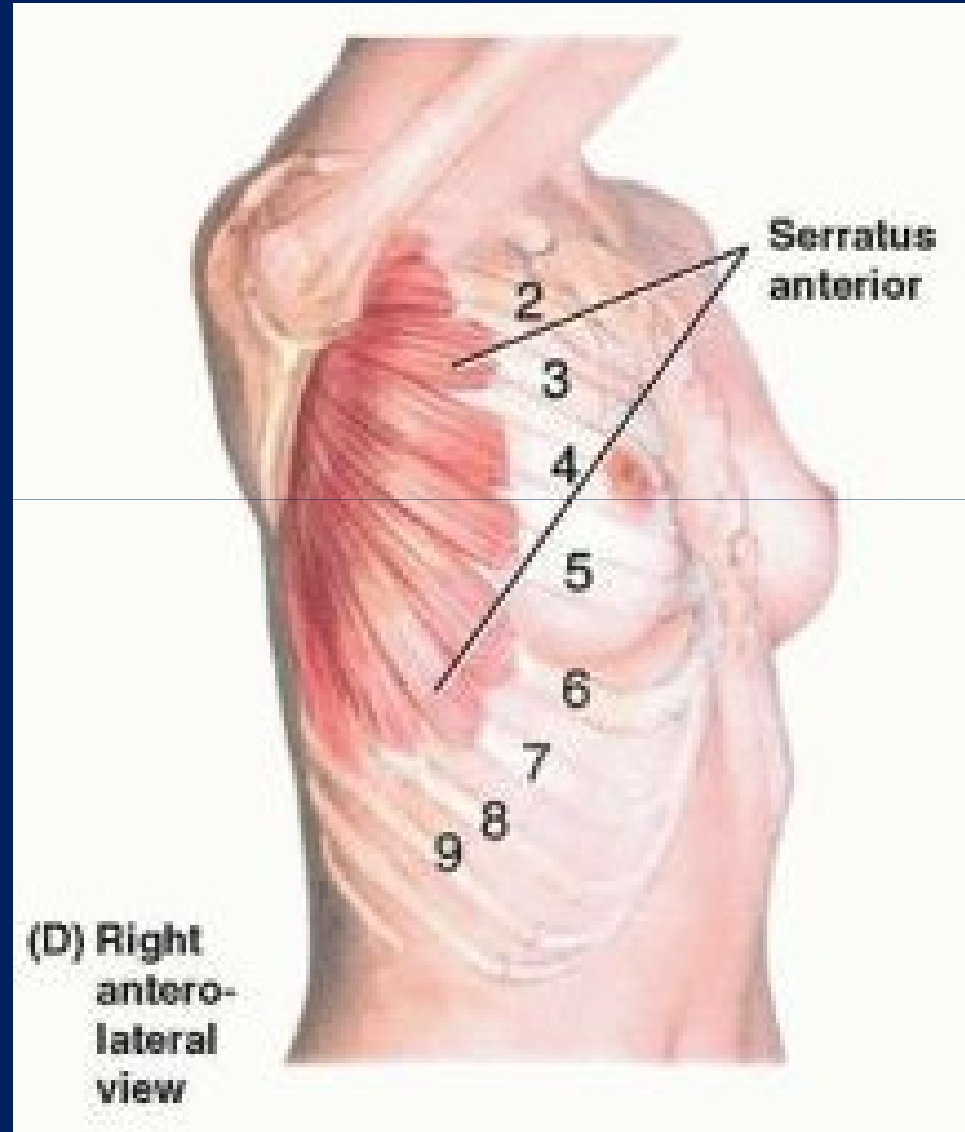
- ◆ Medial border and inferior angle of scapula

■ Nerve supply:

- ◆ Long thoracic nerve
- ◆ C5, 6, 7

■ Actions:

- ◆ Draws the forward anterior around the thoracic wall; rotates scapula



Muscles Connecting the Upper Limb to the Vertebral Column

Muscle	Origin	Insertion	Nerve Supply	Nerve Roots ^a	Action
Trapezius	Occipital bone, ligamentum nuchae, spine of seventh cervical vertebra, spines of all thoracic vertebrae	Upper fibers into lateral third of clavicle; middle and lower fibers into acromion and spine of scapula	Spinal part of accessory nerve (motor) and C3 and 4 (sensory)	XI cranial nerve (spinal part)	Upper fibers elevate the scapula; middle fibers pull scapula medially; lower fibers pull medial border of scapula downward
Latissimus dorsi	Iliac crest, lumbar fascia, spines of lower six thoracic vertebrae, lower three or four ribs, and inferior angle of scapula	Floor of bicipital groove of humerus	Thoracodorsal nerve	C6, 7 , 8,	Extends, adducts, and medially rotates the arm
Levator scapulae	Transverse processes of first four cervical vertebrae	Medial border of scapula	C3 and 4 and dorsal scapular nerve	C3, 4, 5	Raises medial border of scapula
Rhomboid minor	Ligamentum nuchae and spines of seventh cervical and first thoracic vertebrae	Medial border of scapula	Dorsal scapular nerve	C4 , 5	Raises medial border of scapula upward and medially
Rhomboid major	Second to fifth thoracic spines	Medial border of scapula	Dorsal scapular nerve	C4 , 5	Raises medial border of scapula upward and medially

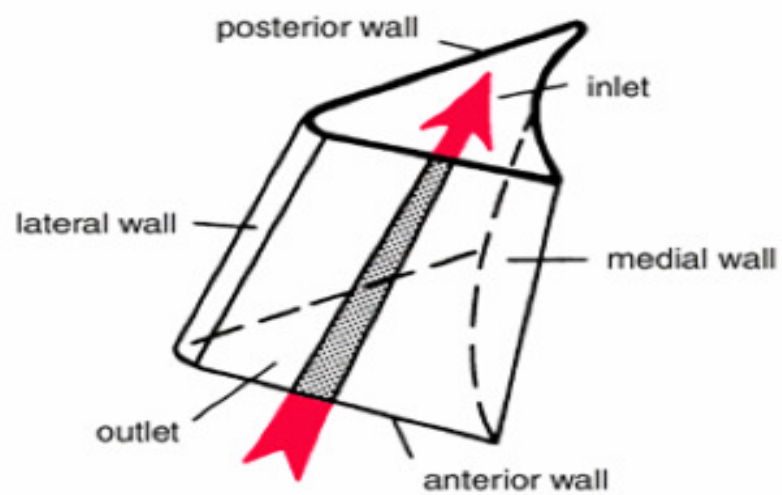
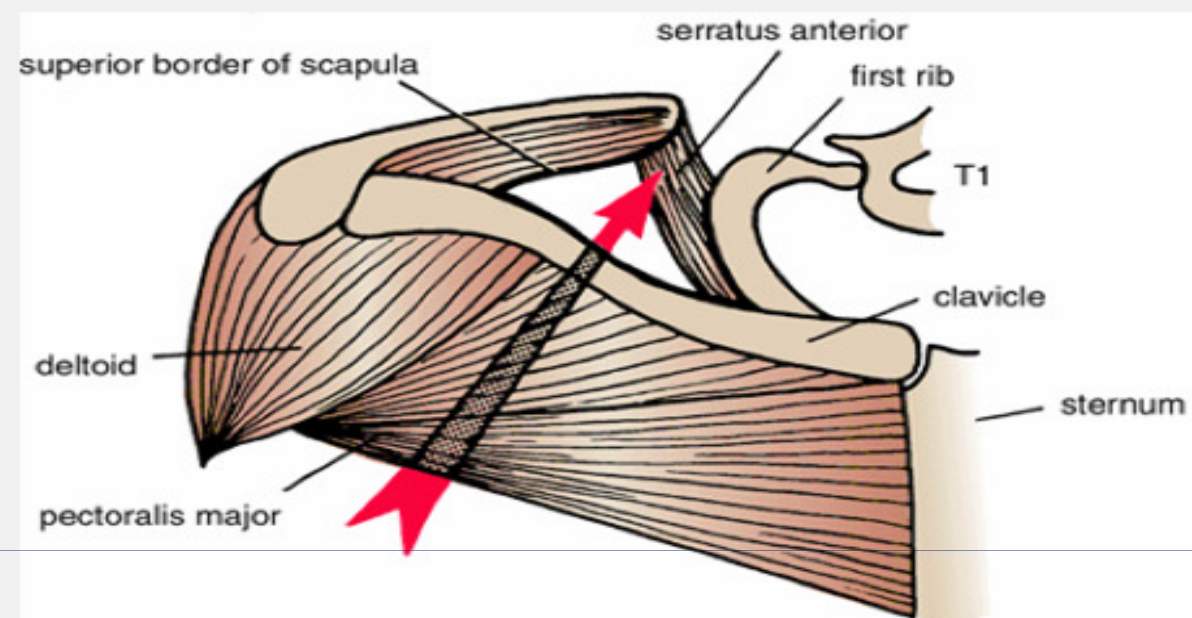
^a The predominant nerve root supply is indicated by boldface type.

Muscles Connecting the Scapula to the Humerus

Muscle	Origin	Insertion	Nerve Supply	Nerve Roots	Action
Deltoid	Lateral third of clavicle, acromion, spine of scapula	Middle of lateral surface of shaft of humerus	Axillary nerve	C5, 6	Abducts arm; anterior fibers flex and medially rotate arm; posterior fibers extend and laterally rotate arm
Supraspinatus	Supraspinous fossa of scapula	Greater tuberosity of humerus; capsule of shoulder joint	Suprascapular nerve	C4, 5, 6	Abducts arm and stabilizes shoulder joint
Infraspinatus	Infraspinous fossa of scapula	Greater tuberosity of humerus; capsule of shoulder joint	Suprascapular nerve	(C4), 5, 6	Laterally rotates arm and stabilizes shoulder joint
Teres major	Lower third of lateral border of scapula	Medial lip of bicipital groove of humerus	Lower subscapular nerve	C6, 7	Medially rotates and adducts arm and stabilizes shoulder joint
Teres minor	Upper two thirds of lateral border of scapula	Greater tuberosity of humerus; capsule of shoulder joint	Axillary nerve	(C4), C5, 6	Laterally rotates arm and stabilizes shoulder joint
Subscapularis	Subscapular fossa	Lesser tuberosity of humerus	Upper and lower subscapular nerves	C5, 6, 7	Medially rotates arm and stabilizes shoulder joint

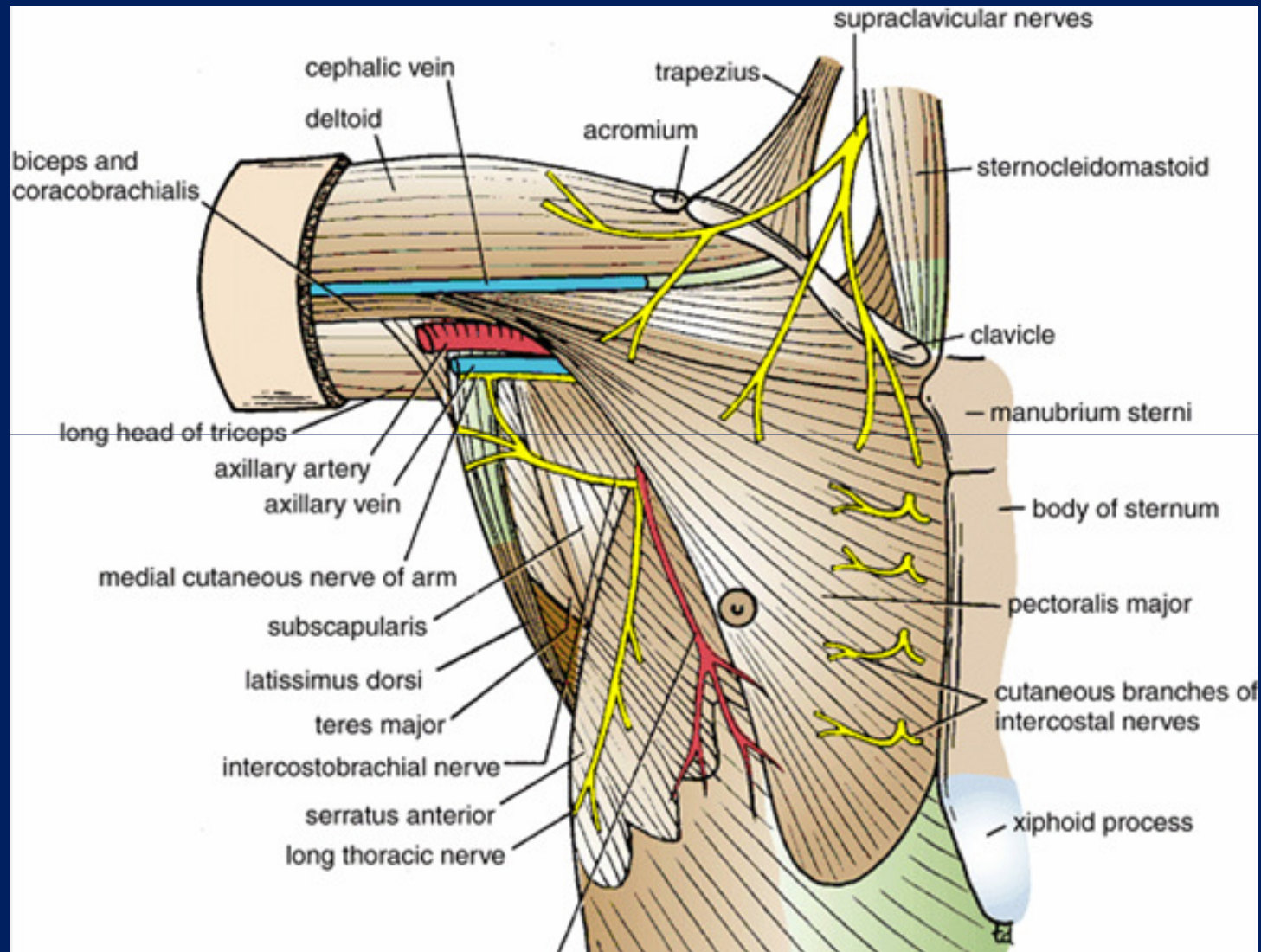
The Axilla

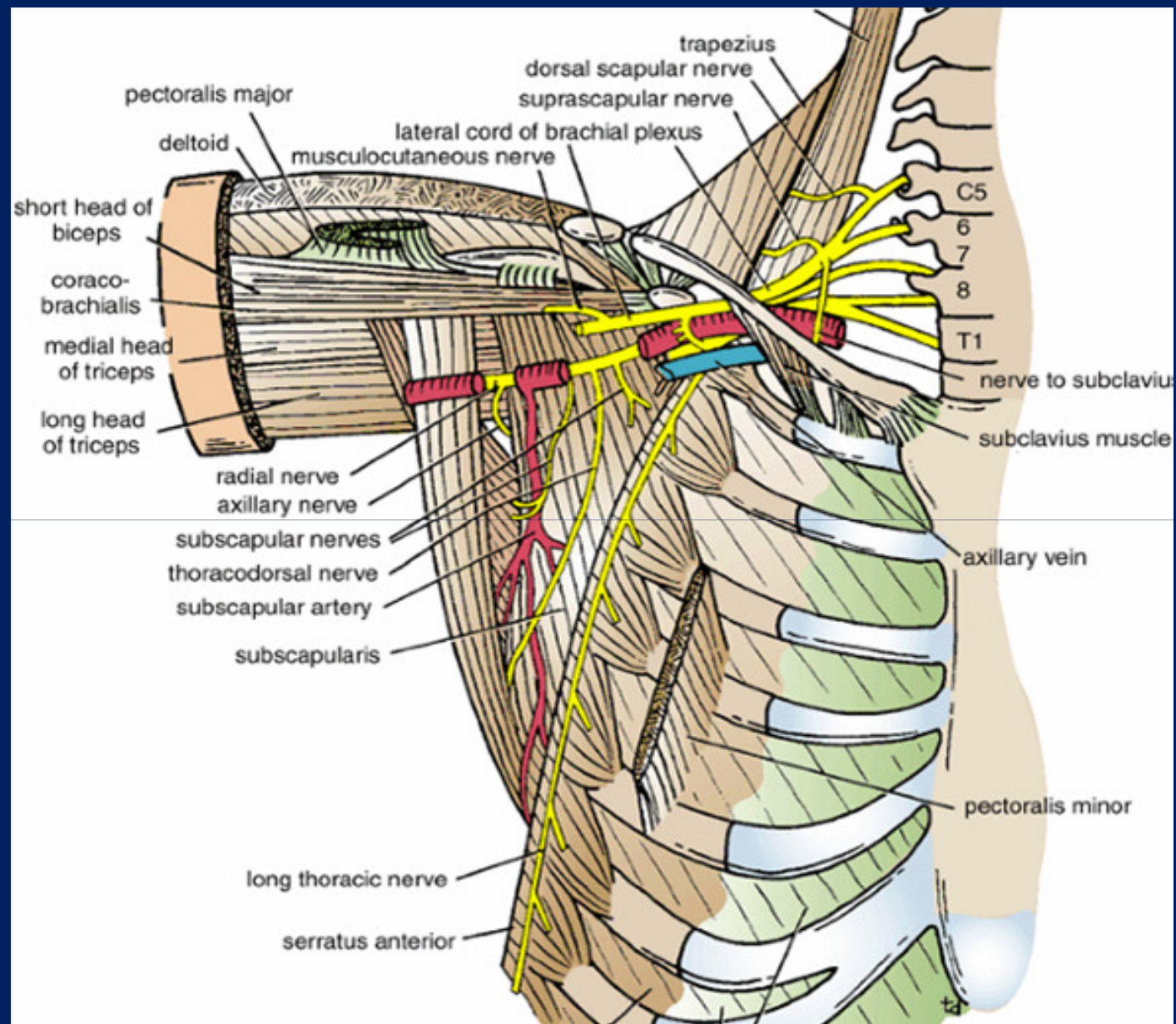
- The axilla, or armpit, is a **pyramid-shaped** space between the upper part of the arm and the side of the chest .It forms an important passage for nerves, blood, and lymph vessels as they travel from the root of the **neck** to the **upper limb**. The upper end of the axilla, or **apex**, is directed into the **root** of the **neck** and is **bounded** in front by the **clavicle**, behind by the **upper border** of the **scapula**, and medially by the **outer border** of the **first rib** .The lower end, or **base**, is **bounded** in front by the **anterior axillary fold** (formed by the lower border of the pectoralis major muscle), behind by the **posterior axillary fold** (formed by the tendon of latissimus dorsi and the teres major muscle), and medially by the **chest wall**



Walls of the Axilla

- Anterior wall: By the pectoralis major, subclavius, and pectoralis minor muscles .
 - Posterior wall: By the subscapularis, latissimus dorsi, and teres major muscles from above to down .
 - Medial wall: By the upper four or five ribs and the intercostal spaces covered by the serratus anterior muscle .
 - Lateral wall: By the coracobrachialis and biceps muscles in the bicipital groove of the humerus .
- The base: is formed by the skin stretching between the anterior and posterior walls.



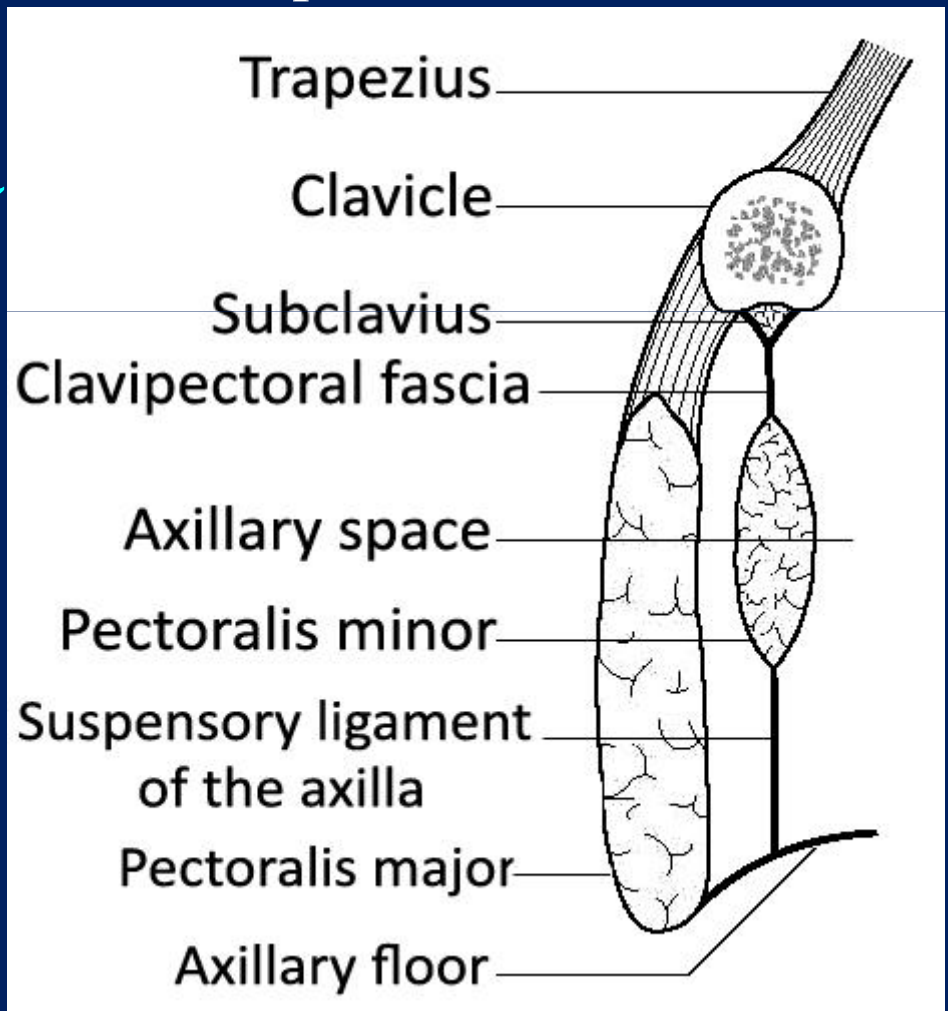


Key Muscles in the Axilla

Pectoralis Minor (is used when describing the axillary artery to divide it into three parts)

Clavipectoral Fascia

The clavipectoral fascia is a strong sheet of connective tissue that is attached above to the clavicle. Below, it splits to enclose the pectoralis minor muscle and then continues downward as the **suspensory ligament of the axilla** and joins the fascial floor of the armpit.



■ Absent Pectoralis Major

Occasionally, parts of the pectoralis major muscle may be absent. The sternocostal origin is the most commonly missing part, and this causes weakness in adduction and medial rotation of the shoulder joint.

Thank You & Good Luck

