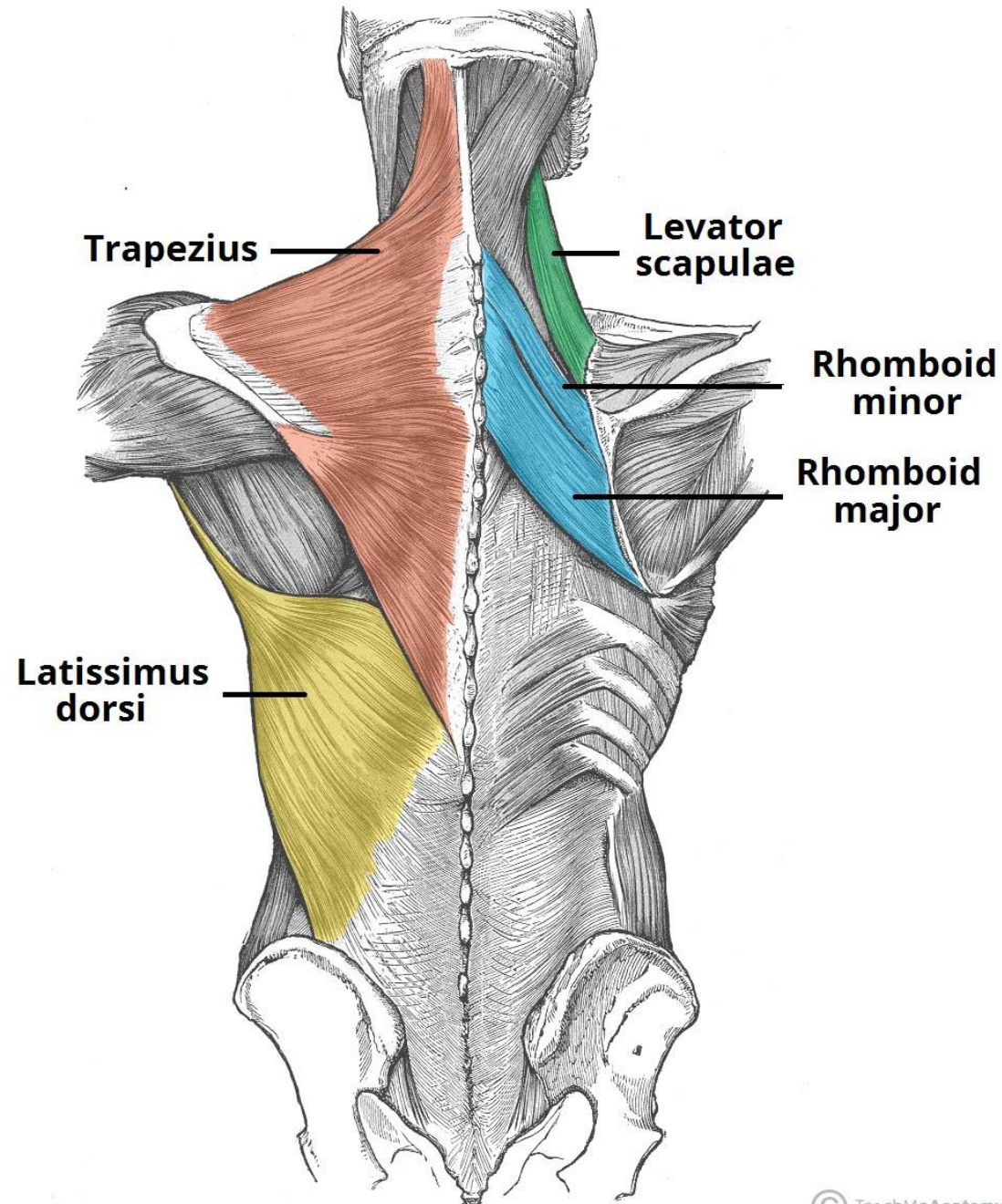


Muscles
Connecting the
Upper Limb to
the Vertebral
Column

Arranged in two layers:

- 1st layer:
 - Trapezius
 - Latissimus dorsi
- 2nd layer:
 - Levator scapulae
 - Rhomboideus major and minor



Trapezius ..1/2

Origin: External occipital protuberance, superior nuchal line, ligamentum nuchae, spine of seventh cervical vertebra, spines of all thoracic vertebrae and their supraspinous ligament

Insertion:

- Upper fibers into posterior border of lateral third of clavicle
- middle fibres- medial border of acromion and upper lip of crest of spine
- lower fibers pass upward and laterally and insert on medial end of spine of scapula



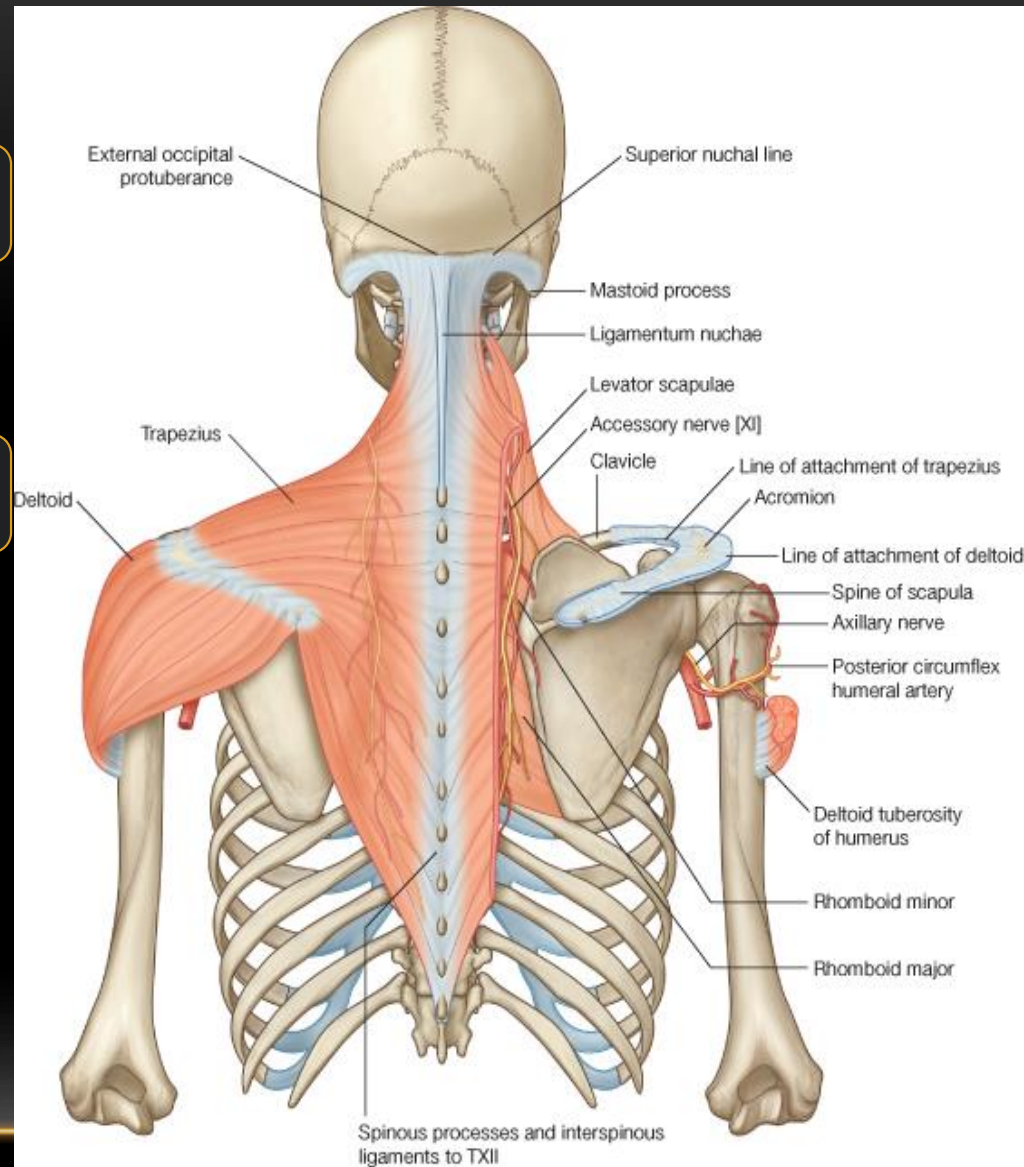
Trapezius .2/2

Nerve Supply:

- Spinal part of accessory nerve (motor) and ventral rami of C3 and 4 (sensory- proprioceptive)

Action:

- Upper fibers along with levator scapulae elevate the scapula;
- middle fibers with rhomboids pull scapula medially (retracts);
- lower fibers pull medial border of scapula downward , so upper and lower fibres acting together rotate scapula-glenoid cavity face upward assisted by lower 5 digitations of serratus anterior



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Latissimus dorsi

Origin

- Iliac crest, lumbar fascia, spines of lower six thoracic vertebrae(T7-T12), lower three or four ribs, and inferior angle of scapula (5)

Insertion

- Floor of bicipital groove of humerus (1)

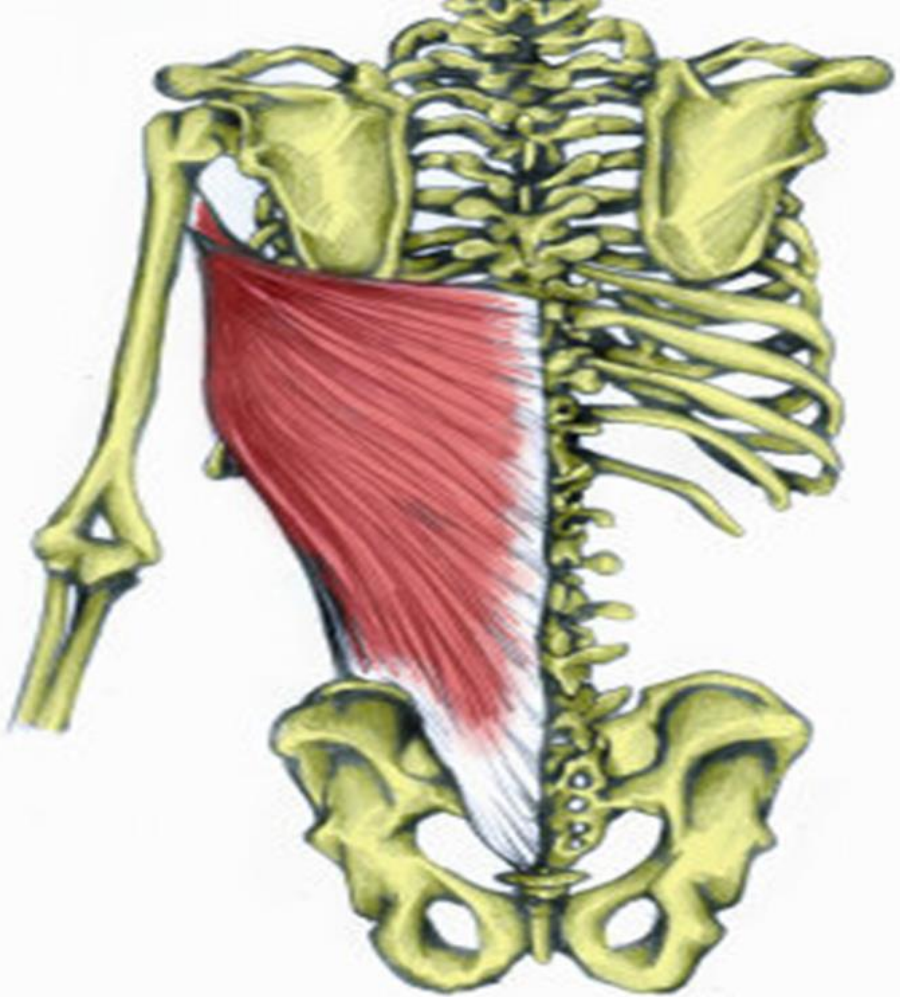
Nerve Supply


- Thoracodorsal nerve
- C6, 7, 8,

Action

- Extends, adducts, and medially rotates the arm (3)
- Its called the climbing muscle
- Raising of the trunk above the arm







Muscles
Connecting
the Scapula
to the
Humerus

Deltoid

Supraspinatus

Infraspinatus

Teres minor

Teres major

Subscapularis

Deltoid

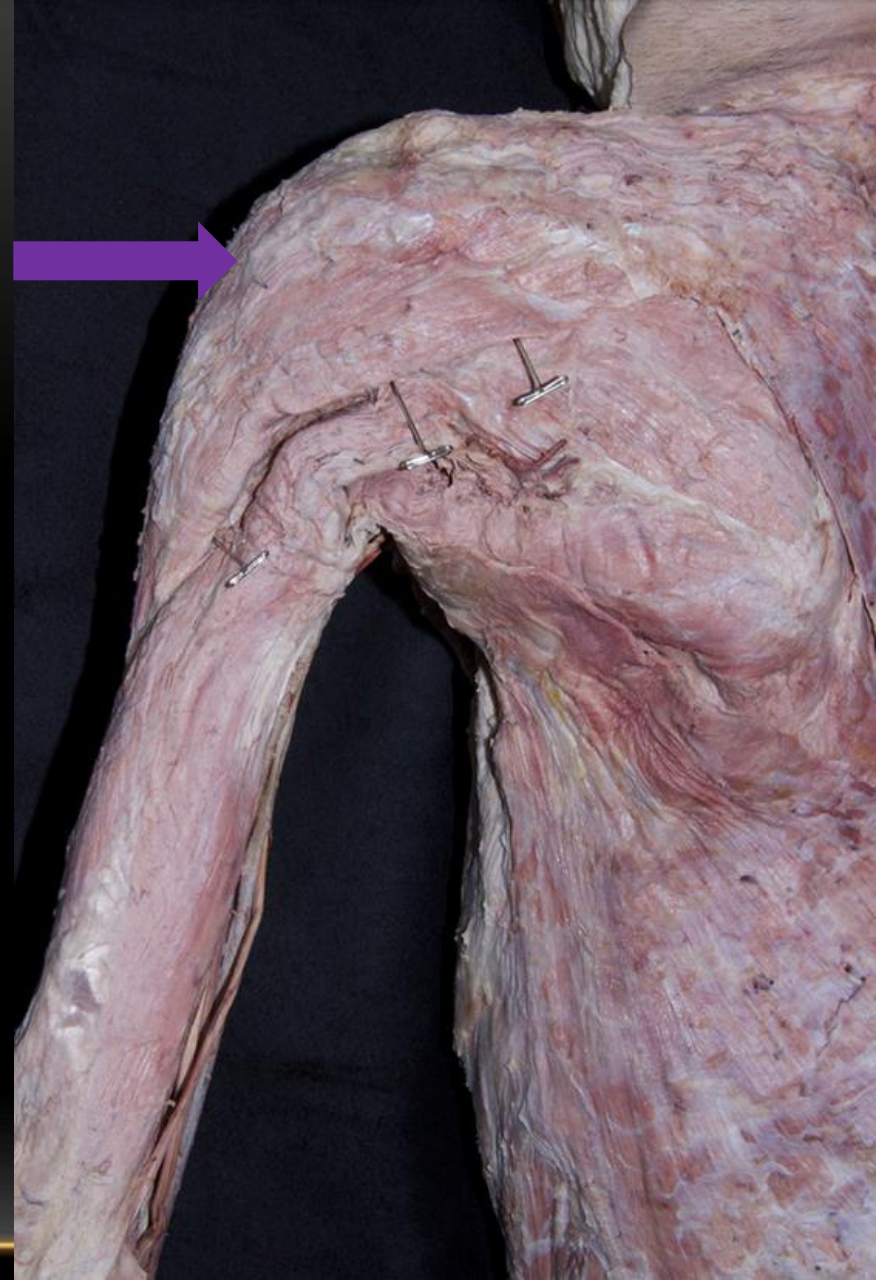
Origin: Lateral third of clavicle, acromion, spine of scapula

Insertion: Middle of lateral surface of shaft of humerus

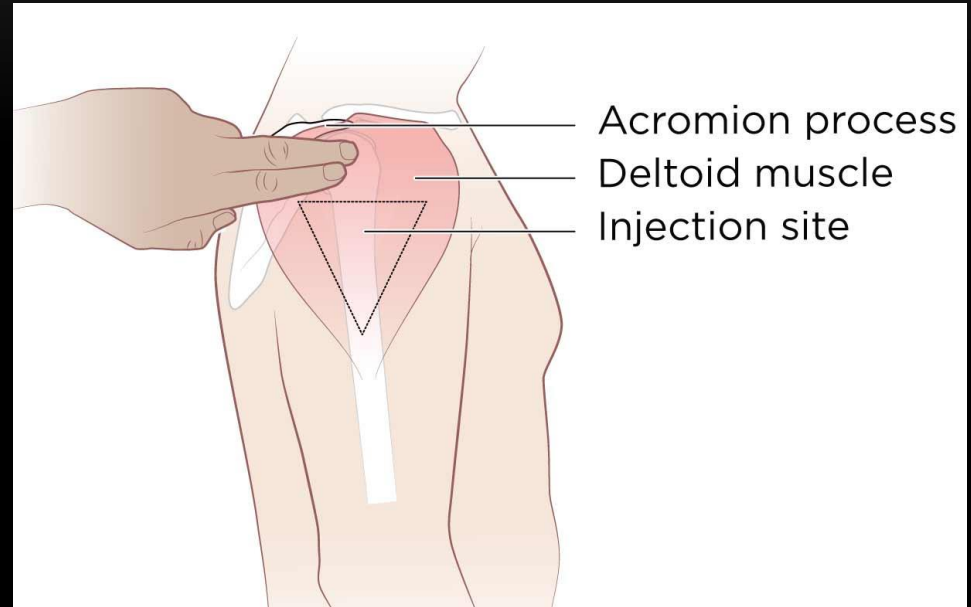
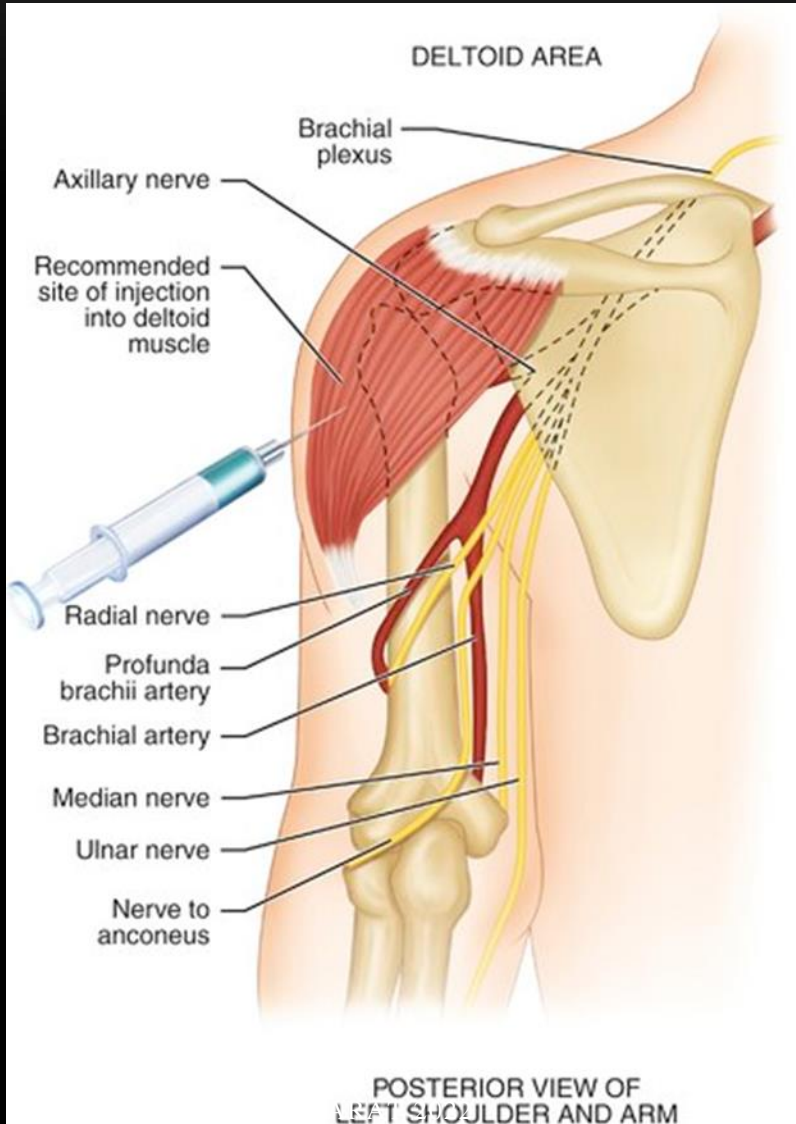
Nerve supply: Axillary nerve C5, C6

Action:

- Middle fibers Abduct arm; anterior fibers flex and medially rotate arm; posterior fibers extend and laterally rotate arm
- Abduction from 15-90 degrees



Intramuscular Injection



Structures Under Cover of Deltoid

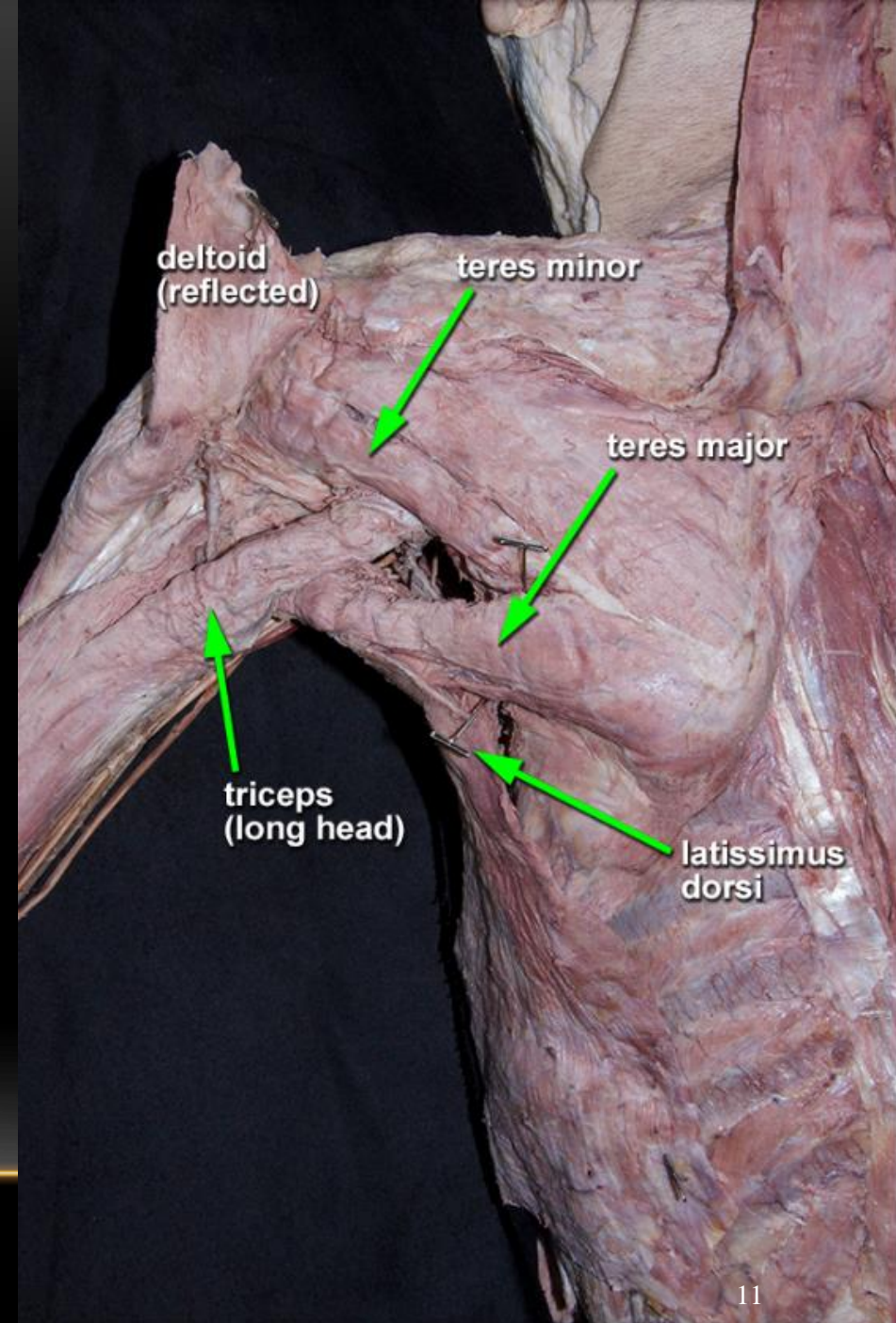
BONE- Upper part humerus, coracoid process, greater tubercle, lesser tubercle Intertuberculus sulcus

Bursa- Subdeltoid , subacromial bursa

Muscles – attached around shoulder joint

Vessels- Ant and Post circumflex humeral vessel

Nerves- Axillary



Supraspinatus

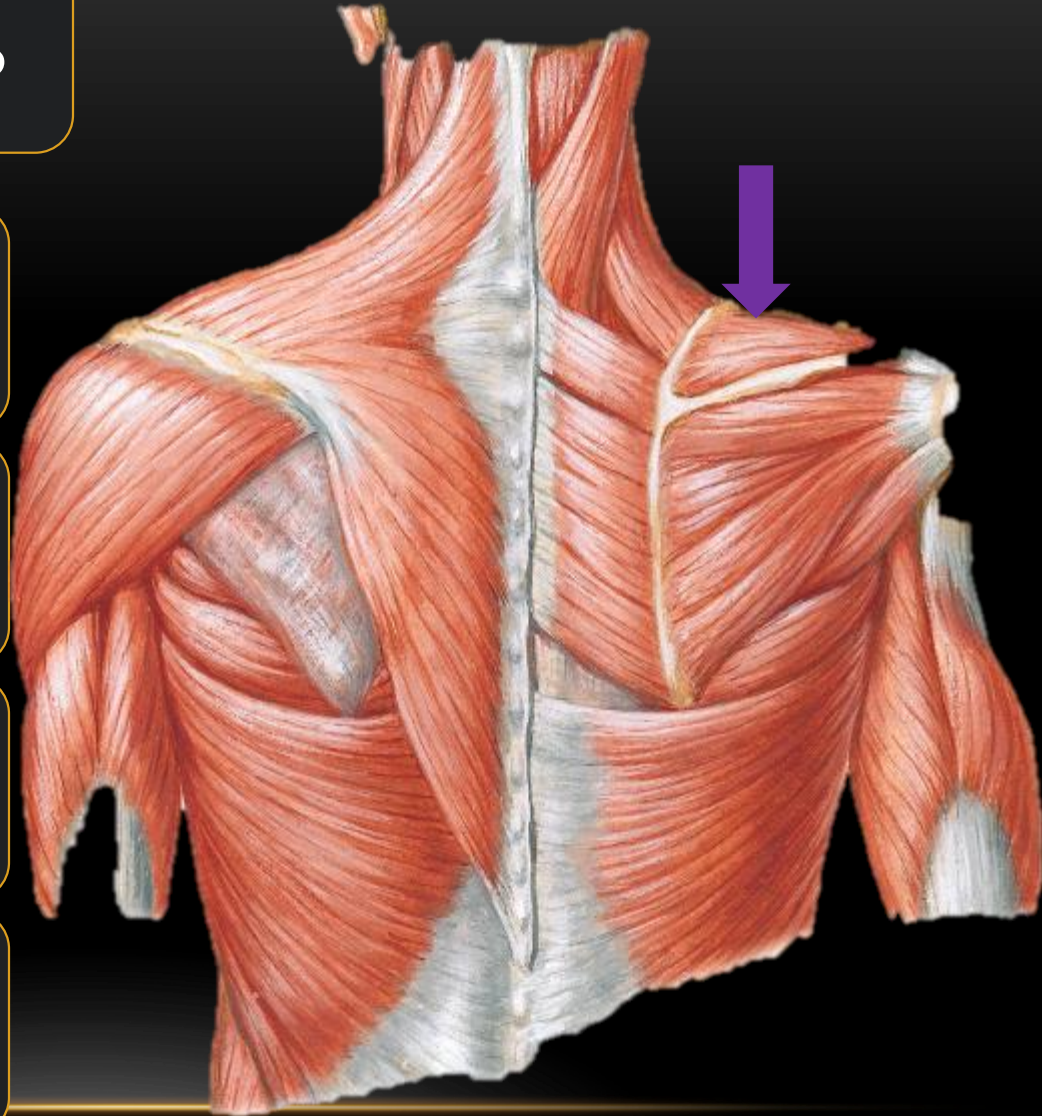
Origin: Supraspinous fossa of scapula

Insertion: Greater tuberosity of humerus; capsule of shoulder joint

Nerve Supply: Suprascapular nerve 5, 6

Action:

- Stabilizes shoulder joint
- Initiation of abduction 0-15 degrees



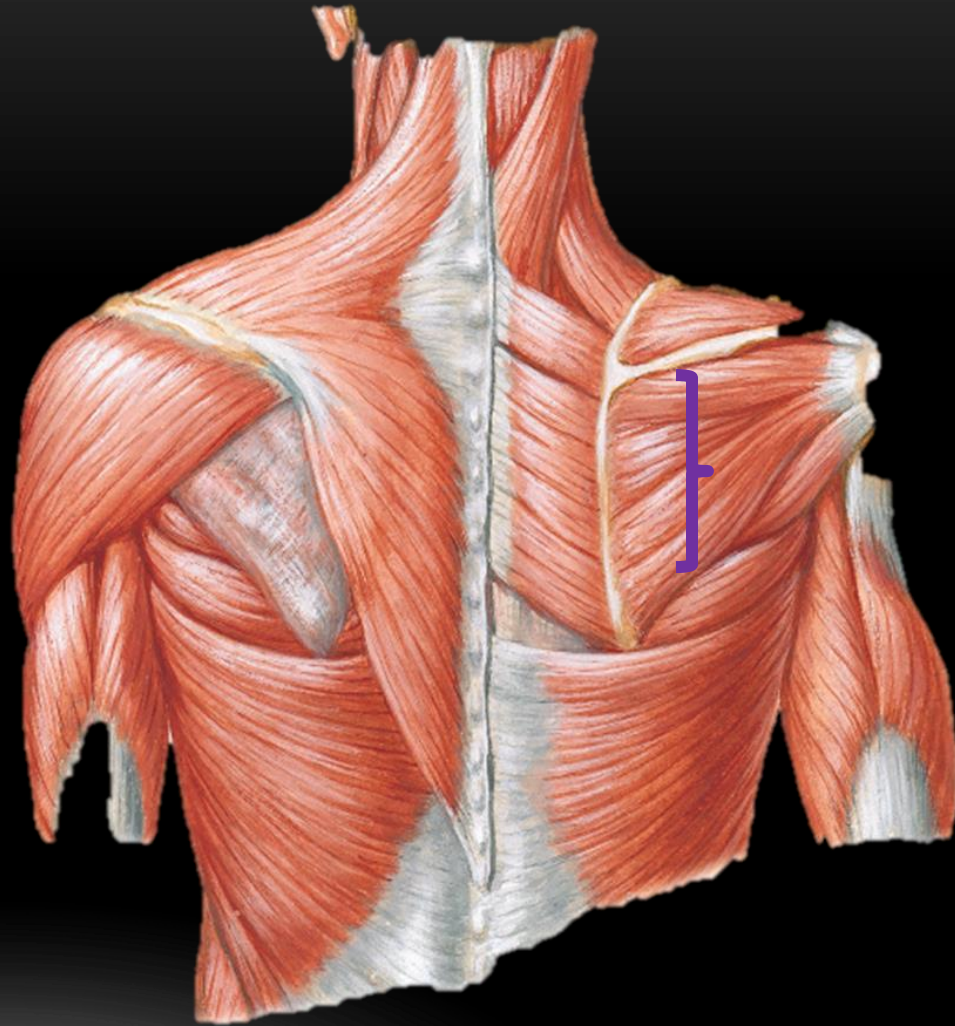
Infraspinatus

Origin: Infraspinous fossa of scapula

Insertion: Middle impression of greater tubercle of humerus; capsule of shoulder joint

Nerve supply: Suprascapular nerve

Action: Laterally rotates arm and stabilizes shoulder joint



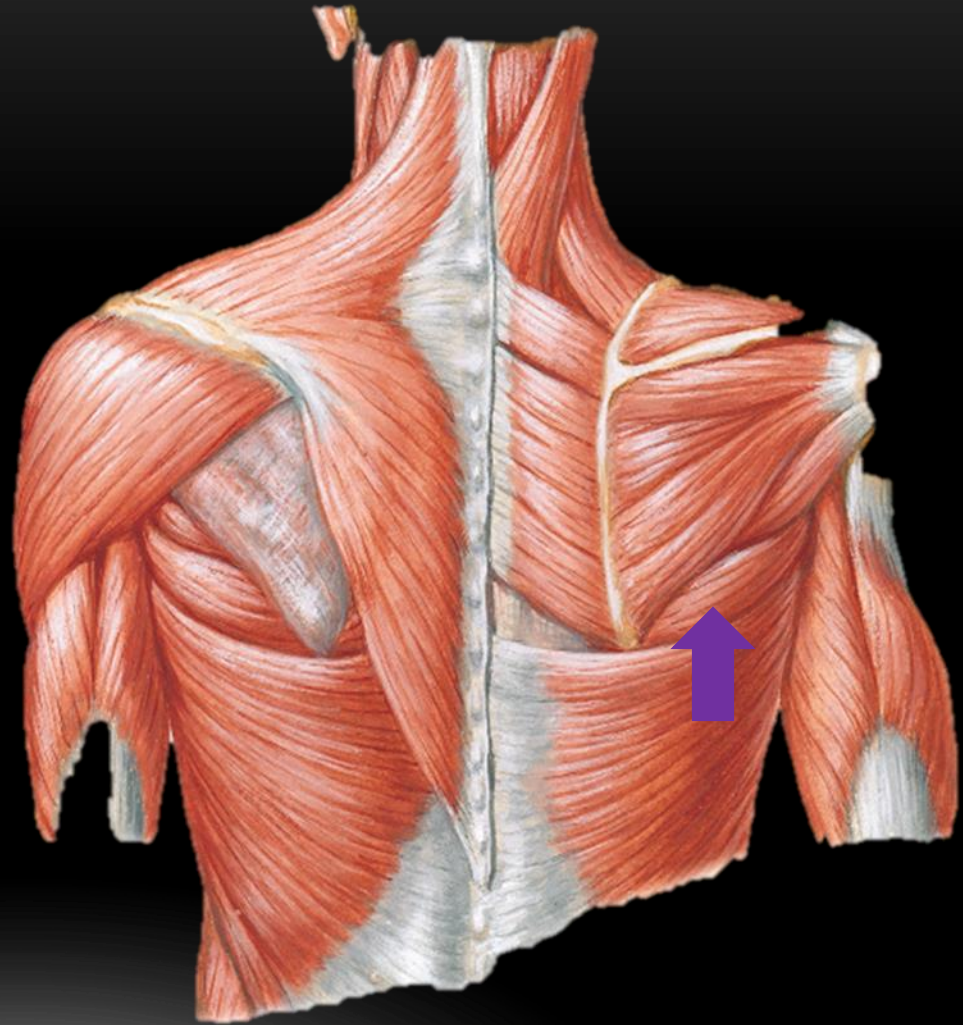
Teres major

Origin: Lower third of lateral border of scapula

Insertion: Medial lip of bicipital groove of humerus

Nerve supply: Lower subscapular nerve C6, C7

Action: Medially rotates and adducts arm and stabilizes shoulder joint



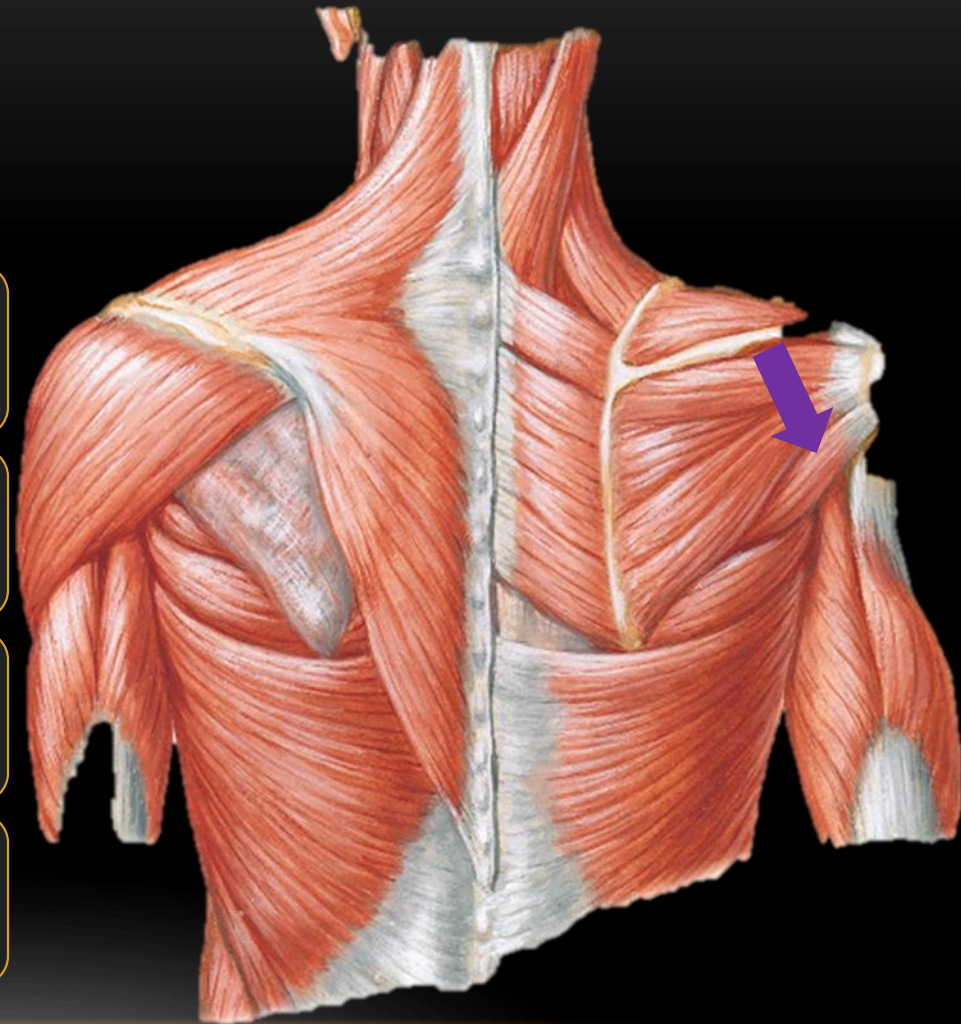
Teres minor

Origin: Upper two thirds of lateral border of scapula

Insertion: Greater tuberosity of humerus; capsule of shoulder joint

Nerve supply: Axillary nerve (C4, C5, C6)

Action: Laterally rotates arm and stabilizes shoulder joint



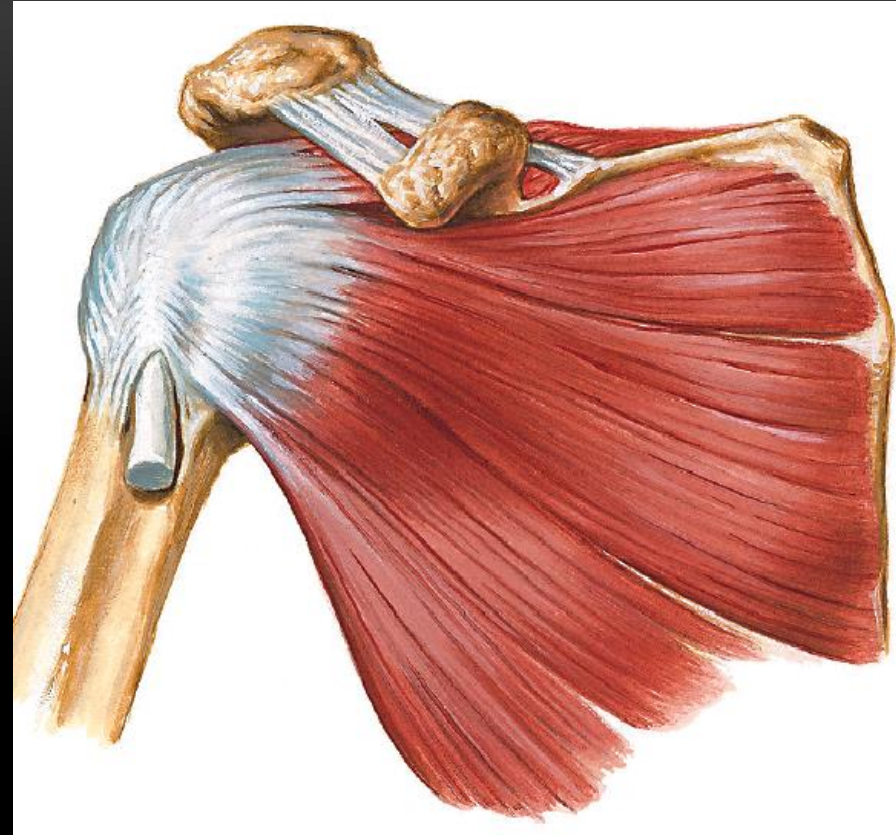
Subscapularis

Origin: Subscapular fossa

Insertion: Lesser tuberosity of humerus

Nerve supply: Upper and lower subscapular nerves C5, 6, 7

Action: Medially rotates arm and stabilizes shoulder joint



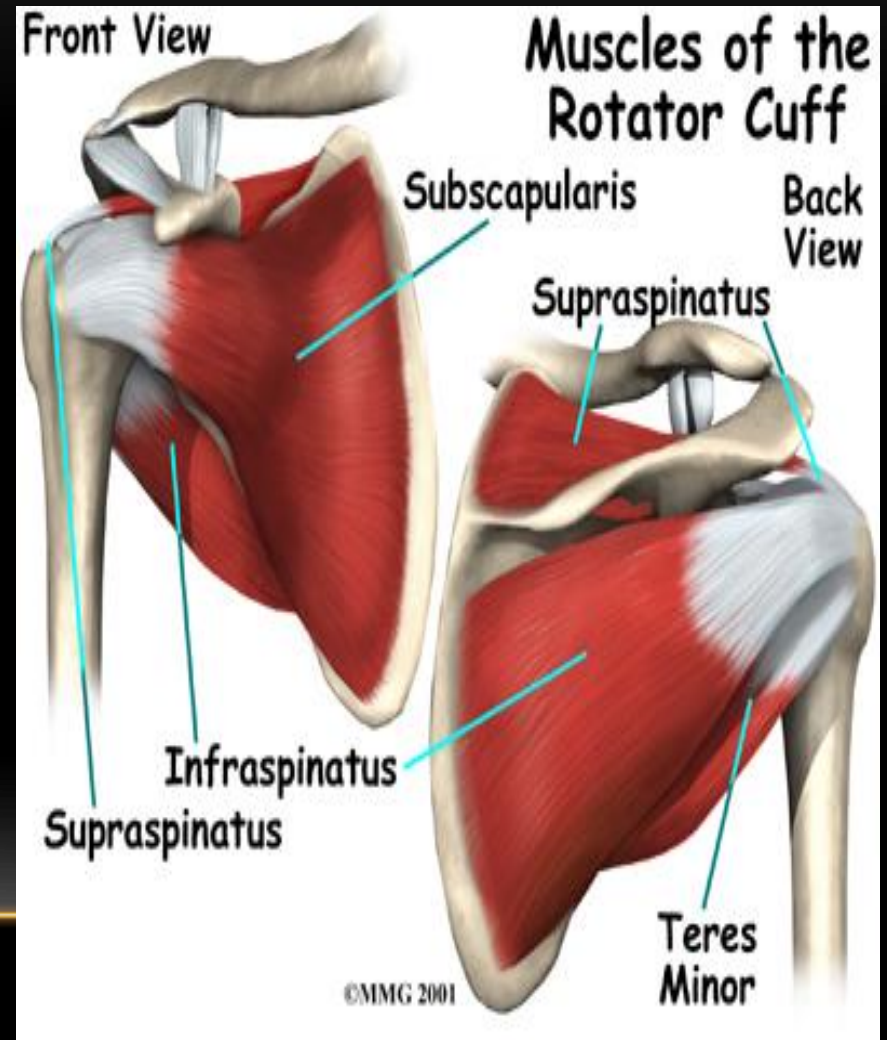
Rotator Cuff

The rotator cuff is the name given to the tendons of the subscapularis, supraspinatus, infraspinatus, and teres minor muscles

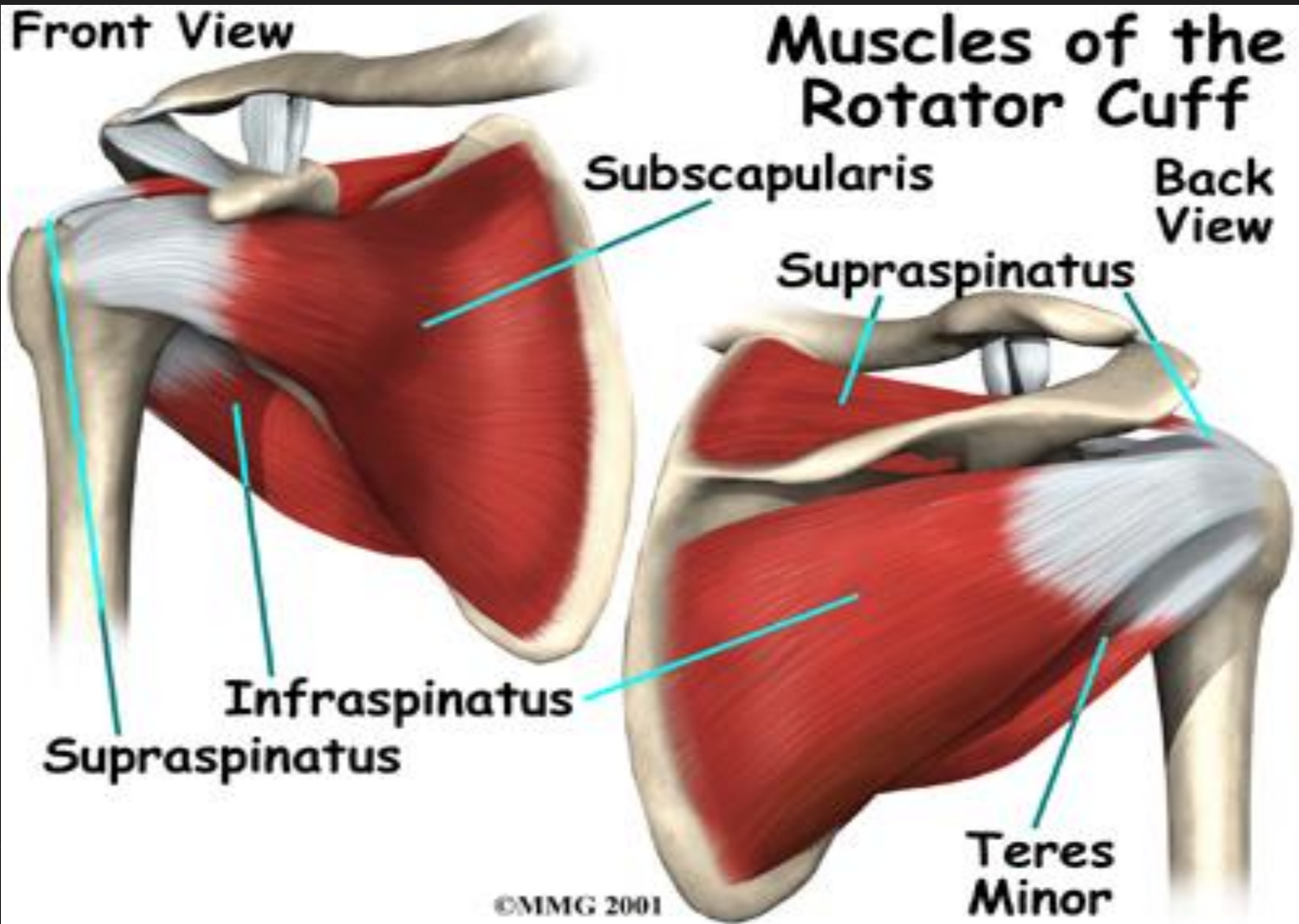
are fused to the underlying capsule of the shoulder joint

stabilizing the shoulder joint

The cuff is deficient inferiorly, and this is a site of potential weakness.



Rotator Cuff



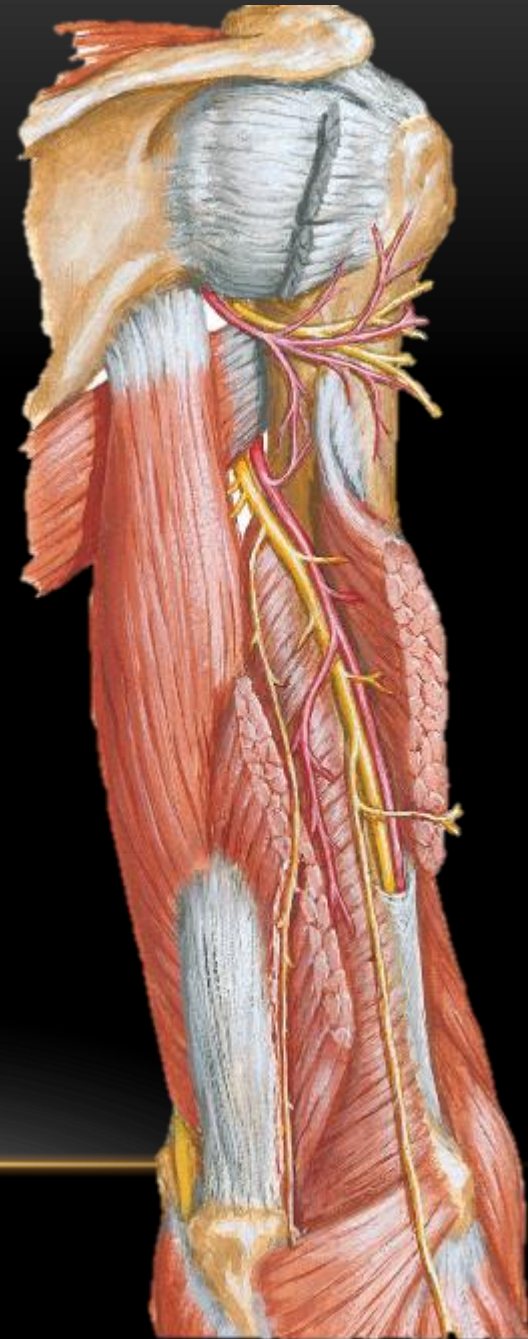
Axillary Nerve ..1/3

The axillary nerve arises from the posterior cord of the brachial plexus (C5 and 6) in the axilla

It passes backward and enters the quadrangular space with the posterior circumflex humeral artery

As the nerve passes through the space, it comes into close relationship with the inferior aspect of the capsule of the shoulder joint and with the **medial side of the surgical neck of the humerus**

It terminates by dividing into anterior and posterior branches



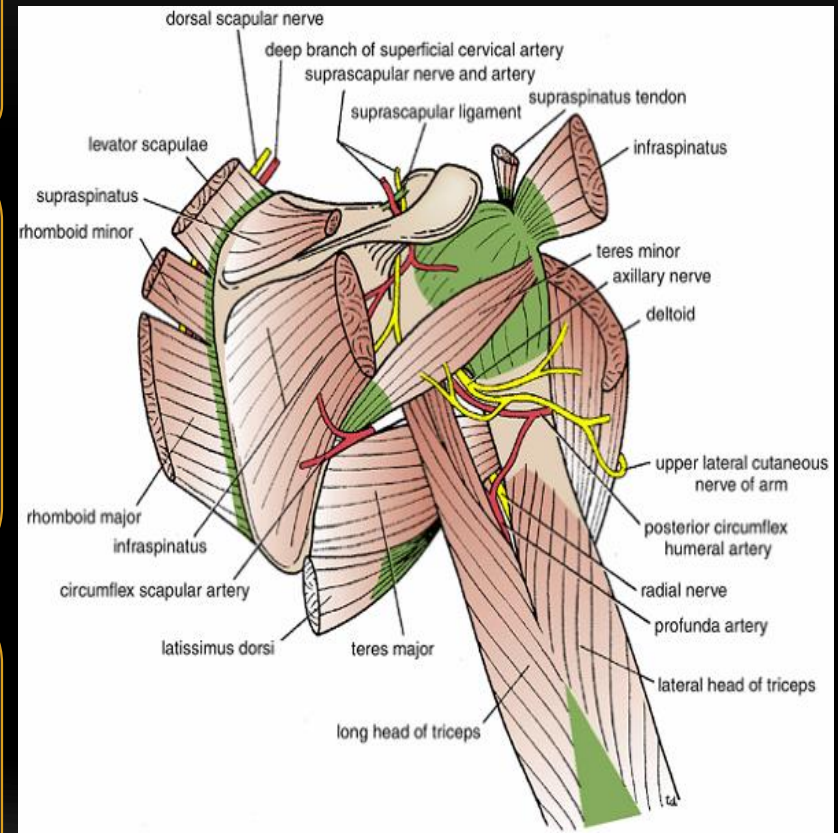
Axillary Nerve..2/3

Branches

1- An articular branch to the shoulder joint

2- An anterior terminal branch; it winds around the surgical neck of the humerus beneath the deltoid muscle; it supplies the deltoid and the skin that covers its lower part.

3- A posterior terminal branch, which gives off a branch to the teres minor muscle and a few branches to the deltoid, then emerges from the posterior border of the deltoid as the upper lateral cutaneous nerve of the arm



Axillary Nerve..3/3

The axillary nerve can be injured in dislocations of the shoulder joint

Symptoms of axillary nerve injury

Shoulder or arm muscle weakness

Shoulder or arm muscle wasting (loss of contour)

Numbness in the arm

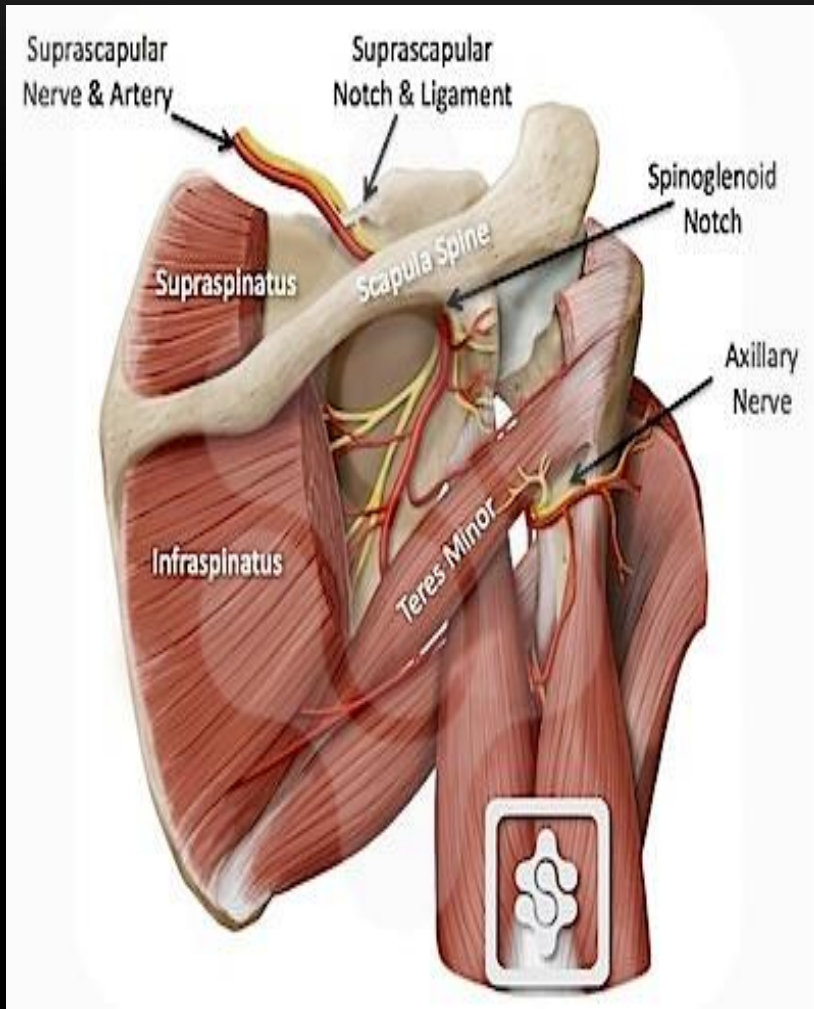
Loss of feeling in the arm

Trouble lifting the arm

Pain

Suprascapular nerve

Symptoms of Suprascapular nerve injury



Vague shoulder pain

Weakness in shoulder abduction and external rotation.

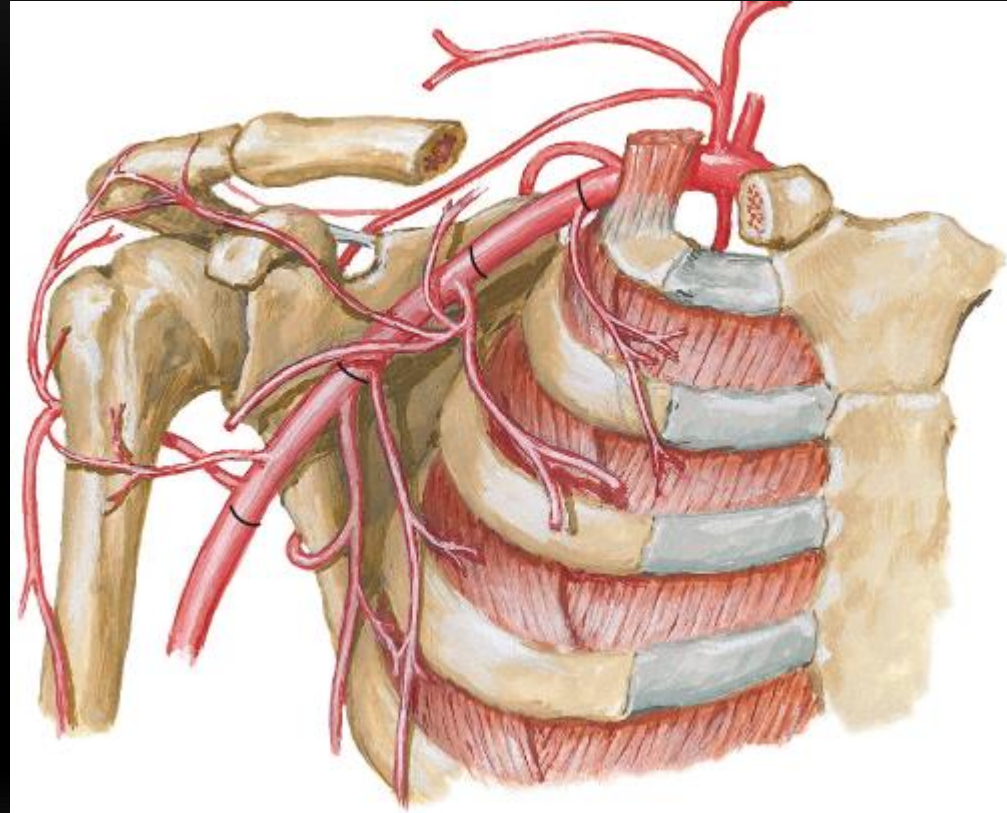
Later, the muscles of the shoulder girdle supplied by the suprascapular nerve may atrophy

Arterial Anastomosis Around the Shoulder Joint ..1/2

The extreme mobility of the shoulder joint may result in kinking of the axillary artery and a temporary occlusion of its lumen

To compensate for this, an important arterial anastomosis exists between the branches of the subclavian artery and the axillary artery

ensuring that an adequate blood flow takes place into the upper limb irrespective of the position of the arm



Arterial Anastomosis Around the Shoulder Joint ..2/2

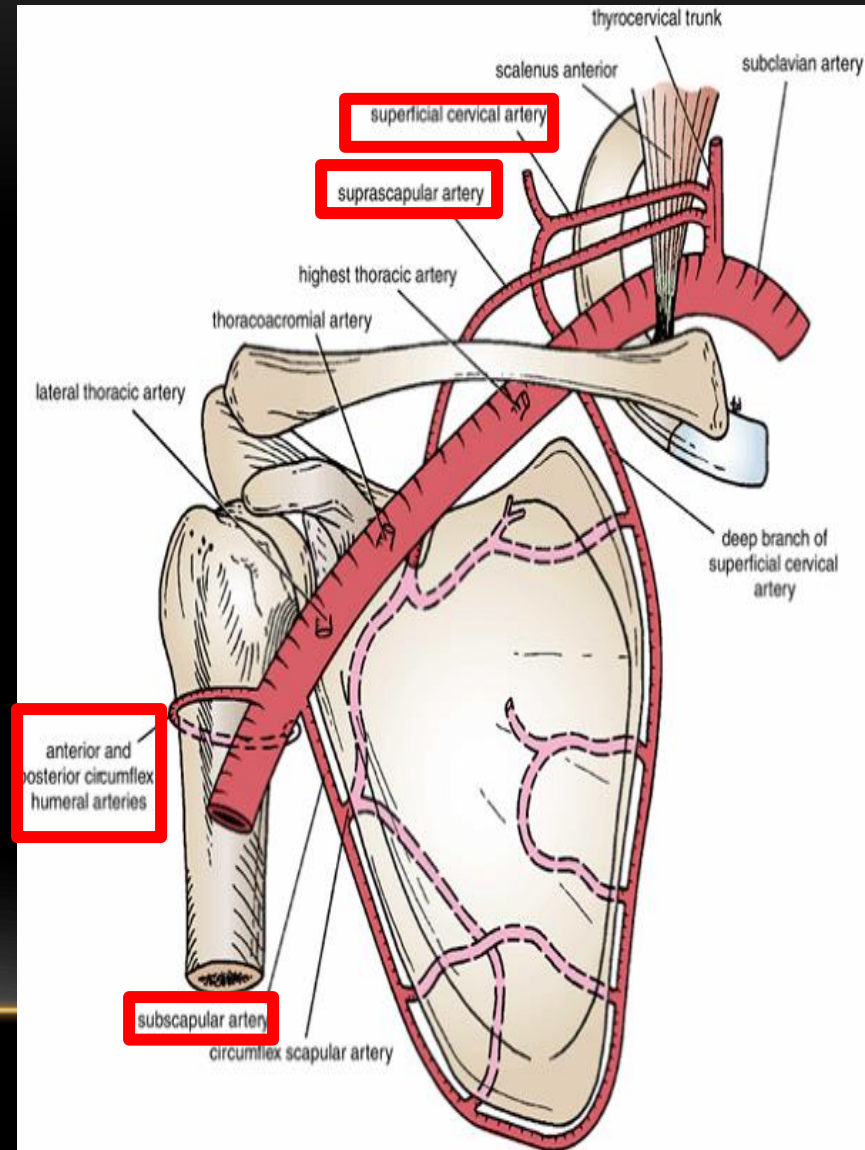
Branches from the Subclavian Artery

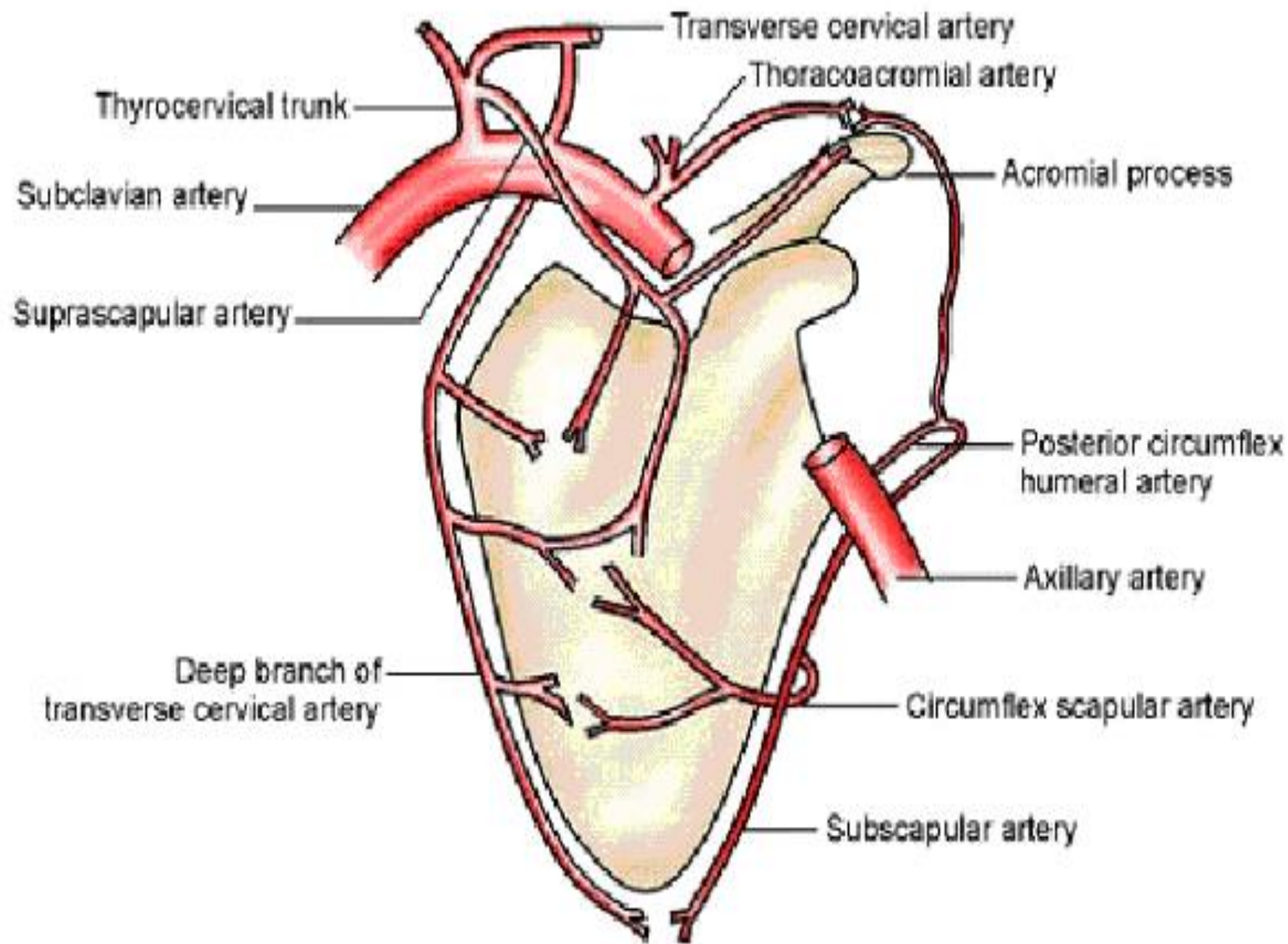
- The **suprascapular artery**, which is distributed to the supraspinous and infraspinous fossae of the scapula
- The **superficial or transverse cervical artery**, which gives off a deep branch that runs down the medial border of the scapula

Branches from the Axillary Artery

- The subscapular artery and its circumflex scapular branch supply the subscapular and infraspinous fossae of the scapula, respectively.
- The anterior circumflex humeral artery
- The posterior circumflex humeral artery
 - Both the circumflex arteries form an anastomosing circle around the surgical neck

of the humerus





Triangle of Auscultation .. boundaries

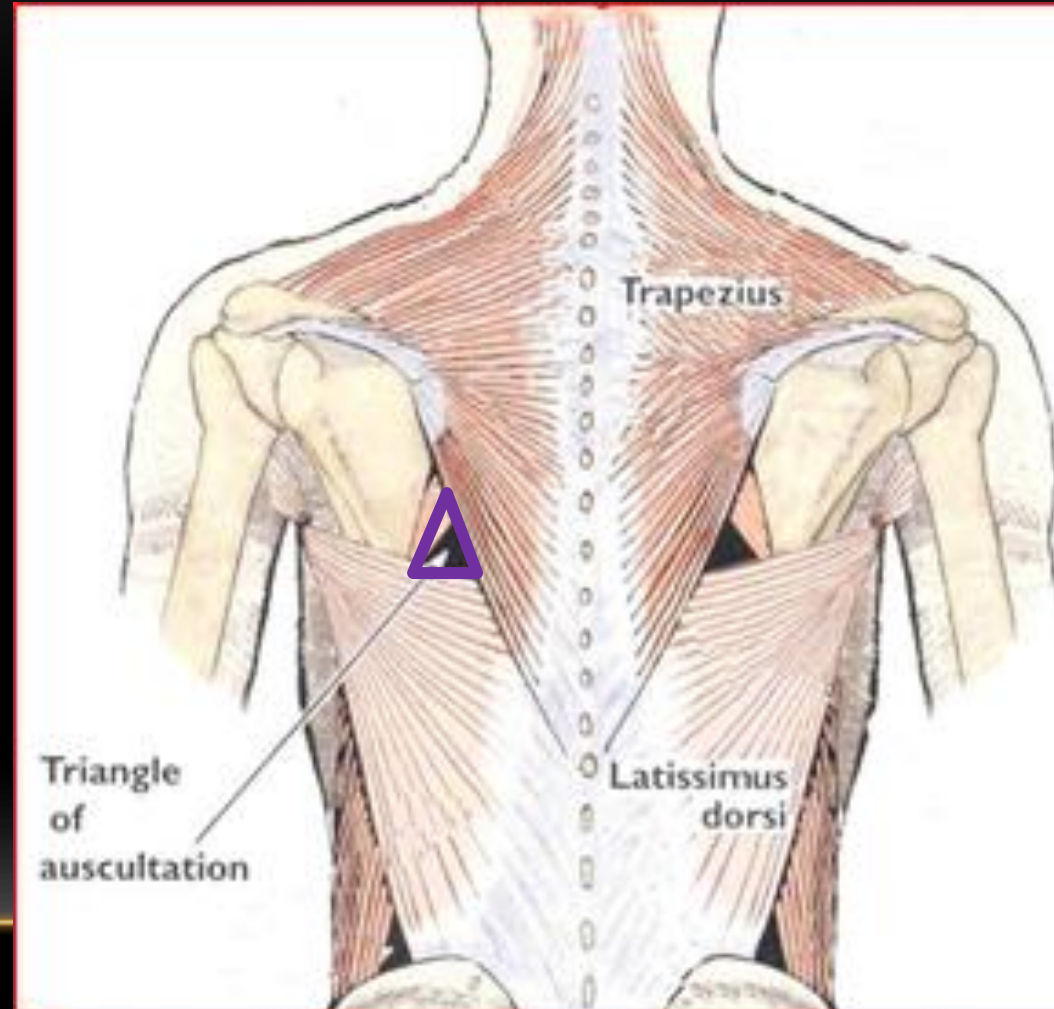
Below: Horizontal fibres of latissimus dorsi

Medially: lateral border of trapezius

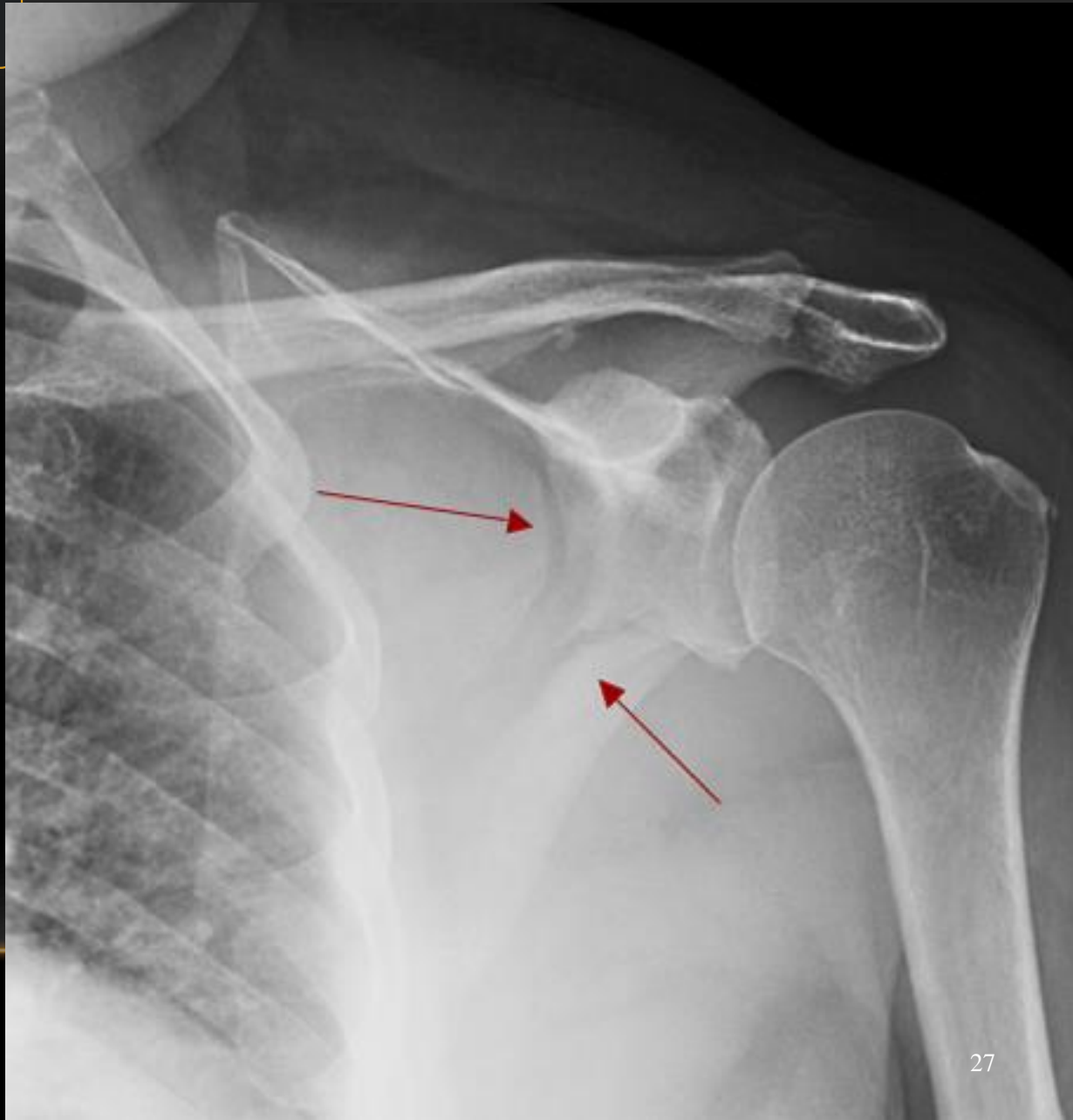
Laterally: vertebral border of scapula

Floor: 6th and 7th rib

Apex of lower lobe of both lungs lie beneath this triangle



Scapular Fracture



Serratus Anterior

Origin: from the outer surface of the upper 8-9 ribs.

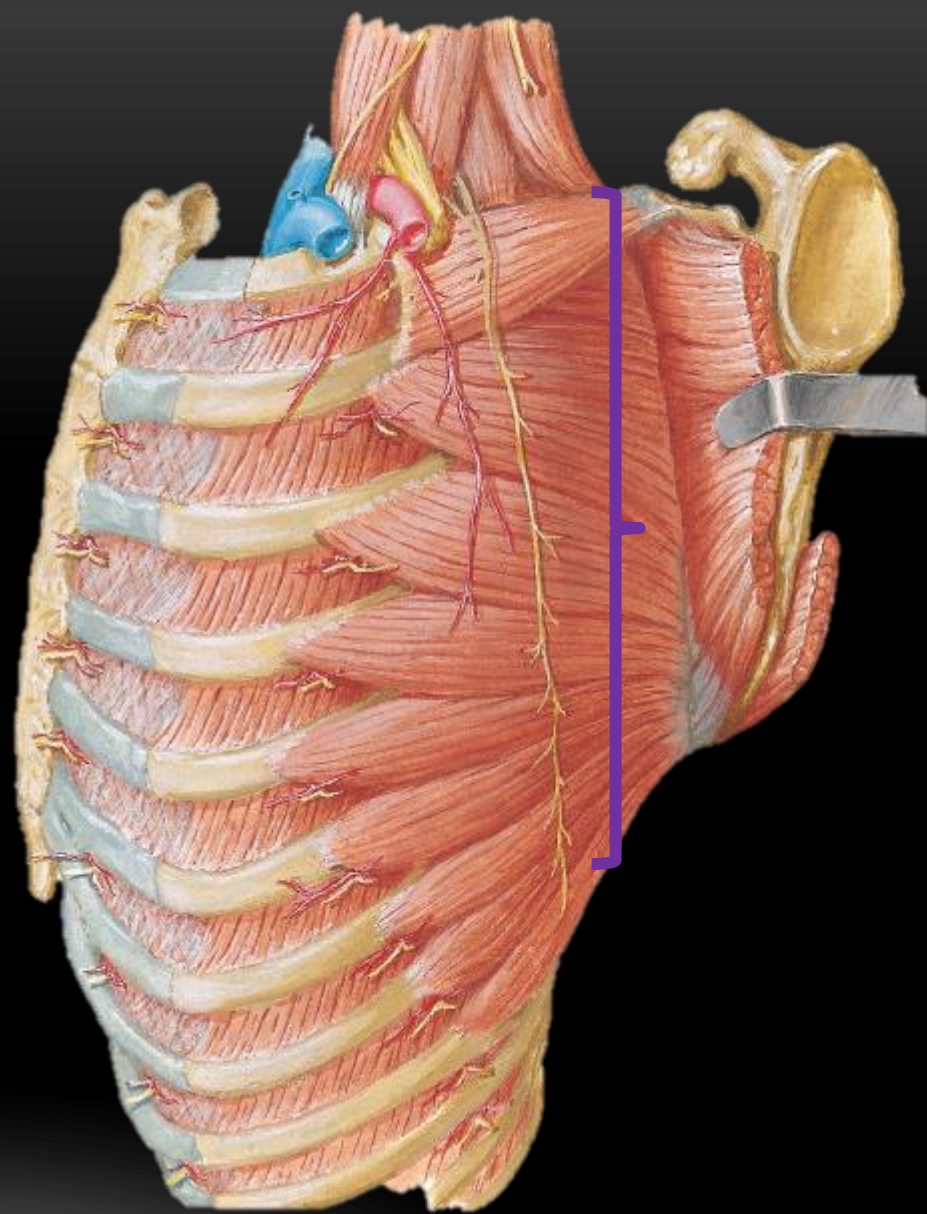
Insertion:

- Superior part: Anterior surface of superior angle
- Middle part: Anterior surface of medial border
- Inferior part: Anterior surface of inferior angle and medial border)

Nerve supply: long thoracic nerve (C5-C7)

Action:

- Laterally rotates and protracts scapula
- Accessory muscle of respiration



Injury of the long thoracic nerve results in “winging of the scapula”

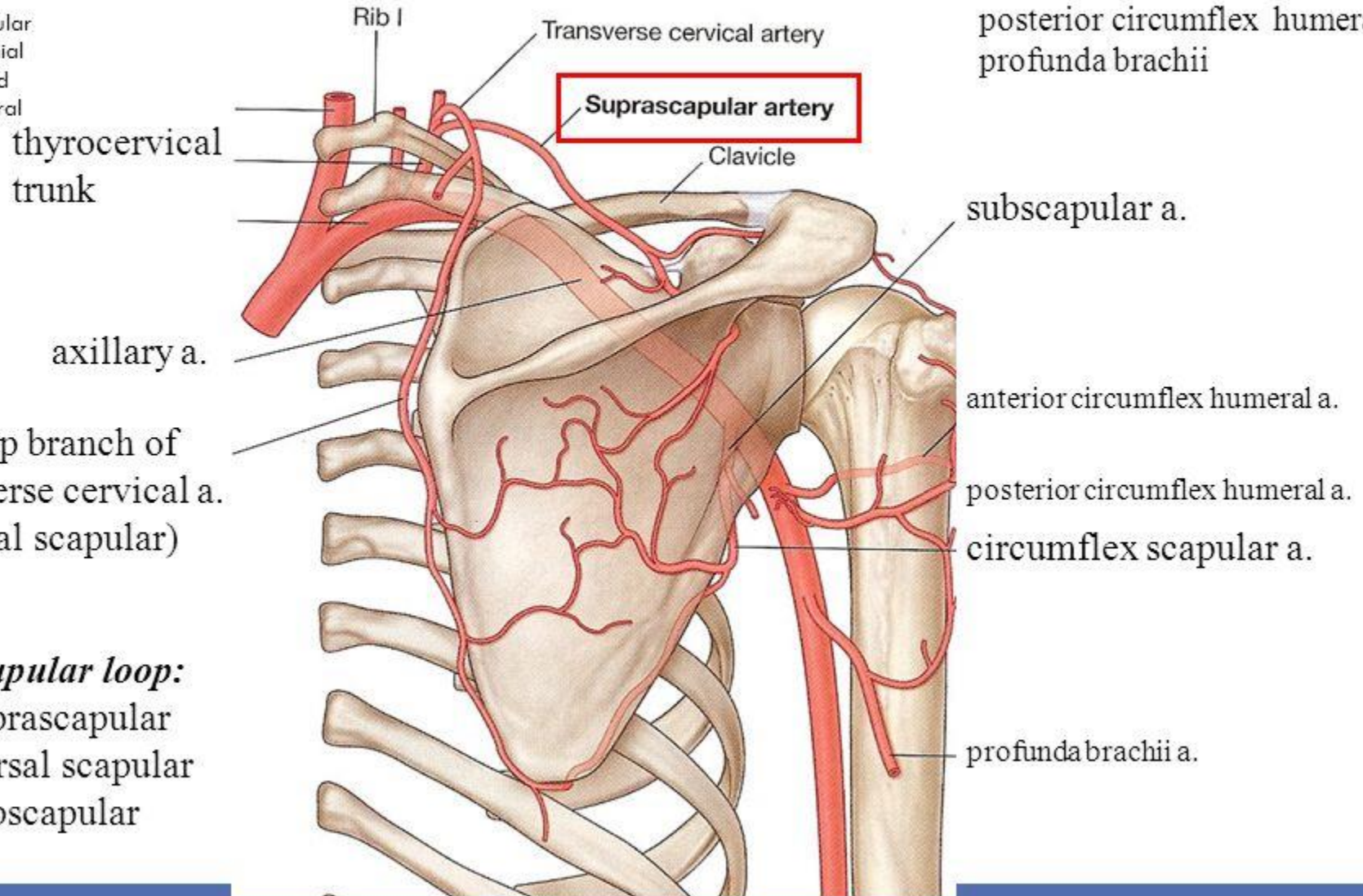


Arterial anastomoses around the scapula

∴ Thoracoacromial artery
-Cadavers are dead people

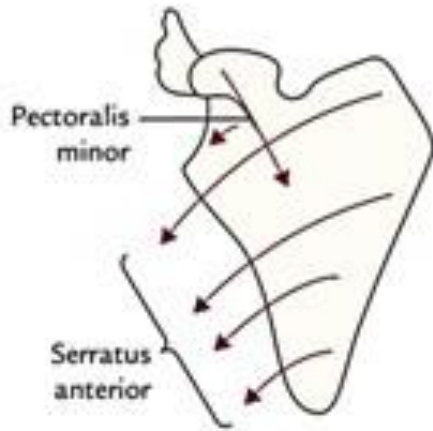
- 1. clavicular
- 2. acromial
- 3. deltoid
- 4. pectoral

Humeral loop:
anterior circumflex humeral
posterior circumflex humeral
profunda brachii



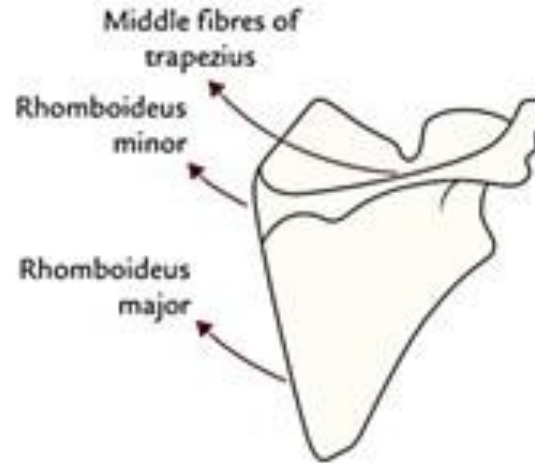
Scapular loop:
Suprascapular
Dorsal scapular
Subscapular

Movements of Scapula



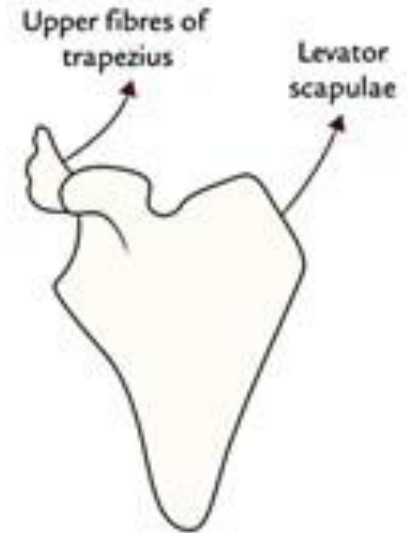
A

Protraction



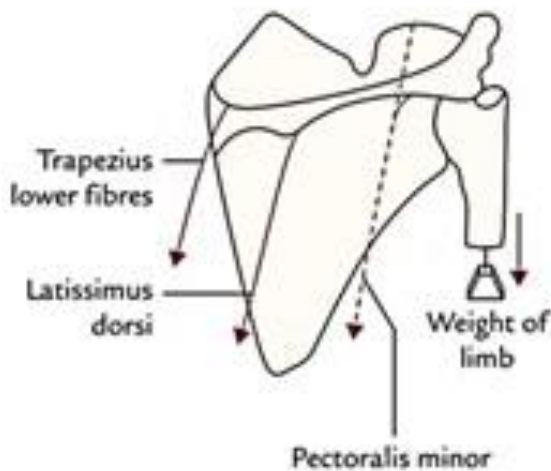
B

Retraction



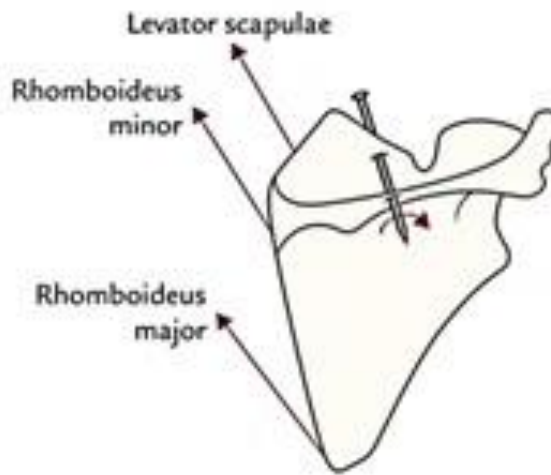
C

Elevation



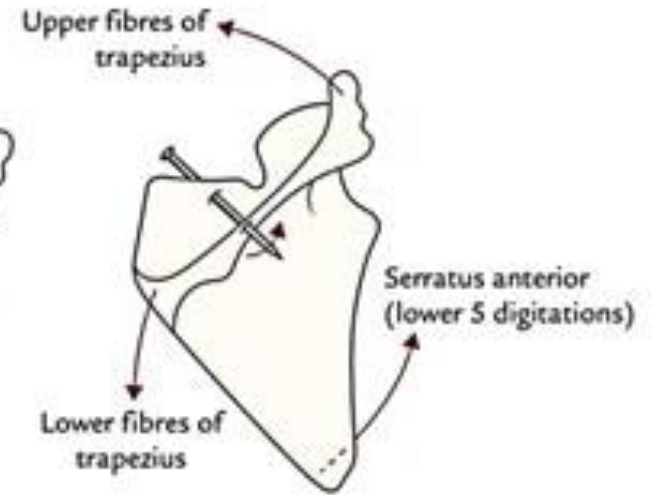
D

Depression



E

Medial rotation



F

Lateral rotation