

The module: Musculo-Skeletal System

Session: 3

Back of the trunk

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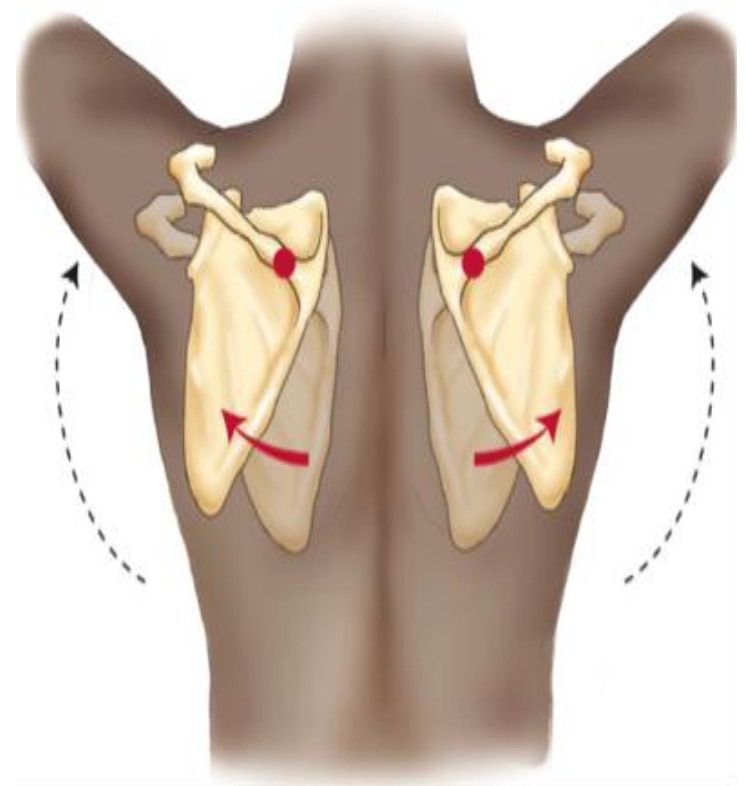
Dr.Ahmed Khalaf



The Back and Scapular region

Objectives:

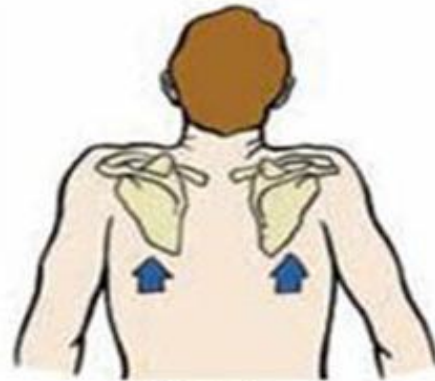
1. Mention shoulder girdle bones
2. Describe the superficial and deep muscles of the back
3. Describe the muscles connecting vertebral column to the upper limb
4. Muscles connecting scapula to the humerus
5. Describe the rotator cuff muscles
6. Describe the Intermuscular spaces



Movements of Scapula

LO1

Figure 3-34
Scapular
movements



Elevation



Depression



Adduction (retraction)



Abduction (protraction)



Upward rotation



Downward rotation (return to
anatomical position)

Muscles :

1. Connecting the upper Limb to the vertebral column

Two layers

Superficial and deep

1st layer

a. Trapezius

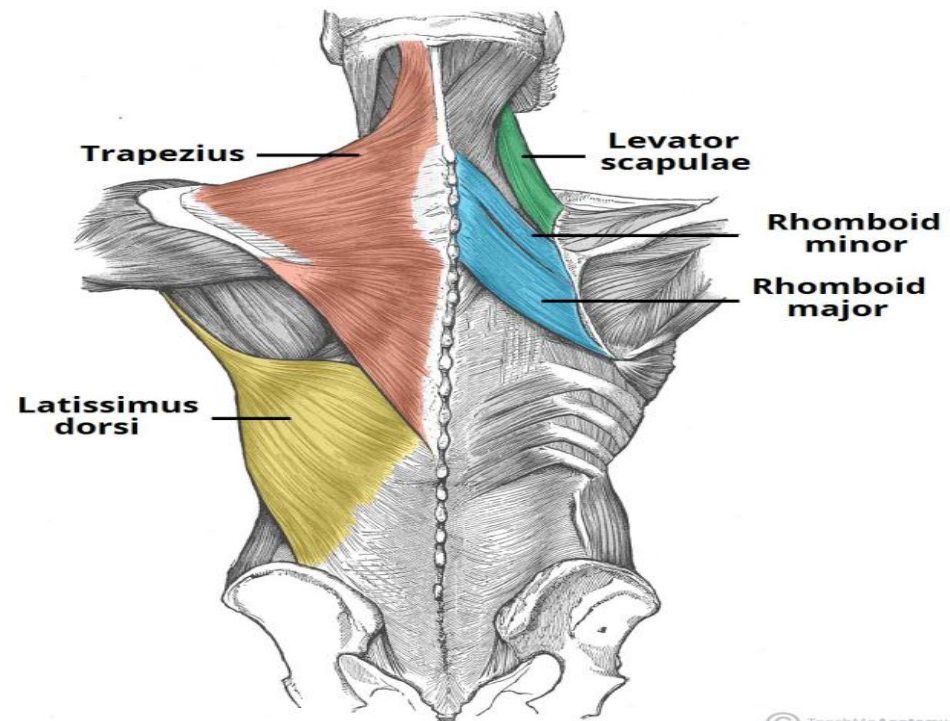
b. Latissimus dorsi

2nd layer

a. Levator scapulae

b. Rhomboideus major

c. Rhomboidieus minor



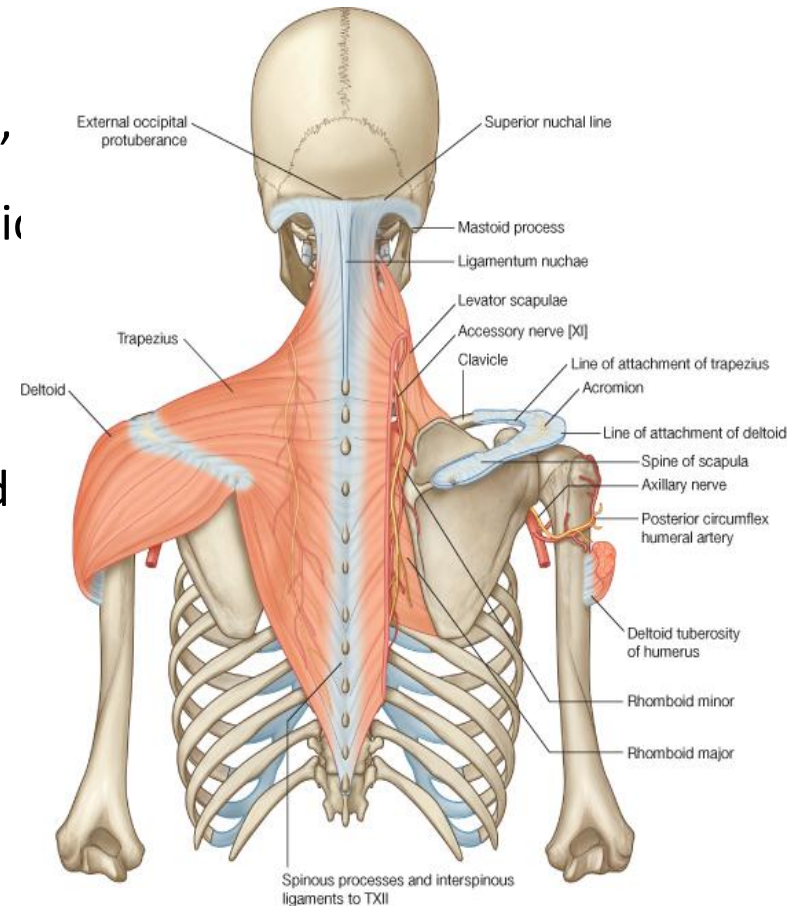
Trapezius

Origin

• Occipital bone (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** to 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 inserted on medial end of spine of scapula



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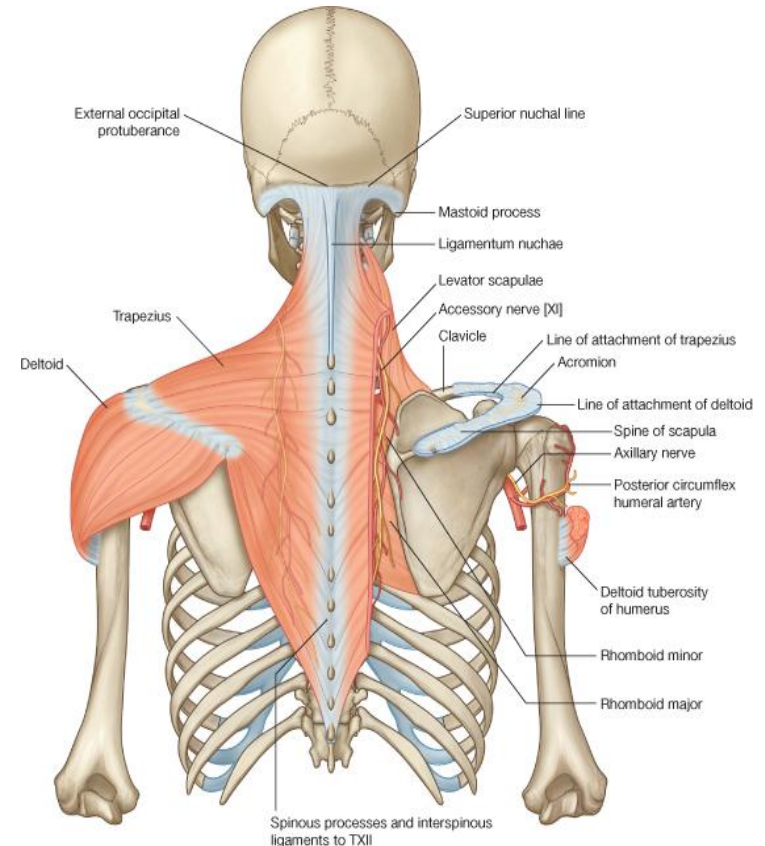


Nerve Supply

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

Actions:

- 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 ,



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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

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



Levator scapulae

Origin

Transverse processes of first fourth cervical vertebrae

Insertion

Medial border of scapula

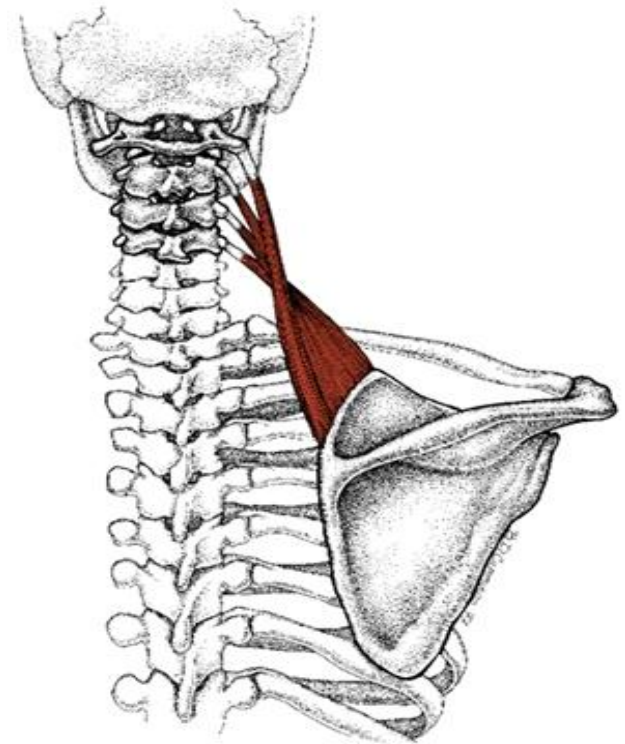
Nerve supply

dorsal scapular nerve C3,4,5

Action

Raises medial border of scapula

Levator Scapulae



Rhomboid minor

Origin

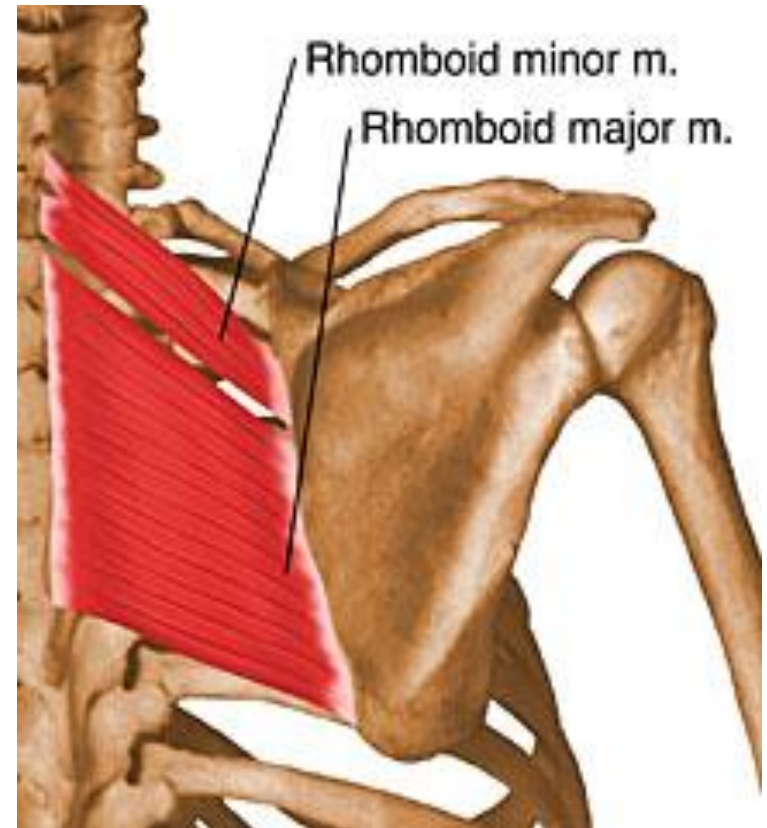
Ligamentum nuchae and spines of seventh cervical and first thoracic vertebrae

Insertion

Medial border of scapula)

Nerve supply

Dorsal scapular nerve **C4, 5**



Moore :
Snell anatomy

o= origin I = insertion A = action



Rhomboid major

LO3

Origin

2-5 thoracic spines

Insertion

Medial border of scapula (1)

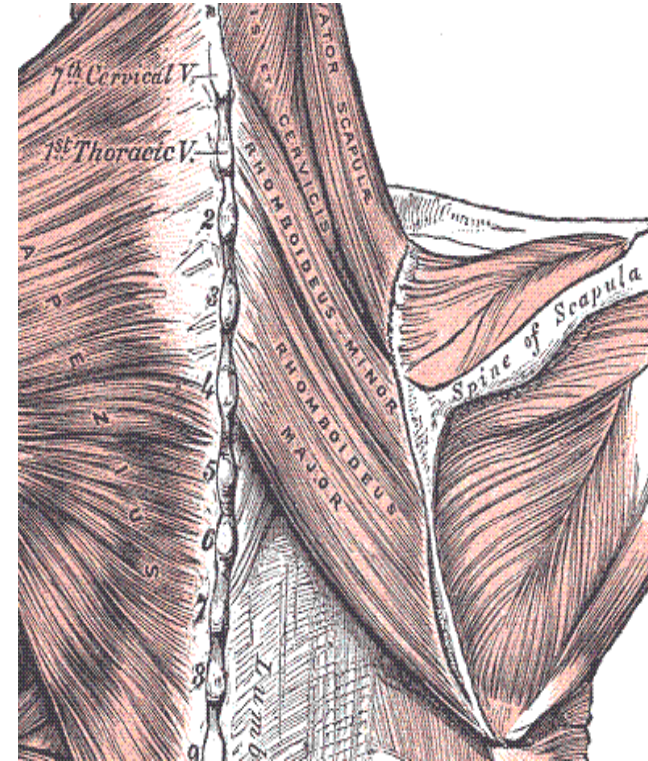
Nerve supply

Dorsal scapular nerve **C4, 5**

Action

Retract scapula

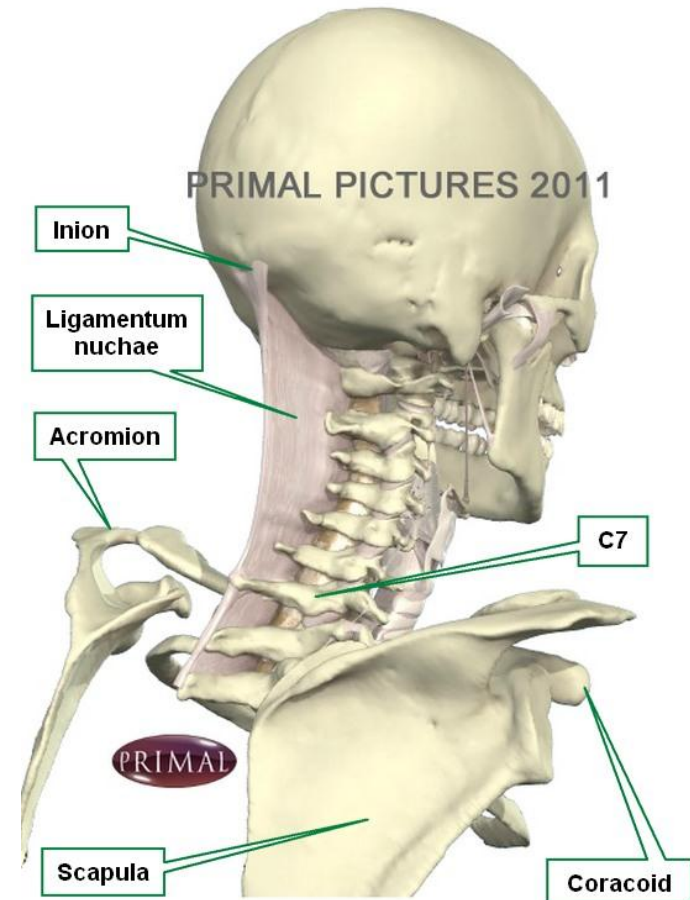
The **rhomboids** work collectively with the levator scapulae muscles to elevate the medial border of the scapula, downwardly rotating the scapula with respect to the glenohumeral joint.



ligamentum nuchae

Def:

- ❖ is a large median ligament composed of tendons and fascia located between the posterior muscles of the neck.
- ❖ It covers the spines of C1 to C6 vertebrae.
- ❖ It is a superior and posterior extension of the supraspinous ligamen



Muscles Connecting the Scapula to the Humerus

Muscles of shoulder girdle

Deltoid

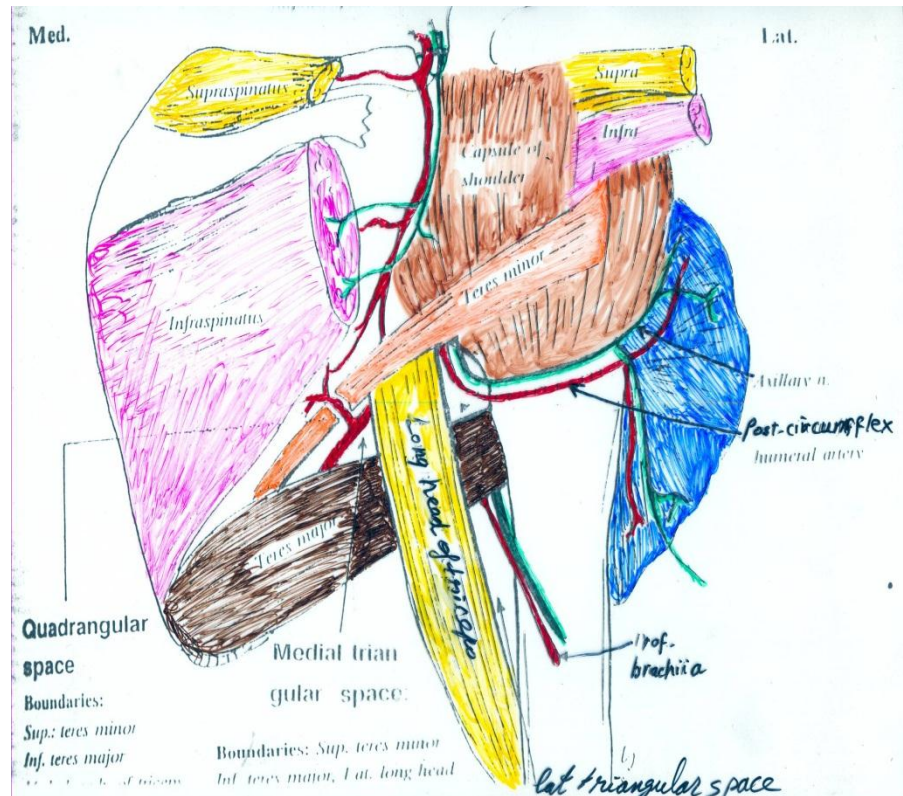
Supraspinatus

Infraspinatus

Teres major

Teres minor

Subscapularis



Origin

- Lateral third of clavicle, acromion, spine of scapula

Insertion

- Middle of lateral surface of shaft of humerus

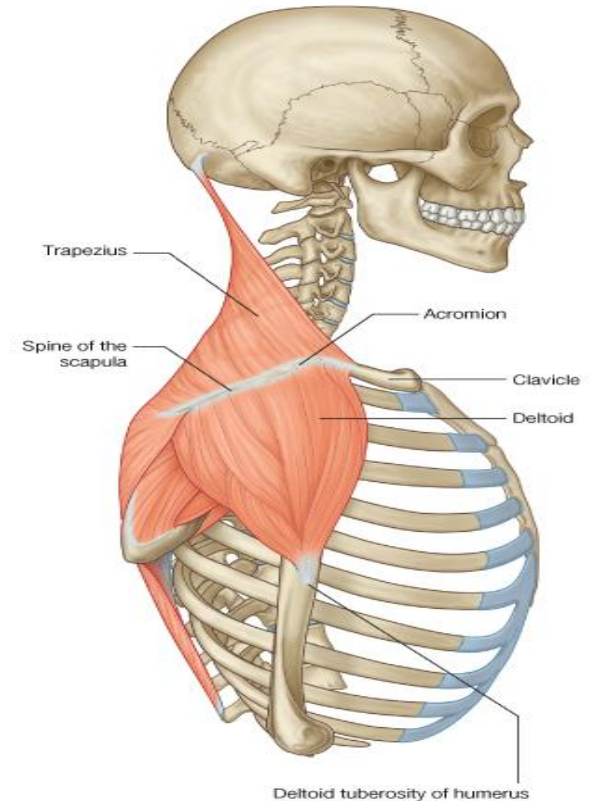
Nerve supply

- Axillary nerve C5, 6

Action

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

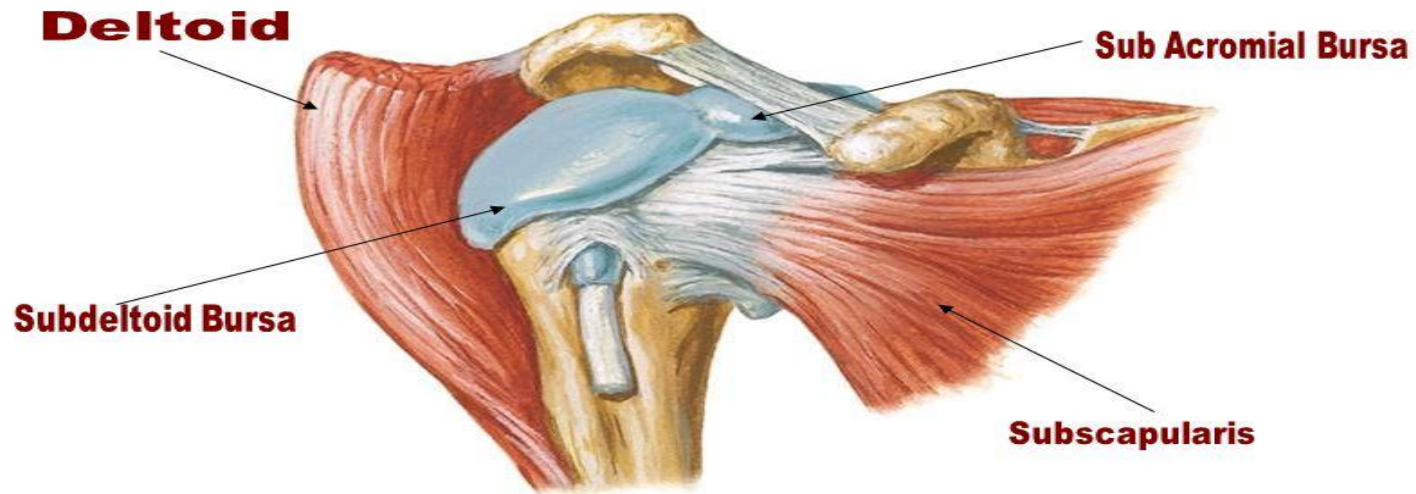
Deltoid



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Shoulder (Glenohumeral) Joint
Anterior View: Supporting Muscles

Subdeltoid / Subacromial bursa.



Bursa: a closed sac or envelope, lined with synovium and containing fluid, usually in areas subject to friction.

Supraspinatus

Origin

Supraspinous fossa of scapula

Insertion

Greater tuberosity of humerus; capsule of shoulder joint

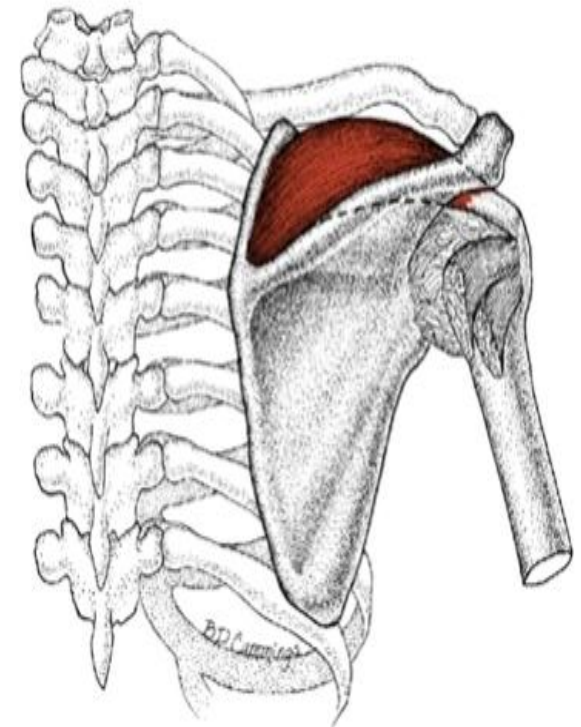
Nerve supply

Suprascapular nerve 5, 6

Action

Abducts arm and stabilizes shoulder joint
Initiation of abduction 0-15 degrees

Supraspinatus



Infraspinatus

Origin

Infraspinous fossa of scapula

Insertion

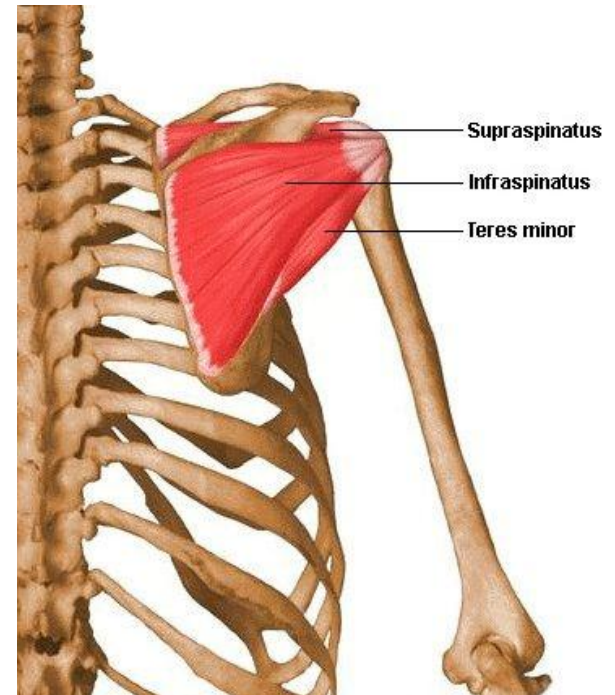
Middle impression of greater tubercle of humerus; capsule of shoulder joint

Nerve supply

Suprascapular nerve after passing through spino-glenoid notch 5, 6

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

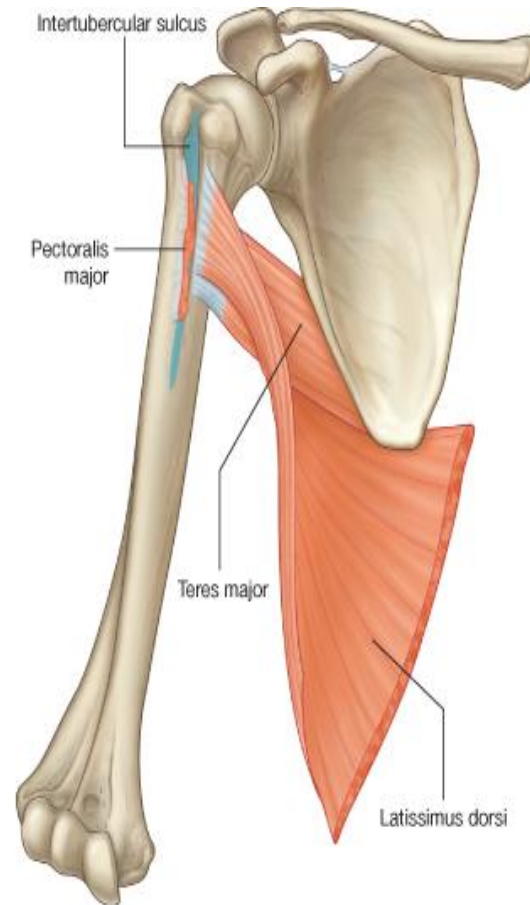
Nerve supply

Lower subscapular nerve **C6, 7**

Action

Medially rotates and adducts arm and stabilizes shoulder joint

LO4



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Teres minor

Origin

Upper two thirds of lateral border of scapula

Insertion

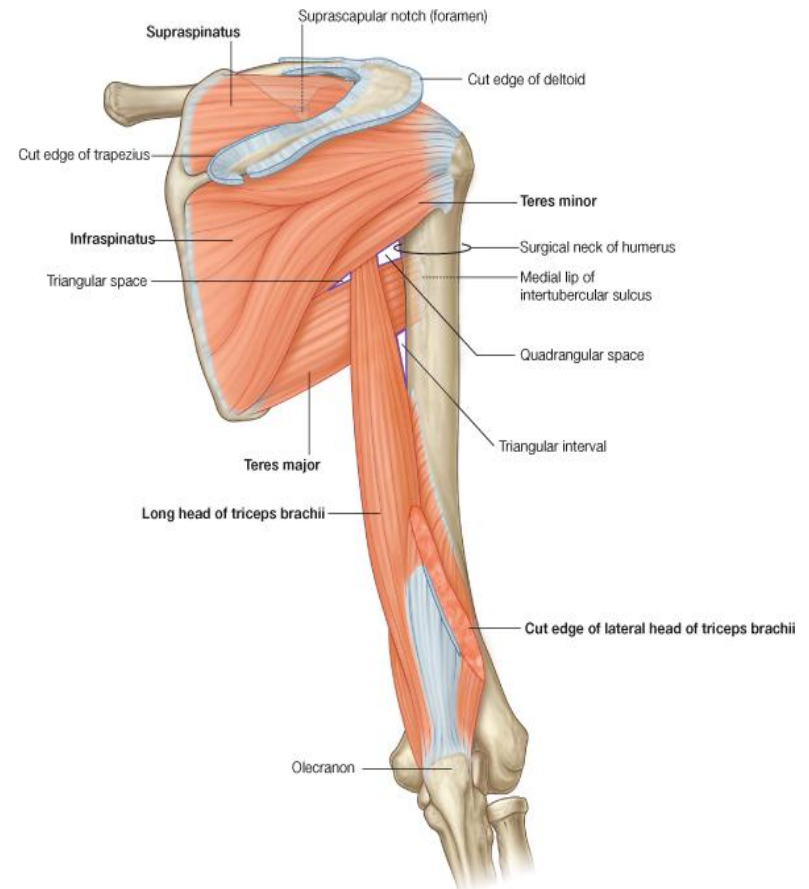
Greater tuberosity of humerus; capsule of shoulder joint

Nerve supply

Axillary nerve (C4), C5, 6

Action

Laterally rotates arm and stabilizes shoulder joint



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Subscapularis

Origin

Subscapular fossa

Insertion

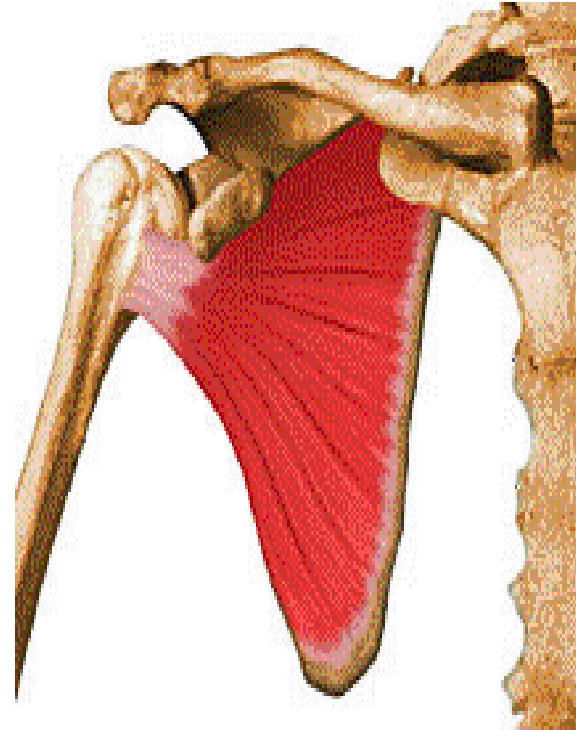
Lesser tuberosity of humerus

Nerve supply

Upper and lower subscapular
nerves C5, 6, 7

Action

Medially rotates arm and
stabilizes shoulder joint

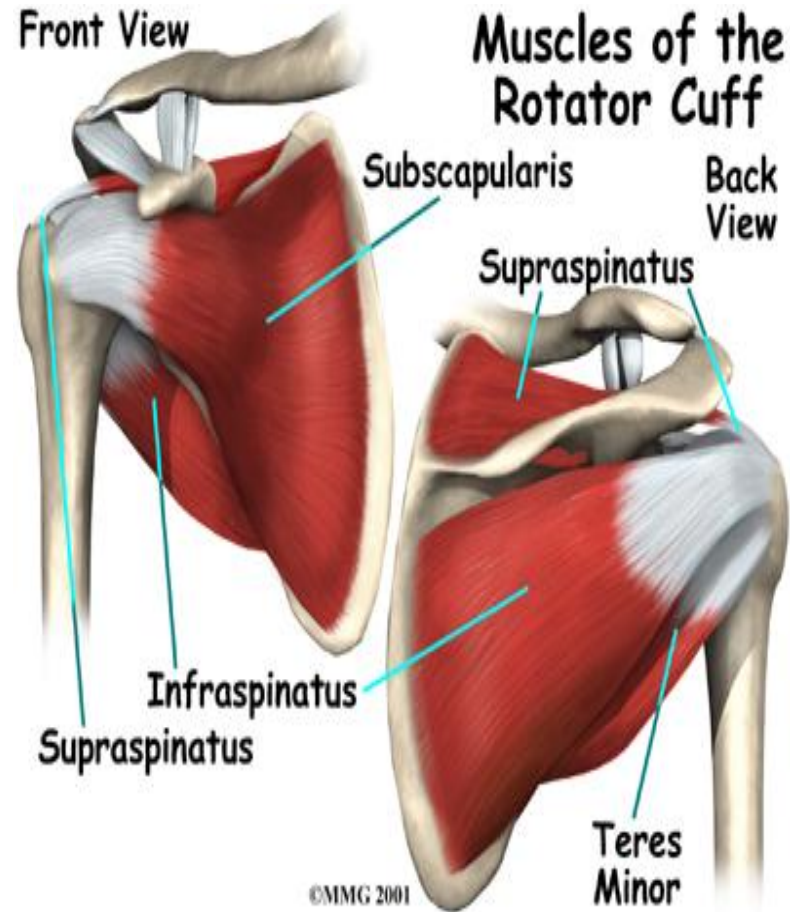


Rotator Cuff

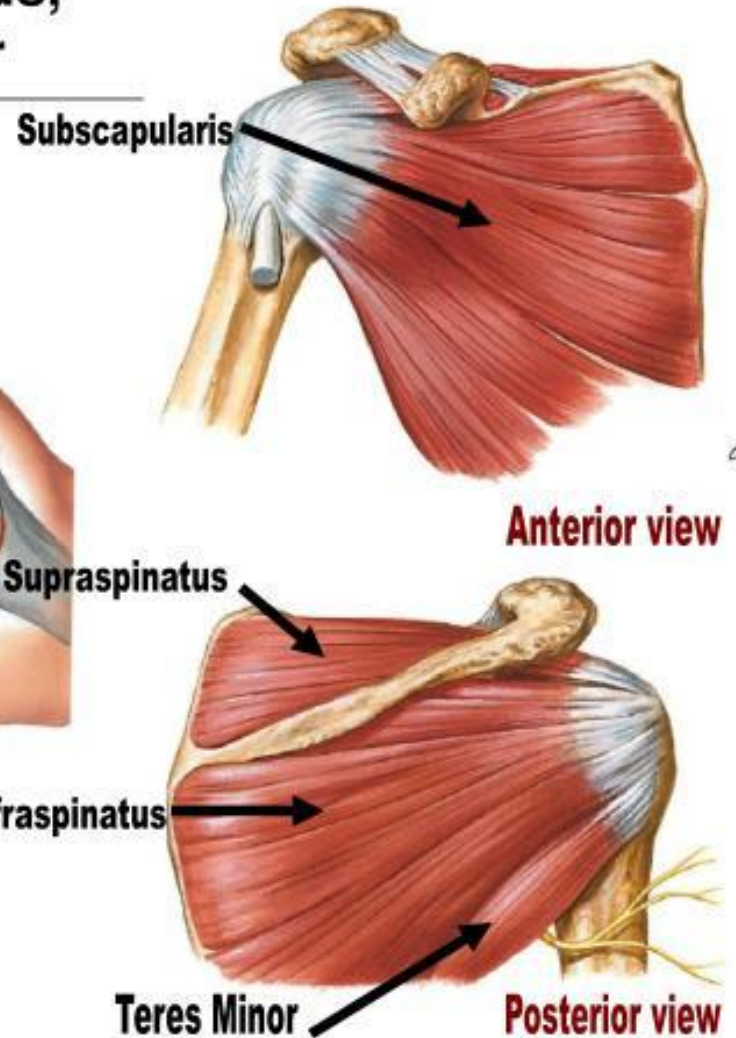
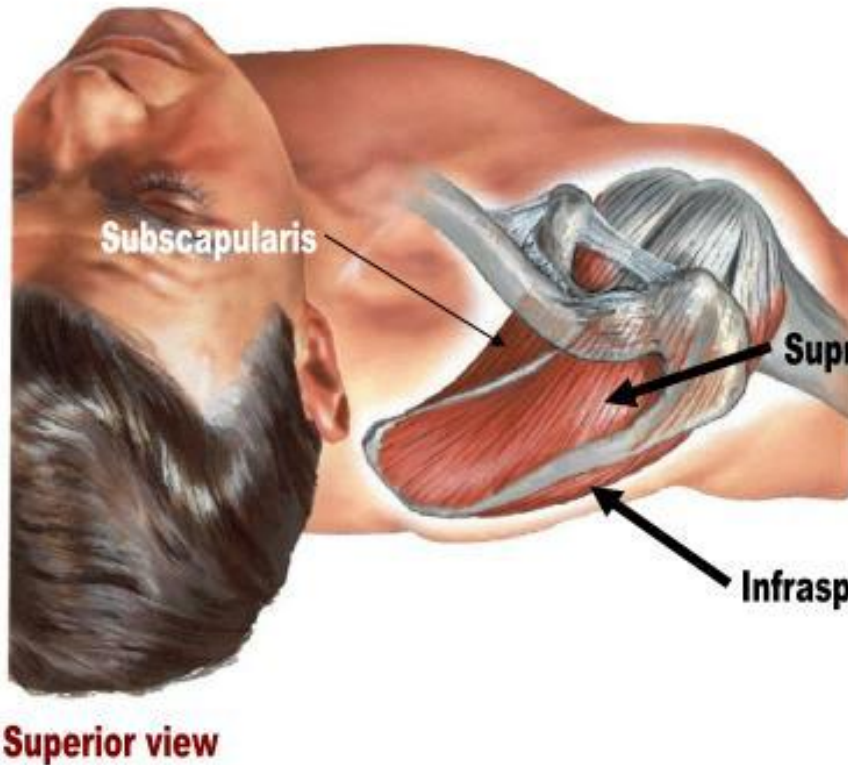
The rotator cuff is the name given to the tendons of the subscapularis, supraspinatus, infraspinatus, and teres minor muscles are fused to the underlying capsule of the shoulder joint

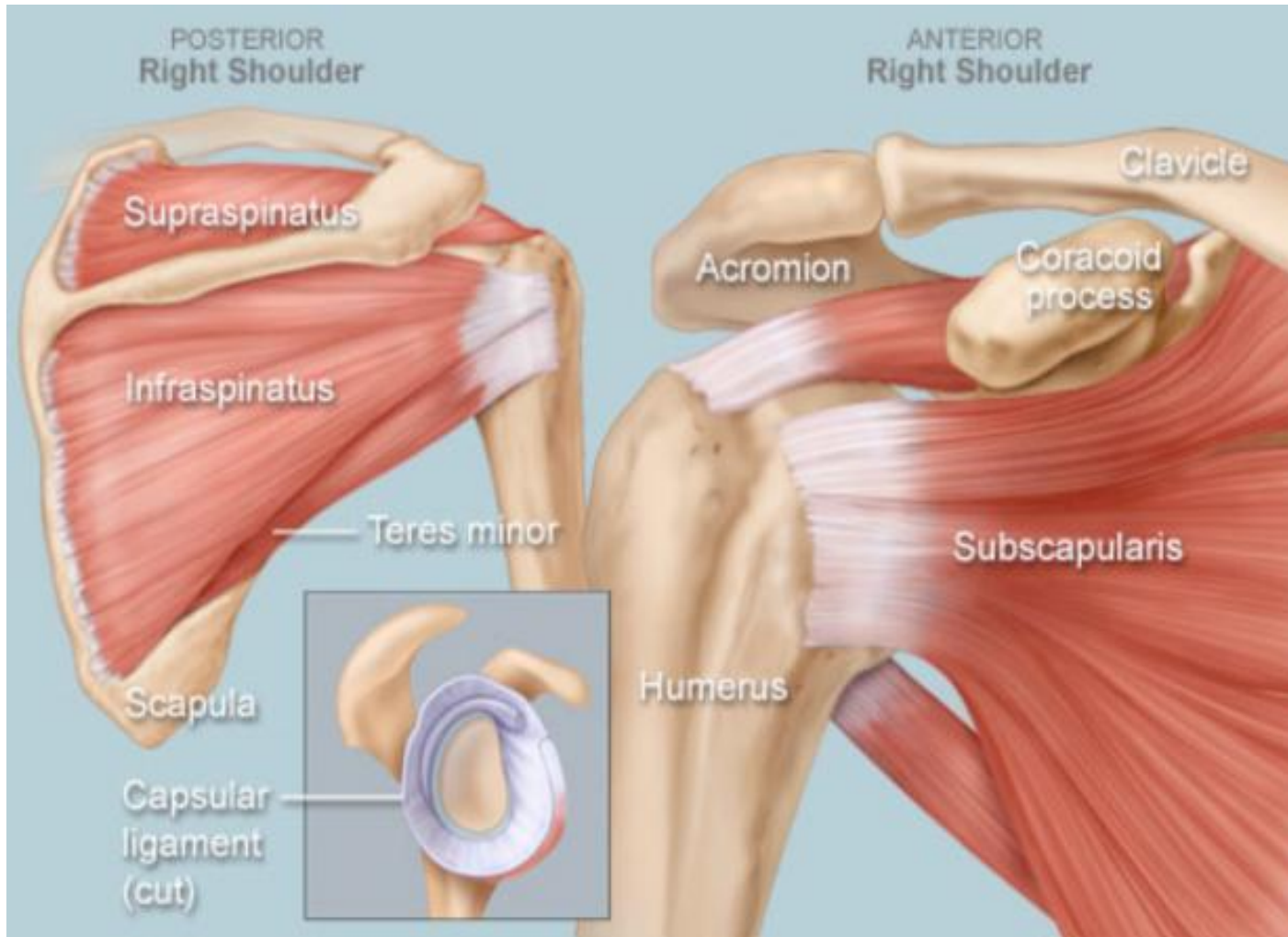
stabilizing the shoulder joint

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



**Rotator cuff muscles stabilize the shoulder joint.
Supraspinatus, Infraspinatus,
Subscapularis, Teres minor**





Intermuscular spaces

2-Medial triangular space

Boundaries:

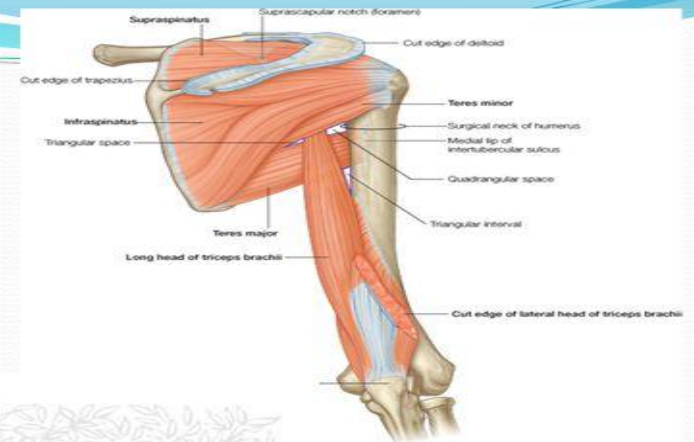
Teres minor
superiorly.

Teres major
inferiorly.

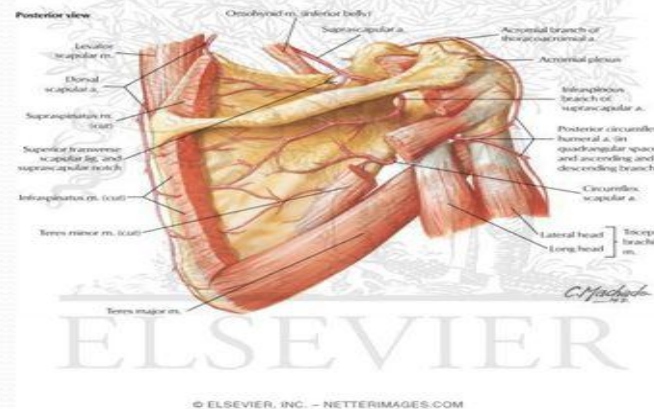
Long head of the
Triceps laterally.

Contents:

It contains the
circumflex scapular
vessels.



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3- Lateral triangular space

Boundaries:

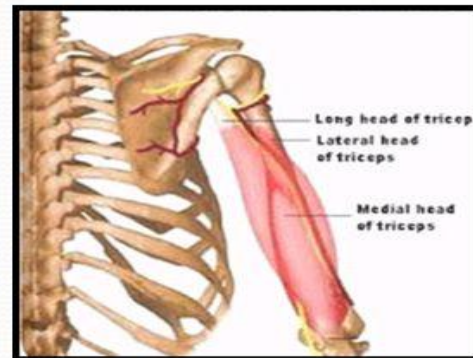
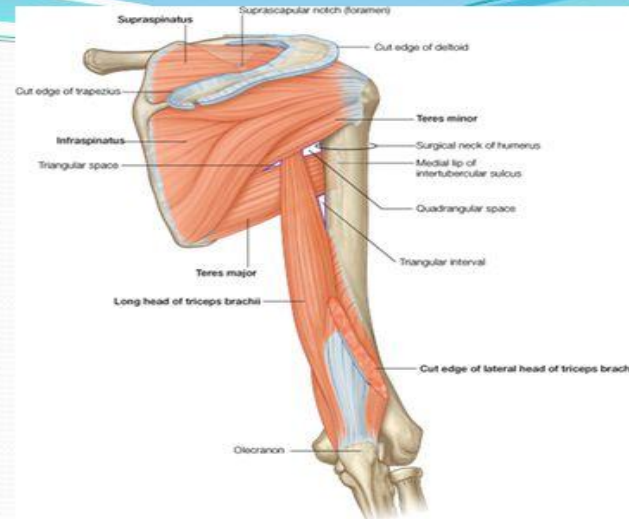
Teres major
superiorly.

Long head of the
Triceps medially.

Humerus laterally.

Contents:

The radial nerve and
profunda brachii
artery.



Triangle Of Auscultation

L06

Boundaries-

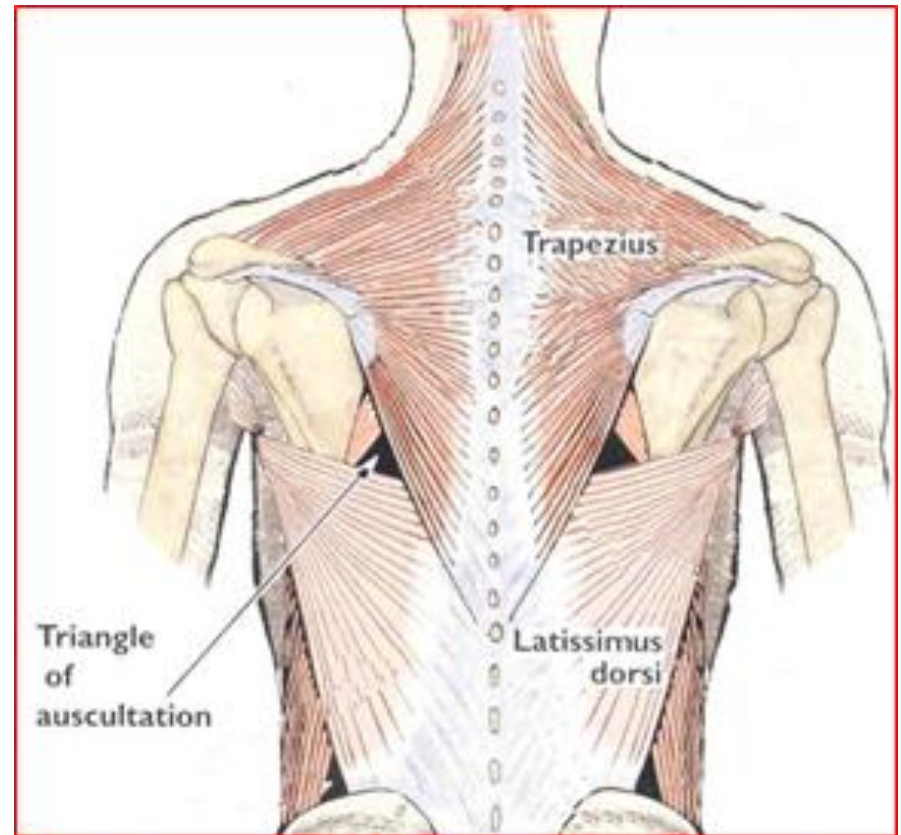
Below- Horizontal fibres of latissimus dorsi

Medially- lateral border of trapezius

Laterally- vertebral border of scapula

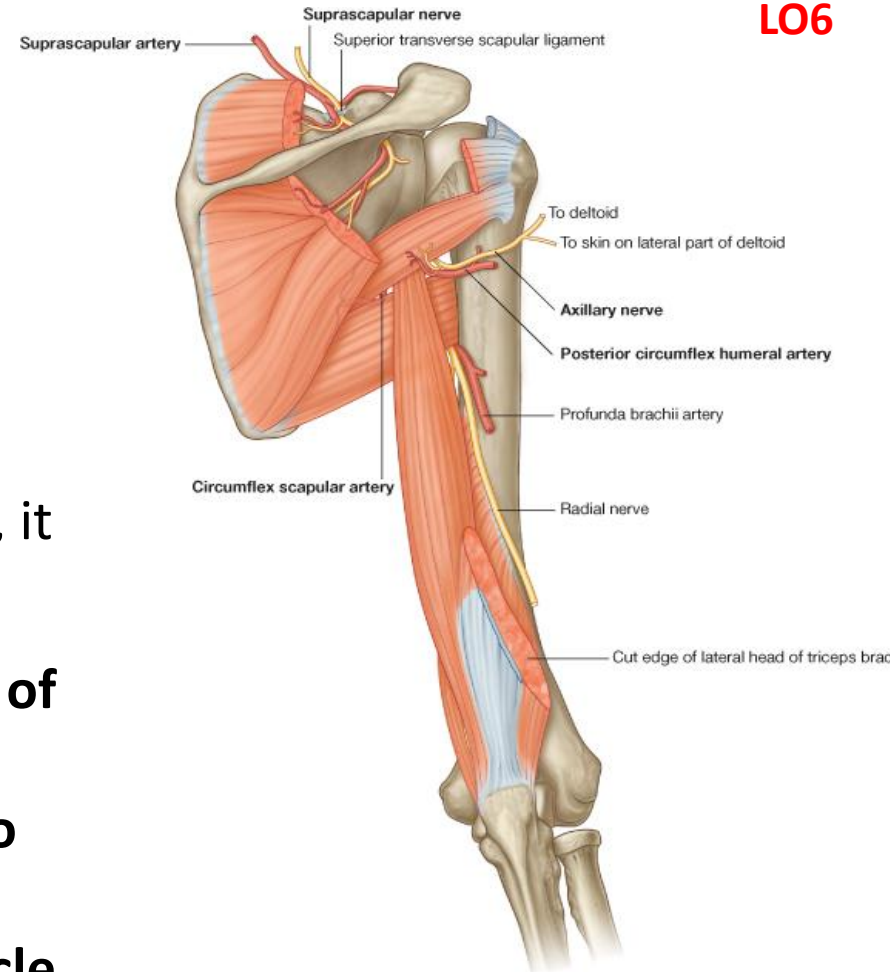
Floor – 6th and 7th rib

Apex of lower lobe of both lungs lie beneath this triangle



• 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**
- **Dislocation of shoulder make injury to the nerve**
- **It supply deltoid and teres minor muscle**



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