

# **SCAPULAR REGION**

**Dr. Rajitha Vanga**



A 60-year-old individual presents with a history of a fall on an outstretched hand. He reports severe pain in the shoulder and limited range of motion. On examination, there is a visible deformity, and the patient is unable to actively abduct the arm. X-rays reveal a fractured surgical neck of the humerus. Which nerve is most at risk for injury in this fracture?

- a) Axillary nerve
- b) Radial nerve
- c) Median nerve
- d) Ulnar nerve

# **Posterior axio-appendicular region**

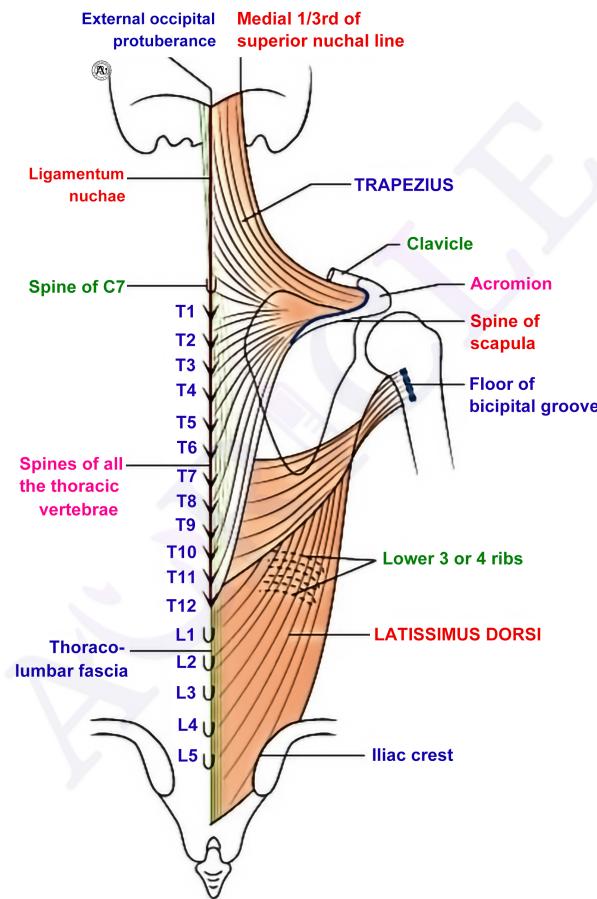
## **1. Superficial layer of the muscles**

- (a) Trapezius.
- (b) Latissimus dorsi.

## **2. Deep layer of the muscles**

- (a) Levator scapulae.
- (b) Rhomboideus major.
- (c) Rhomboideus minor.

# Trapezius



## Origin

It arises from:

- medial third of the superior nuchal line,
- external occipital protuberance,
- ligamentum nuchae,
- spine of 7th cervical vertebra, and
- spines of all thoracic vertebrae

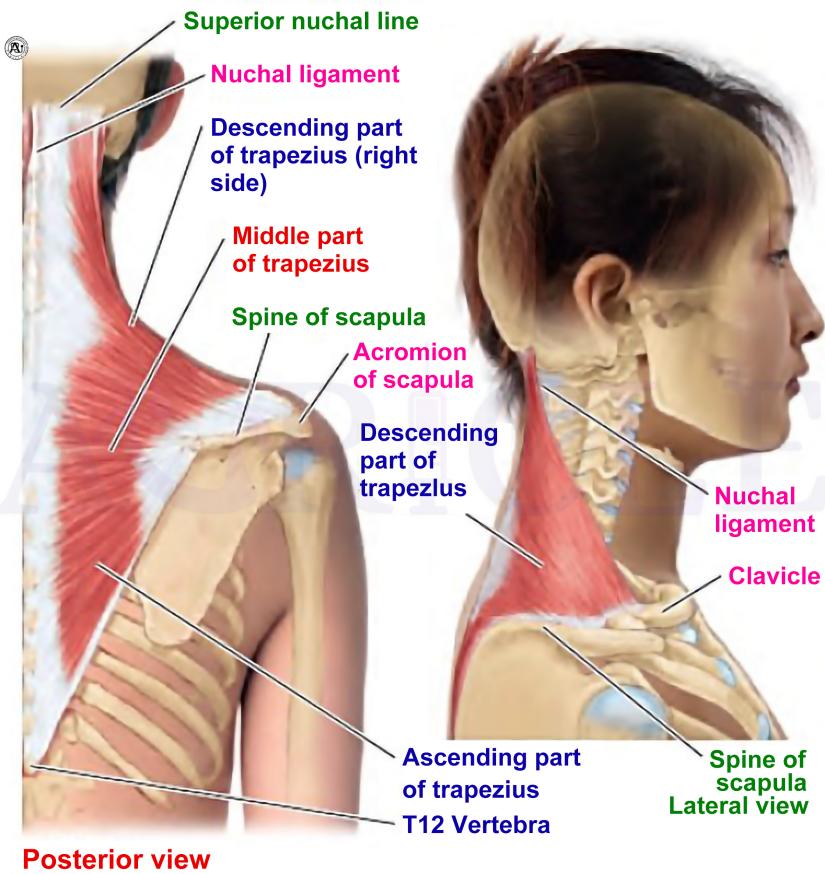
## Insertion:

Superior fibres – post. Border of lateral 1/3rd of clavicle

Middle fibres – upper lip of crest of spine of scapula

Inferior fibres – deltoid tubercle

# Trapezius



## Nerve supply

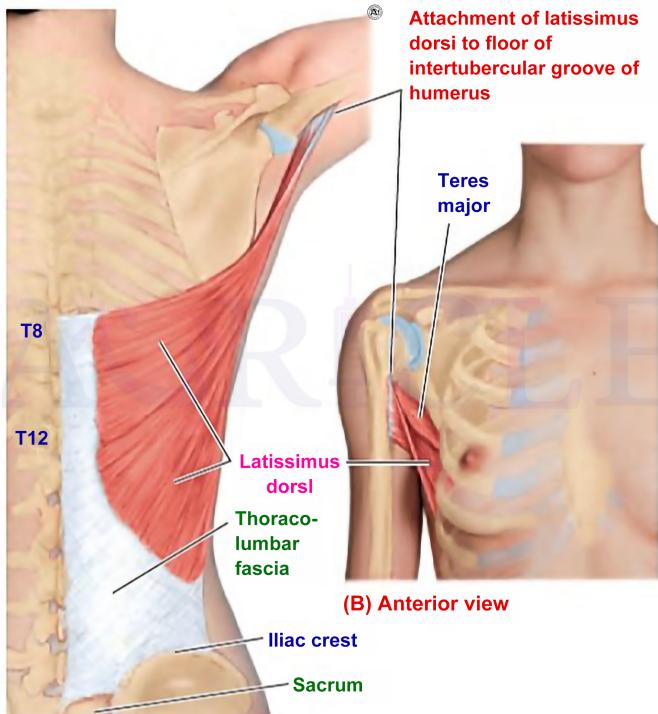
- (a) spinal part of the accessory nerve - motor
- (b) ventral rami of C3 and C4 – Proprioceptive

## Actions

1. The upper fibres of trapezius along with levator scapulae elevate the scapula as in **shrugging the shoulder**.
2. The middle fibres of trapezius along with rhomboids retract the scapula as in **bracing back the shoulder**.
3. The lower fibres of trapezius **depress the medial part of the spine of the scapula**.
4. Acting with serratus anterior, the trapezius rotates the scapula forward so that the arm can be **abducted beyond 90°**.

# Latissimus dorsi

## Origin



- (a) spines of lower six thoracic vertebrae anterior to the trapezius, by tendinous fibres,
- (b) posterior lamina of thoraco-lumbar fascia (c) outer lip of the posterior part of the iliac crest by muscular slips,
- (d) lower three or four ribs by fleshy slips,
- (e) inferior angle of the scapula.

**Insertion:** Intertubercular sulcus

## **Nerve supply**

Thoracodorsal nerve (Nerve to Latissimus dorsi)

## **Actions**

- Latissimus dorsi is active in adduction, extension, and rotation, especially medial rotation of the humerus.
- It pulls up the trunk upwards and forwards during climbing. This action is in conjunction with the pectoralis major muscle.
- It assists backward swinging of the arm during walking.
- It takes part in all violent expiratory efforts.

# Deep Muscles

## Levator scapulae

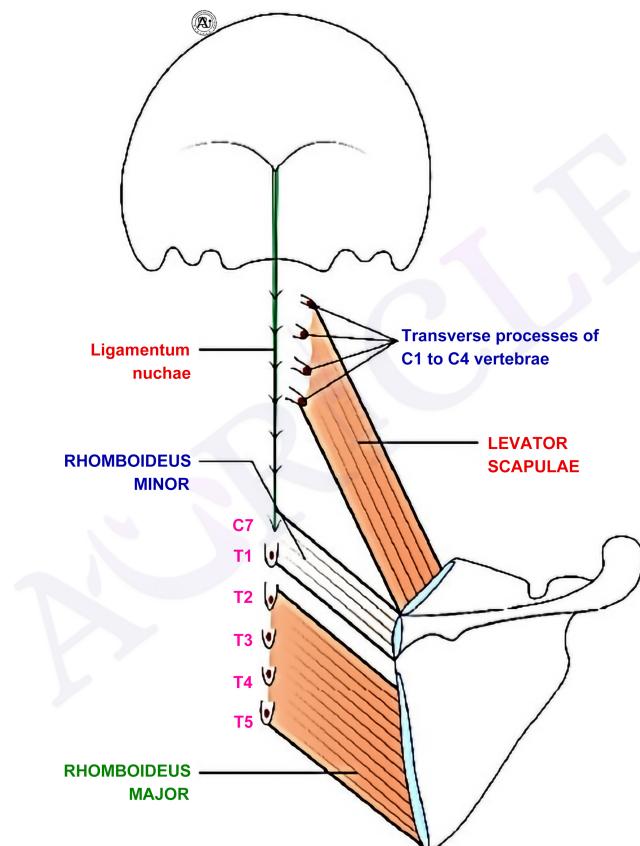
**Origin:**

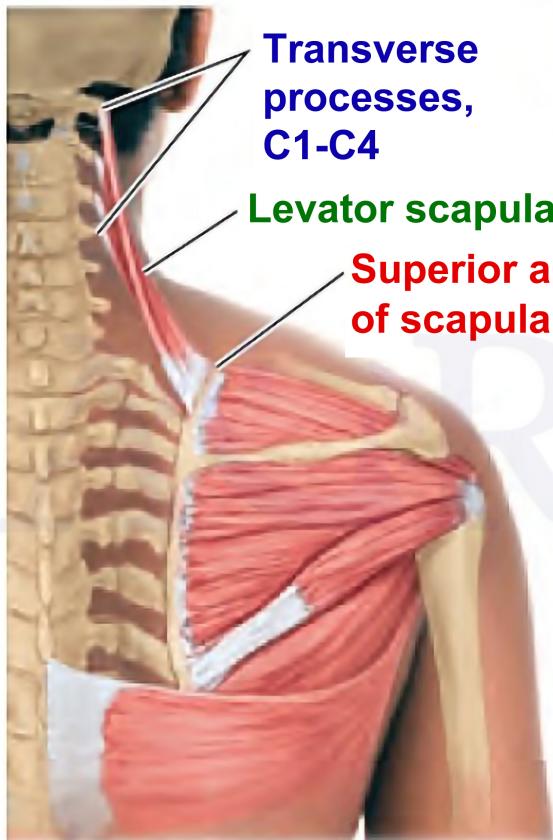
- (a) transverse processes of atlas and axis vertebrae, and
- (b) posterior tubercles of the transverse processes of the 3rd and 4th cervical vertebrae.

**Insertion:** Superior angle of spine of scapula

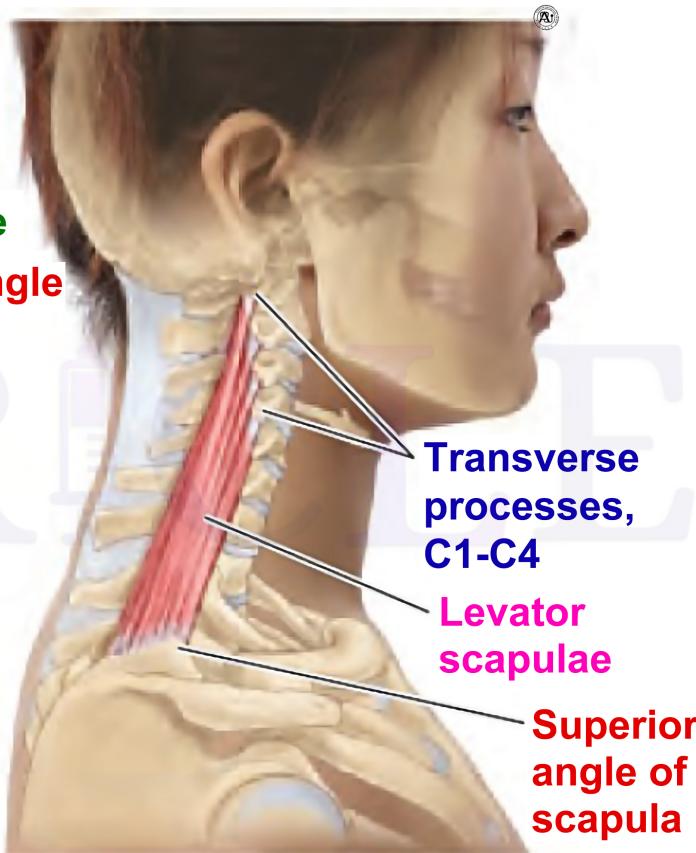
**Nerve supply:** C3 & C4, C5 through dorsal scapular nerve

**Action:** Elevates the scapula, steadies the bone during movement





Posterior view



Lateral view

# Rhomboid Minor

## Origin:

- (a) Ligamentum nuchae
- (b) Spines of C7 & T1

**Insertion:** Root of the spine of scapula

# Rhomboid Major

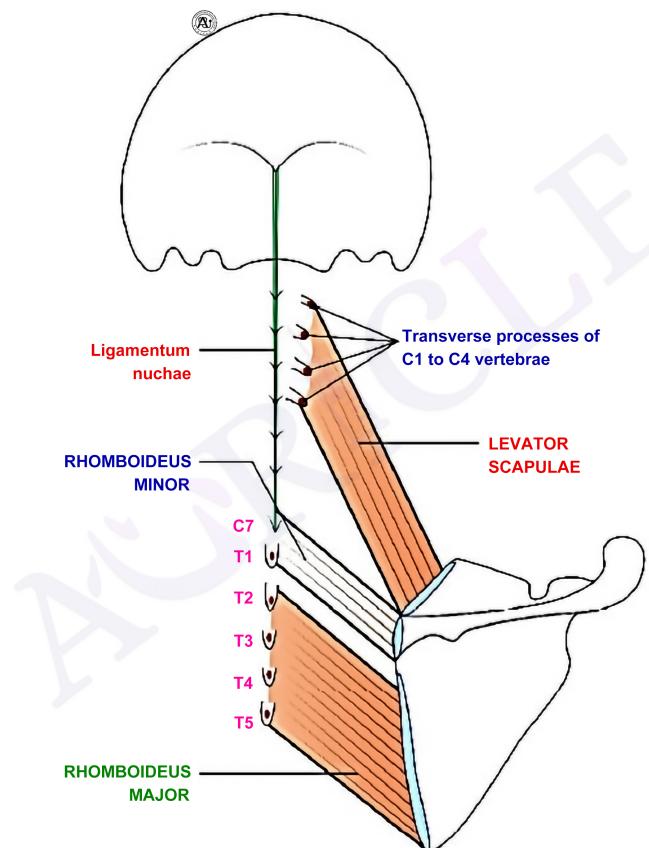
## Origin:

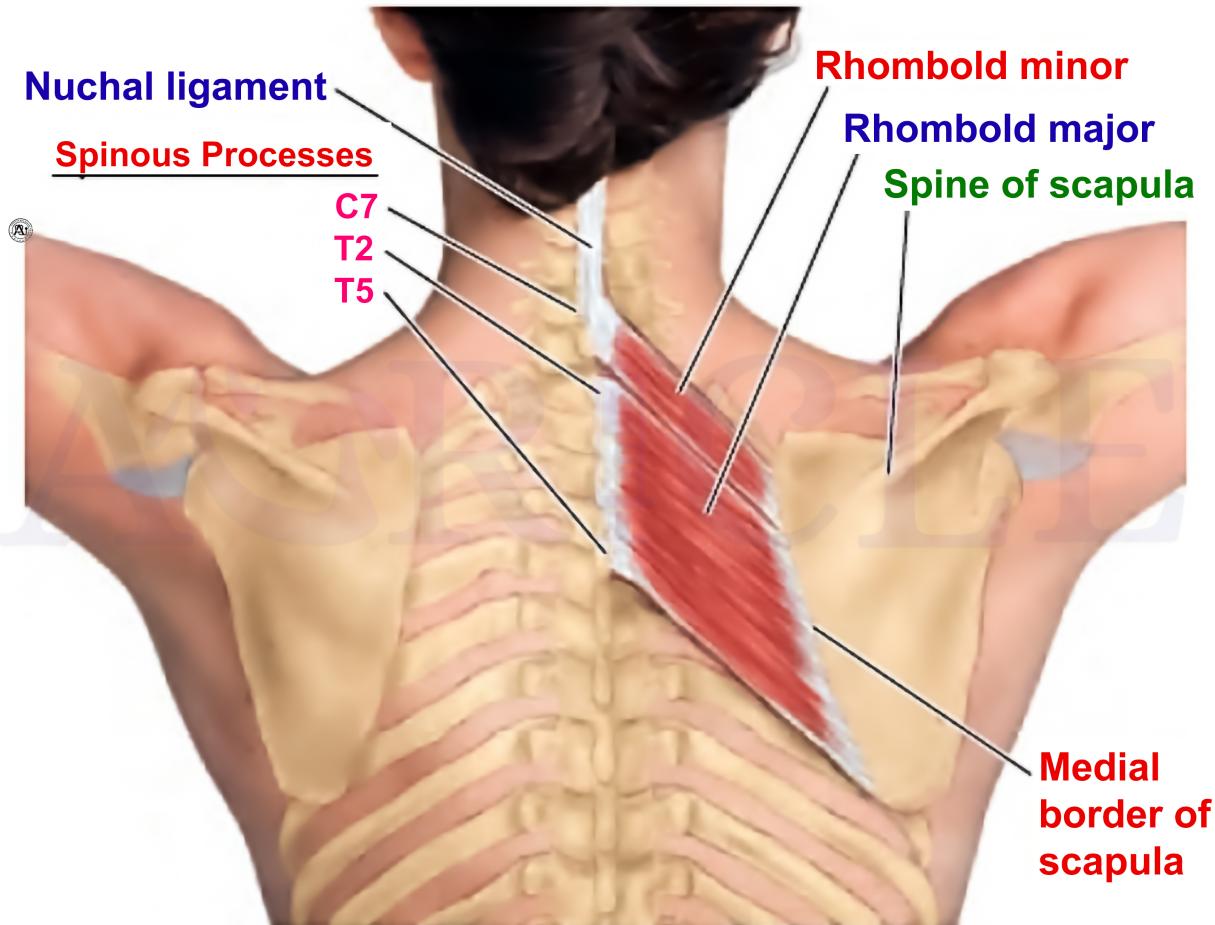
Spines of T2 – T5 & supraspinous ligament

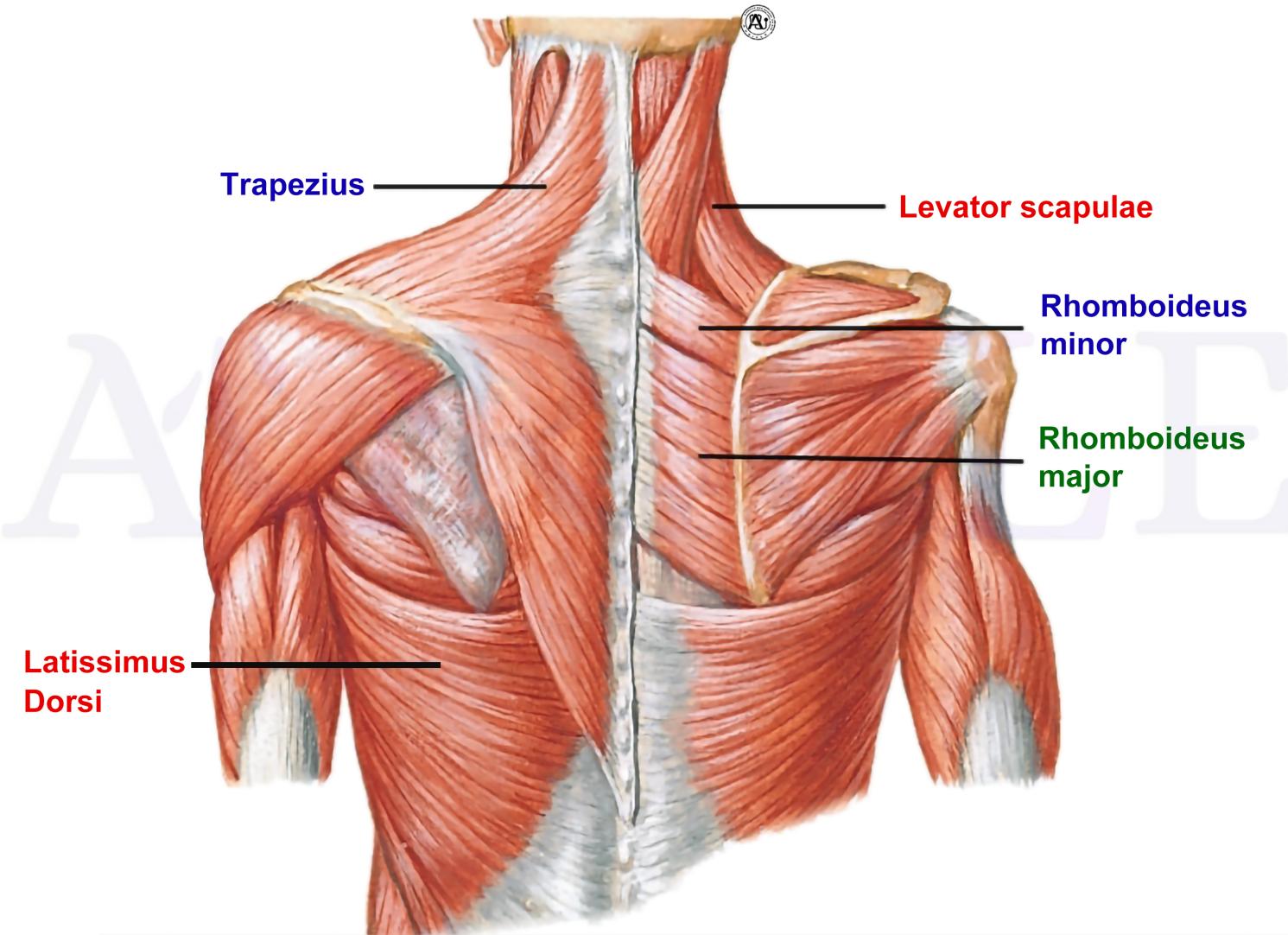
**Insertion:** Between the root of the  
spine of scapula & Inferior angle

**Nerve supply:** Dorsal scapular Nerve

**Action:** Retract the scapula



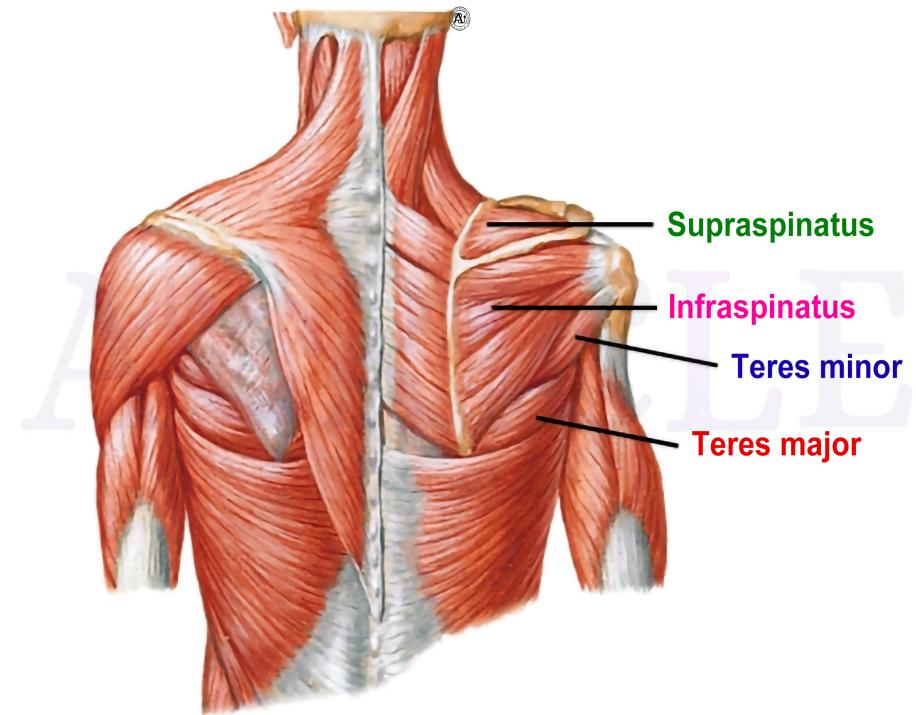


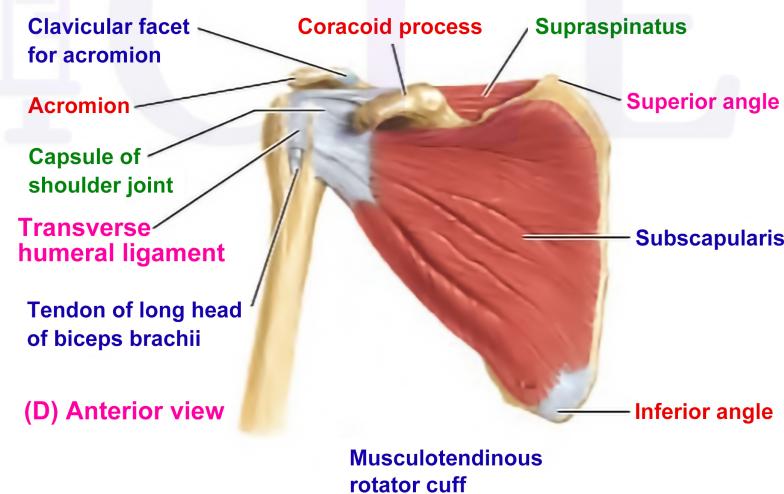
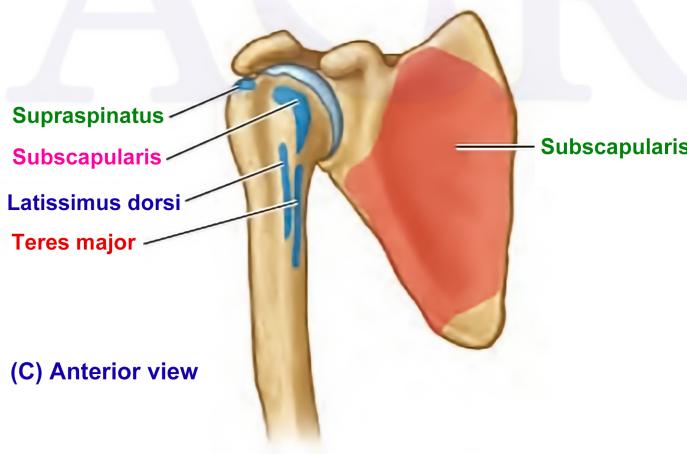
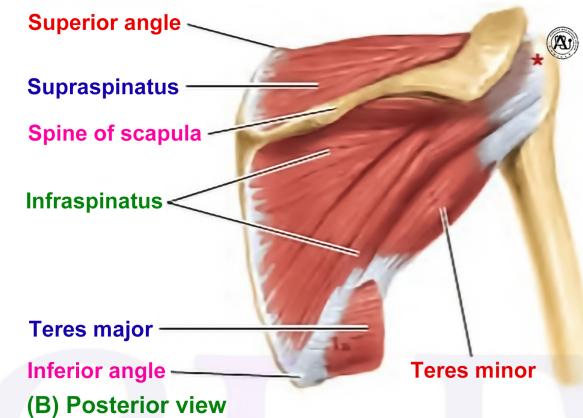
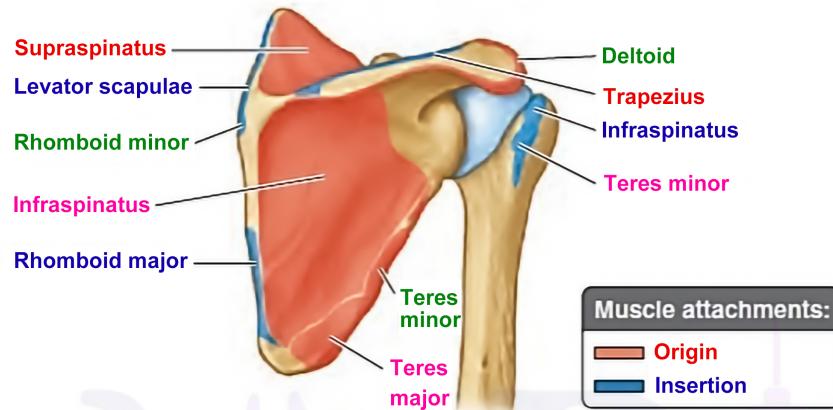


# Scapulohumeral muscles

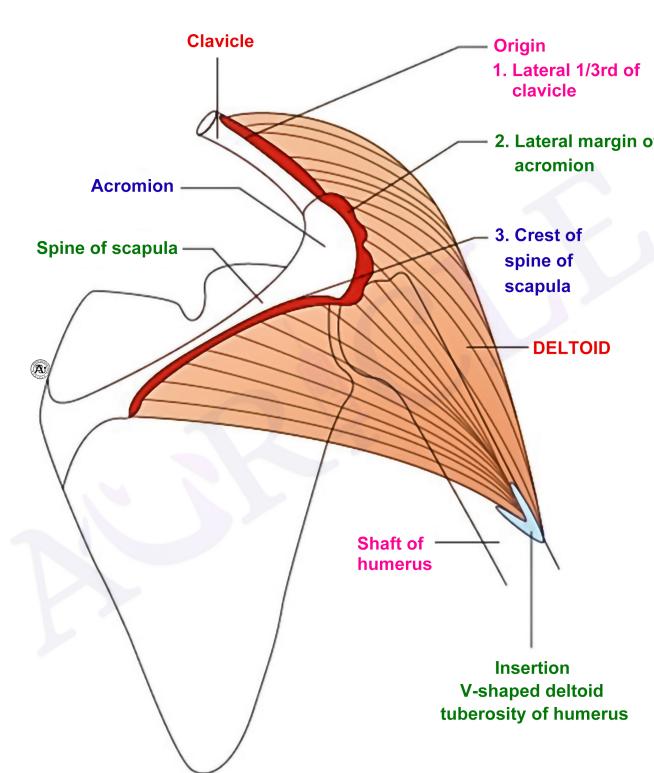
They are intrinsic shoulder muscles

- Deltoid
- Supraspinatus
- Infraspinatus
- Teres minor
- Teres major
- subscapularis





# Deltoid

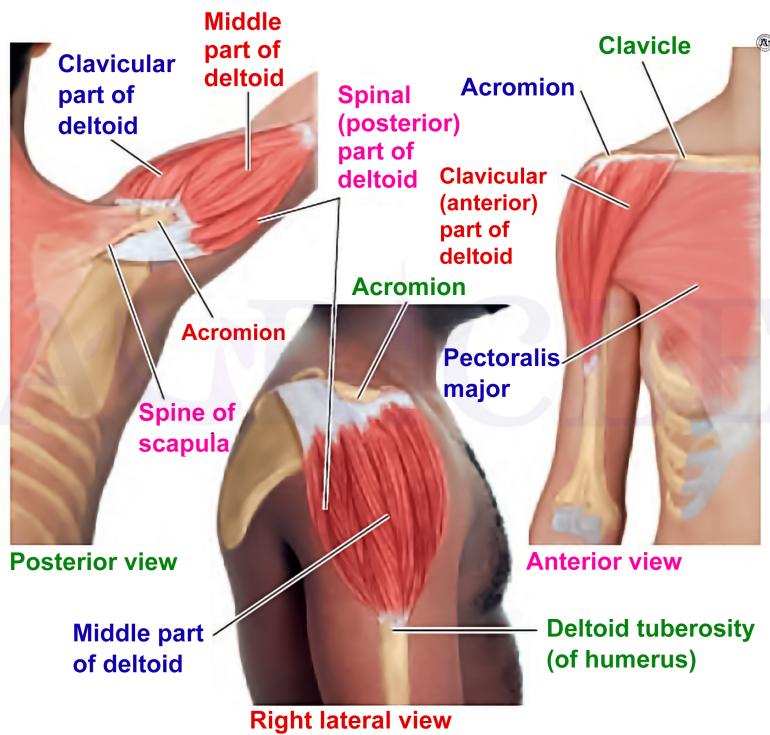


## Origin:

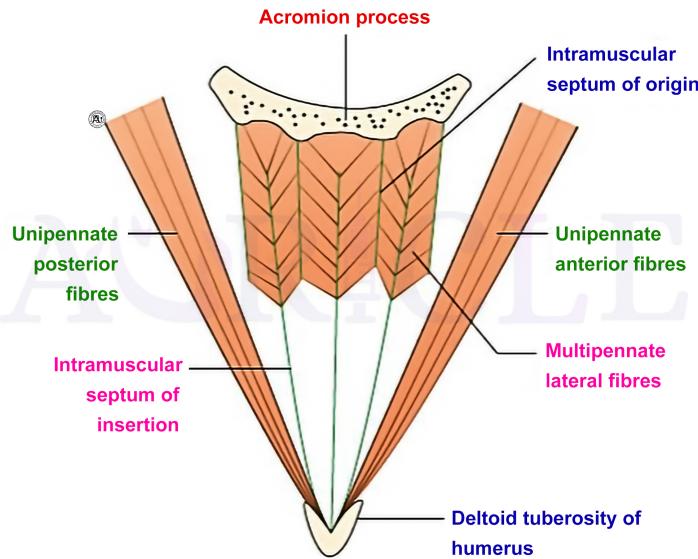
- ) Lateral 1/3rd of clavicle
- ) Lateral margin of acromion
- ) Lower lip of crest of spine of scapula

**Insertion:** Deltoid tubercle of humerus

**Nerve supply:** Axillary nerve

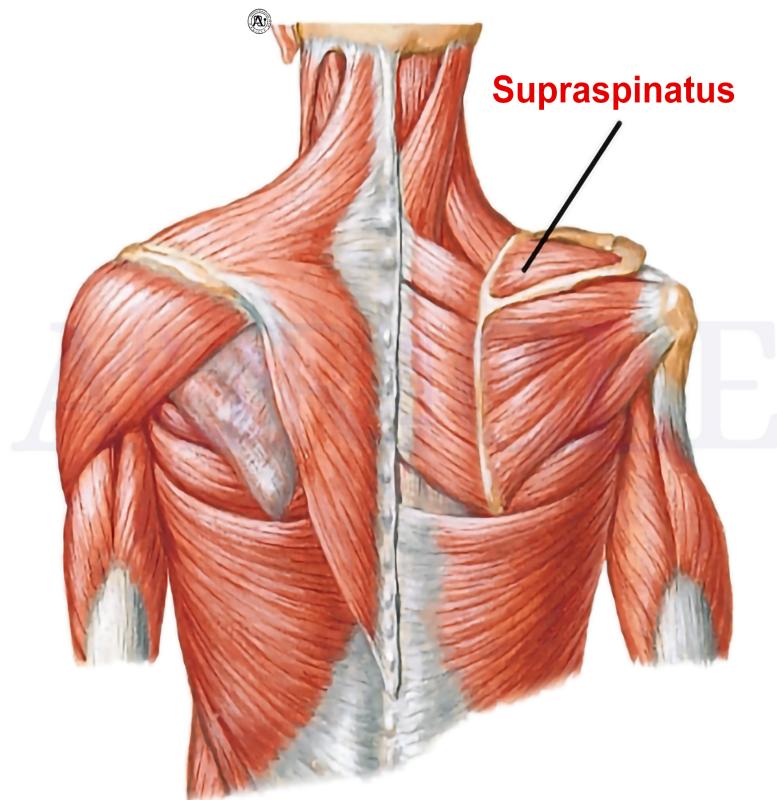


## Actions



1. The anterior (clavicular) fibres are flexors and medial rotators of the arm.
2. The posterior (spinous) fibres are the extensors and lateral rotators of the arm.
3. The middle (acromial) fibres are the strong abductor of the arm from  $15^\circ$  to  $90^\circ$ .

# Supraspinatus



## Origin:

Medial 2/3rd of supraspinous fossa of scapula

## Insertion:

Superior facet of greater tubercle of scapula

**Nerve supply:** Suprascapular nerve

**Action:** Initiates abduction (first 15° )

# Infraspinatus

## Origin:

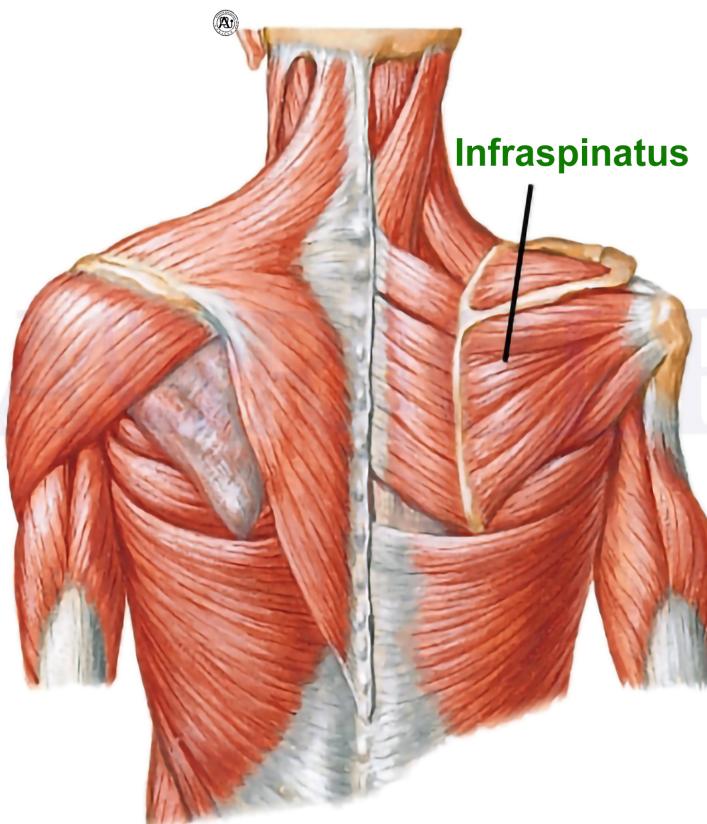
Medial 2/3rd of infraspinous fossa of scapula

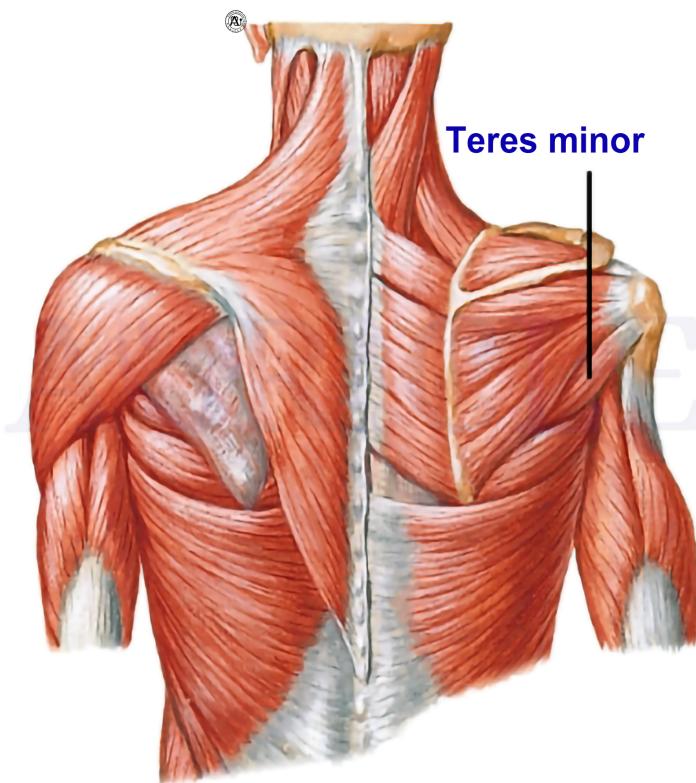
## Insertion:

Middle facet of greater tubercle of scapula

**Nerve supply:** Suprascapular nerve

**Action:** Lateral rotator of humerus





## Teres minor

**Origin:**

Posterior aspect of the lateral border of scapula

**Insertion:**

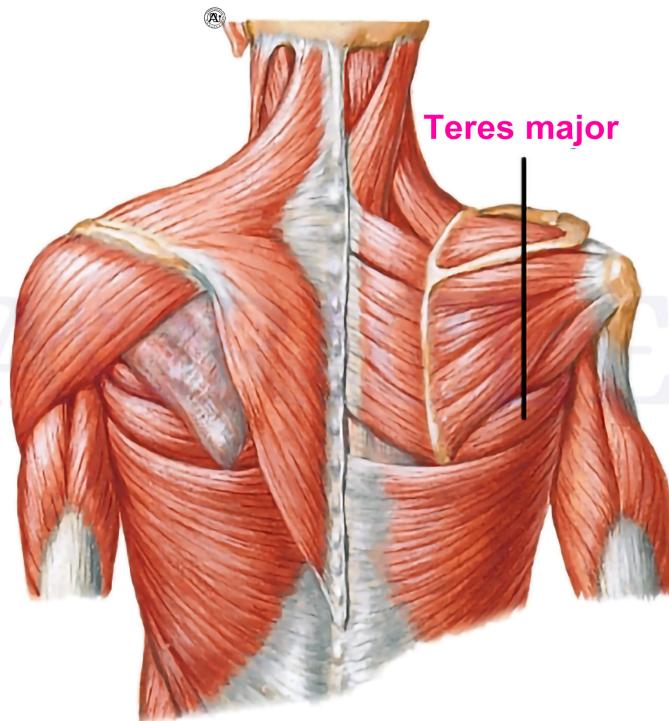
Lower facet of greater tubercle of scapula

**Nerve supply:** Axillary nerve

**Action:** Lateral rotator of humerus

Weak adductor of shoulder

# Teres major



## Origin:

Dorsal surface at the inferior angle of scapula

Adjoining lateral border

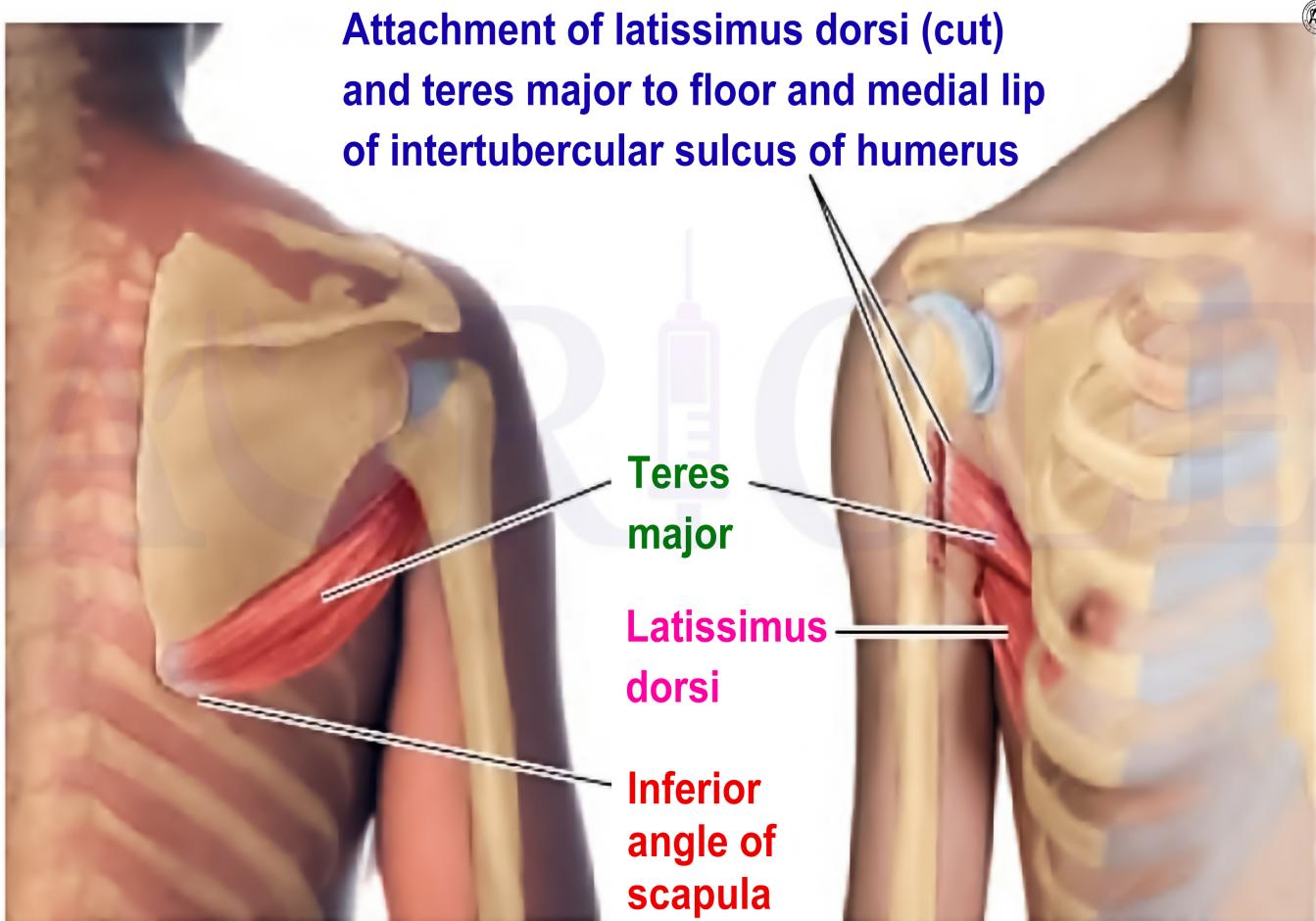
## Insertion:

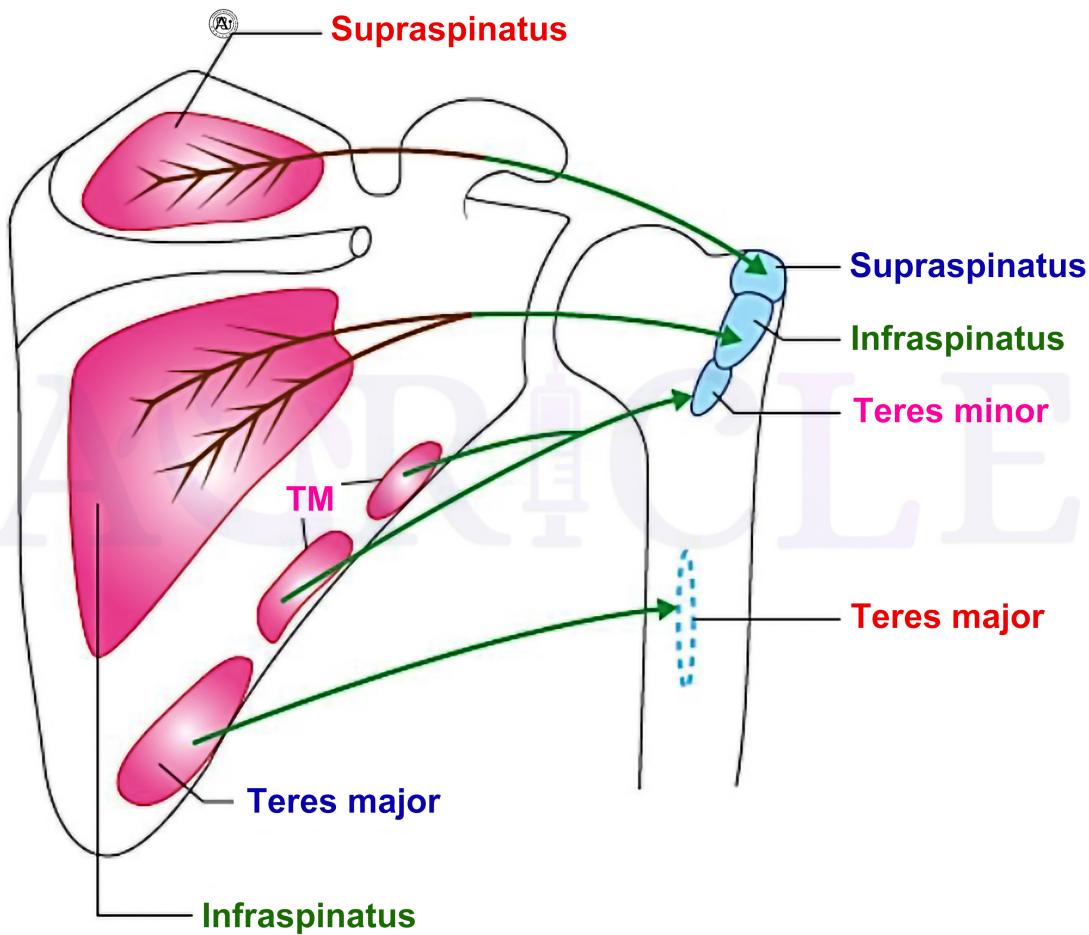
Medial lip of bicipital groove

**Nerve supply:** Lower subscapular nerve

**Action:** Medial rotator of arm

**Attachment of latissimus dorsi (cut)  
and teres major to floor and medial lip  
of intertubercular sulcus of humerus**





# Subscapularis

## Origin:

Medial 2/3rd of costal surface of scapula

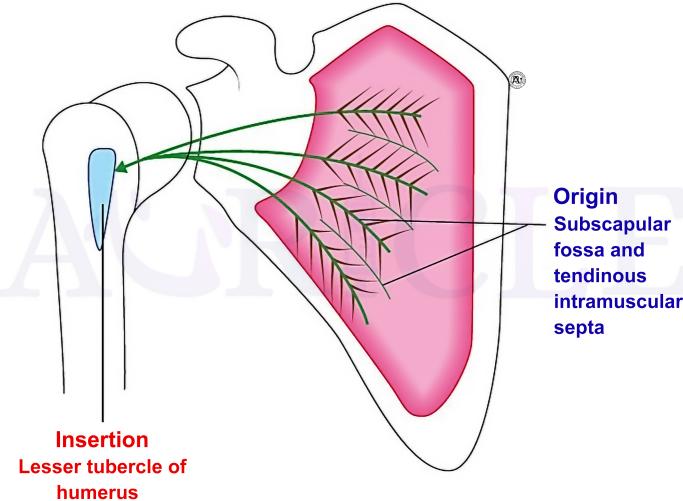
Tendinous intermuscular septa

## Insertion:

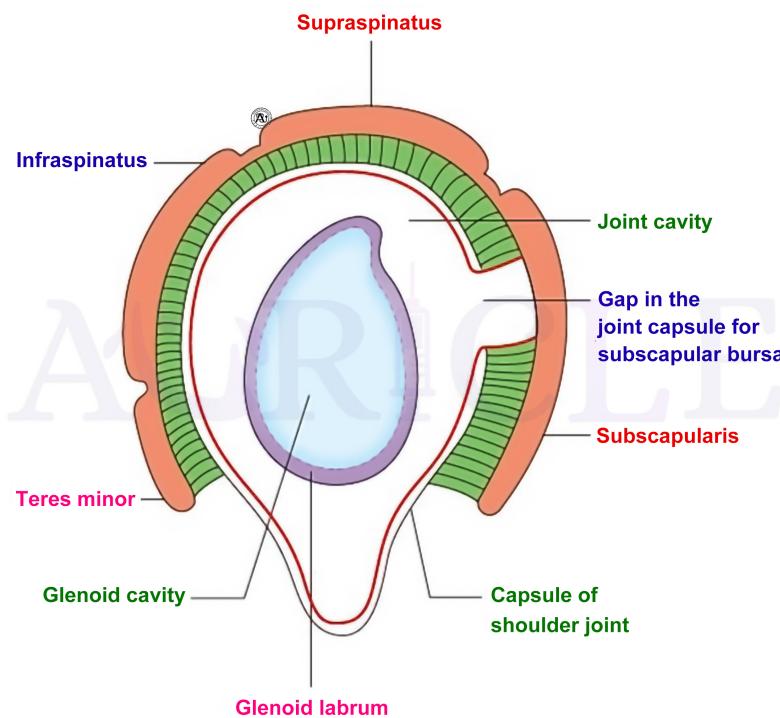
Lesser tubercle of humerus

**Nerve supply:** Upper & Lower subscapular nerve

**Action:** Medial rotator of arm



# Rotator cuff of shoulder joint

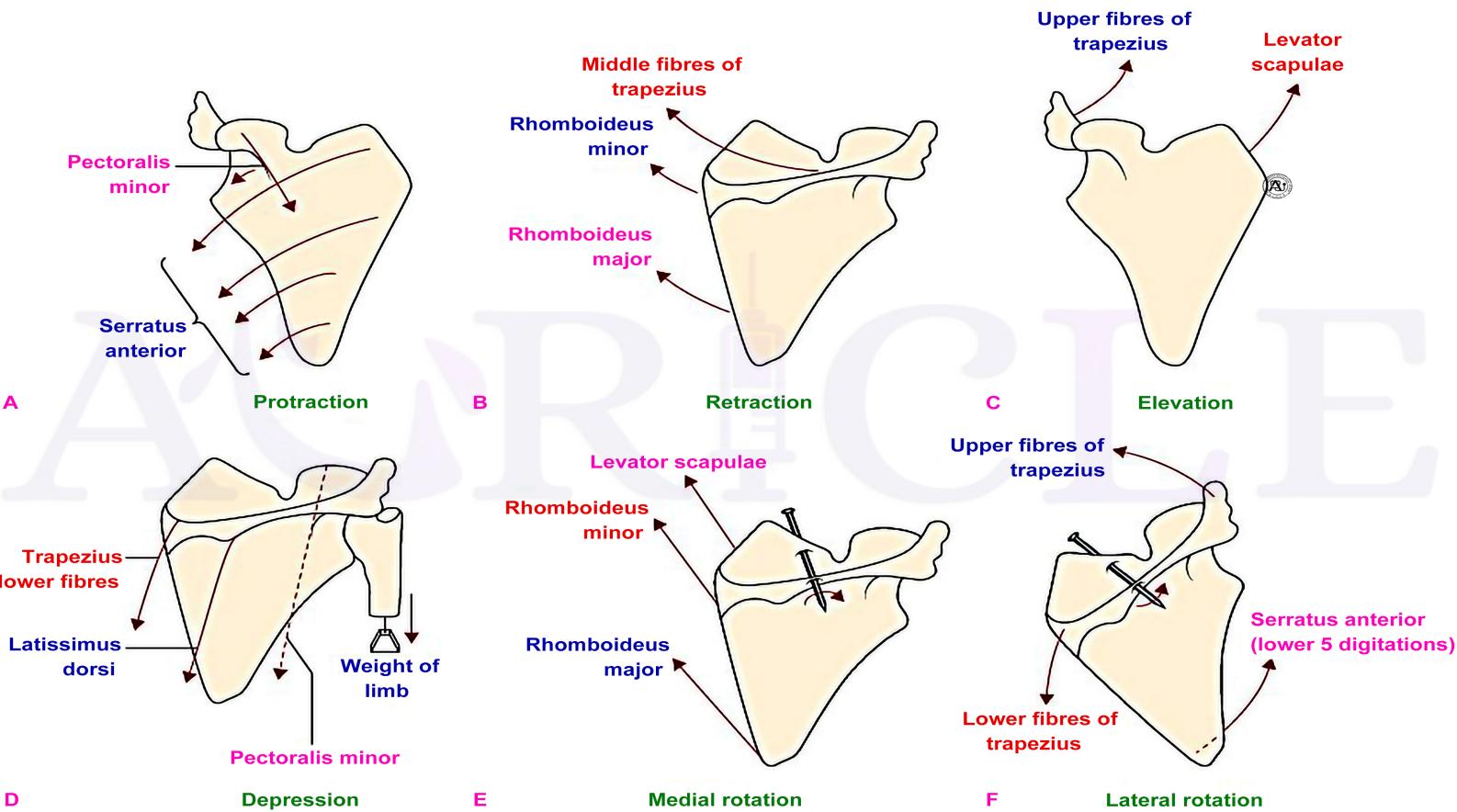


- Tendons of supraspinatus, infraspinatus, teres minor, and subscapularis which are fused with the underlying capsule of the glenohumeral joint.

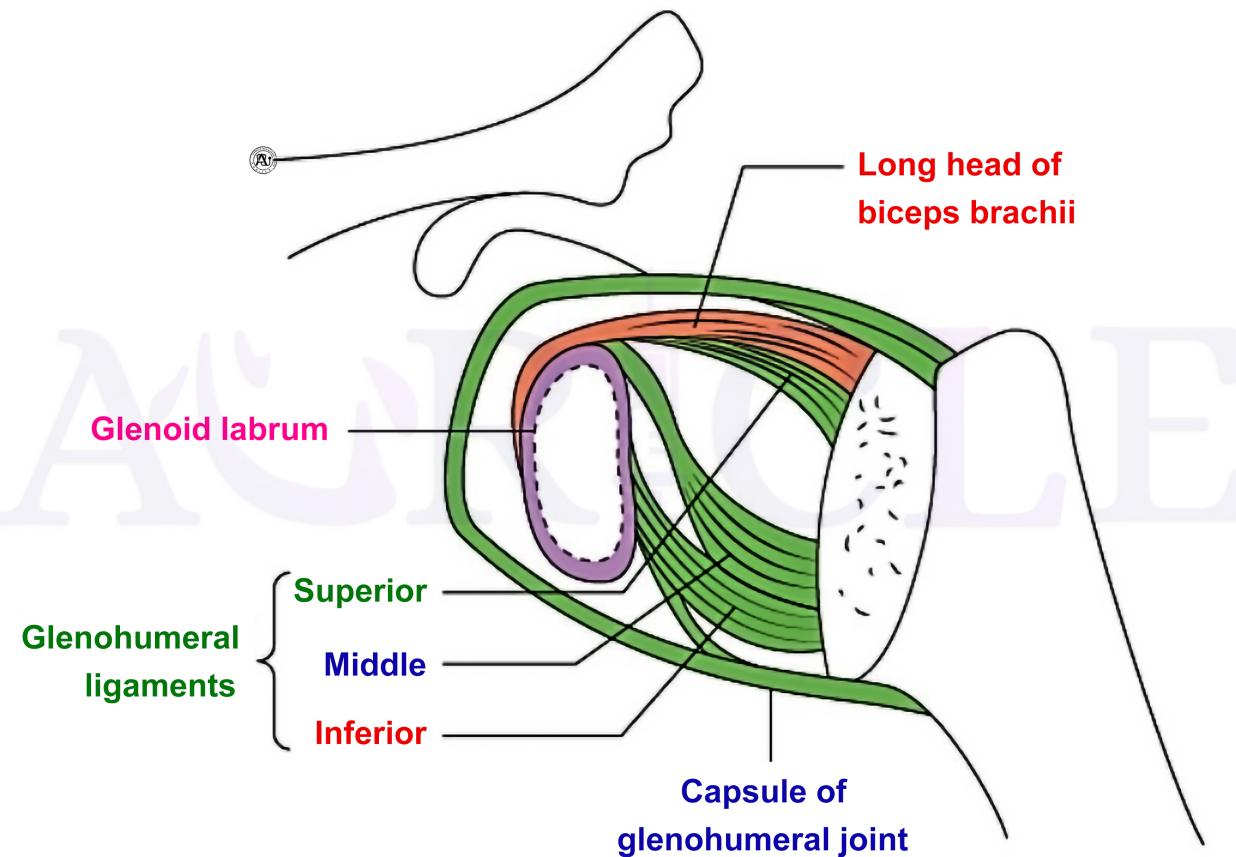
## Function:

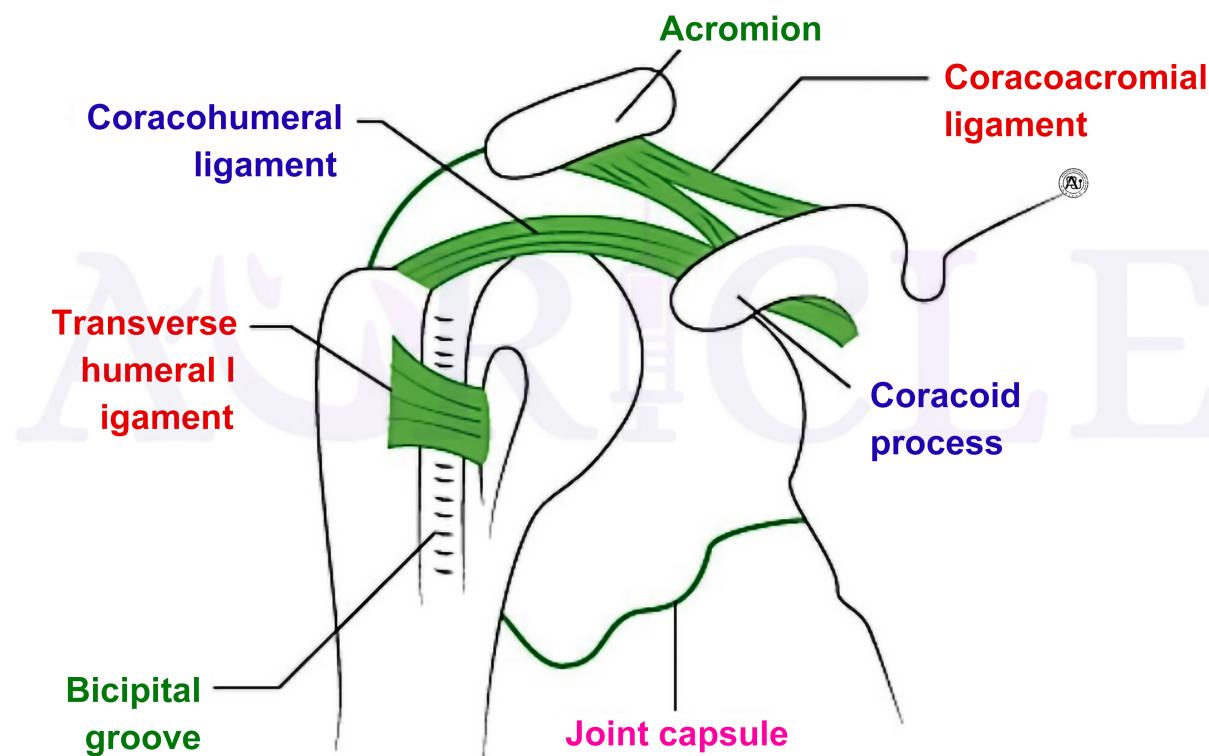
- Grasp the relatively large head of humerus and hold it against the smaller, shallow glenoid cavity

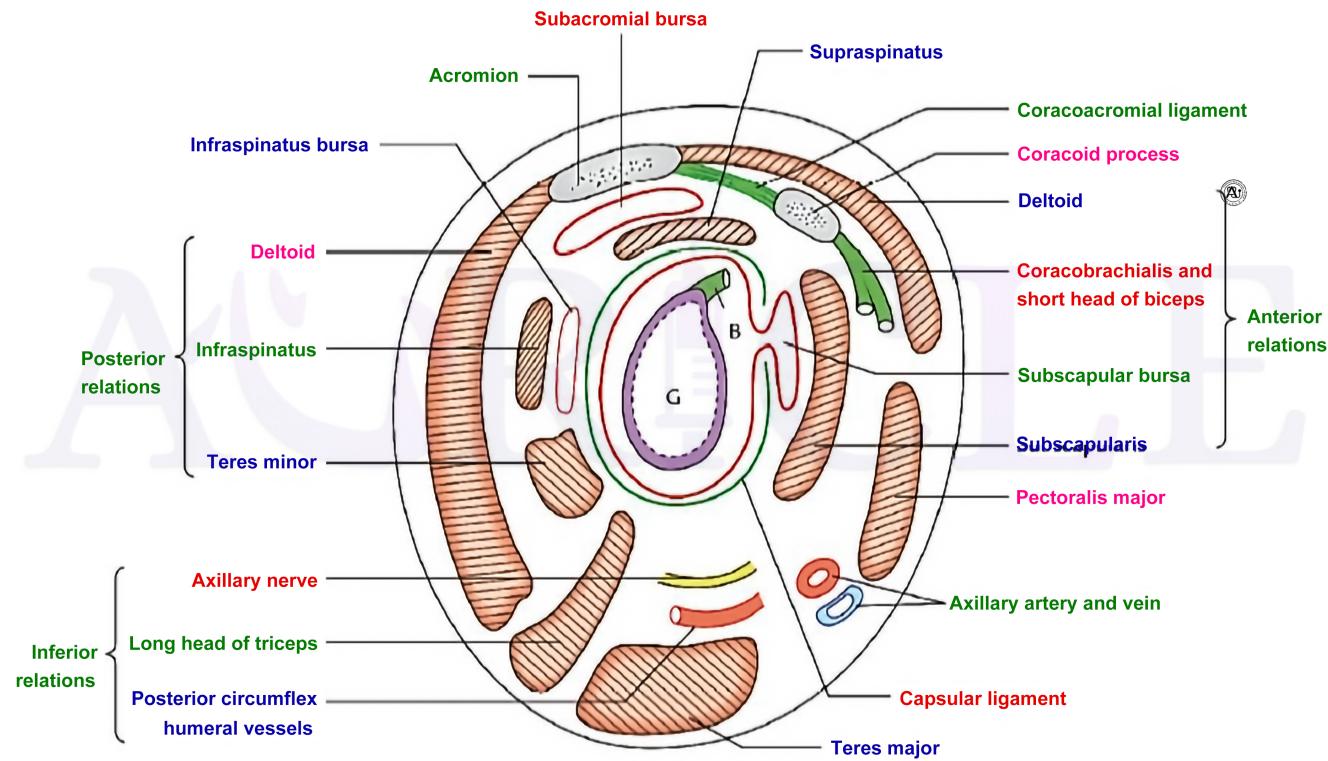
# Movements of scapula

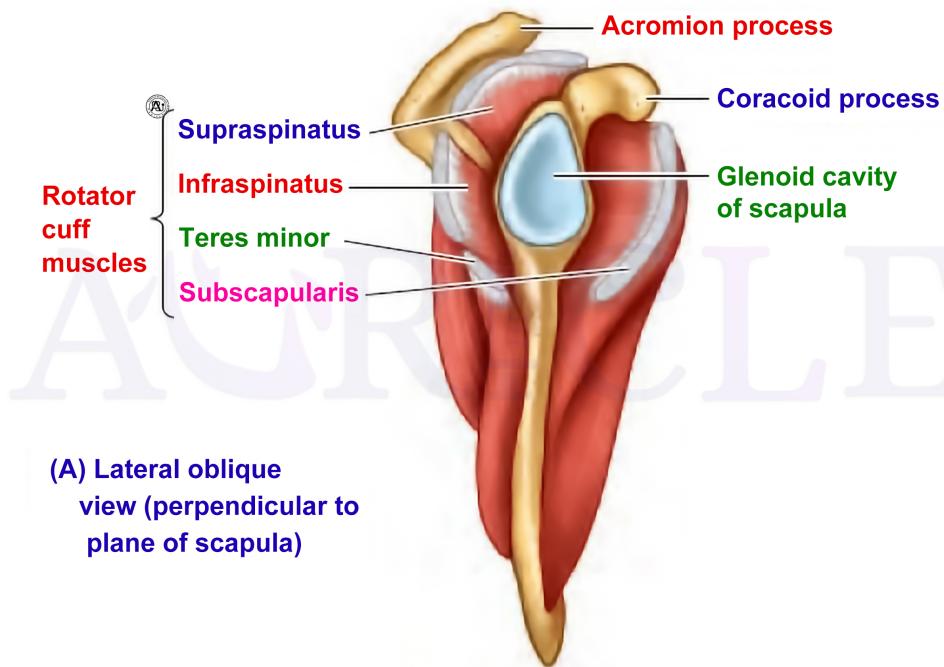
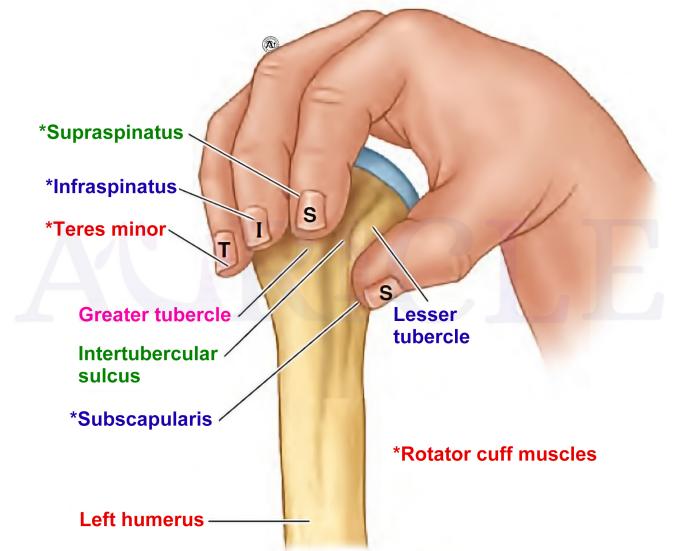


# Shoulder joint complex









**Q) The rotator cuff muscles are a group of four muscles that surround the shoulder joint. Which of the following muscles is NOT part of the rotator cuff?**

- a) Supraspinatus
- b) Infraspinatus
- c) Subscapularis
- d) Teres major

**Q) The nerve responsible for innervating the majority of the shoulder joint and its surrounding muscles is the:**

- a) Radial nerve
- b) Median nerve
- c) Ulnar nerve
- d) Axillary nerve

**Thank you**