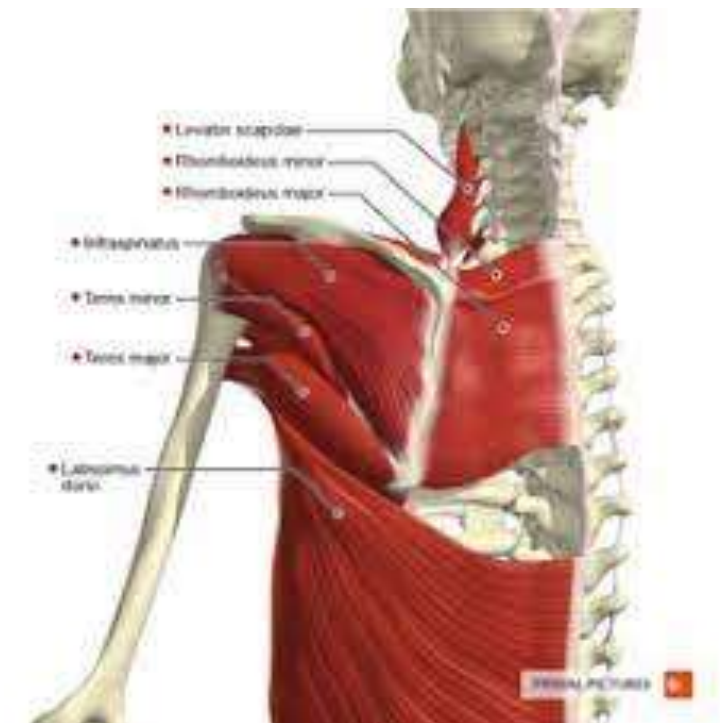




Scapular Region

- Region which carries the muscles connects the scapula and upper arm
- Region where the muscles stabilizing the scapula
- Region which serves as the foundation/ base for all the upper limb movements



Surface Landmarks

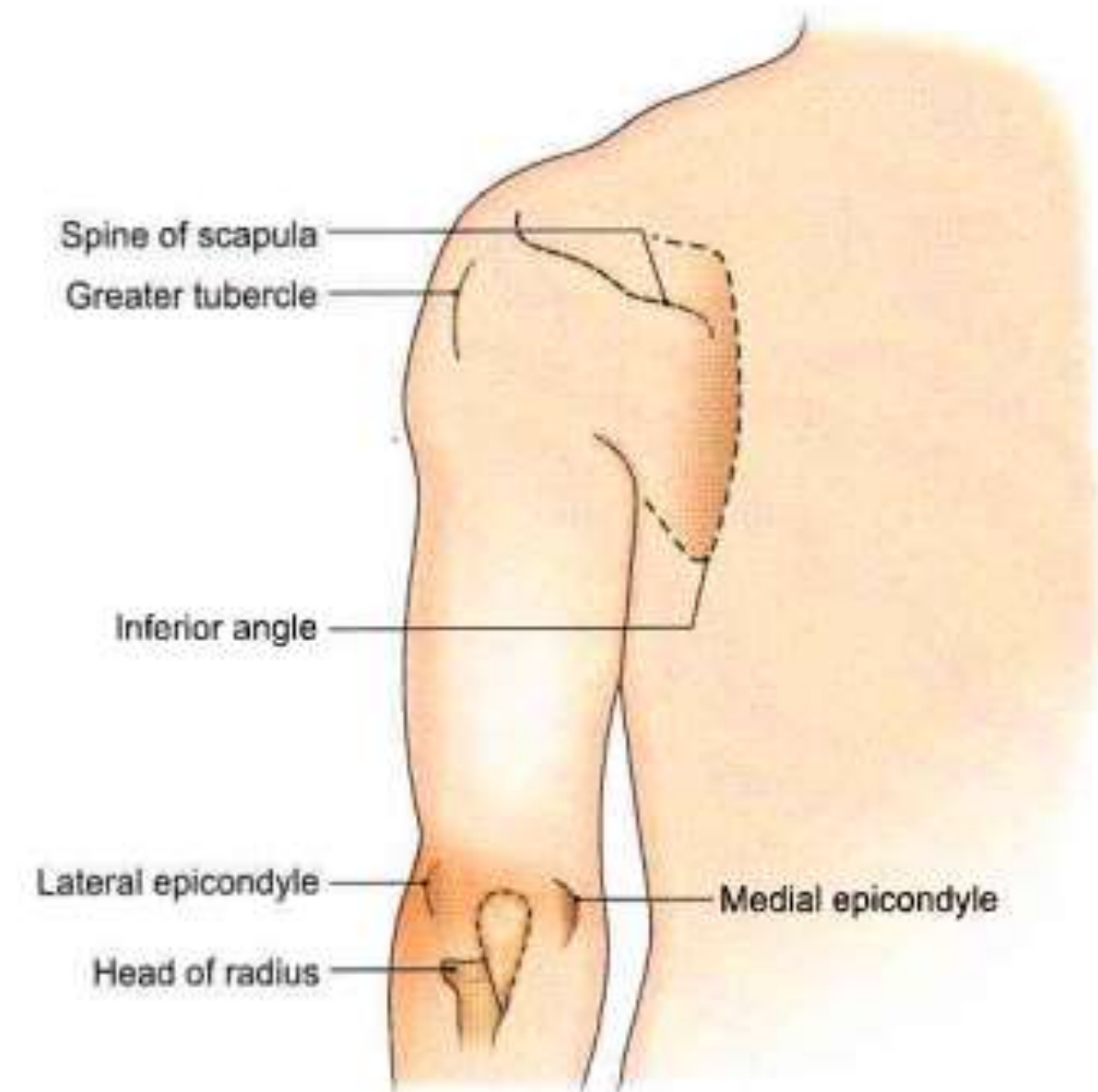
1. Humerus

- a) Upper portion of Humerus (surrounded by deltoid muscle, which gives the roundness to the shoulder)
- b) Greater tubercle (most lateral point)

2. Shoulder region skin

3. Superficial fascia

4. Deep fascia

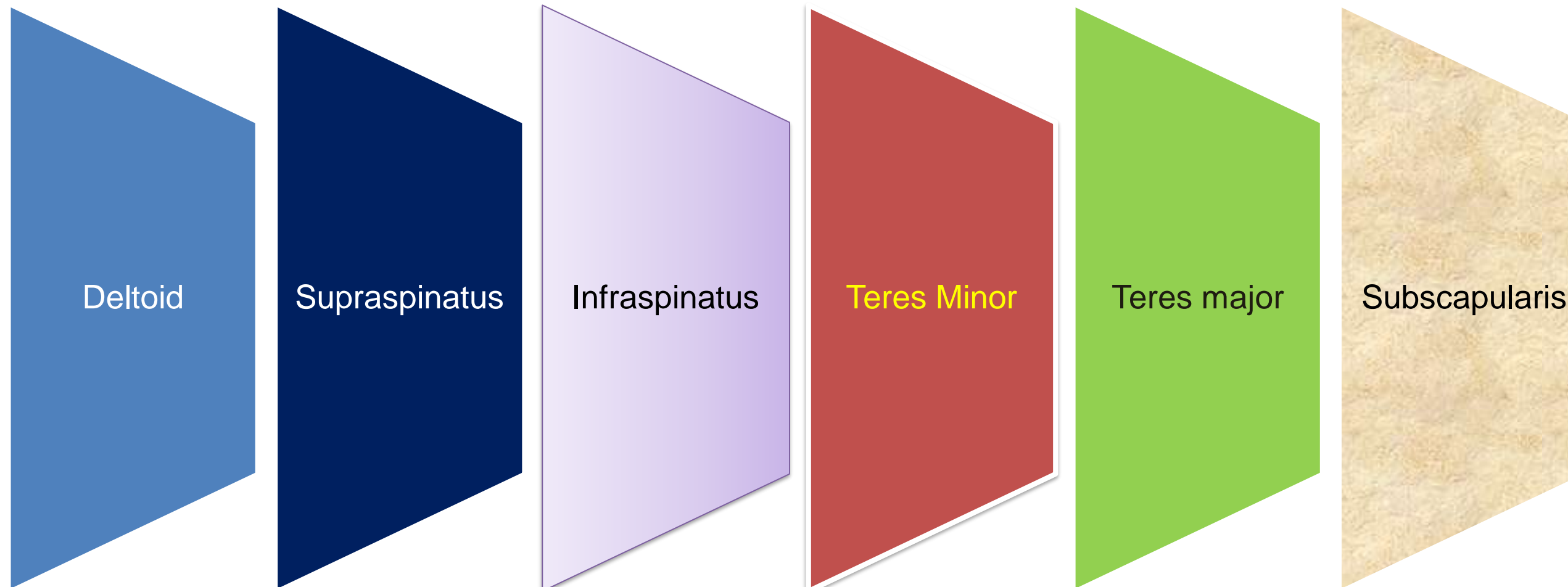




Scapulohumeral Muscles



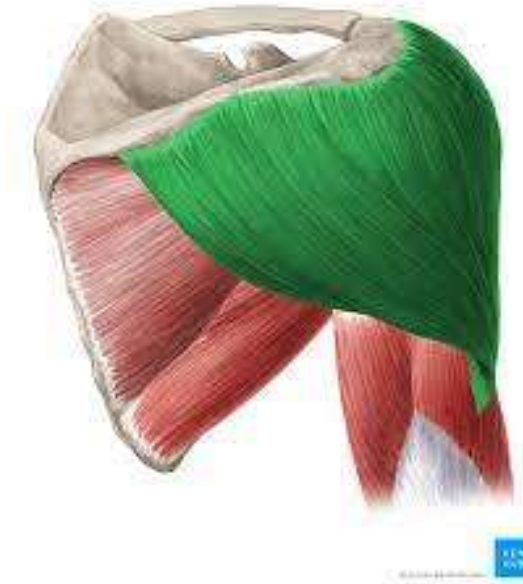
- Alias Intrinsic shoulder muscles
- Short muscles connecting scapula and humerus
- Acts on the glenohumeral joint





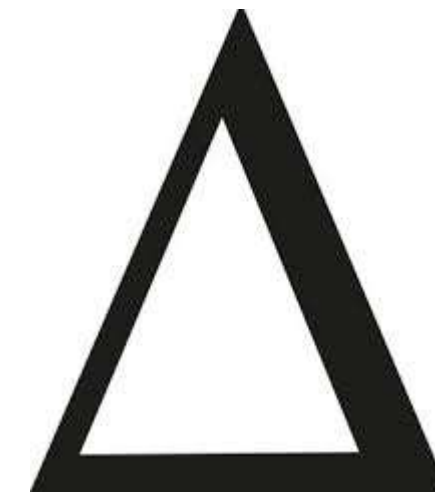
Deltoid

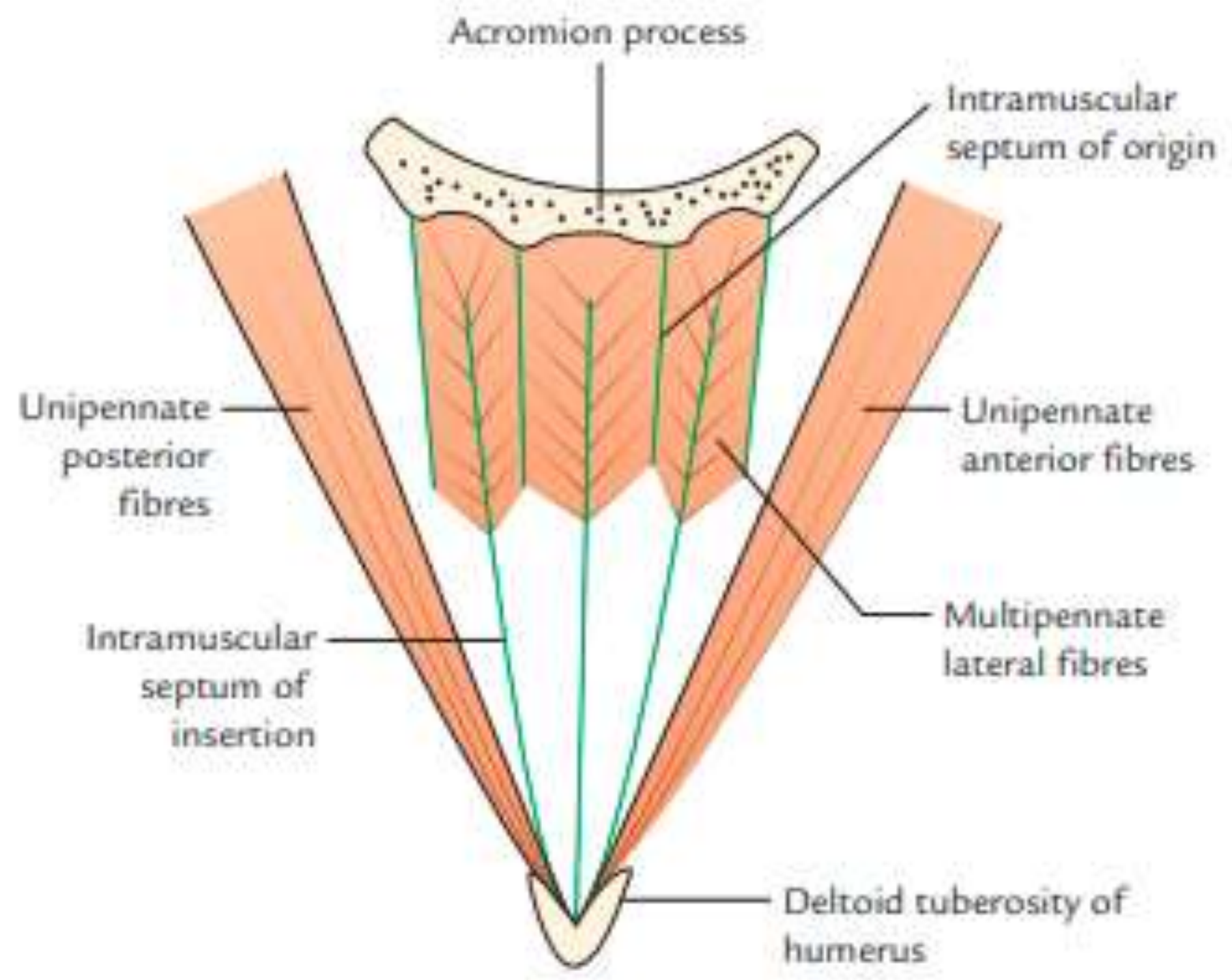
- Greek work : Delta
- Muscle is in inverted delta shape
- Very thick muscle producing strong contraction
- Curved triangular muscle
- This gives round contour to the shoulder



Divided into three parts

- Anterior fibers (Unipennate)
- Middle fibers (Multipennate)
- Posterior fibers (Unipennate)

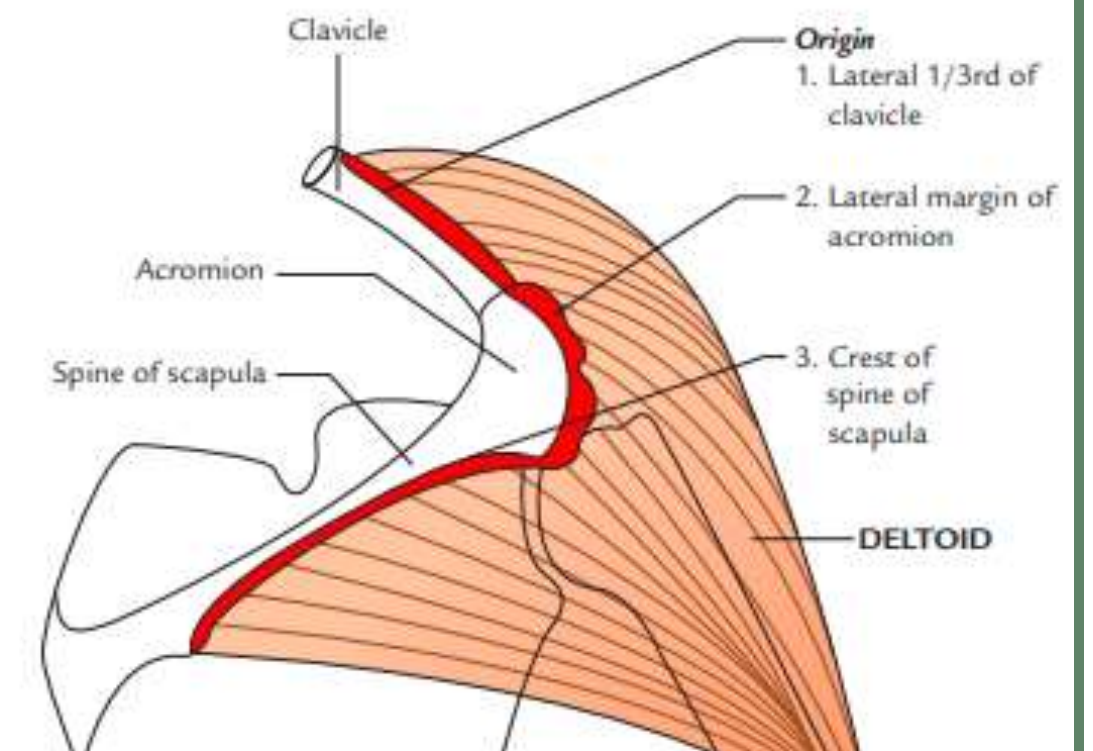


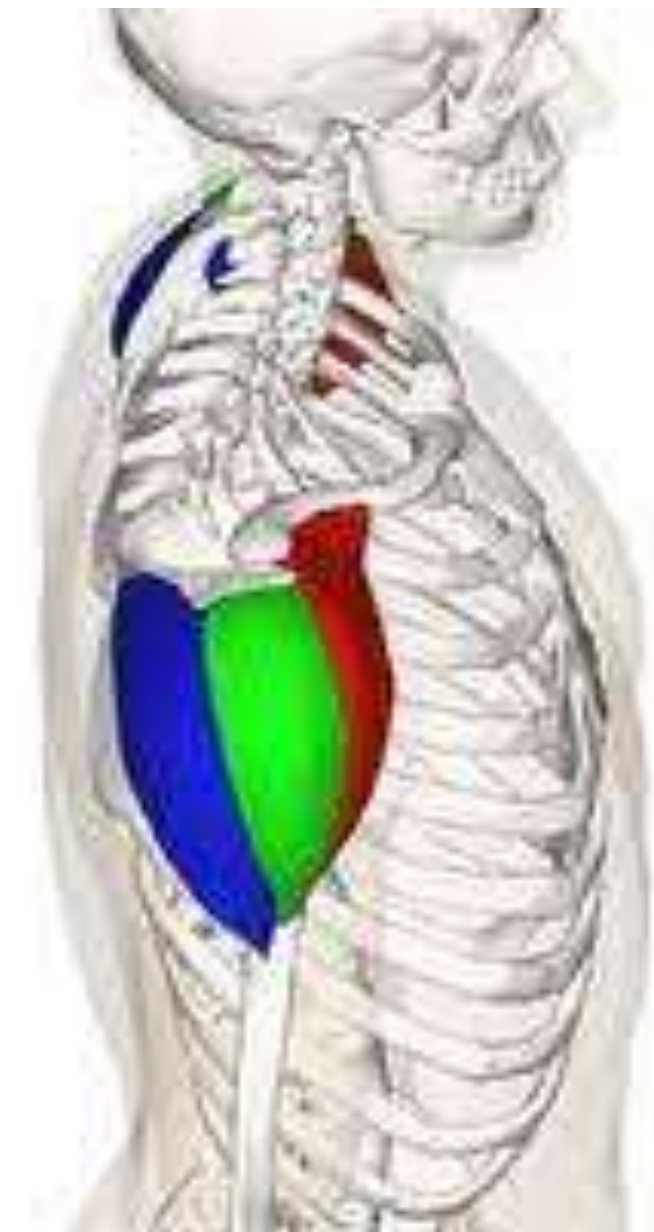
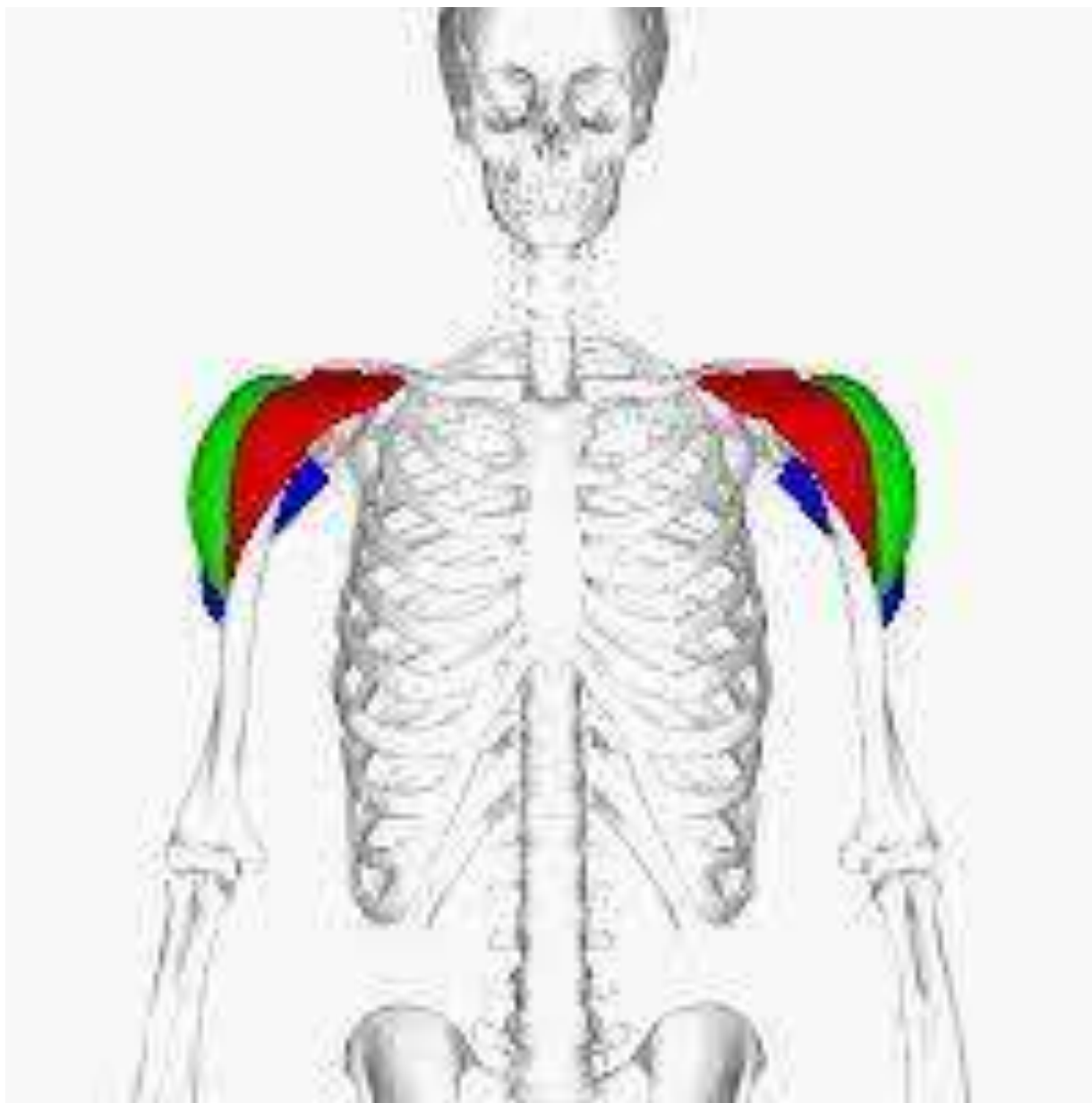


Deltoid

Origin : V shaped ; Subcutaneous

- a) **Lateral 1/3rd of clavicle : Anterior fibers**
- b) **Acromion process (upper surface and lateral margin) : Middle fibers**
- c) **Crest of spine of scapula (lower lip) : Posterior fibers**





 **Anterior Fibers**

 **Middle Fibers**

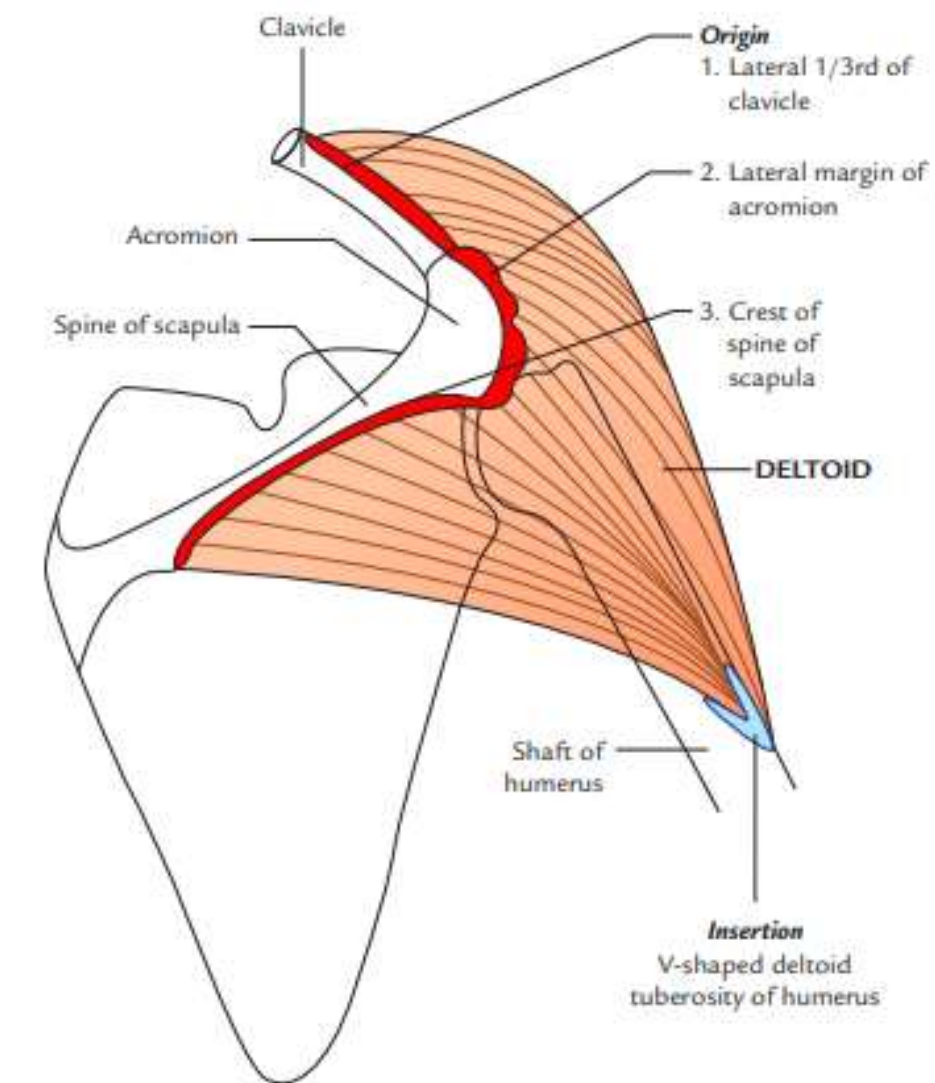
 **Posterior Fibers**

Deltoid

Insertion:

Fibers converge & run inferiorly to form thick tendon and insert into

Deltoid tuberosity of humerus (lateral aspect of mid shaft of humerus)





Deltoid



Nerve Supply : Axillary Nerve (C5 & C6)

Actions:

1. **Upper fibers (clavicular fibers):** Flexs and Medially rotates arm
2. **Middle fibers (acromial fibers):** Strong abductor of arm from 15° to 90°.
3. **Posterior fibers (spinous fibers):** Extends and Laterally rotates the arm.



Clinical testing



The deltoid can be easily seen and felt to contract when the arm is abducted against resistance





Structures undercover the deltoid



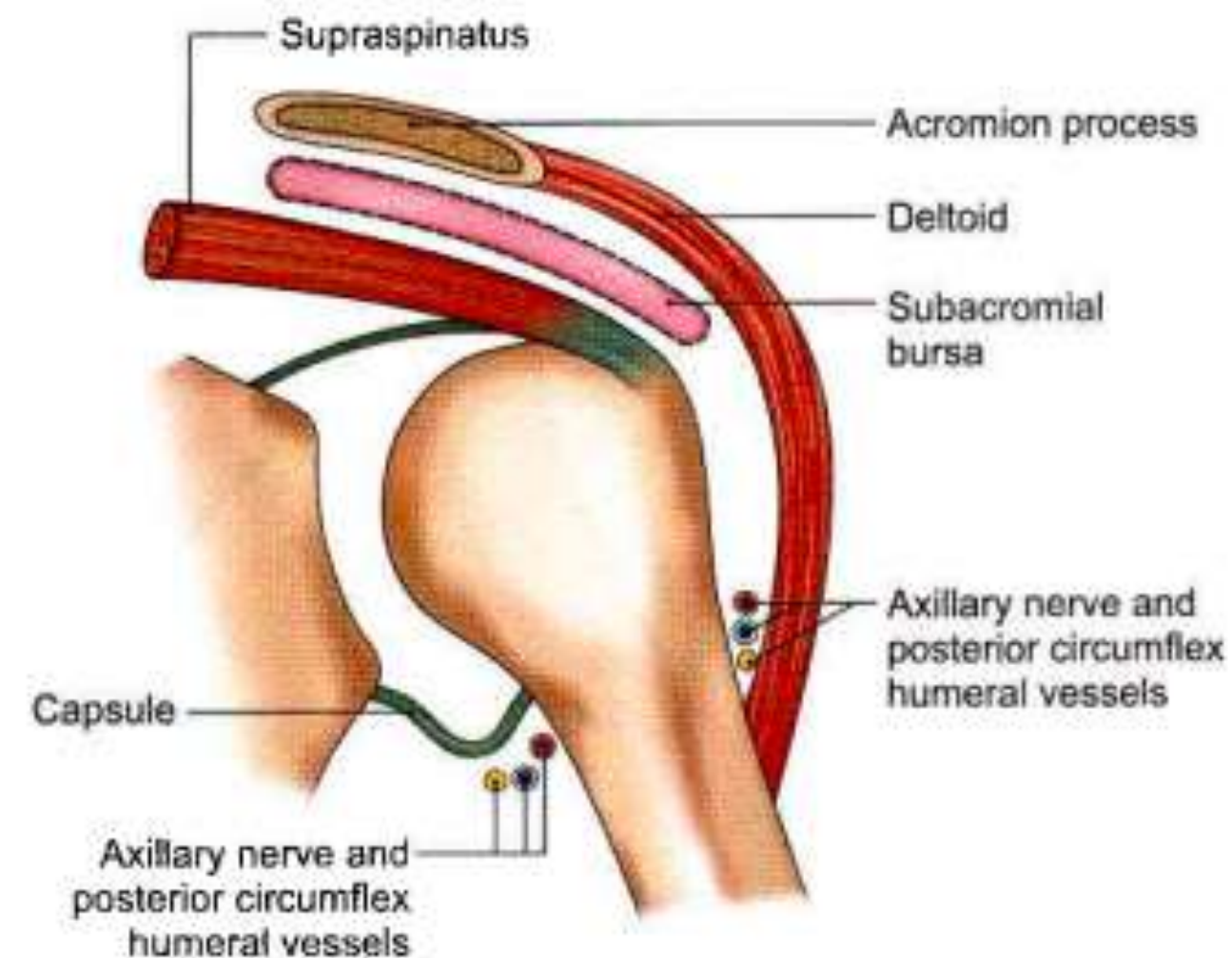
Bones: Upper end of the humerus and coracoid process.

Joints and ligaments:

Shoulder (glenohumeral) joint and coracoacromial ligament

Bursae around the shoulder joint:

Subscapular, subacromial/ subdeltoid, and infraspinatus.



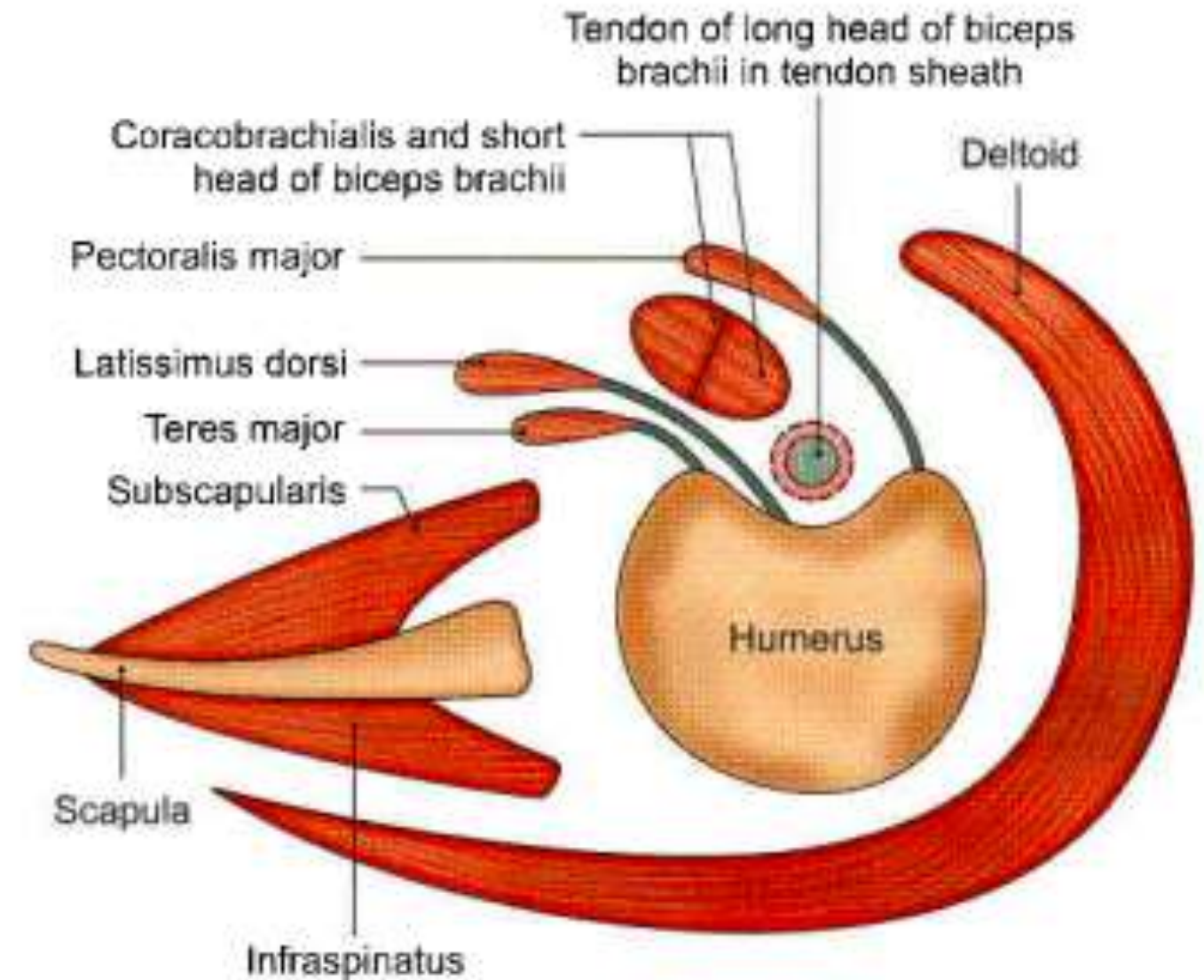
Muscles:

(a) Insertions

- pectoralis minor, pectoralis major,
- teres major, latissimus dorsi,
- subscapularis, supraspinatus,
- infraspinatus, and teres minor.

(b) Origins

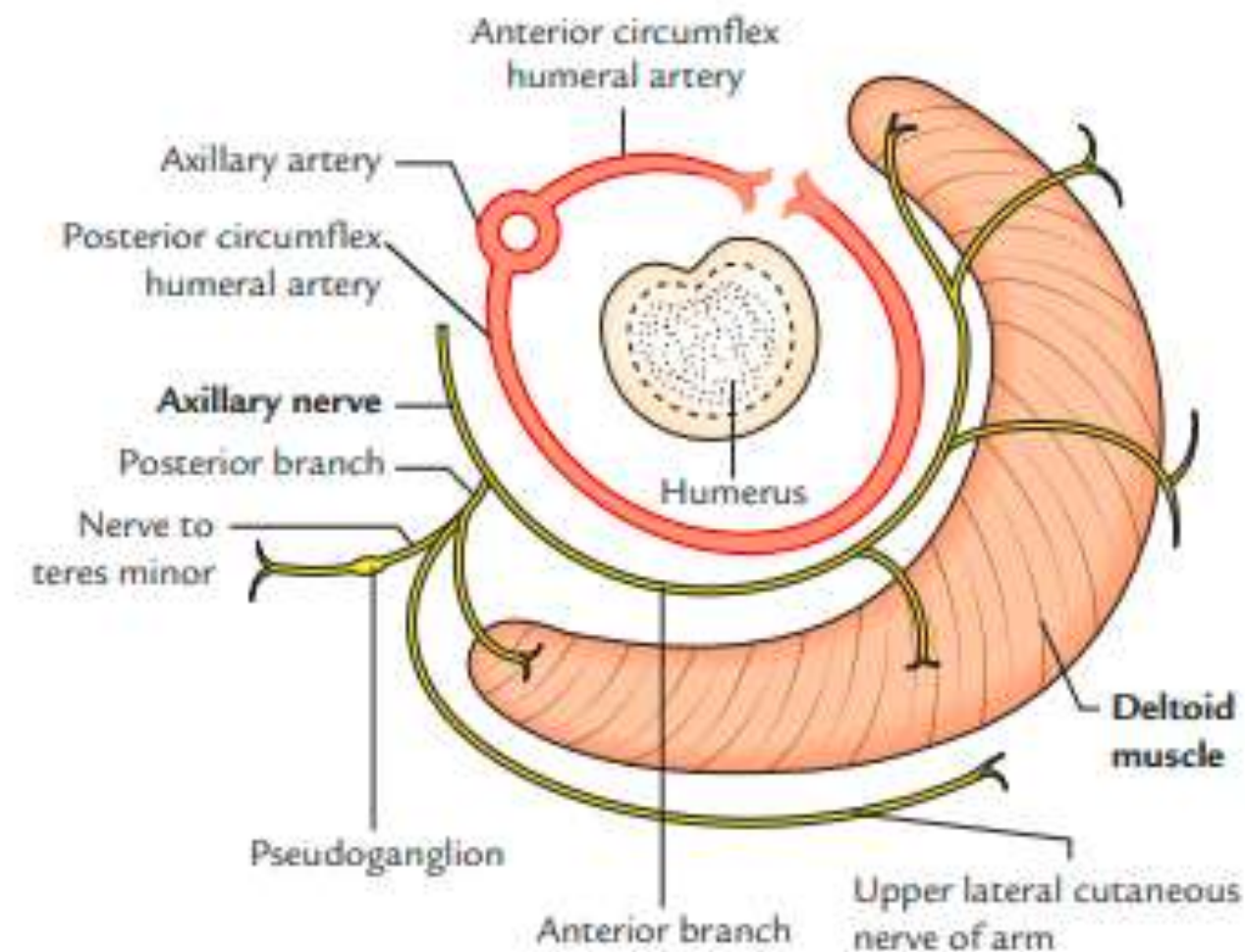
- long head of biceps,
- short head of biceps,
- coracobrachialis, long
- lateral heads of triceps.



Vessels: Anterior and posterior circumflex humeral.

Nerves: Axillary nerve.

Spaces: Quadrangular and triangular subscapular intermuscular spaces





Supraspinatus

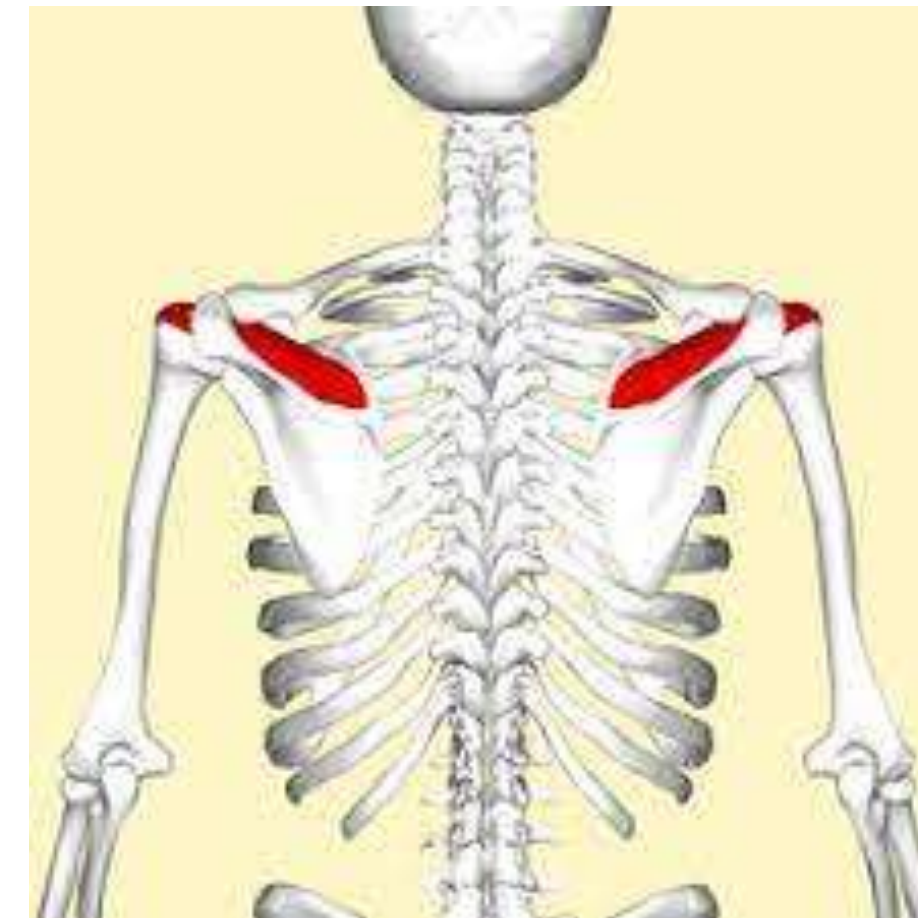


Origin:

Medial two-third of the supraspinous fossa of the scapula

Insertion:

- Fibers run forward
- crosses above the shoulder joint
- inserted on to the **superior facet on the greater tubercle of the humerus.**





Nerve Supply:

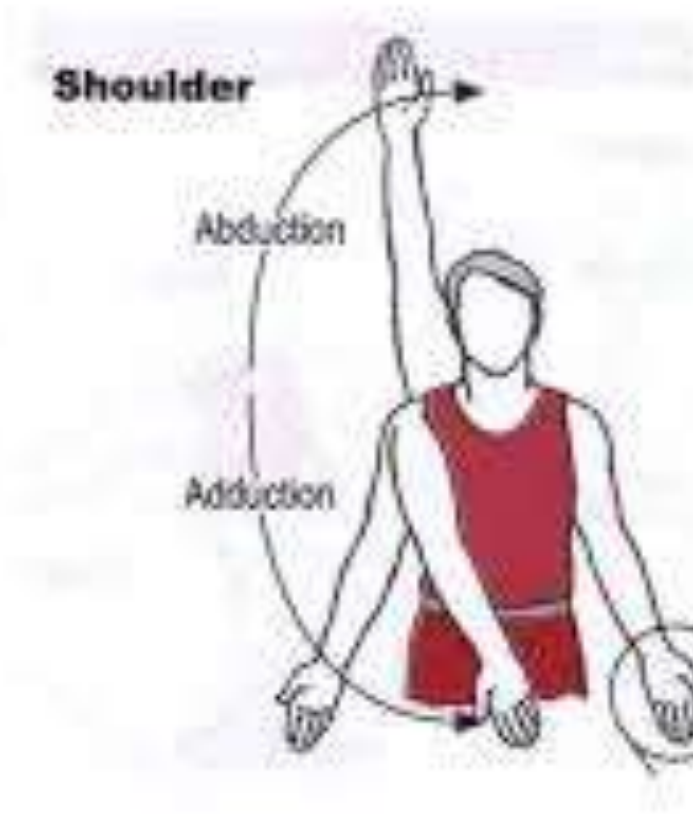
Suprascapular Nerve (C5 and C6)

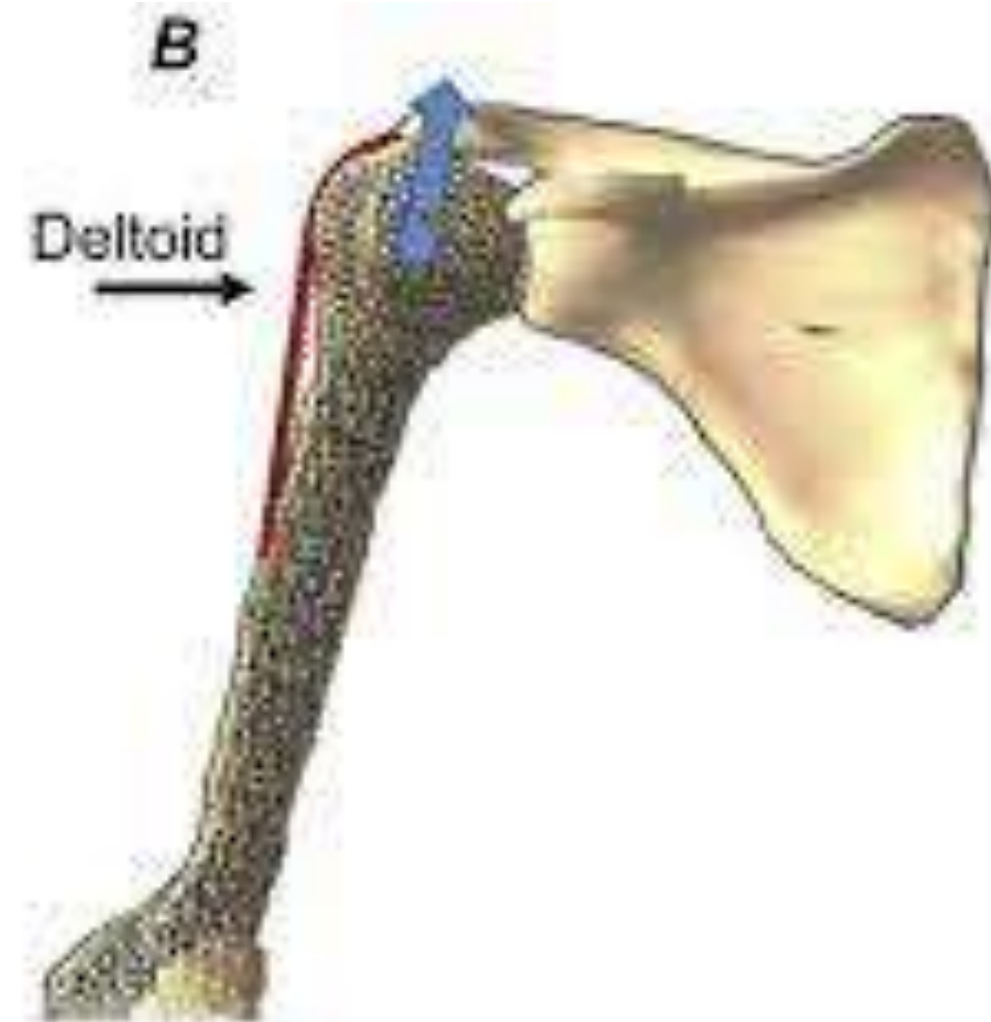
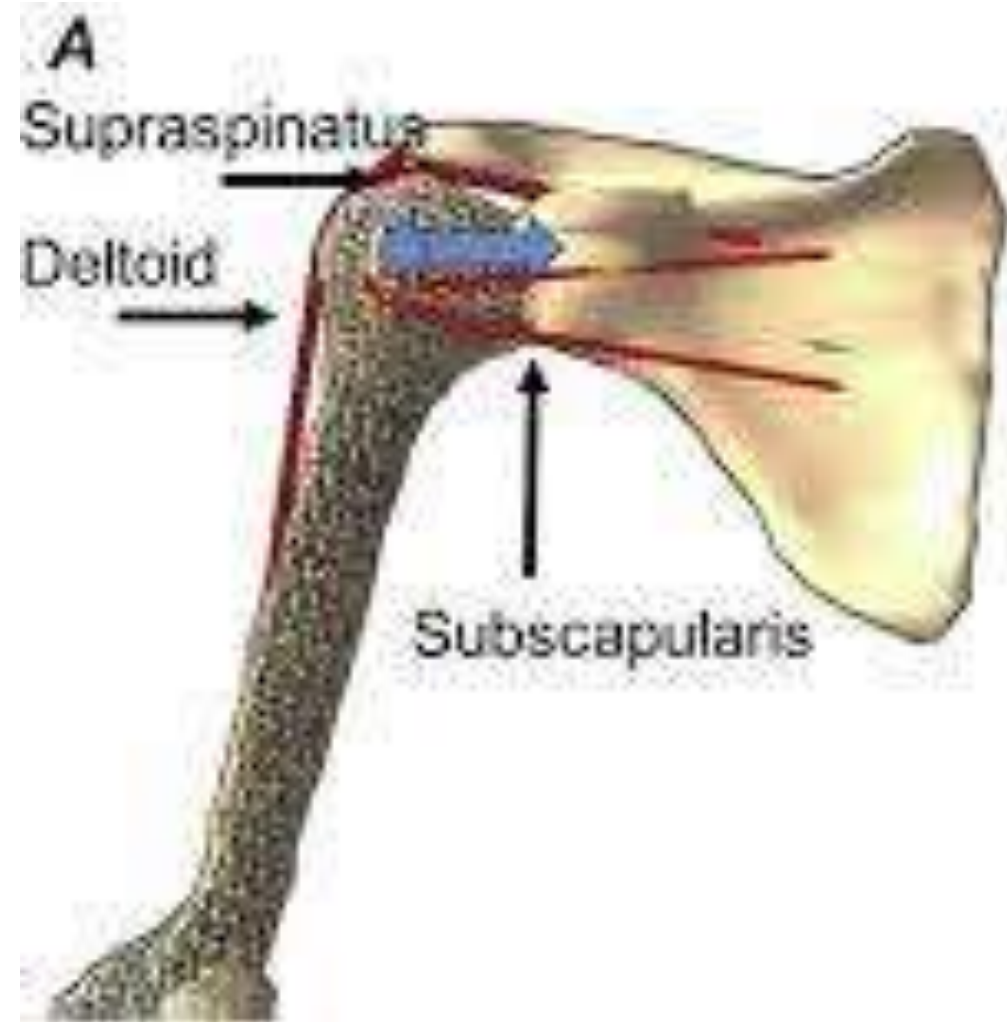
Blood Supply

Suprascapular Artery

Actions:

- Initiates the abduction of shoulder
- Responsible for first 15° of abduction of the shoulder
- Only assists the deltoid in carrying abduction thereafter, i.e., from 15° to 90

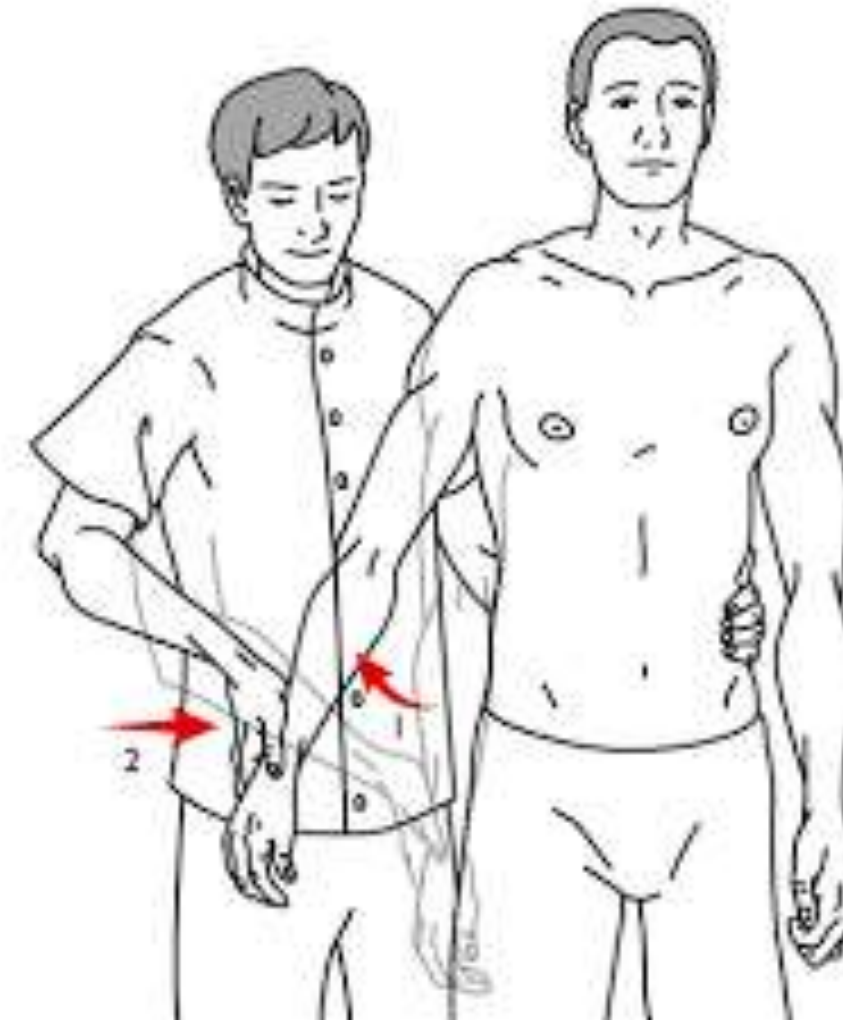






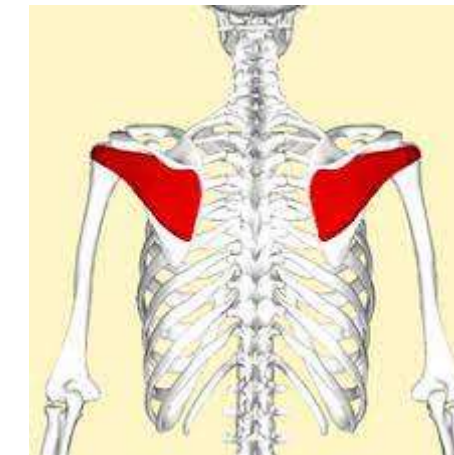
Clinical testing

Palpated deep to the trapezius and above the spine of the scapula when the arm is abducted against the resistance.





Infraspinatus



Thick triangular muscle occupies most of the infraspinous fossa.

Origin

It arises from the medial two-third of the fossa by tendinous fibres from ridges on its surface

Insertion

- Fibres converge to form a tendon
- Passes across the posterior aspect of the shoulder joint
- Inserted on to the **middle facet of the greater tubercle of the humerus.**

Nerve supply :

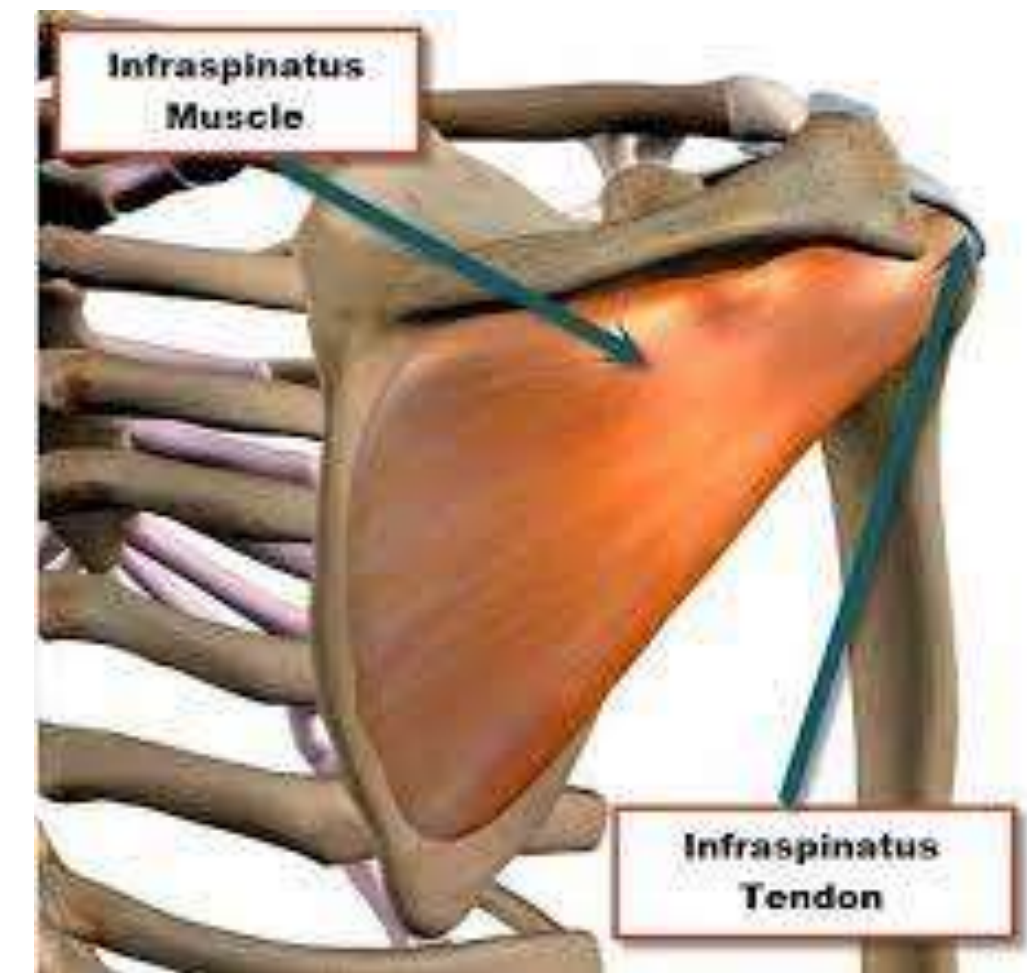
Suprascapular nerve (C5 and C6).

Blood Supply:

Suprascapular and circumflex scapular arteries

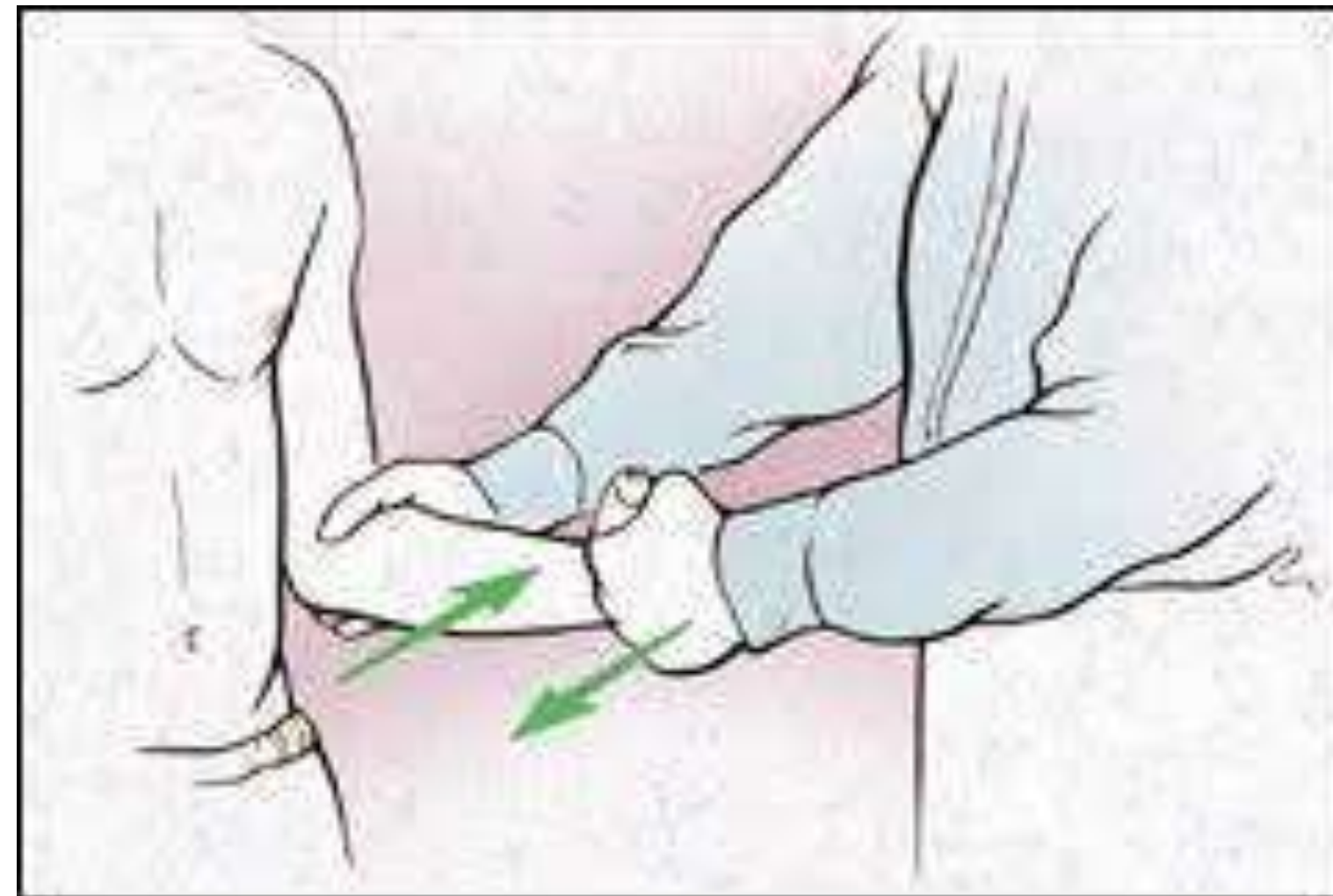
Action

Infraspinatus is the **lateral rotator of the humerus.**



Clinical testing

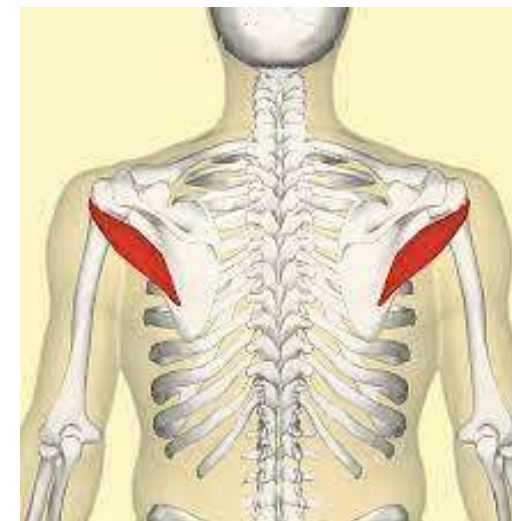
- Palpated inferior to the spine of the scapula when the arm is laterally rotated against the resistance



© 2000 Marcia Harstock



Teres Minor



Origin

This narrow elongated muscle arises from posterior aspect of the lateral border of the scapula.

Insertion

- Fibres run upwards and laterally across the shoulder joint
- Inserted on to the **lower facet of the greater tubercle of the humerus.**



Nerve supply

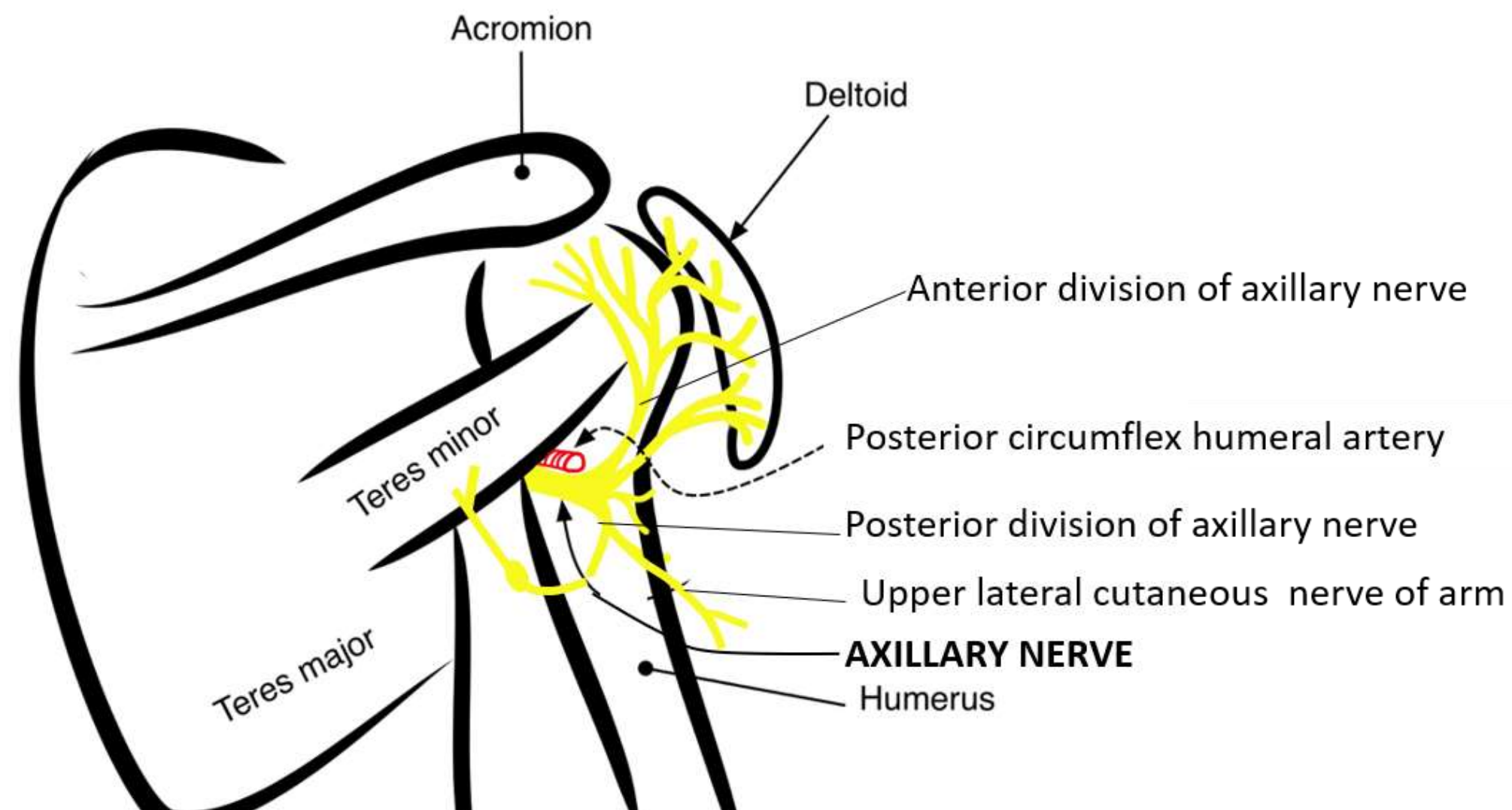
- Branch of the axillary nerve (C5 and C6).
- The nerve to teres minor possesses a pseudoganglion.

Blood supply

The circumflex scapular artery and the posterior circumflex humeral artery

Actions

- Acts as a lateral rotator and weak adductor of the humerus.





Teres Major

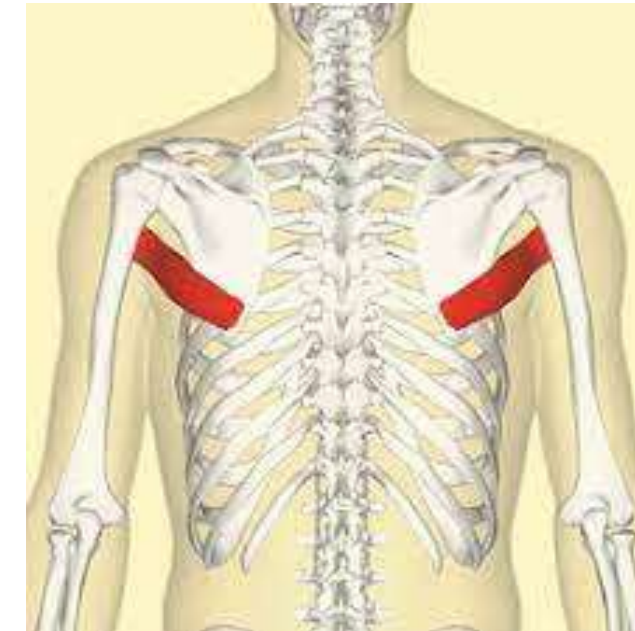
thick flat muscle

Origin

Oval area on the dorsal surface of the inferior angle and adjoining **lateral border of the scapula.**

Insertion

- Fibres run upwards and laterally
- End in a flat tendon
- Inserted on to the **medial lip of the intertubercular sulcus of the humerus.**



Nerve supply

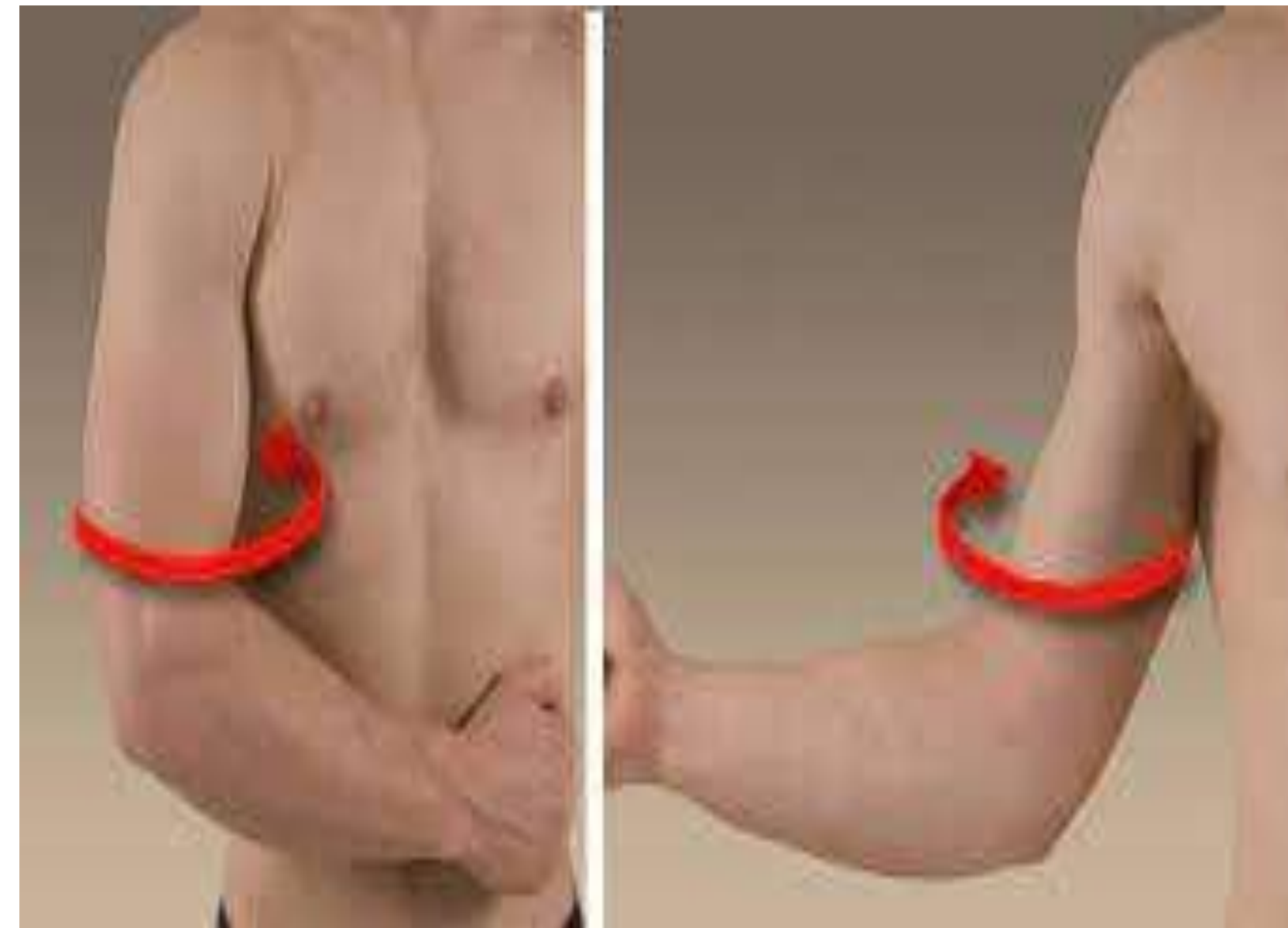
- The lower subscapular nerve (C5, C6, and C7).

Blood supply

- Circumflex scapular artery

Action

- Teres major acts as a medial rotator of the arm





Subscapularis

Bulky triangular muscle, which fills the subscapular fossa.

Origin

- (a) **Medial two-third of the costal surface of the scapula**
- (b) Tendinous intermuscular septa attached to the ridges on the bone.

Insertion

Converge laterally into a broad tendon, which passes in front of the capsule of glenohumeral joint to be **inserted on to the lesser tubercle of the humerus.**



**ANTERIOR
VIEW**



Nerve supply

The upper and lower subscapular nerves (C5, C6).

Blood supply:

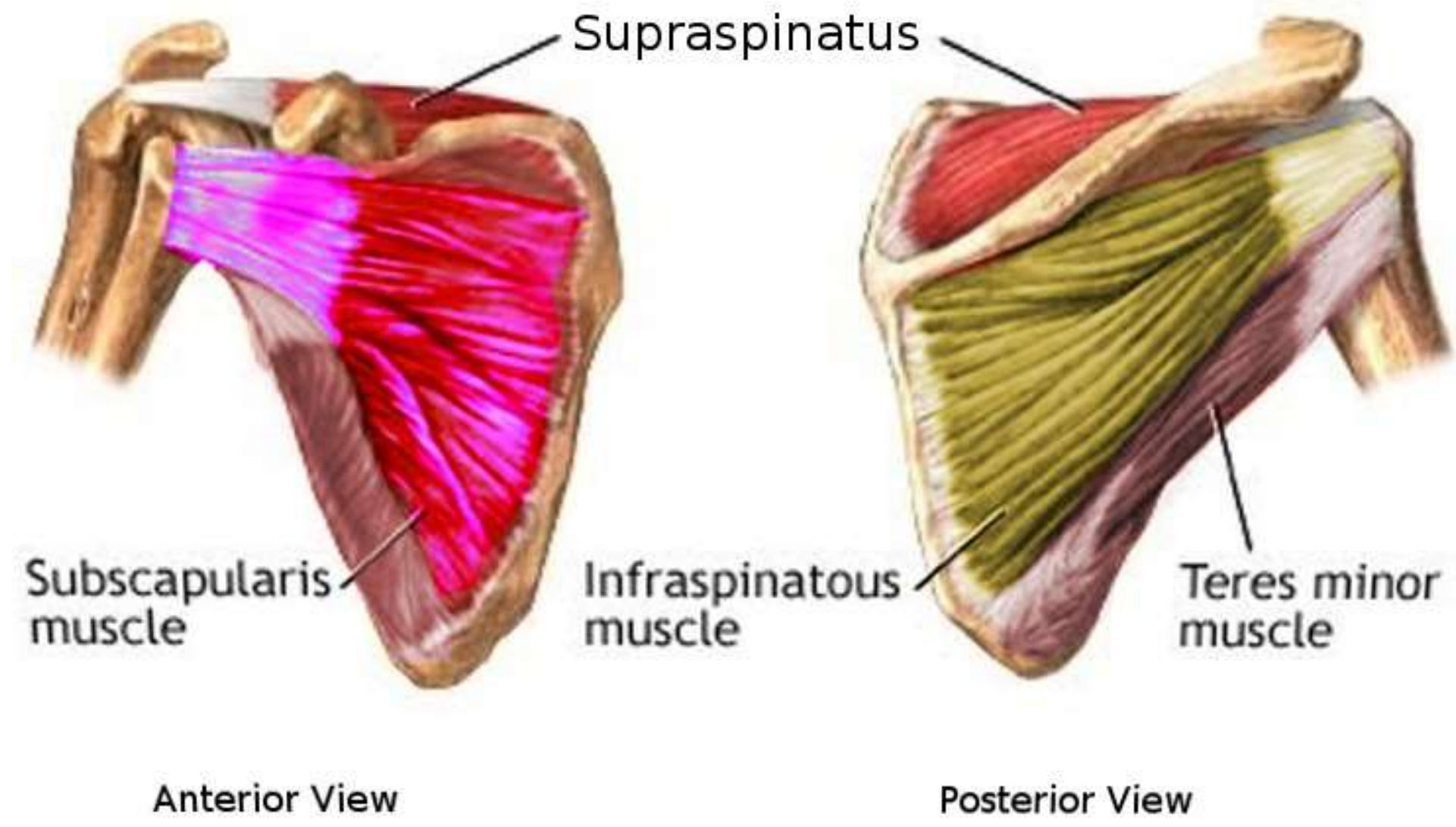
Subscapular artery

Actions

Medial rotator and **adductor** of the humerus.

Special action:

- Stabilizes the head of the humerus in glenoid fossa during shoulder movements (with supraspinatus, infraspinatus, and teres minor)

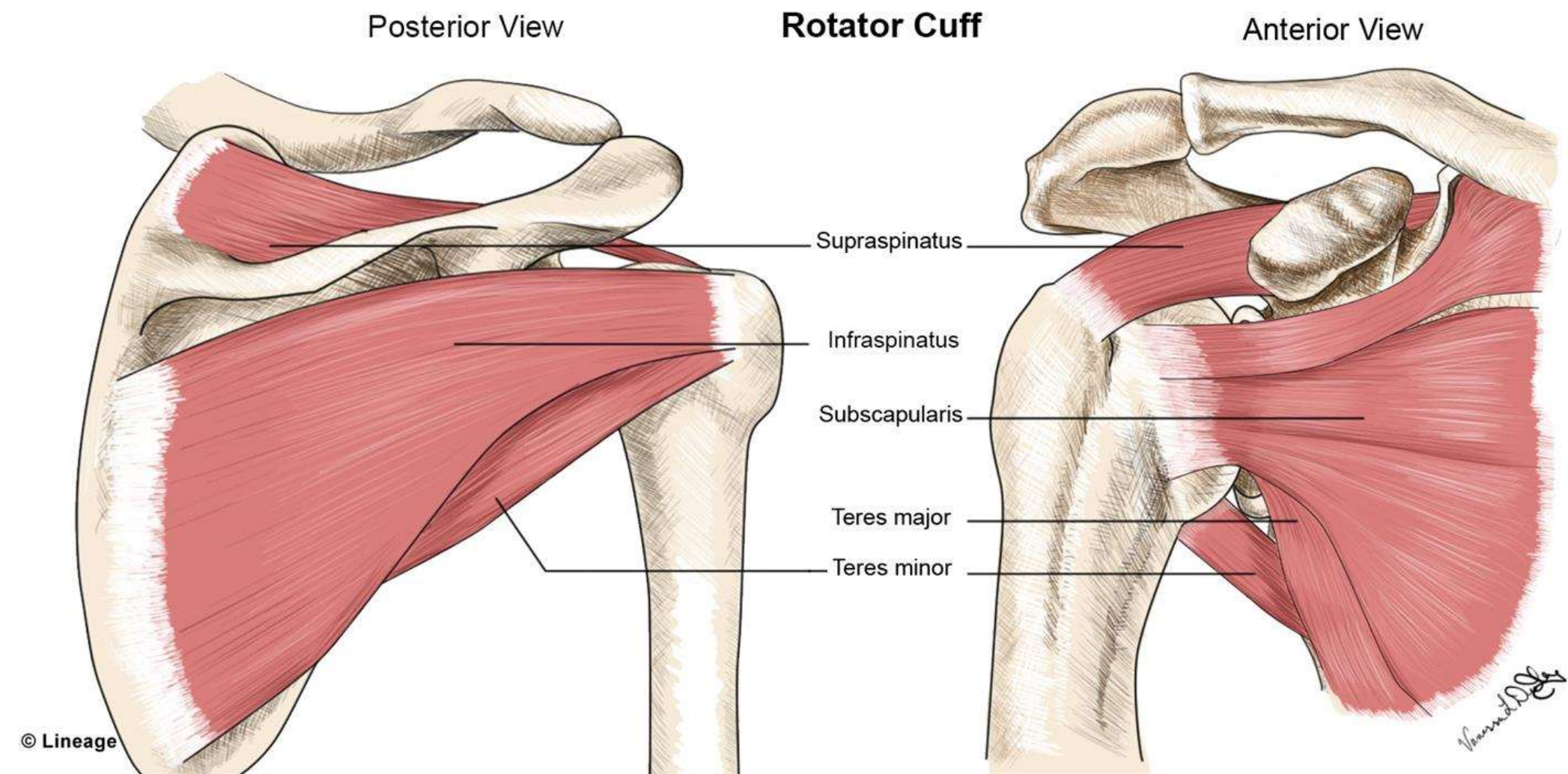


Rotator Cuff muscles

- Supraspinatus
- infraspinatus
- teres minor
- subscapularis

Referred as **SITS** muscles

They form musculotendinous/rotator cuff around the glenohumeral joint

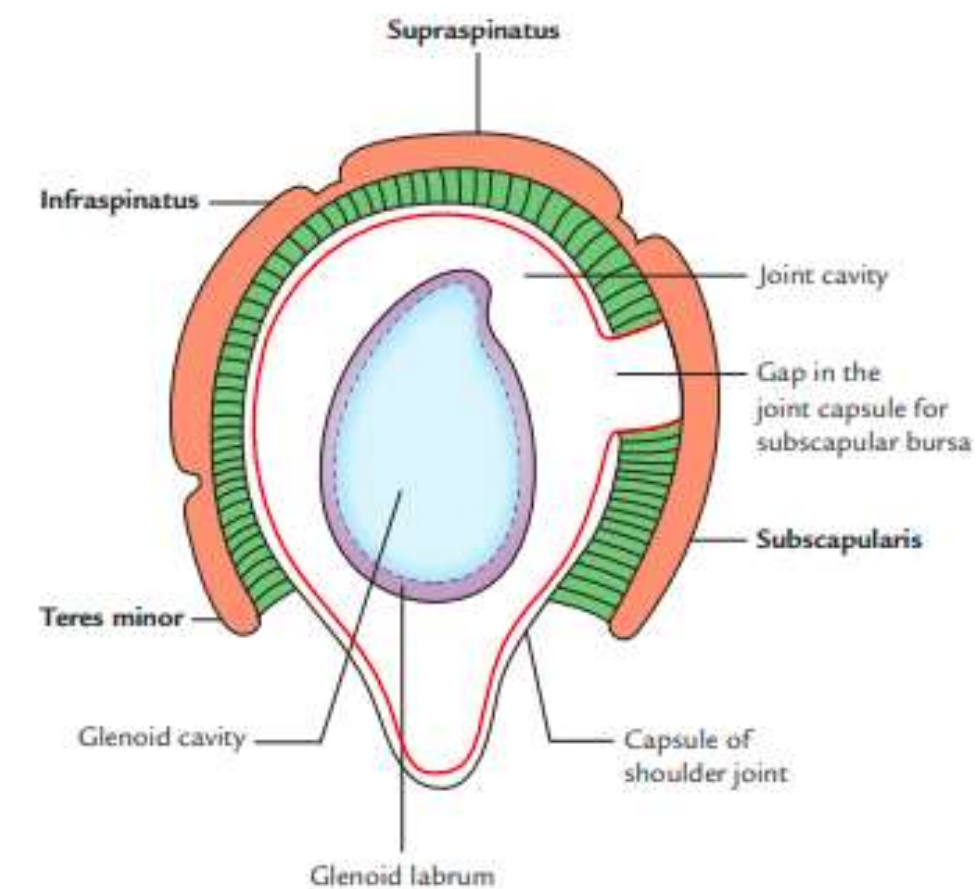


Formation:

- Tendon of supraspinatus fuse superiorly,
- tendons of infraspinatus and teres minor fuse posteriorly,
- subscapularis fuse anteriorly.

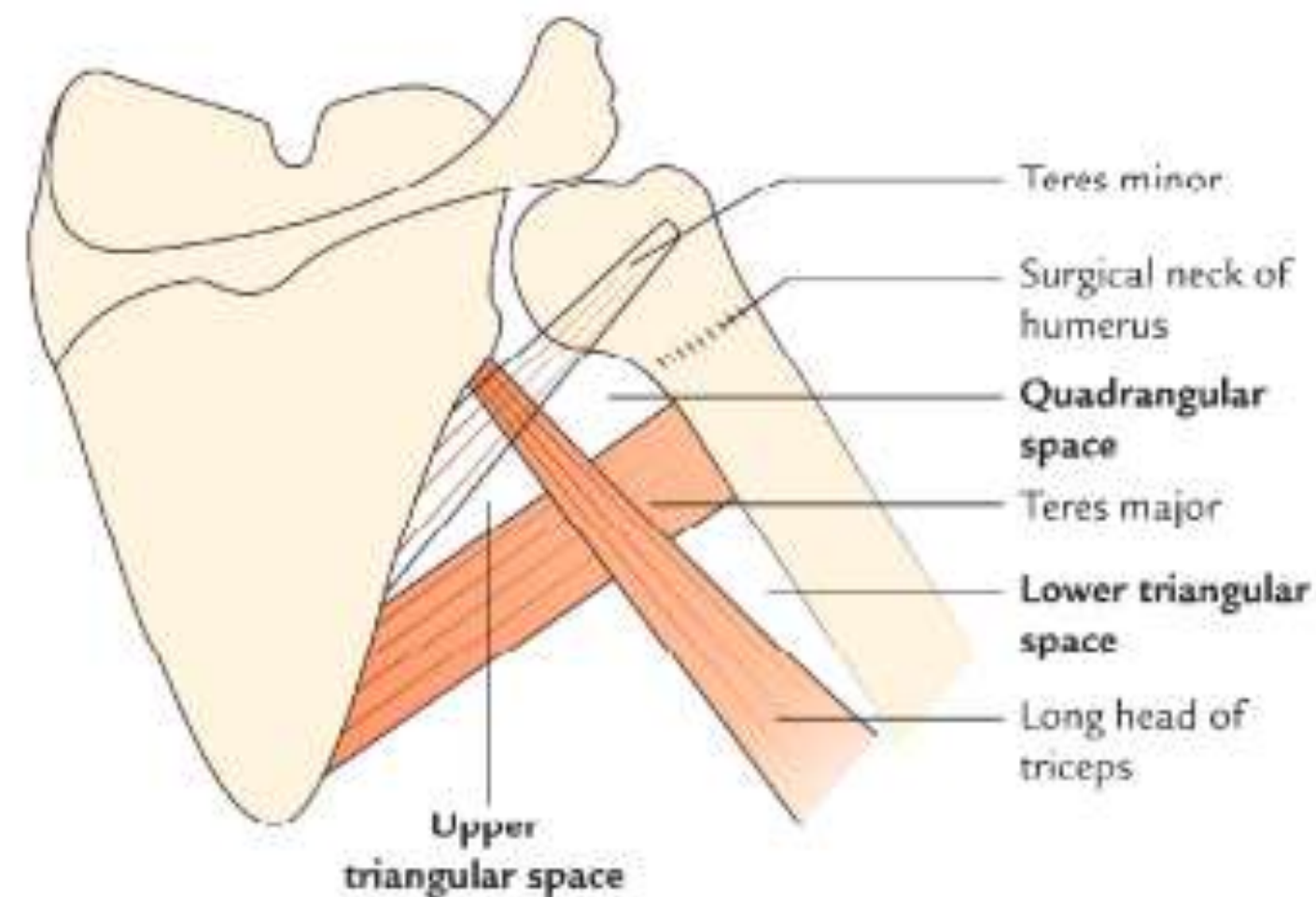
Plays an important role in **stabilizing the shoulder joint.**

Purpose: To improve the joint congruence



Subscapular Spaces

- Intermuscular spaces among the muscles
- Clearly seen from behind (after reflecting deltoid)
- They are
 - 1) Quadriangular Space
 - 2) Triangular Space





Qudriangular Space

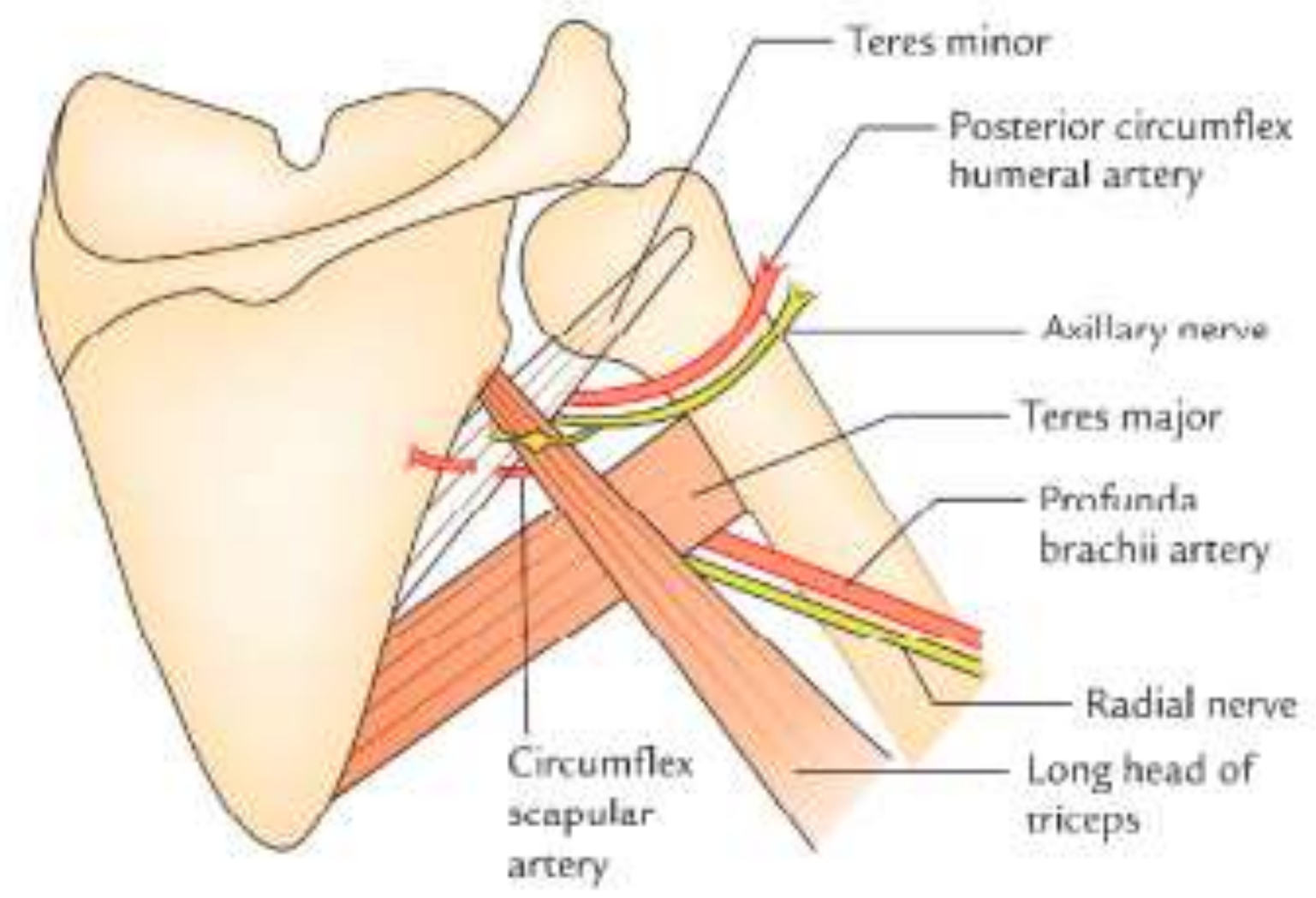


Boundaries:

- **Superior:** Teres minor
Subscapularis
Capsule of shoulder joint
- **Inferior:** Teres major
- **Medial:** Long head of triceps
- **Lateral:** Surgical neck of humerus

Structures passing through this space :

- Posteriorly circumflexing humeral **artery** and **vein**
- Axillary **nerve**
- Nerve divides into anterior and posterior branches in relation to the deltoid muscle





Triangular Space



Boundaries

- **Medial** – Long head of humerus
- **Lateral** – Shaft of humerus
- **Superior** – Teres Major

Structures passing through this space

- Radial nerve
- Profunda brachii artery and vein

Nerves and Vessels

Axillary nerve

Root value – C5, C6

Arises from the posterior cord of the brachial plexus

Course

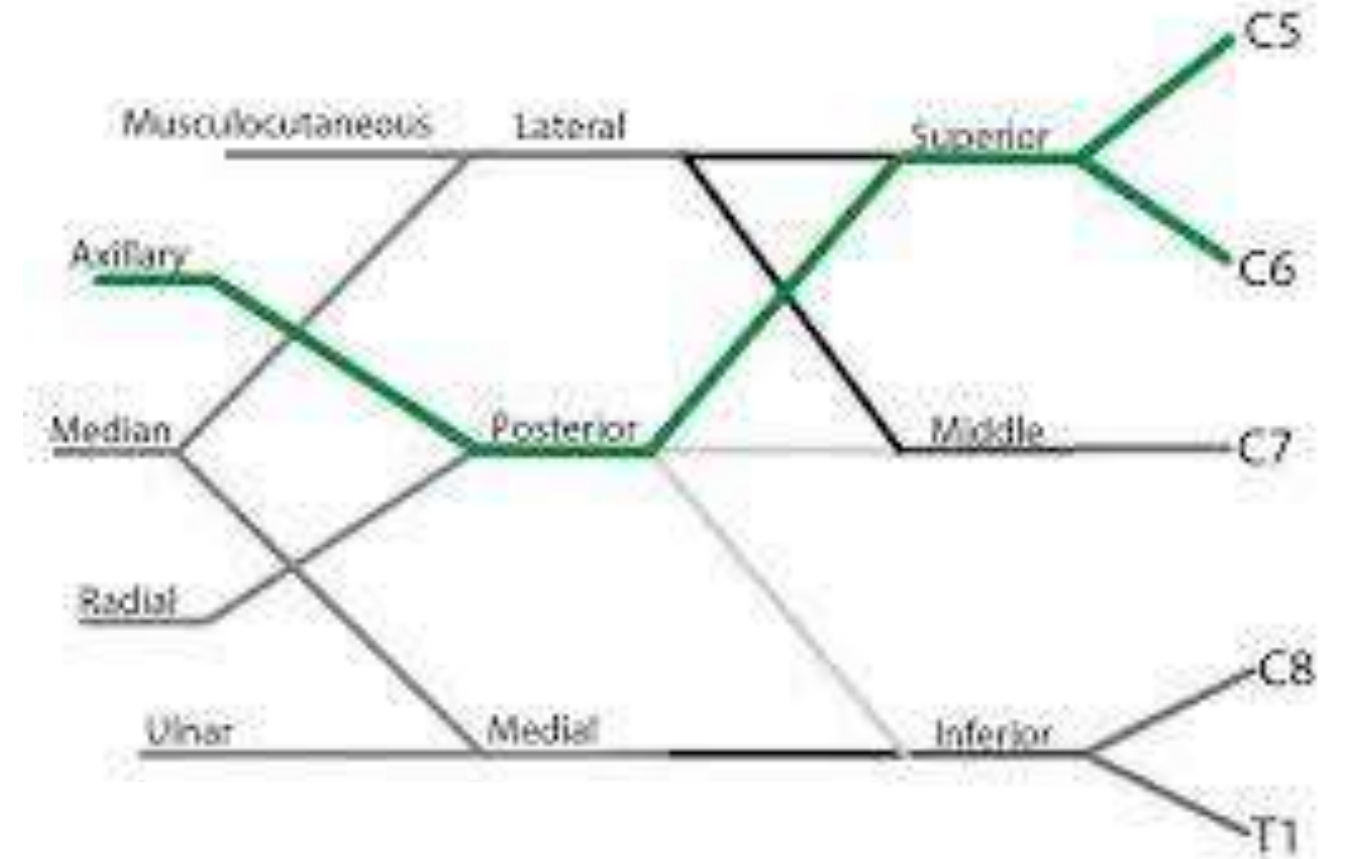
Runs downward in axilla

- Posterior to axillary artery
- Anterior to subscapularis

At lower border of subscapularis exit out axilla through the quadrangular space

Gives a branch to shoulder joint

Terminal part is branched into anterior and posterior part.





BRANCHES



- **Anterior branch .**

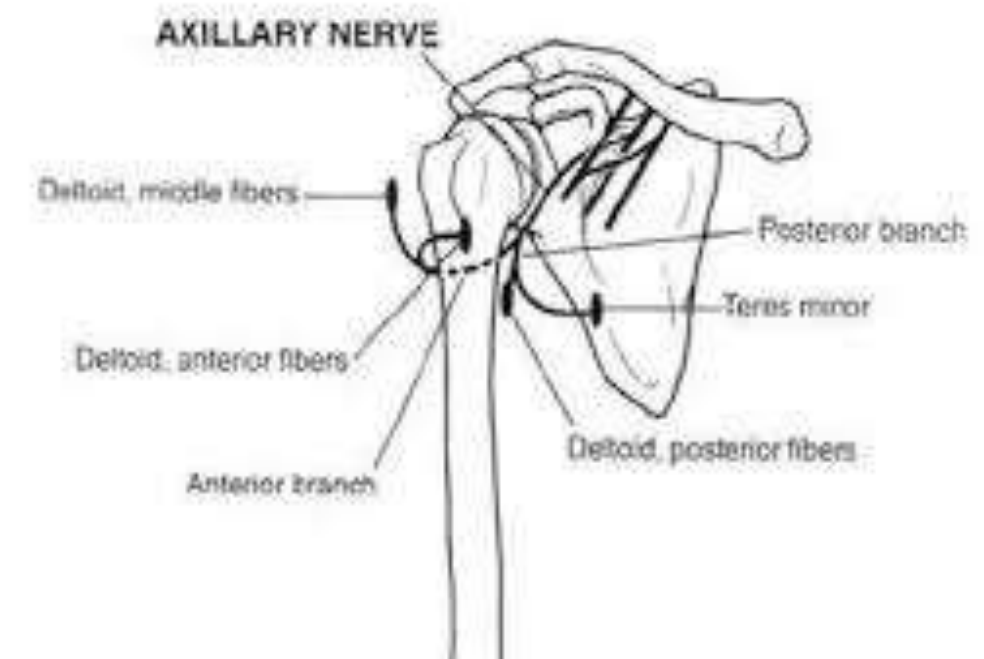
Course: Winds round the surgical neck of the humerus

Supplies: Deltoid and the skin over its anteroinferior part.

- **Posterior branch**

Supplies: Teres minor and the posterior part of the deltoid.

- Pseudoganglion, i.e. fibrous tissue and fat without any neurons.
- Pierces the deep fascia - **upper lateral cutaneous nerve of the arm.**





Applied Anatomy- Injury of the axillary nerve

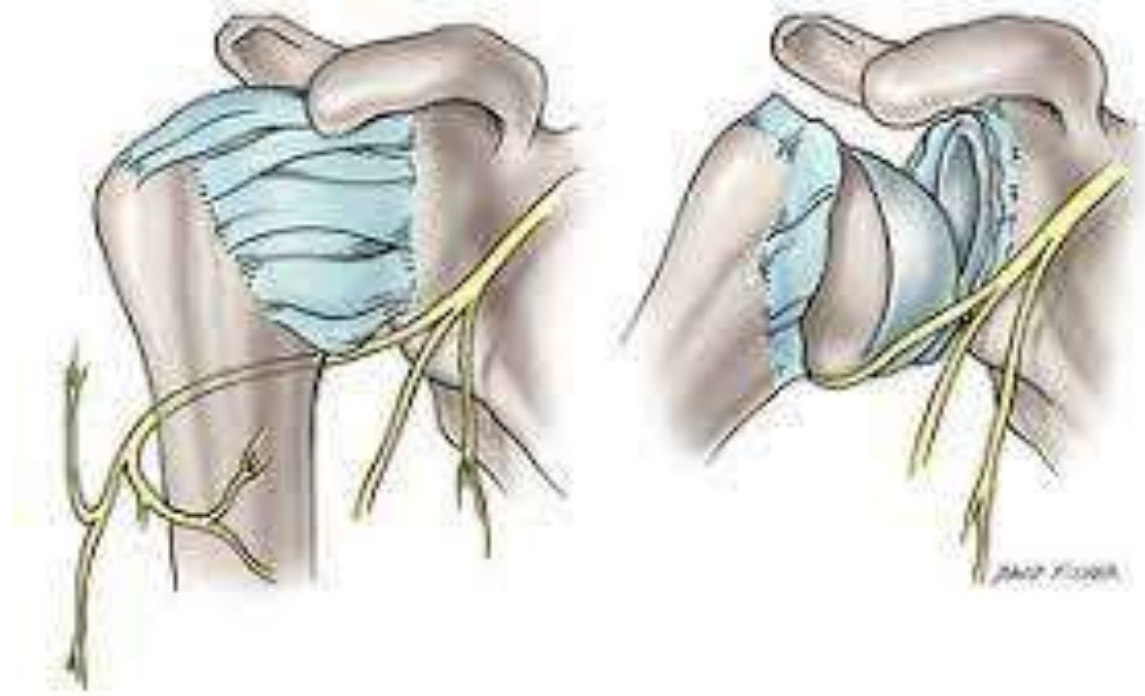


Cause :

- Inferior dislocation of the head of humerus from shoulder joint
- Fractures of the surgical neck of the humerus

Clinical features:

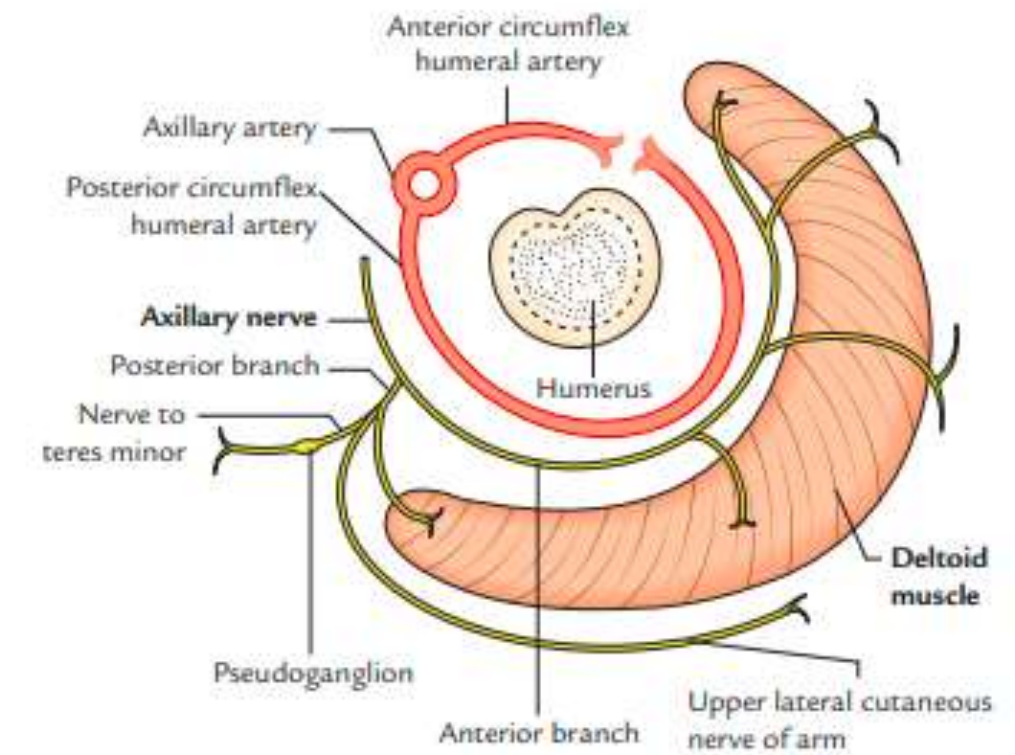
- Paralysis of the deltoid and teres minor muscles.(loss of abduction and external rotation)
- Loss of sensations over the lower half of the deltoid ('regimental badge' area of the sensory loss)
- Shoulder contour is lost. High prominence of greater tubercle of the humerus (wasting of the deltoid muscle)



CIRCUMFLEX HUMERAL ARTERIES

Arise –

- Third part of the axillary artery
- Together form a circular anastomosis around the surgical neck of the humerus.





Anastomoses around scapula



Clinically important because it ensures adequate arterial supply to scapula and provides a subsidiary route, in case of any block

Occurs in the three fossae:

subscapular, supraspinous and infraspinous.

It is formed by:

a. **The suprascapular artery**

b. **The deep branch of the transverse cervical artery**

(Note: both are branches of thyrocervical artery)

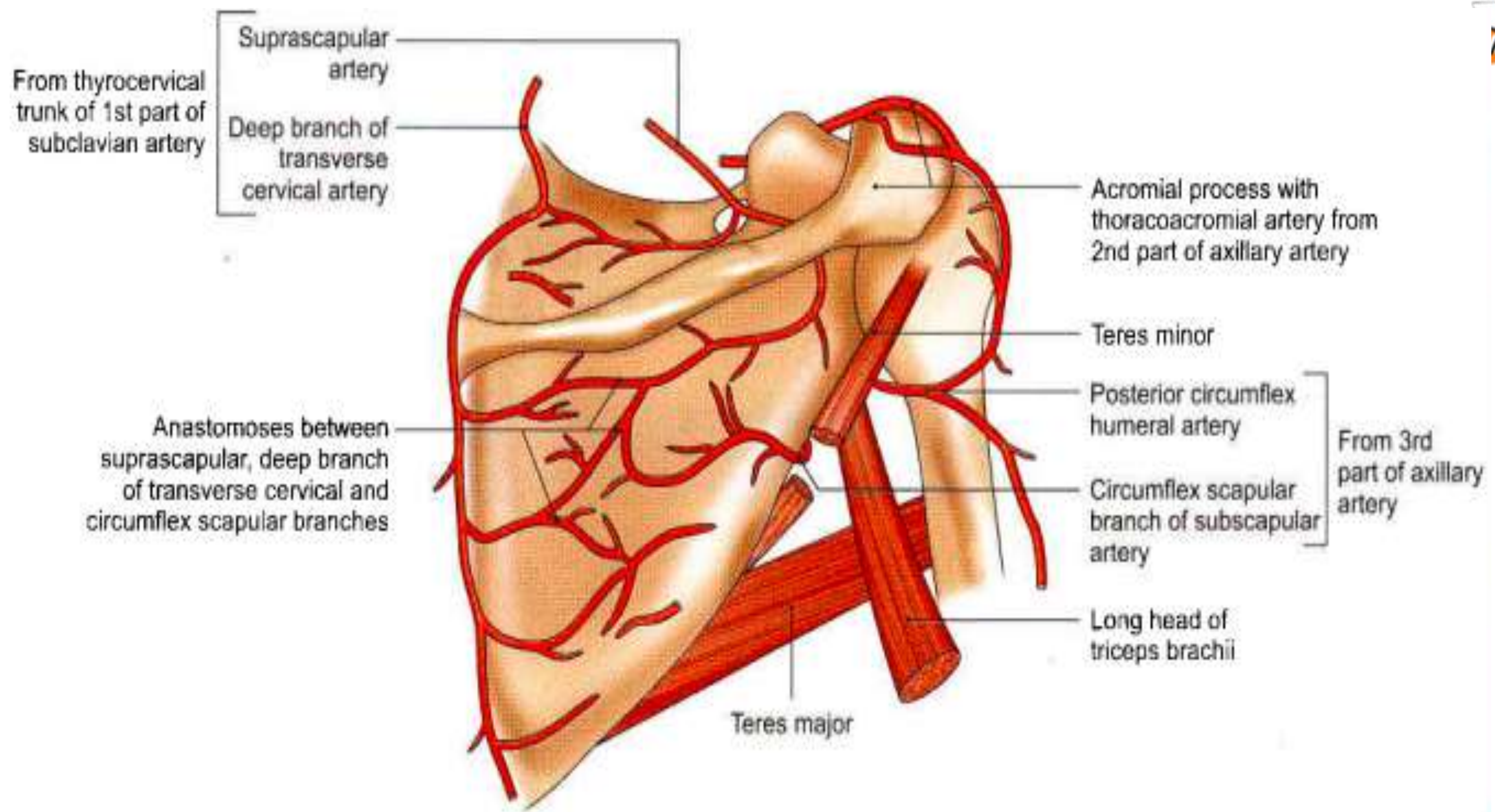
c. **The circumflex scapular artery** (a branch of the subscapular artery)



Anastomoses over the Acromion Process

It occurs between the

- (a) acromial branch of the **thoraco-acromial artery**
- (b) acromial branch of the **suprascapular artery**
- (c) acromial branch of the **posterior circumflex humeral artery**





QUESTIONS RELATED TO ABOVE SLIDES



Deltoid

mnd





QUESTIONS RELATED TO ABOVE SLIDES



Deltoid

mnd





REFERENCES & THANKING SLIDE