



General Anatomy

Lecture 9: Muscles of Upper Limb

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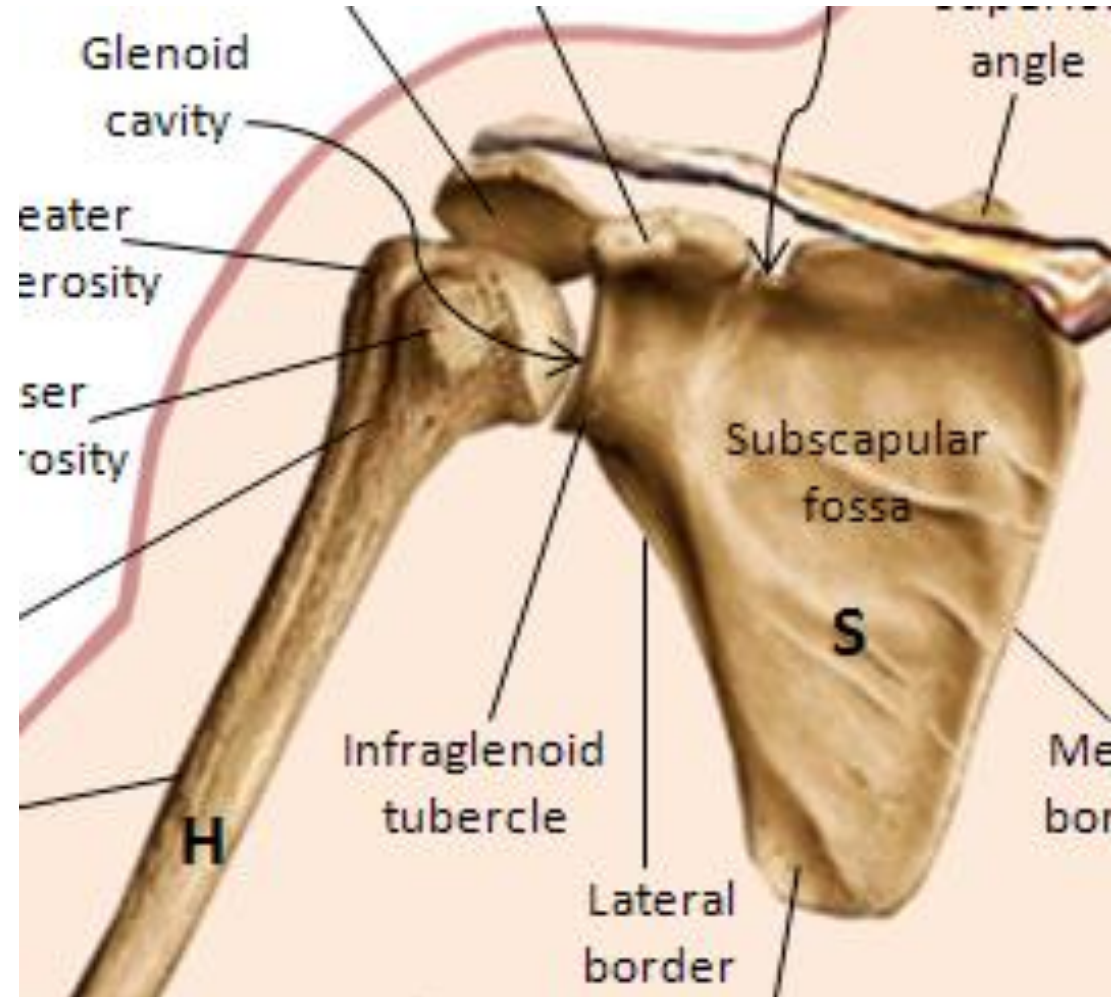
*** The upper limb has the following parts:**

- 1. Pectoral region.**
- 2. Axilla.**
- 3. Back.**
- 4. Arm.**
- 5. Forearm.**
- 6. Hand.**



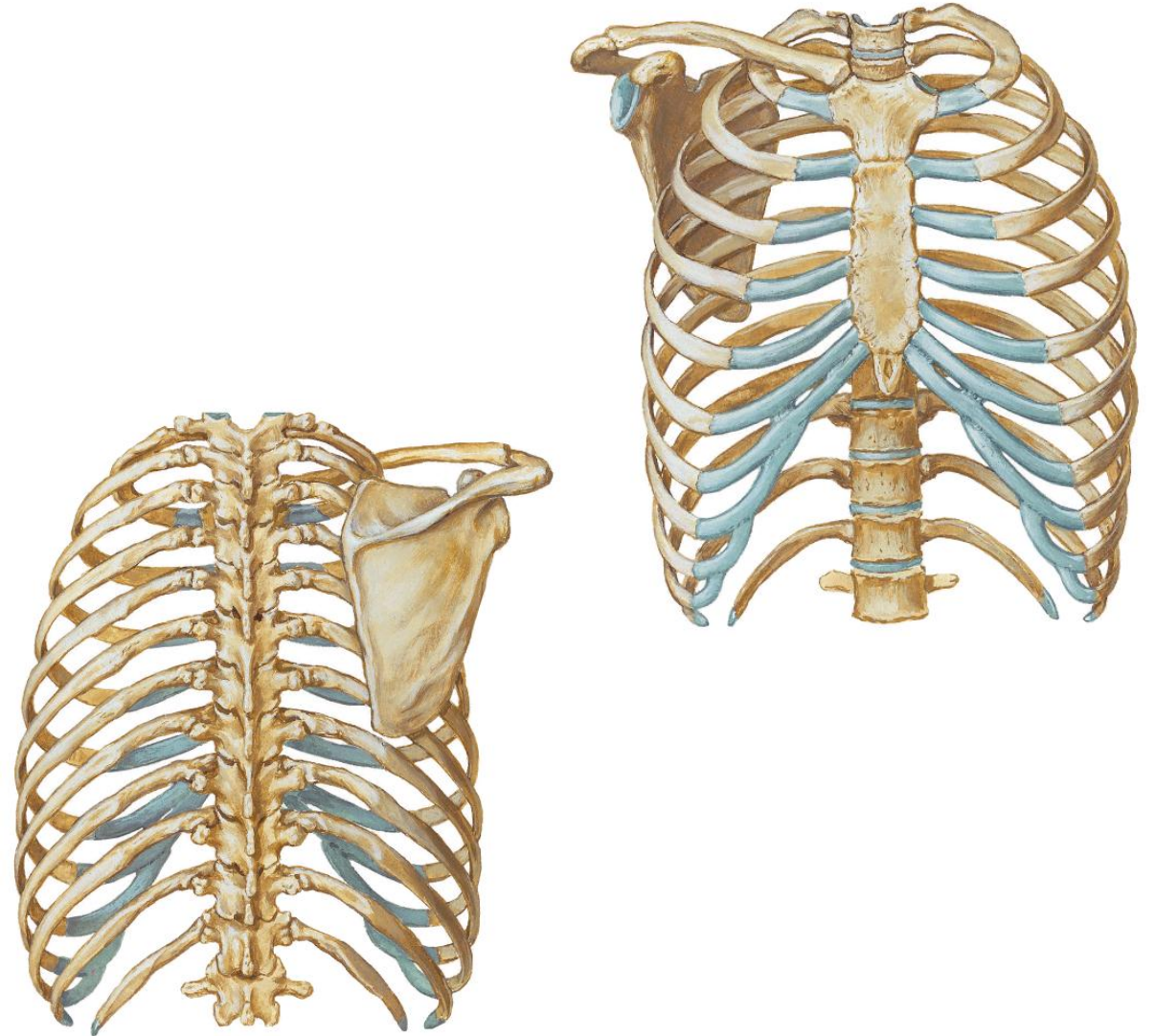
Movements of shoulder joint

1. Flexion & extension.
 2. Abduction & adduction.
 3. Medial rotation & lateral rotation.
- * These movements take place in **shoulder joint** by movements of head of humerus on glenoid cavity of scapula.
 - * Produced by muscles inserted in humerus.



Movements of shoulder girdle

1. Elevation & depression.
 2. Protraction & retraction.
 3. Rotation up (lateral rotation) & rotation down (medial rotation) of scapula.
- * These movements take place in **sternoclavicular joint**.
 - * Produced by muscles inserted in shoulder girdle (clavicle & scapula).



A. Muscles of Pectoral Region

1. Pectoralis major

* **Origin:**

It takes origin by 2 heads;

1. Clavicular head:

→ from medial 1/2 of the clavicle.

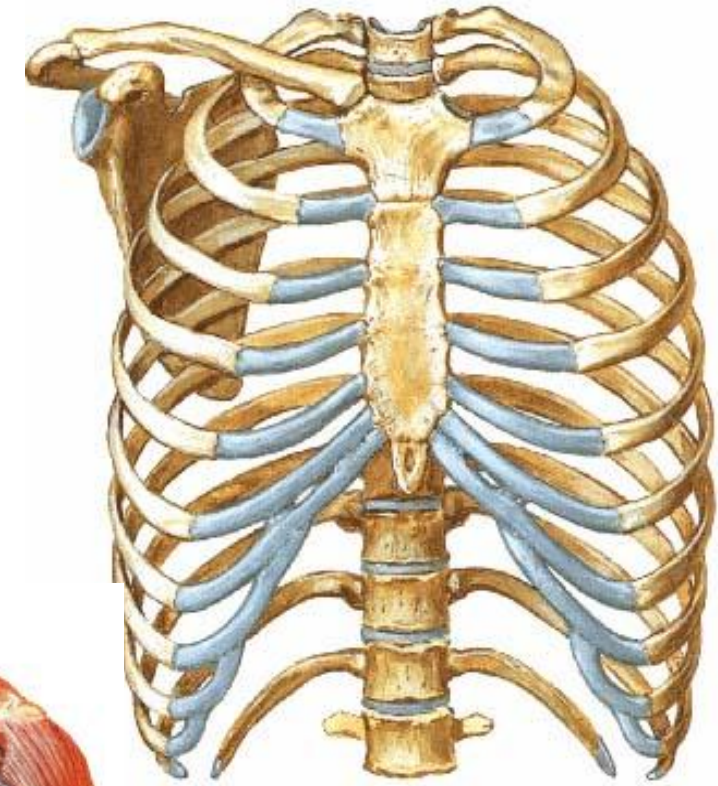
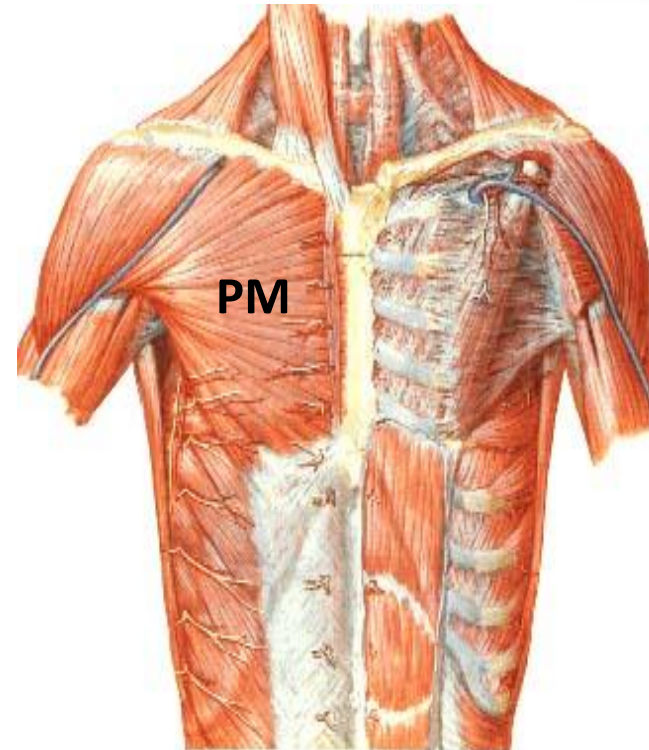
2. Sternocostal head:

→ from front of the sternum & upper 7 costal cartilages.

* **Insertion:** into bicipital groove of the humerus.

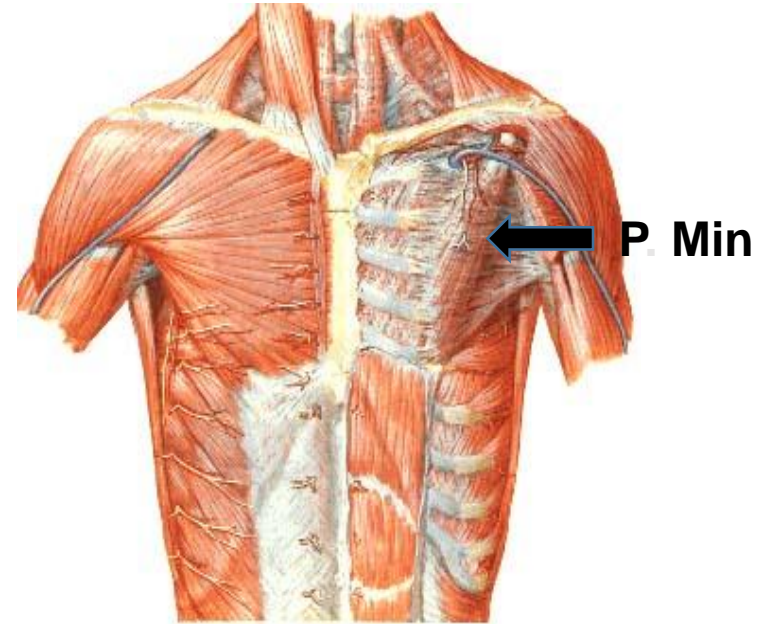
* **N. supply:** Lateral pectoral N. & Medial pectoral N.

* **Action:** Adduction & medial rotation of the arm.



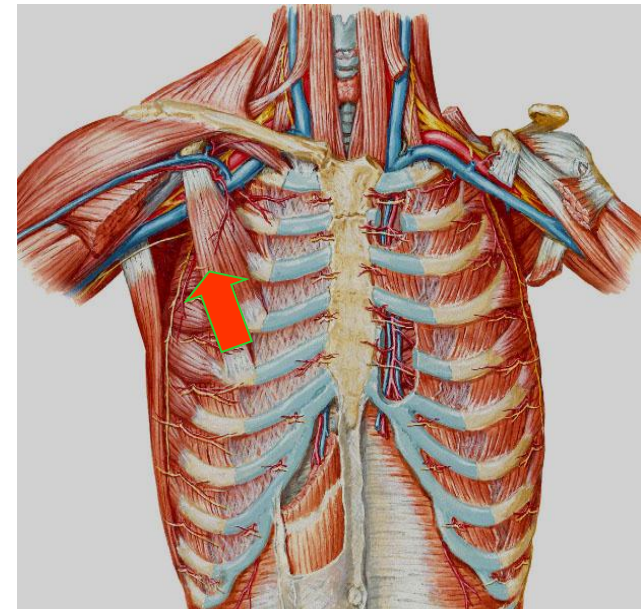
2. Pectoralis minor

- * **Lies deep to pectoralis major.**
- * **Origin:** From 3rd , 4th & 5th ribs.
- * **Insertion:** Into coracoid process of the scapula.
- * **Nerve supply:** Medial pectoral nerve.
- **Action:** Protraction & depression of the shoulder.

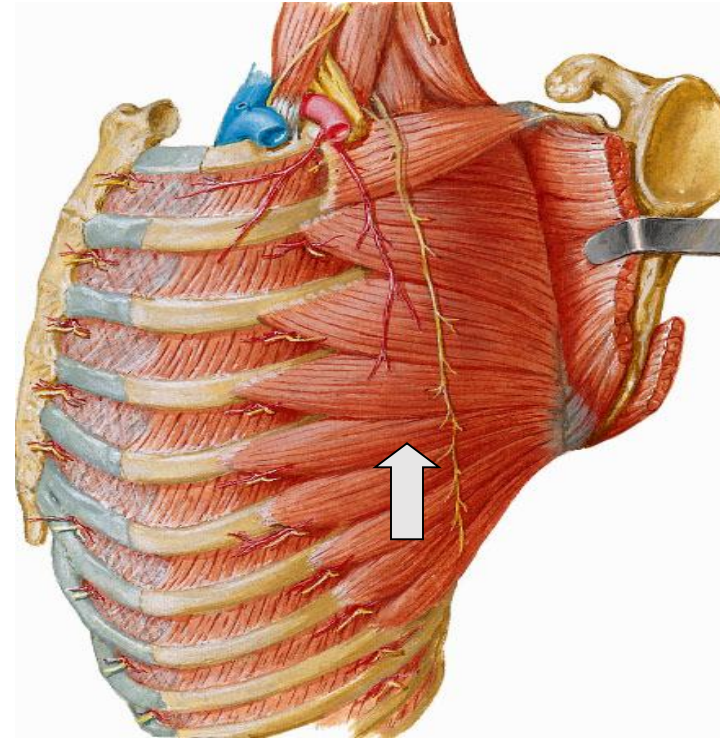
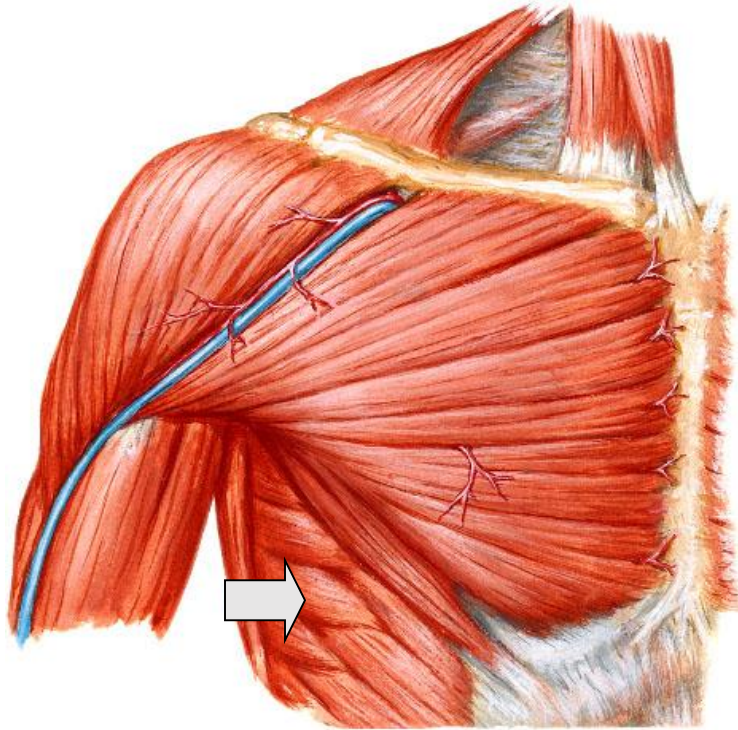


3. Subclavius

- * A small muscle that lies deep to pectoralis major & below the clavicle.



B: Serratus Anterior



- * **Origin:** By 8 fleshy slips from the upper 8 ribs.
- * **Insertion:** Into the medial border of the scapula.
- * **Nerve supply:** N. to serratus anterior.
- * **Action:** Protraction & depression of the shoulder.

C: Muscles of Back

* They are 5 muscles connecting the upper limbs to the vertebral column.

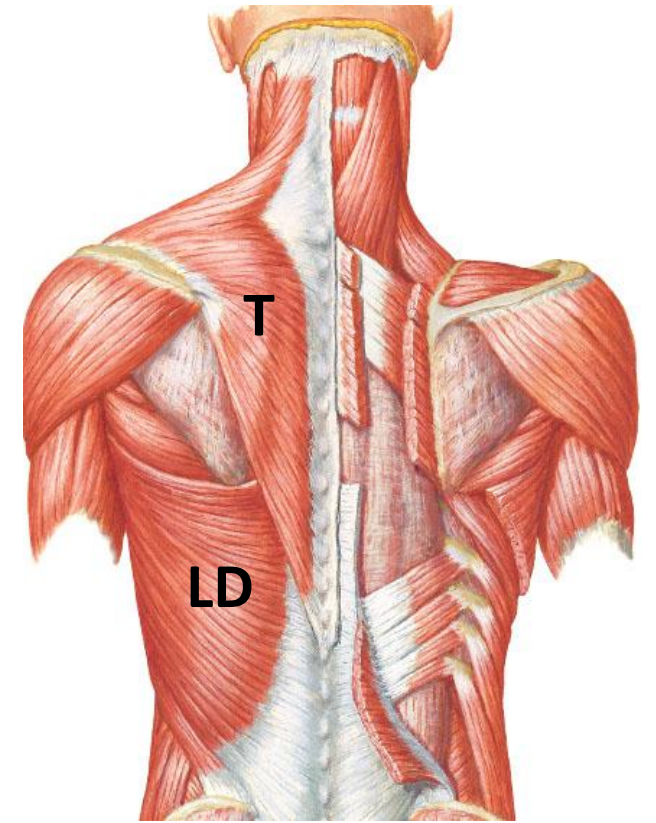
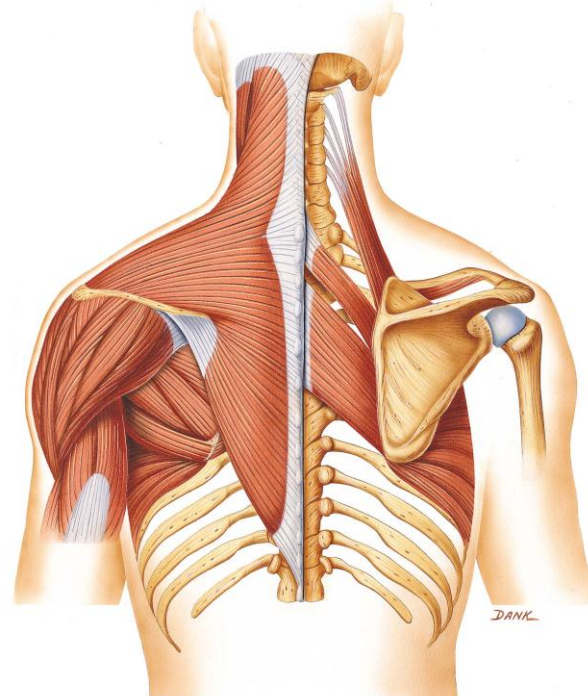
* They are arranged in 2 layers:

A. Superficial layer:

1. Trapezius.
2. Latissimus dorsi.

B. Deep layer:

1. Levator scapulae.
2. Rhomboideus minor.
3. Rhomboideus major.



1. Trapezius

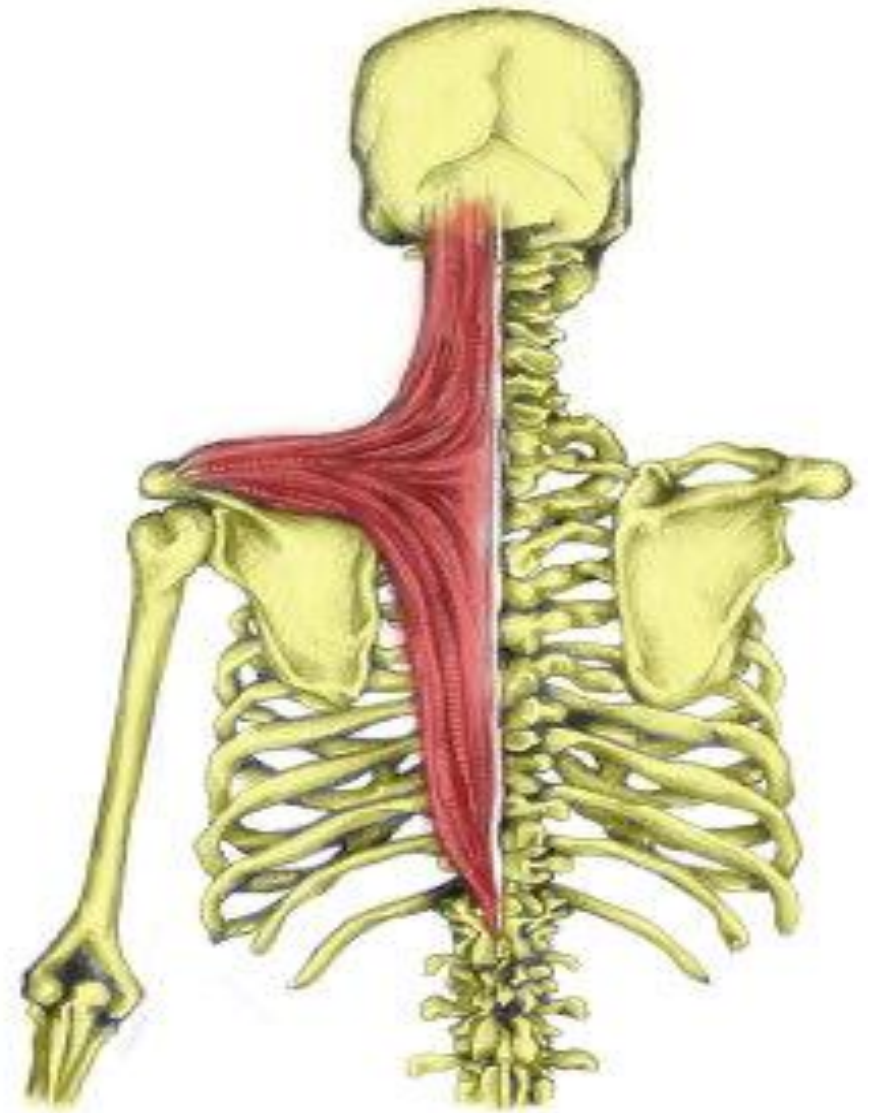
* **Origin:** from skull, cervical & thoracic vertebrae.

* **Insertion:** into clavicle & scapula.

* **Nerve supply:** spinal accessory N. (11th cranial nerve).

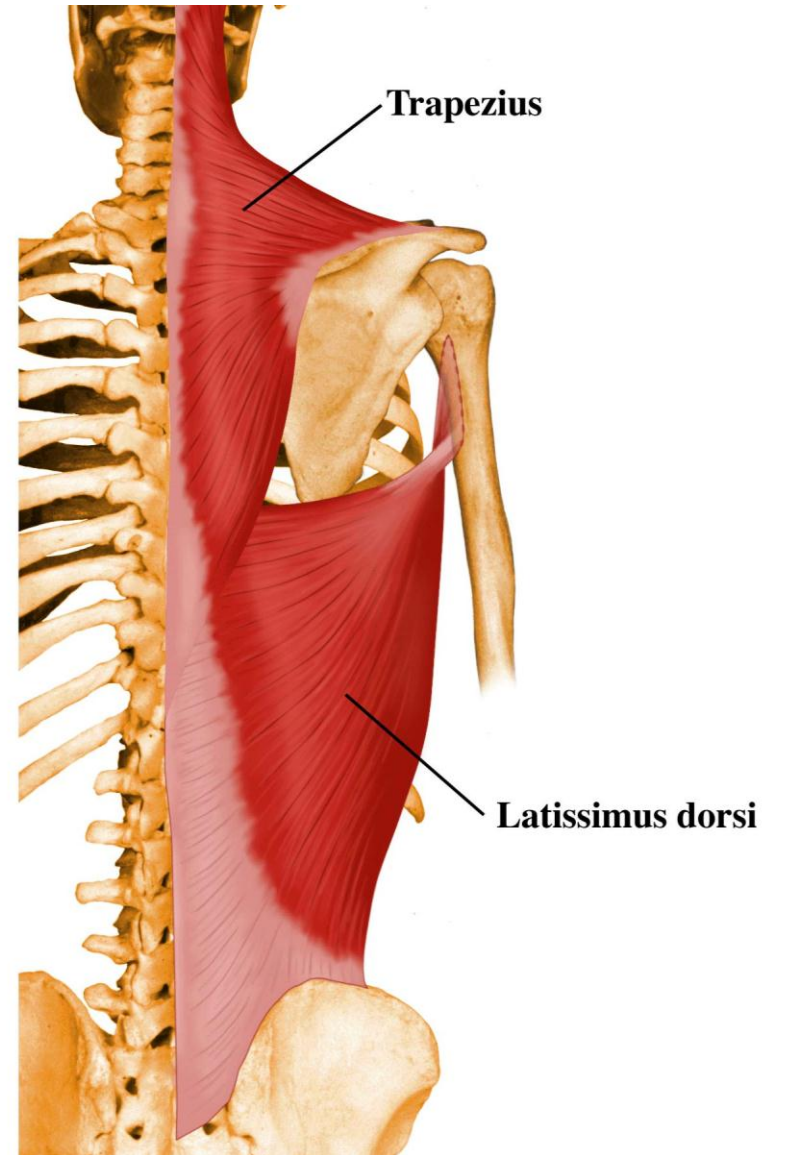
* **Action:**

1. Upper fibers → elevation of scapula.
2. Middle fibers → retraction of scapula.
3. Lower fibers → depression of scapula.



2. Latissimus Dorsi

- * **Origin:** from hip bone, thoracic vertebrae & lower 4 ribs.
- * **Insertion:** into bicipital groove of humerus.
- * **Nerve supply:** N. to latissimus dorsi.
- * **Action:** Adduction & extension of shoulder.

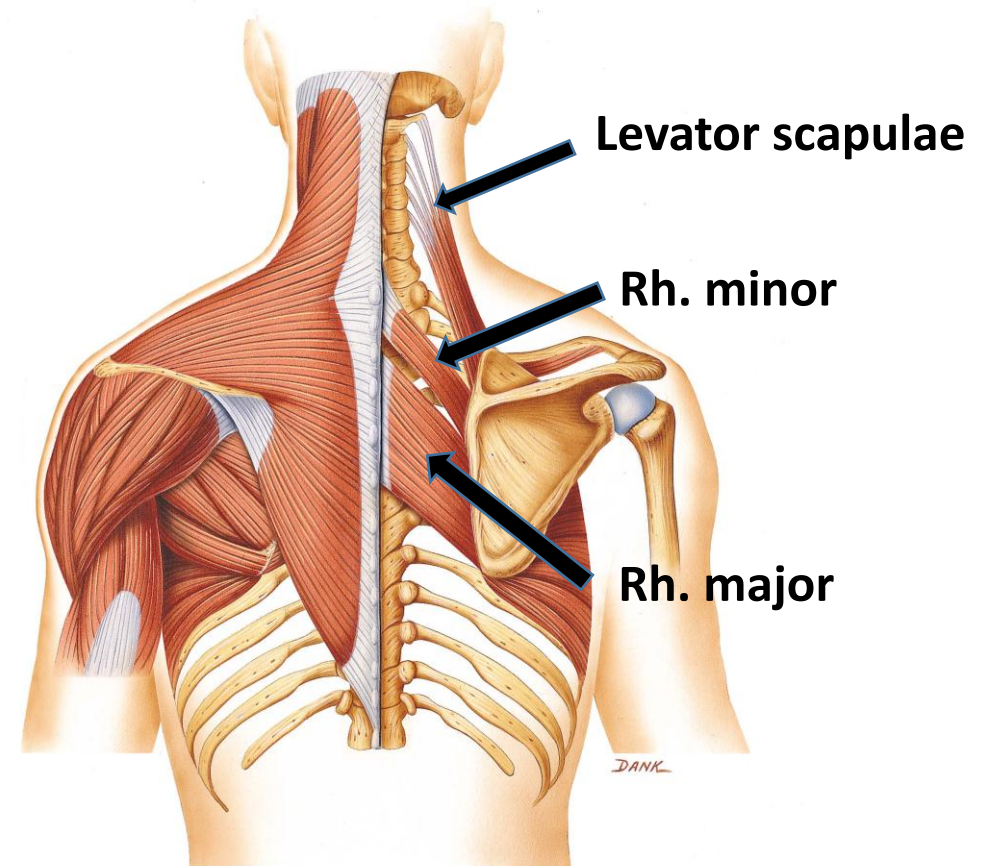


3. Levator scapulae

4. Rhomboideus minor

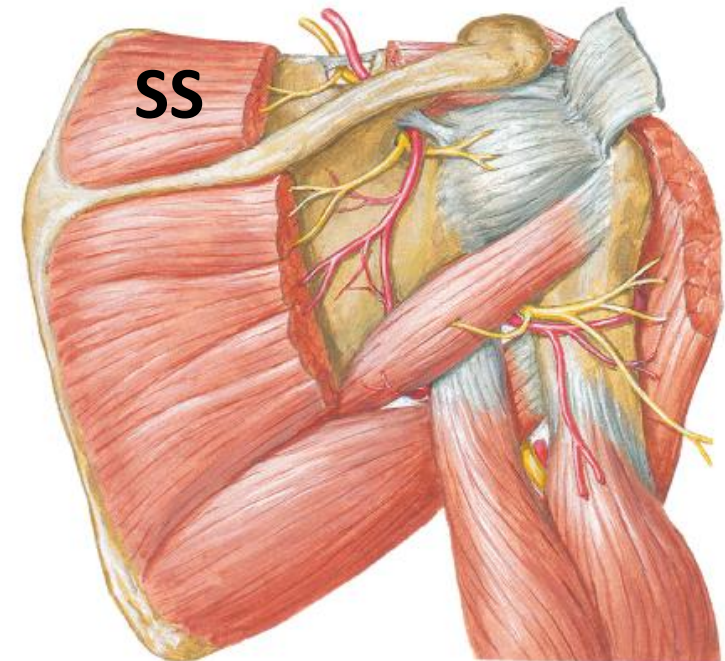
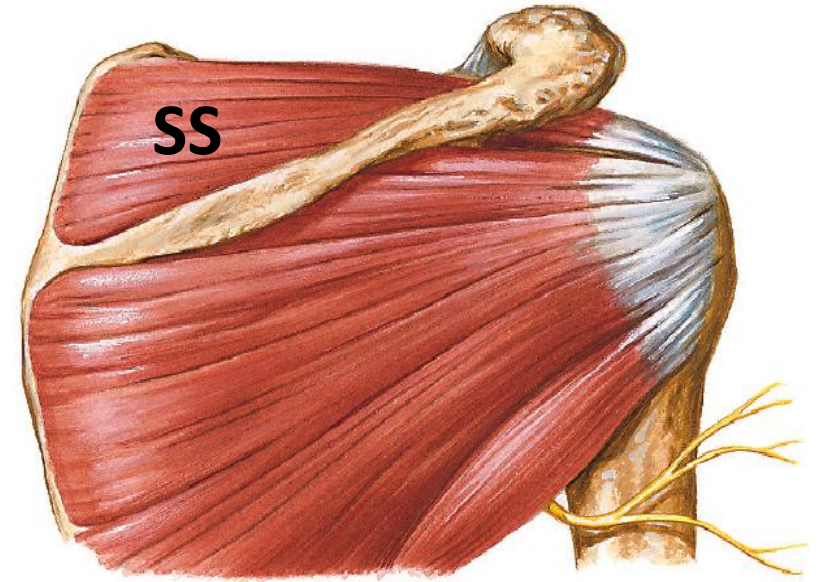
5. Rhomboideus major

- * **Origin:** from cervical & thoracic vertebrae.
- * **Insertion:** into medial border of scapula.
- * **Nerve supply:** N. to rhomboides.
- * **Action:** Retraction & rotation down of scapula.



D: Muscles of Shoulder

- * They are 6 muscles connecting the scapula to the upper part of the humerus.
- * **Origin:** Mostly from the scapula.
- * **Insertion:** in the humerus.
- * **Nerve supply:** by nerves from C5&6.
- * **Action:** on the shoulder joint.
- * **They include:**
 1. **Supraspinatus (SS)** → in supraspinous fossa.



Muscles of Shoulder

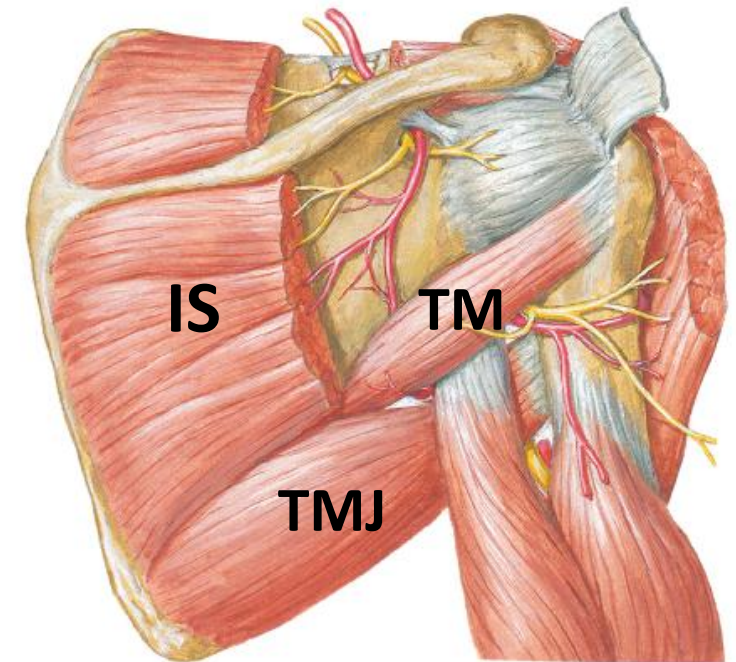
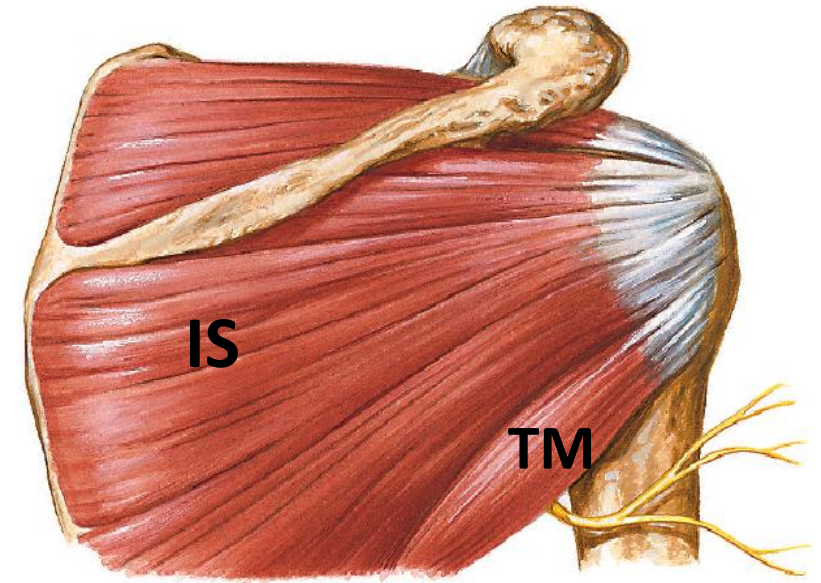
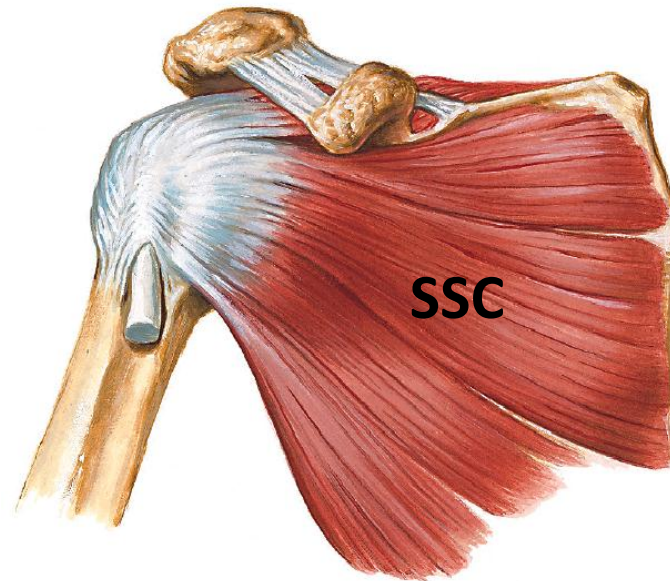
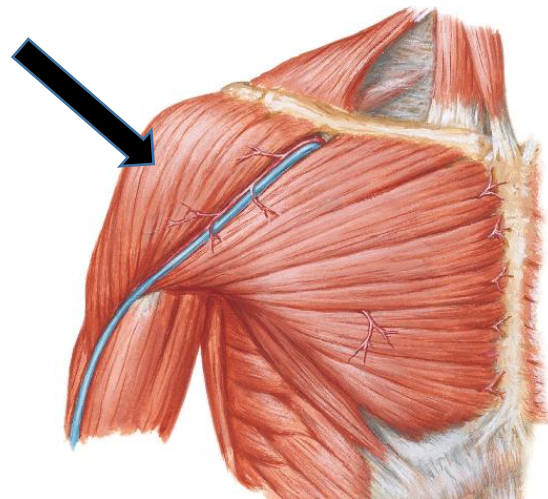
2. **Infraspinatus (IS)** → in infraspinous fossa.

3. **Teres minor (TM)**.

4. **Teres major (TMJ)**.

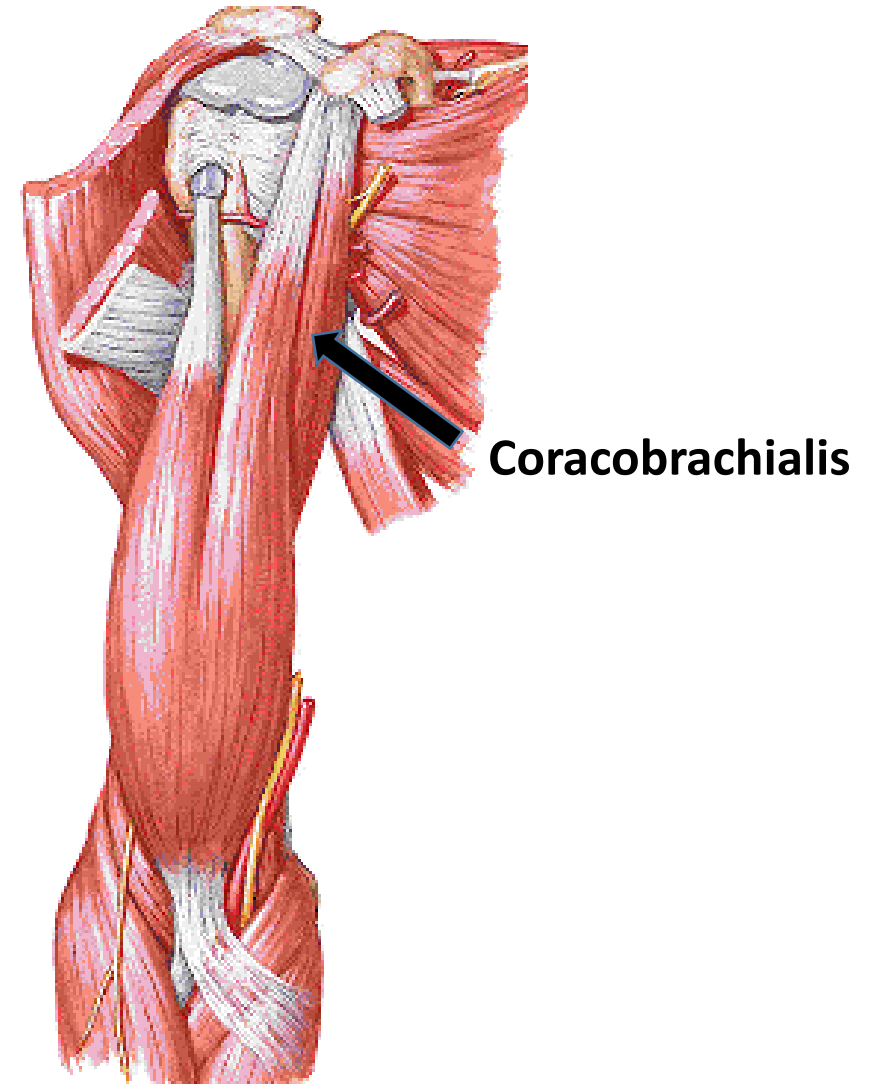
5. **Subscapularis (SSC)** → in subscapular fossa.

6. **Deltoid**.



E: Muscles of Front of Arm

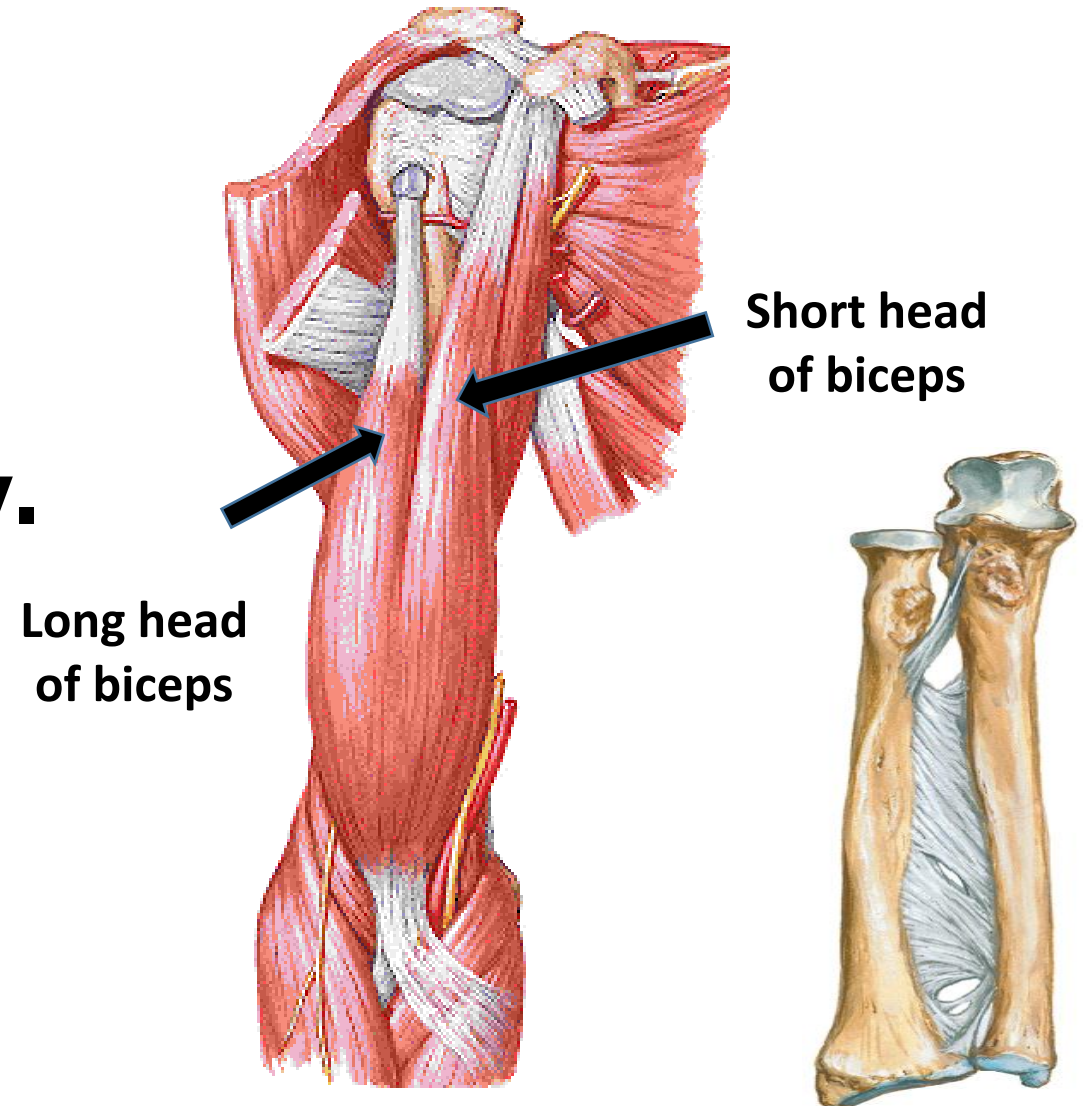
- * They are 3 muscles.
- * All are supplied by musculocutaneous nerve.
- * They include:
 - 1. Coracobrachialis:**
 - * In upper half of arm.
 - * Action: Flexion & adduction of shoulder.



Muscles of Front of Arm (contd.)

2. Biceps brachii:

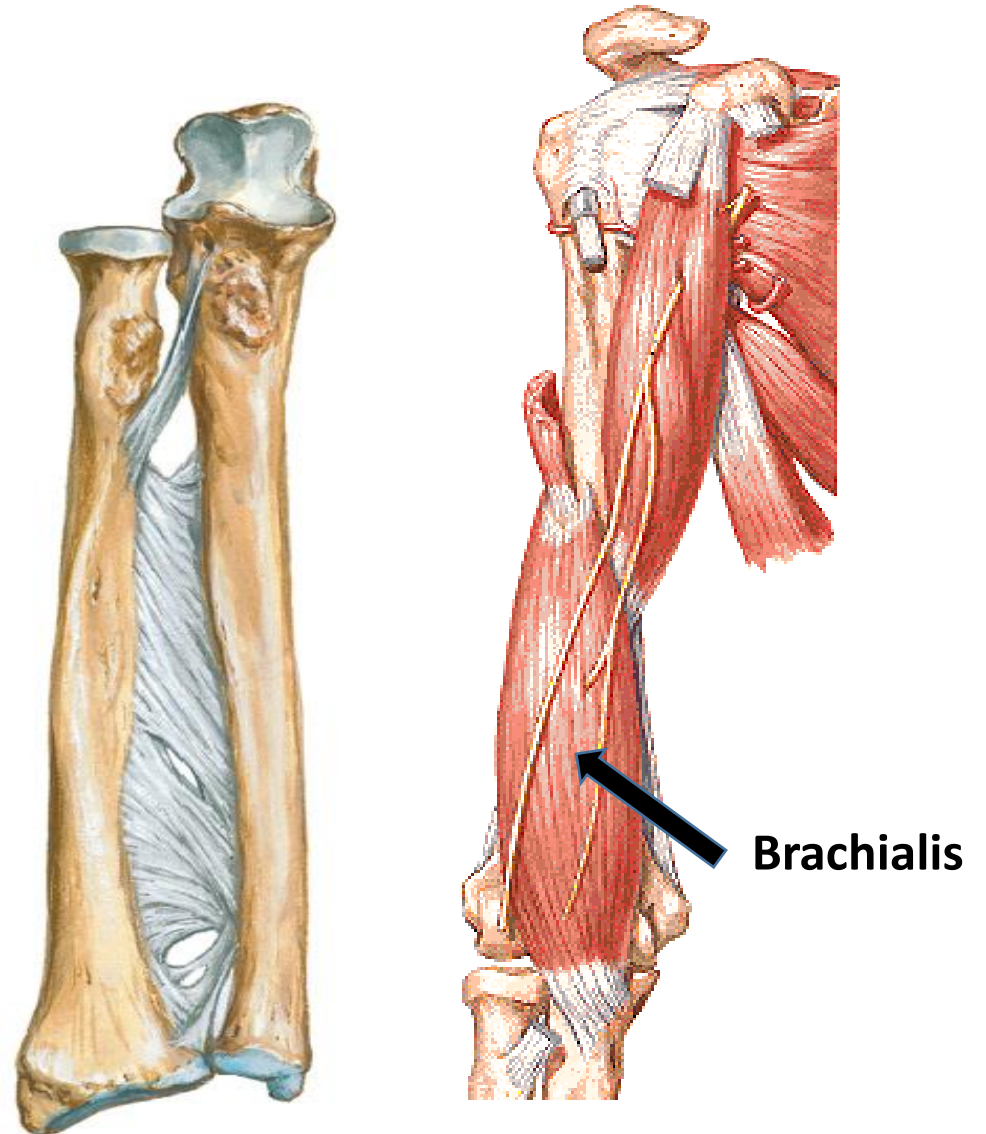
- * Has 2 heads; a short head & a long head.
- * Inserted in: radial tuberosity.
- * Action:
 1. Flexion of elbow.
 2. Supination of forearm.



Muscles of Front of Arm (contd.)

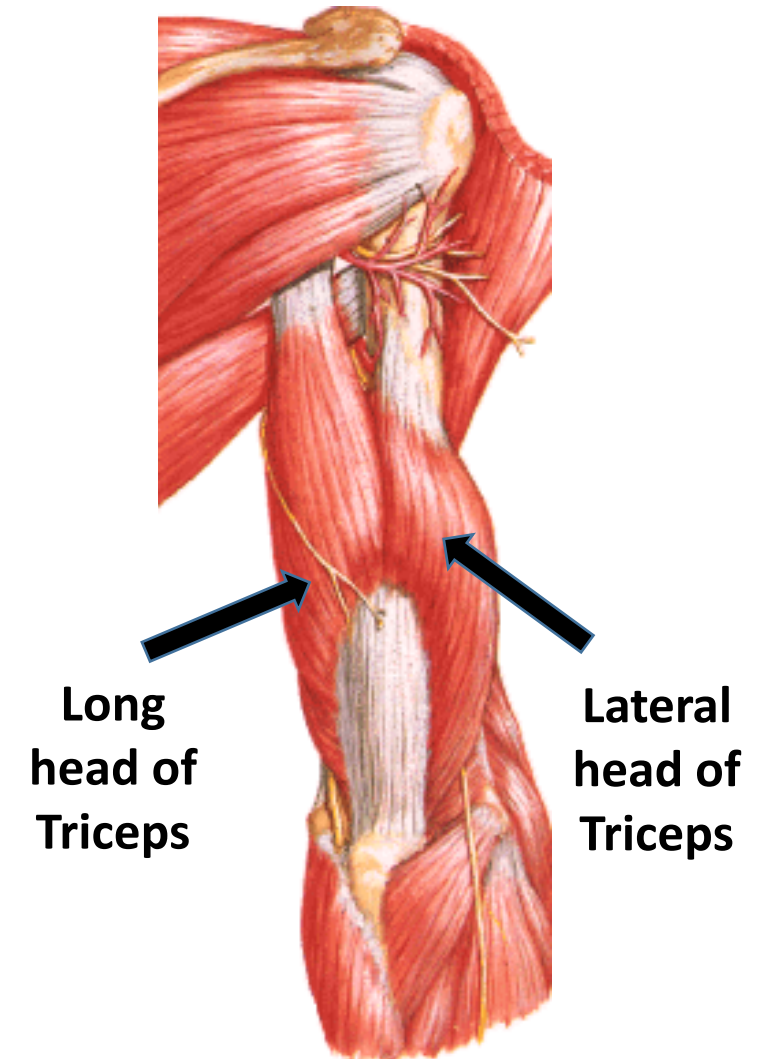
3. Brachialis:

- * Lies in lower half of arm.
- * Inserted in: ulnar tuberosity & coronoid process.
- * Action: Main flexor of elbow.



F: Muscles of Back of Arm

- * The back of arm contains one muscle which is the **Triceps brachii**.
- * It has 3 heads; long, medial & lateral heads.
- * The medial head lies deep to the other 2 heads.
- * Nerve supply: Radial nerve.
- * Action: Main extensor of elbow.



G: Muscles of Front of Forearm

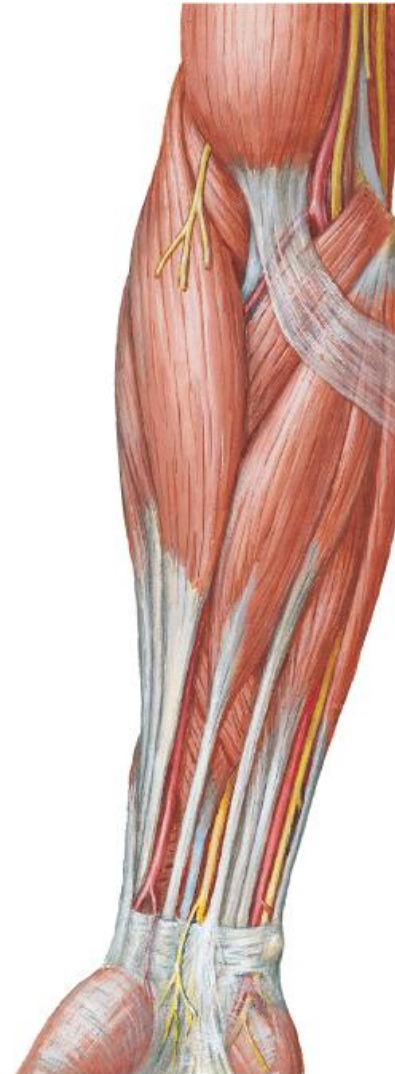
* They are 8 in number.

* They are arranged in 3 layers:

I. A superficial layer → formed of 4 muscles.

II. A middle layer → formed of one muscle.

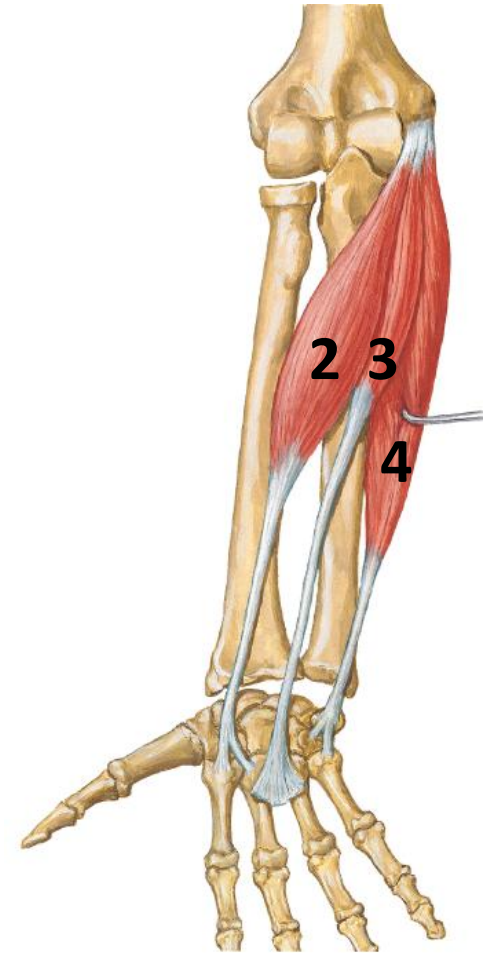
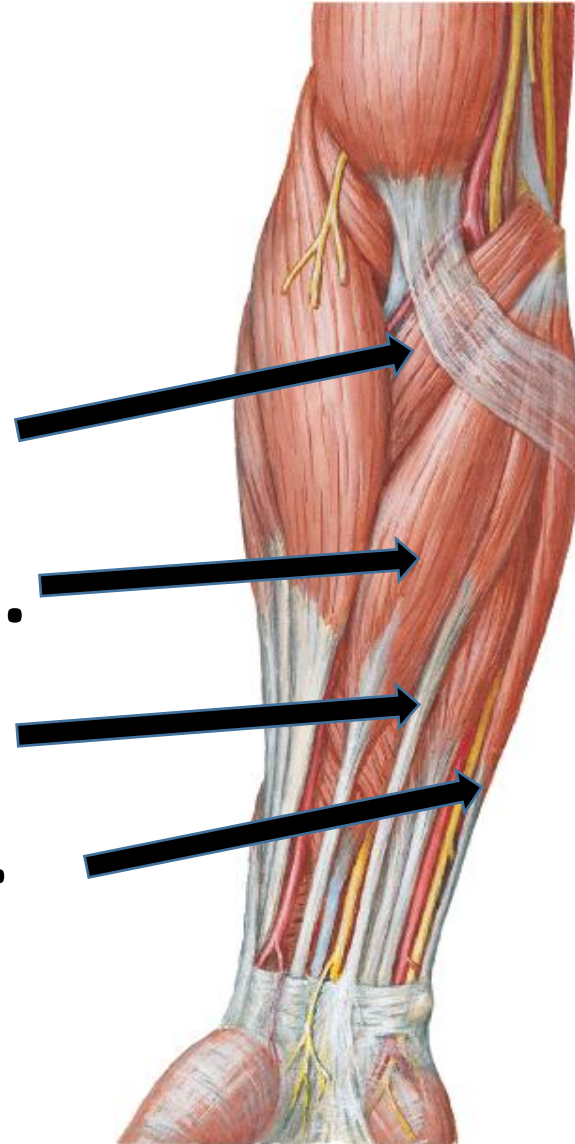
III. A deep layer → formed of 3 muscles.



I. Superficial Layer

* Formed of:

1. Pronator teres.
2. Flexor carpi radialis.
3. Palmaris longus.
4. Flexor carpi ulnaris.



*** Nerve Supply:** All these muscles are supplied by → **Median nerve** EXCEPT flexor carpi ulnaris → supplied by Ulnar nerve.

*** Action:** All these muscles → flexion of wrist EXCEPT pronator teres → pronation of forearm.

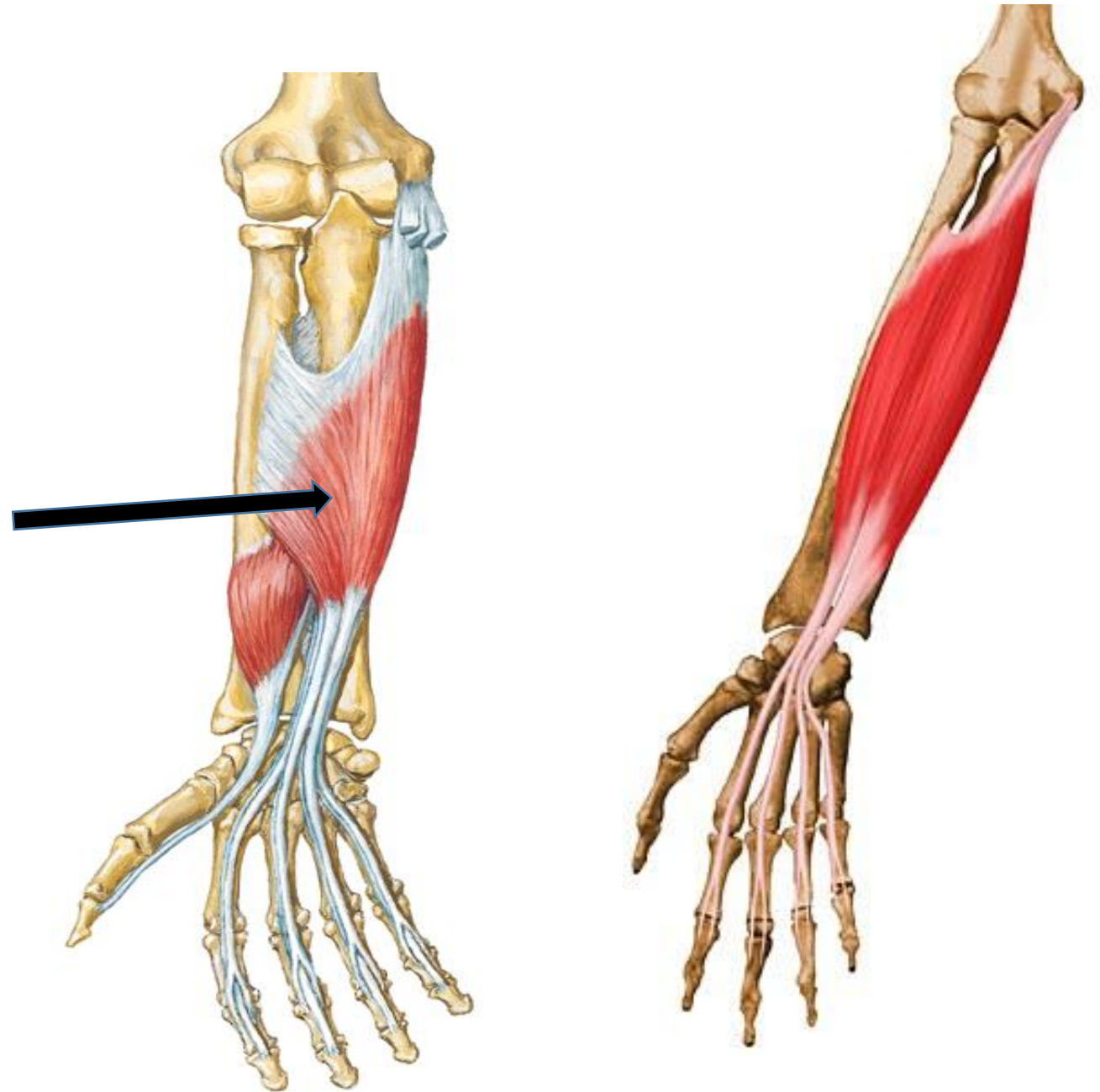
II. Middle Layer

* Formed of:

Flexor digitorum superficialis.

* Nerve supply: Median nerve.

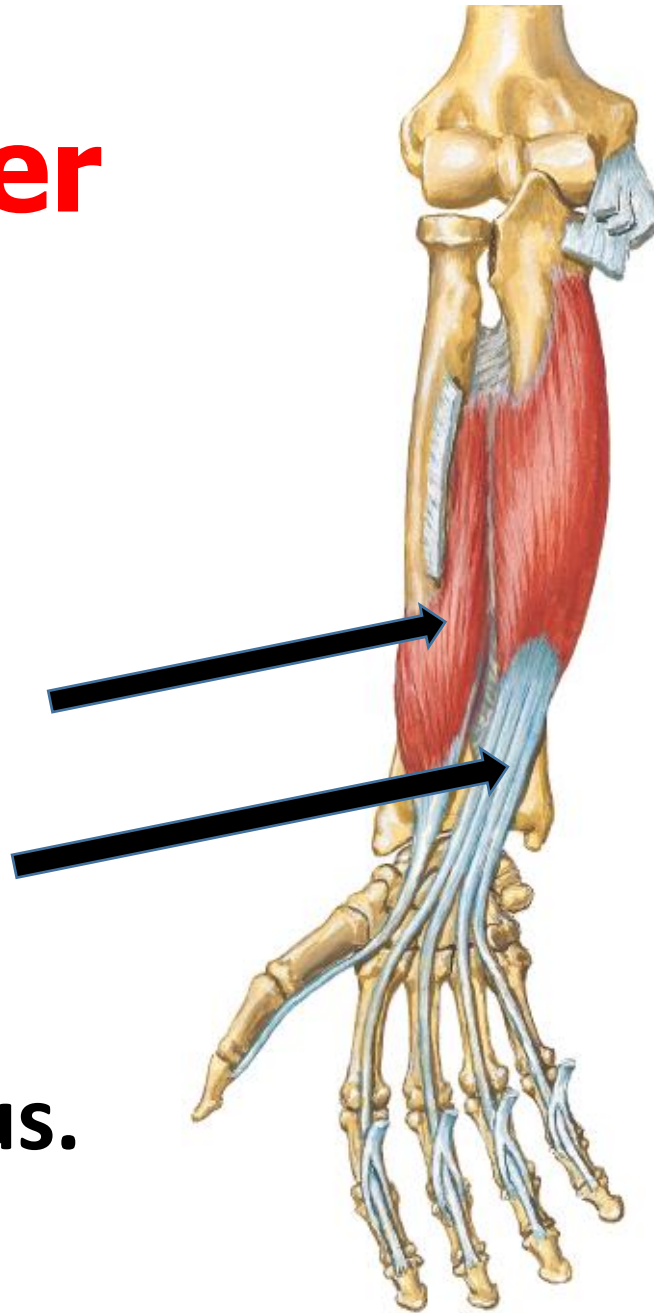
* Action: Flexion of wrist & fingers.



III. Deep Layer

* Formed of:

1. Flexor pollicis longus.
2. Flexor digitorum profundus.
3. Pronator quadratus.



*** Nerve Supply:** All these muscles are supplied by → Anterior interosseous nerve (branch of Median nerve).

*** Action:** All these muscles → flexion of wrist & fingers EXCEPT pronator quadratus → pronation of forearm.

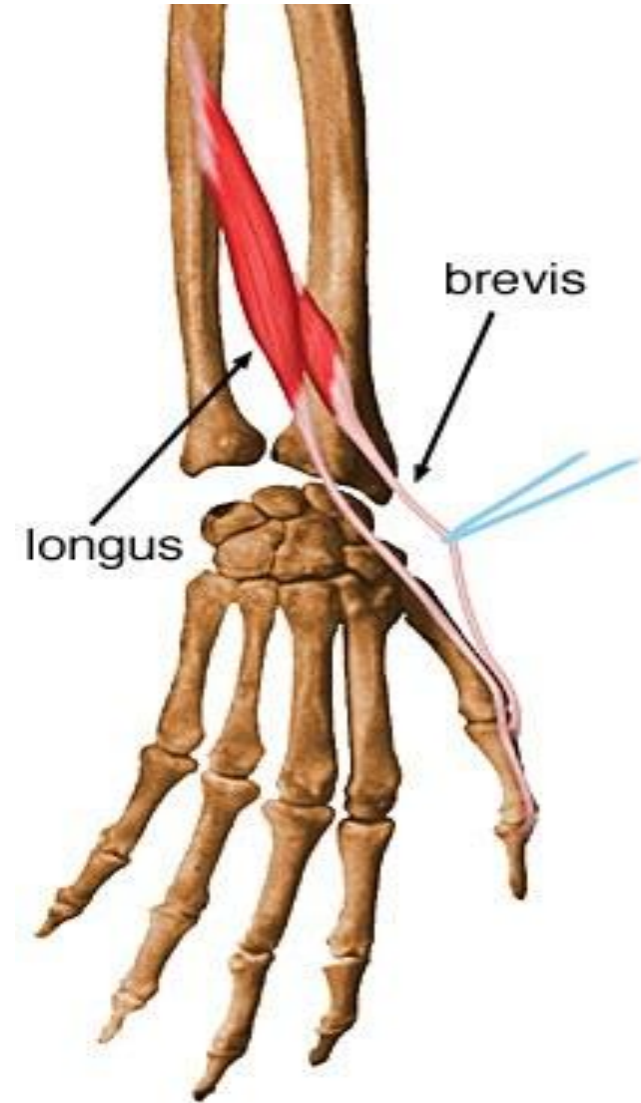
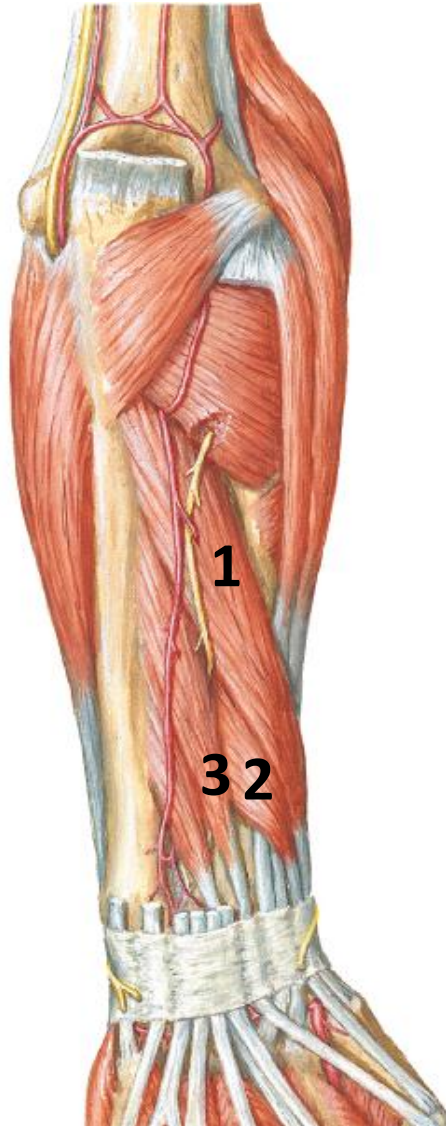
H: Muscles of Back of Forearm

- * They are 12 in number.
- * They are arranged in 4 groups:
 - I. Three muscles acting on thumb.
 - II. Three RADIALIS muscles.
 - III. Three muscles acting on medial 4 fingers.
 - IV. Three miscellaneous muscles.
- * All these muscles are supplied by Radial nerve & its branch (posterior interosseous nerve).

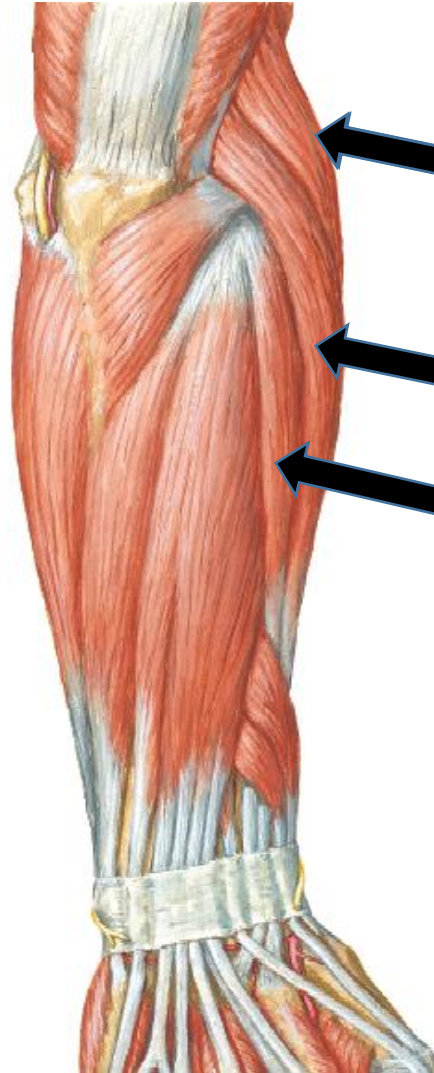


I. Three Muscles acting on Thumb

1. Abductor pollicis longus.
2. Extensor pollicis brevis.
3. Extensor pollicis longus.



II. Three RADIALIS Muscles



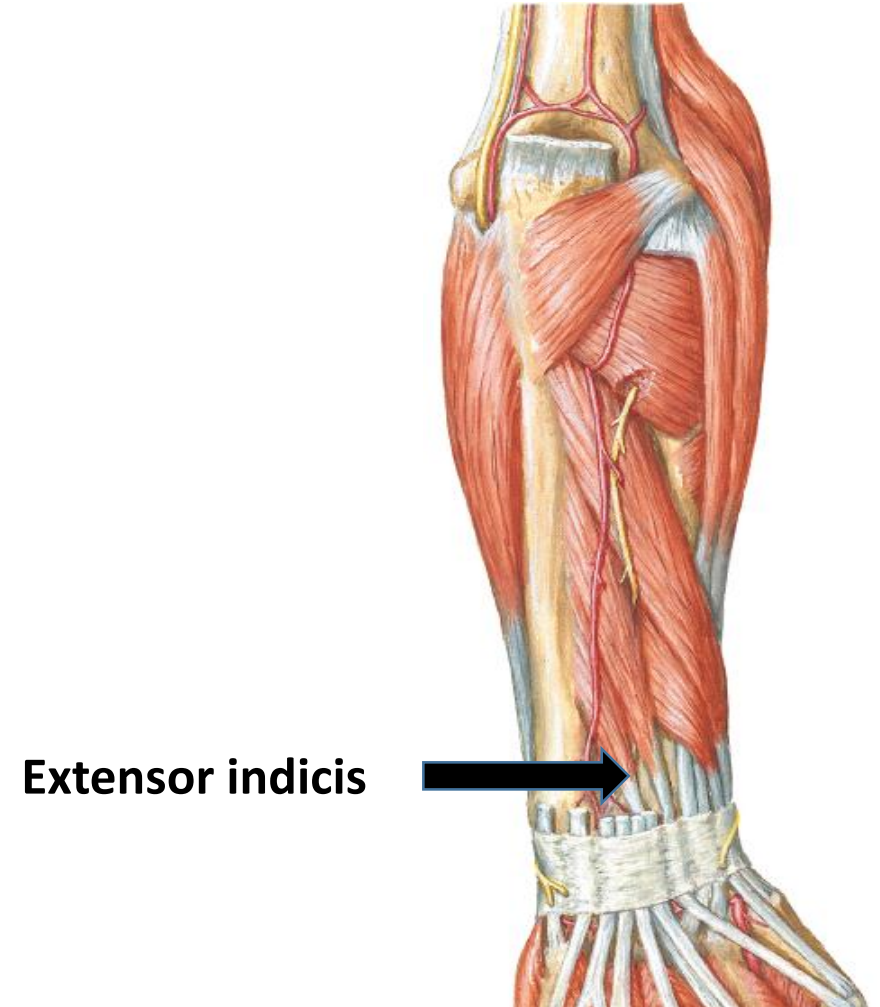
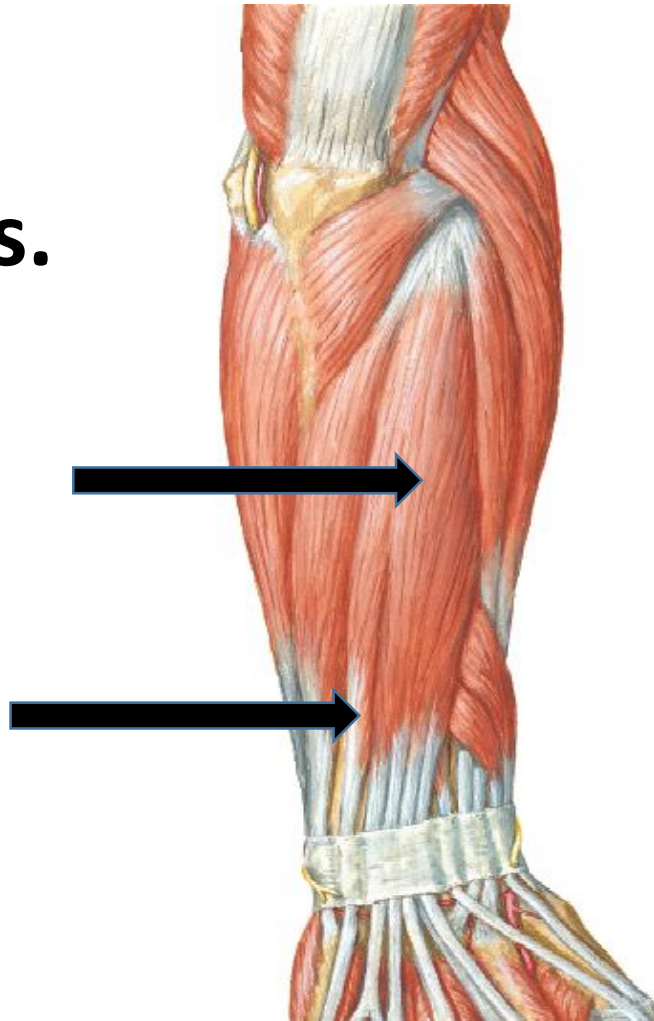
1. Brachioradialis.

2. Extensor carpi radialis longus.

3. Extensor carpi radialis brevis.

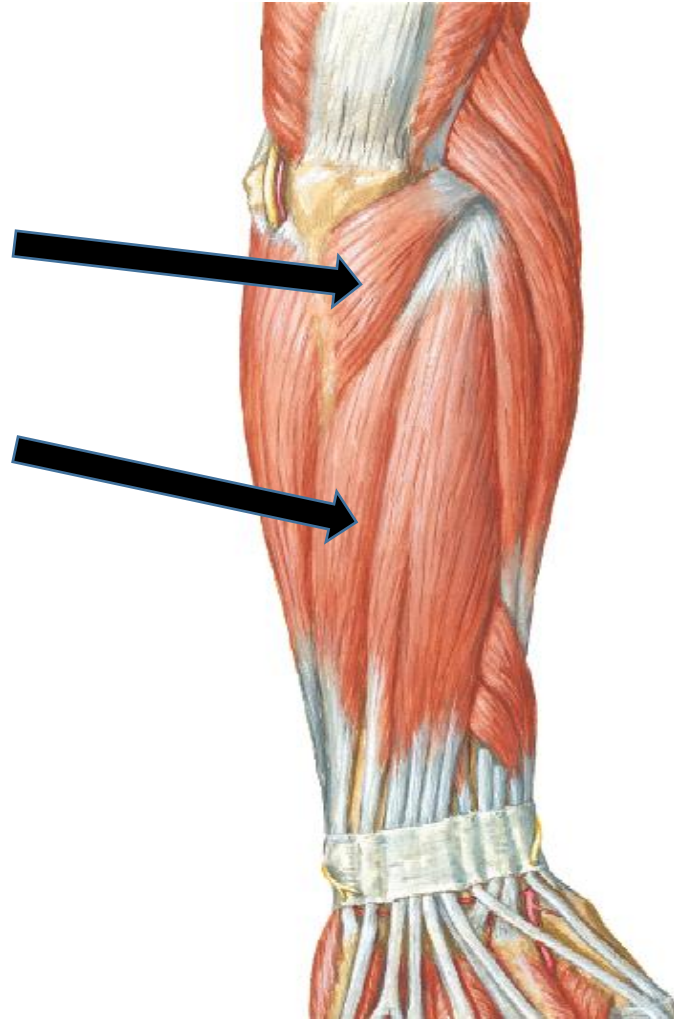
III. Three Muscles acting on Medial 4 fingers

1. Extensor indicis.
2. Extensor digitorum.
3. Extensor digiti minimi.

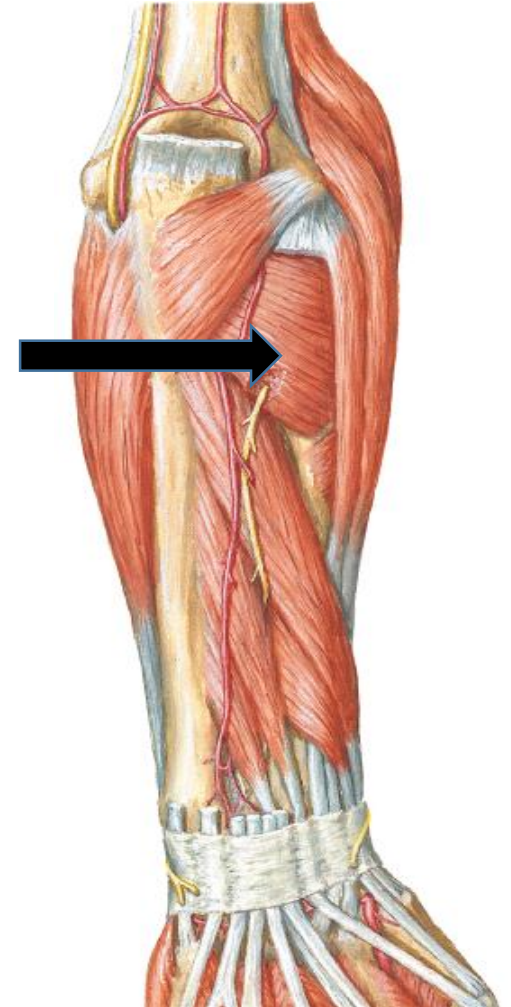


IV. Three Miscellaneous Muscles

1. Anconeus.
2. Extensor carpi ulnaris.
3. Supinator.



Supinator



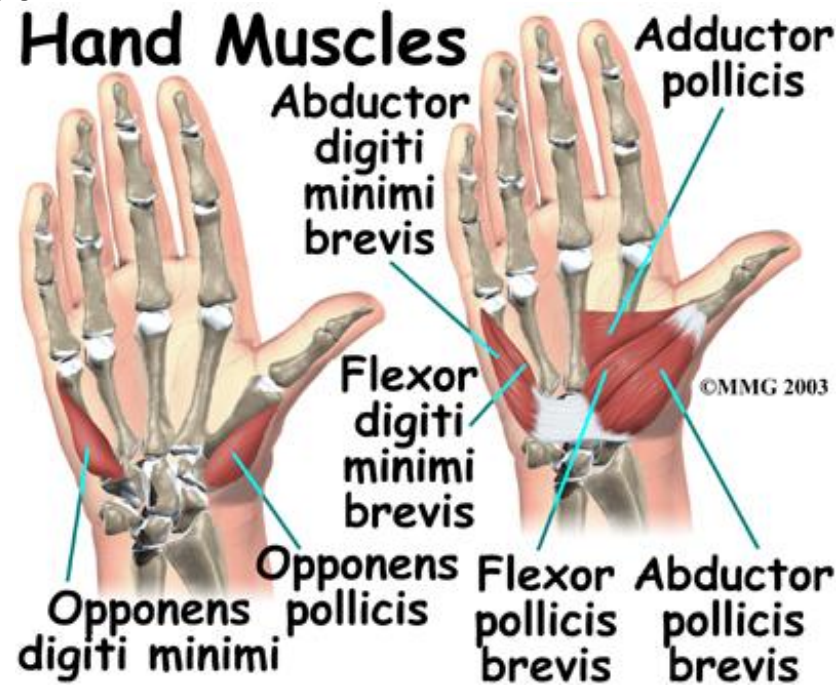
I. Muscles of Palm of Hand

I. Muscles of Thumb:

1. Abductor pollicis brevis.
2. Flexor pollicis brevis.
3. Opponens pollicis.
4. Adductor pollicis.

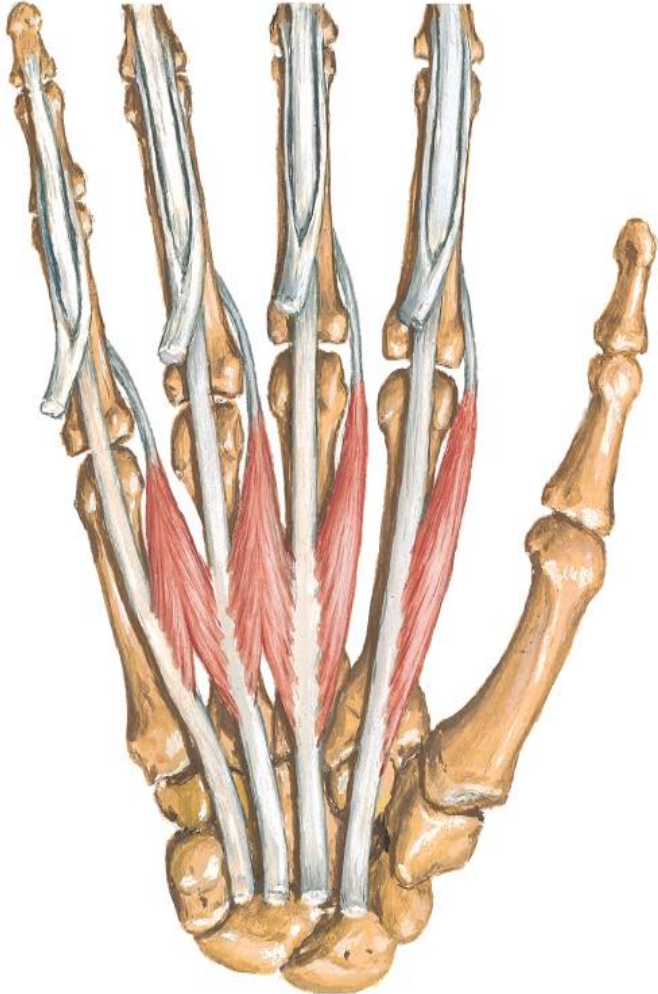
II. Muscles of Little finger:

1. Abductor digiti minimi.
2. Flexor digiti minimi.
3. Opponens digiti minimi.



III. Four Lumbrical muscles:

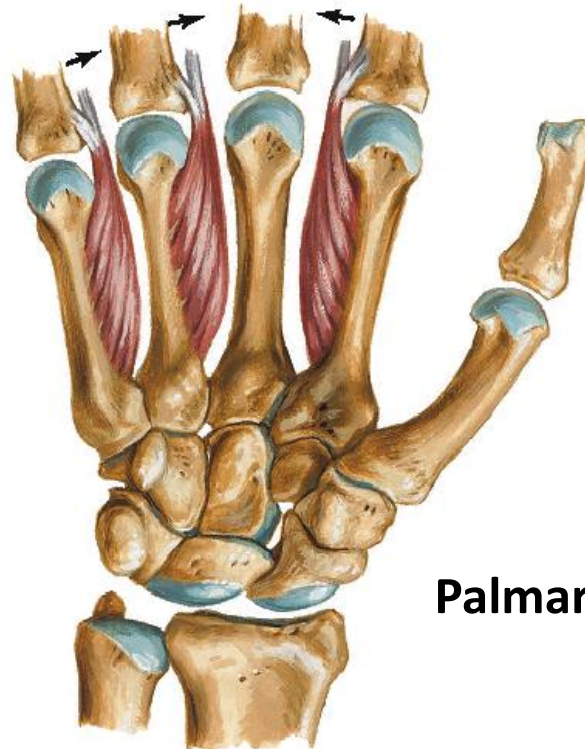
* Action: putting the hand in the writing position.



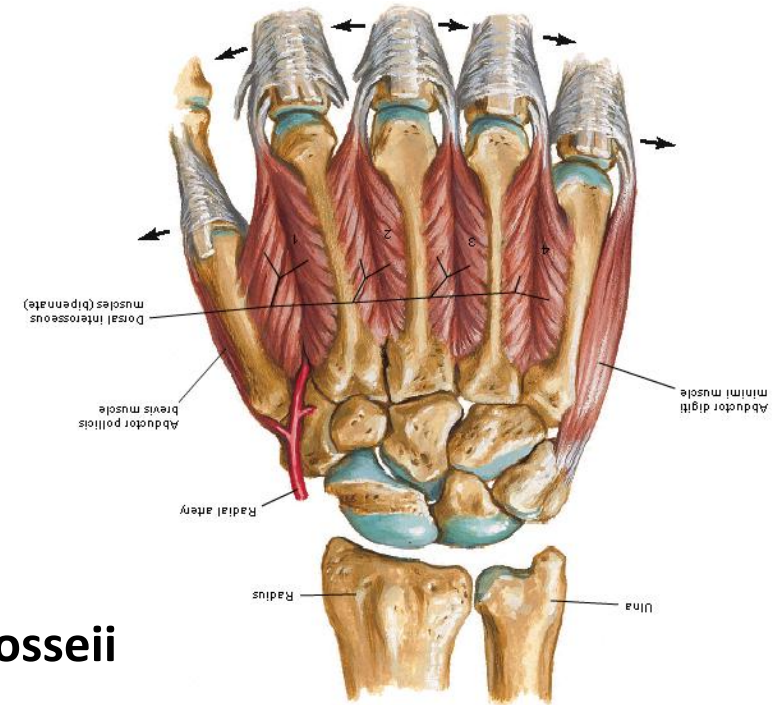
IV. Interossei muscles:

* Three palmar Interossei & 4 dorsal Interossei.

* Action: abduction & adduction of fingers.



Palmar Interossei



Dorsal Interossei



Thank You
Thank You
Thank You!!!!