



Anatomy

HAYAT BATCH

done by : Zeyad Al-ghananeem.

lecture no : Lec 11
Muscles of UL.

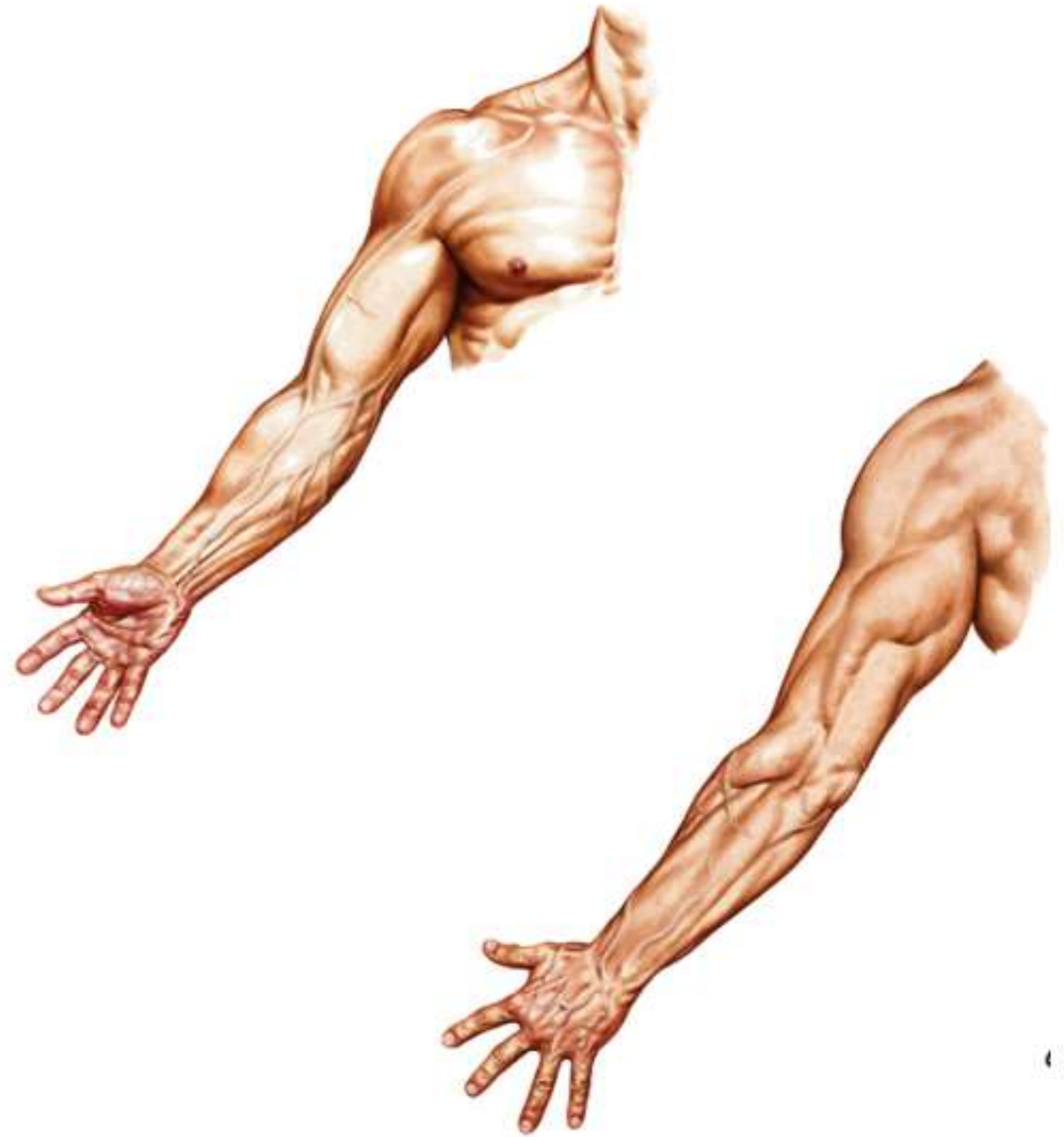


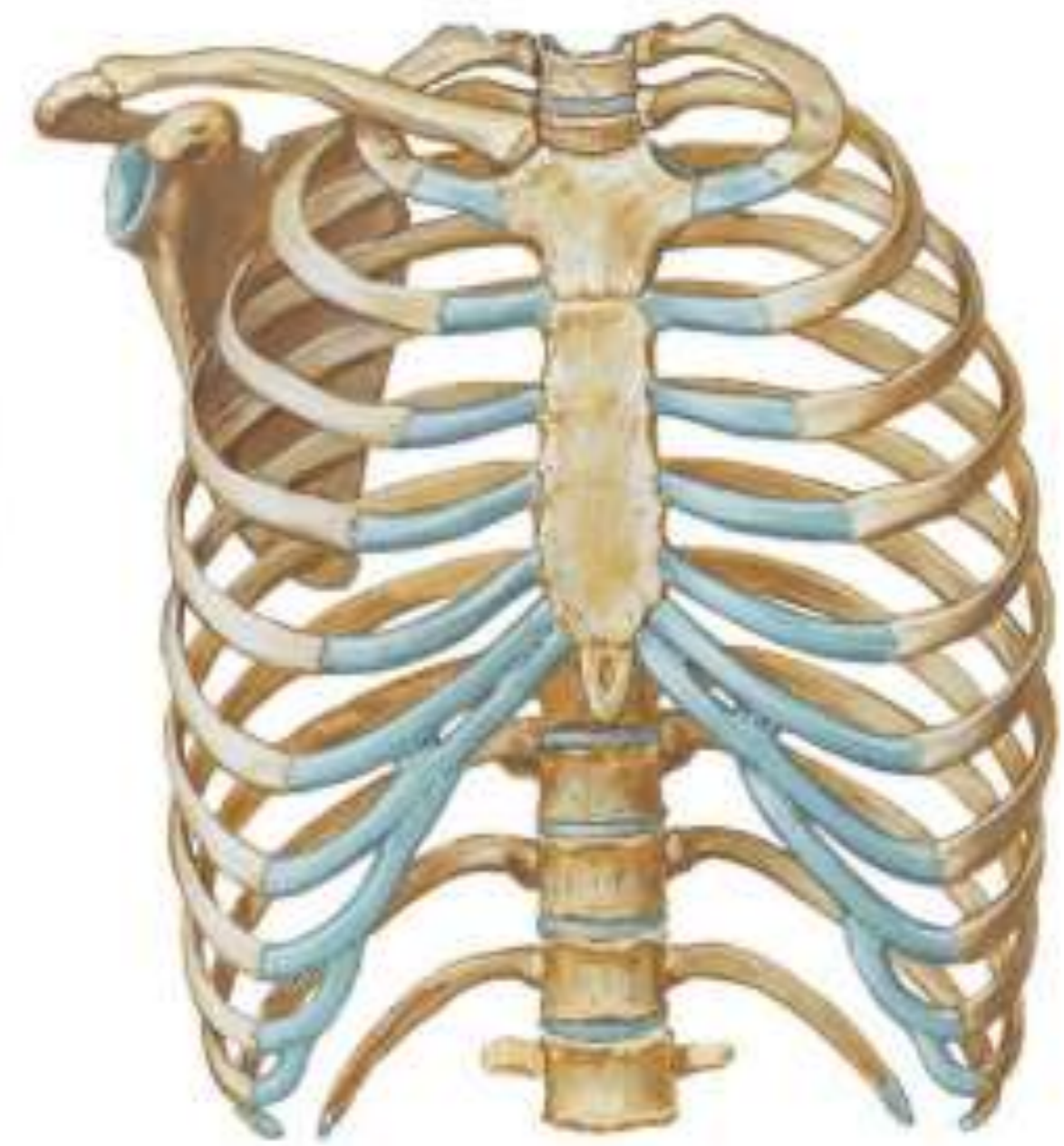
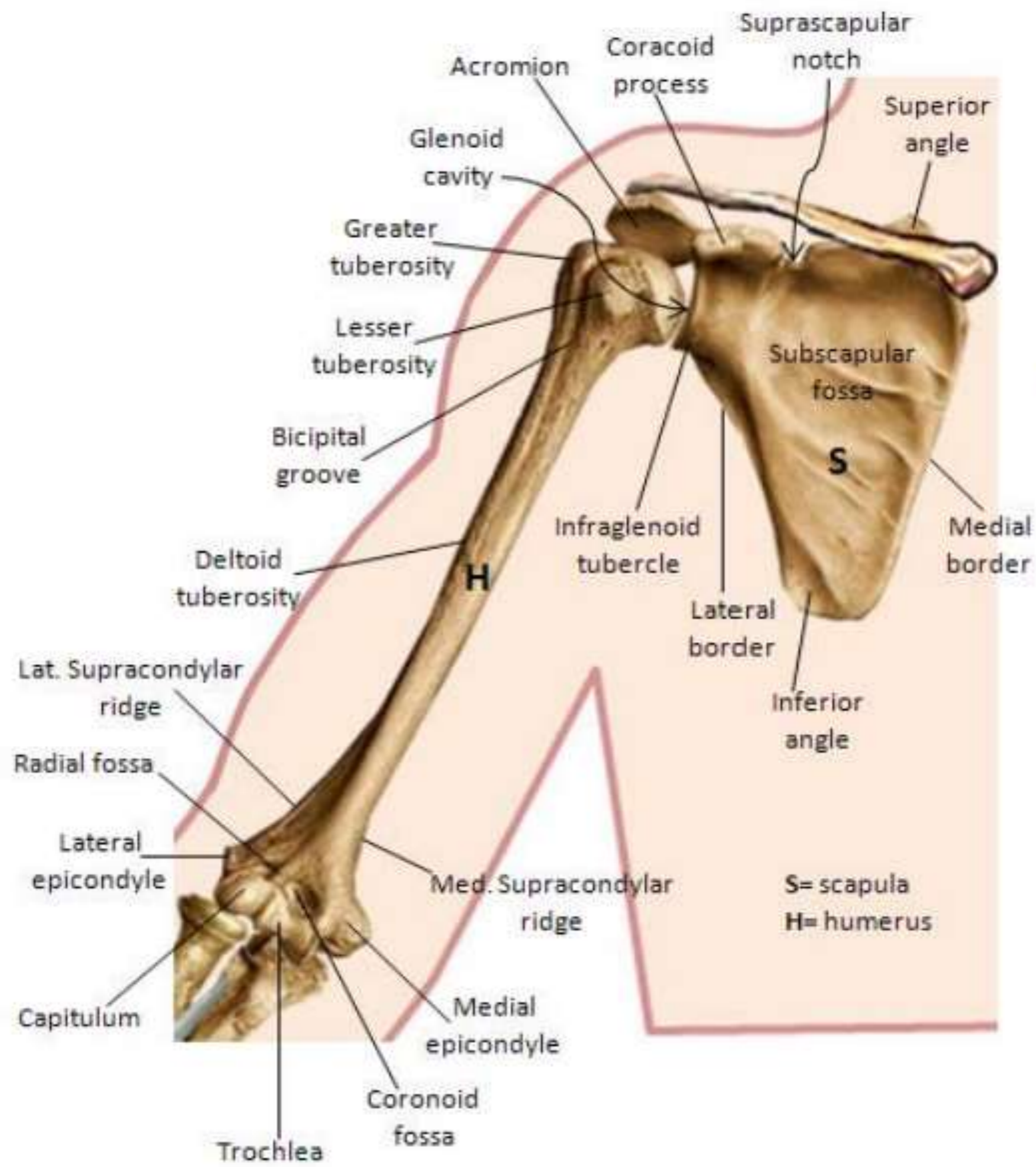
General Anatomy

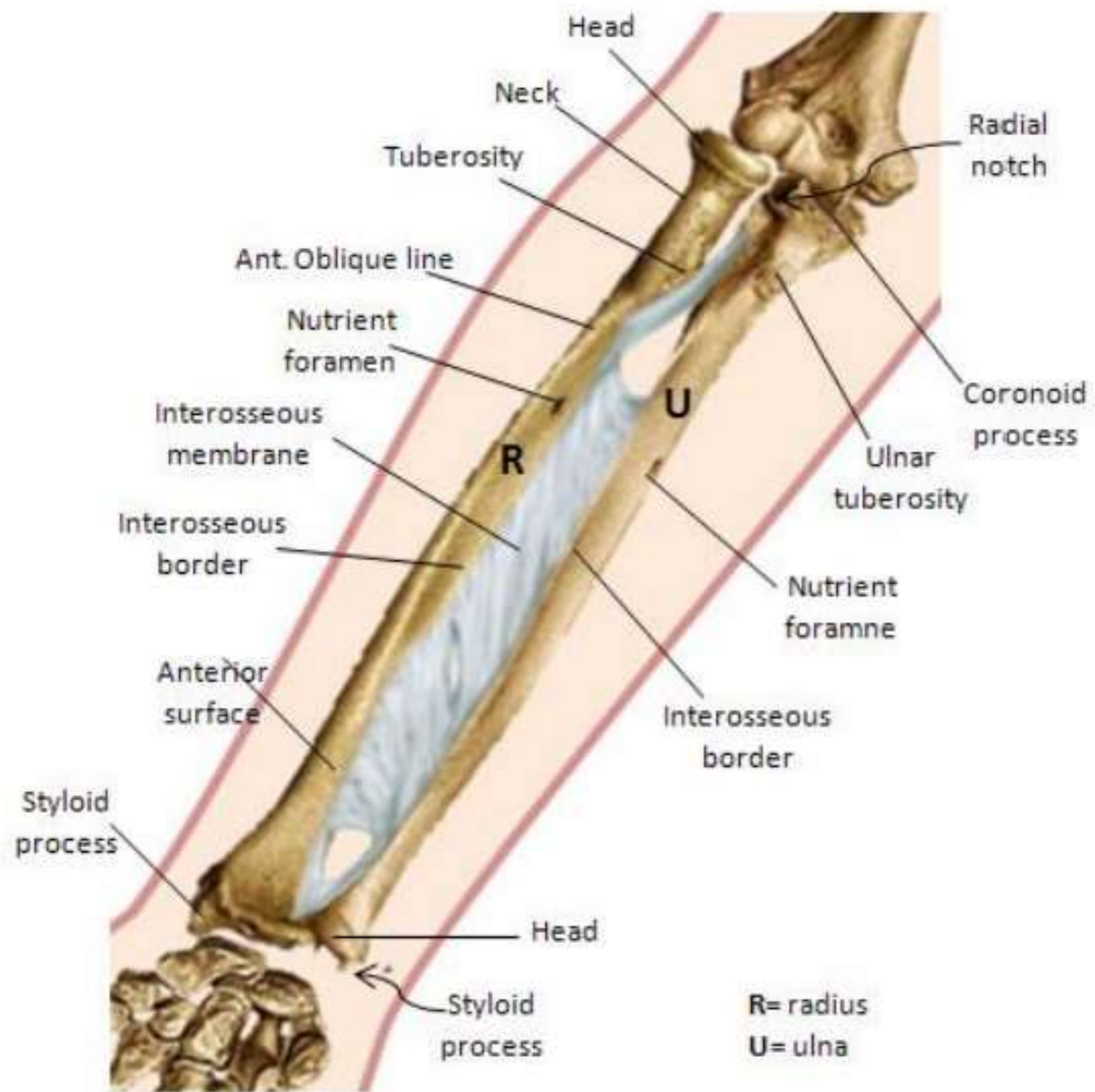
Lecture 11: Muscles of Upper Limb

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

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







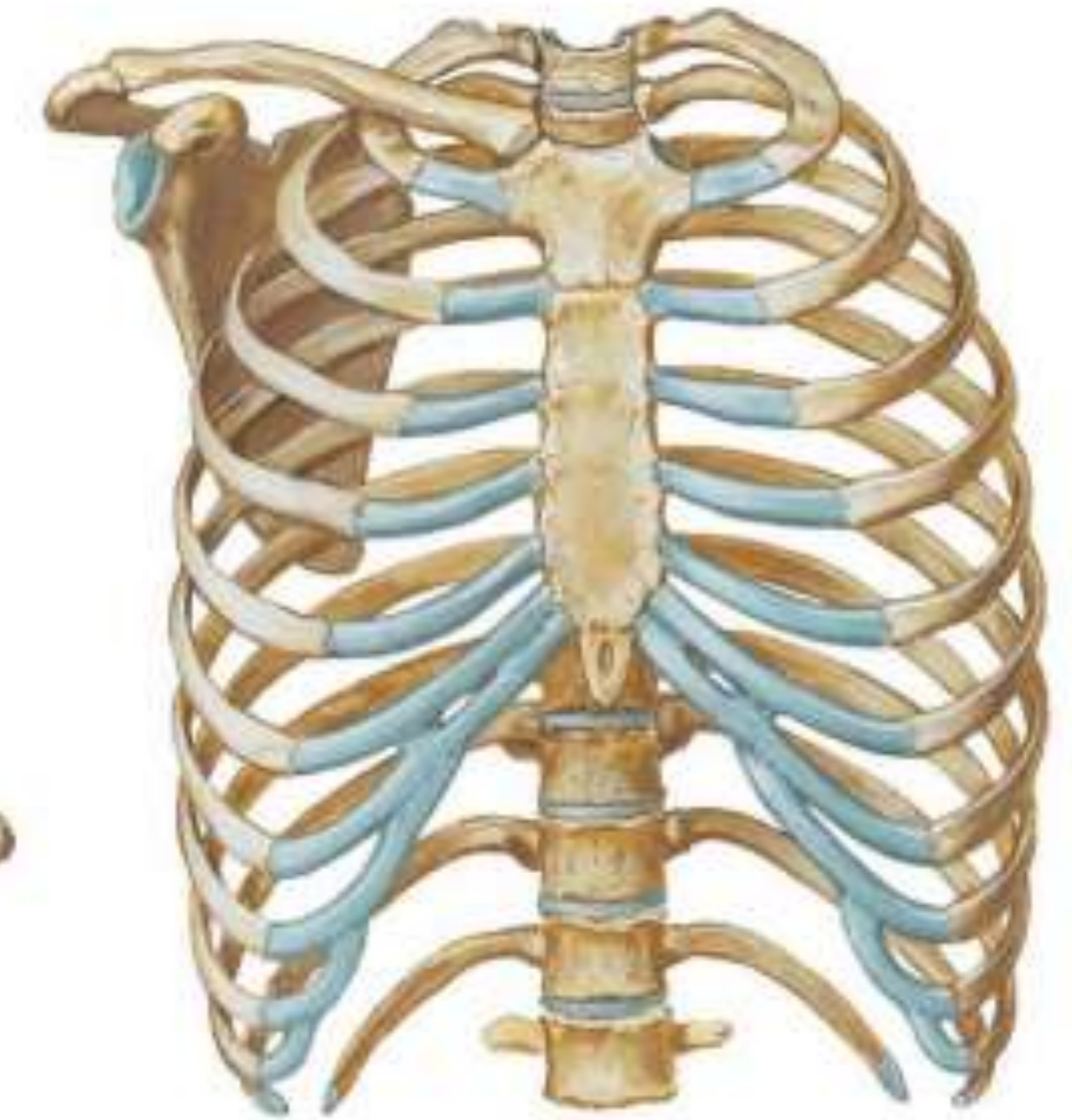
Movements of shoulder joint

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.

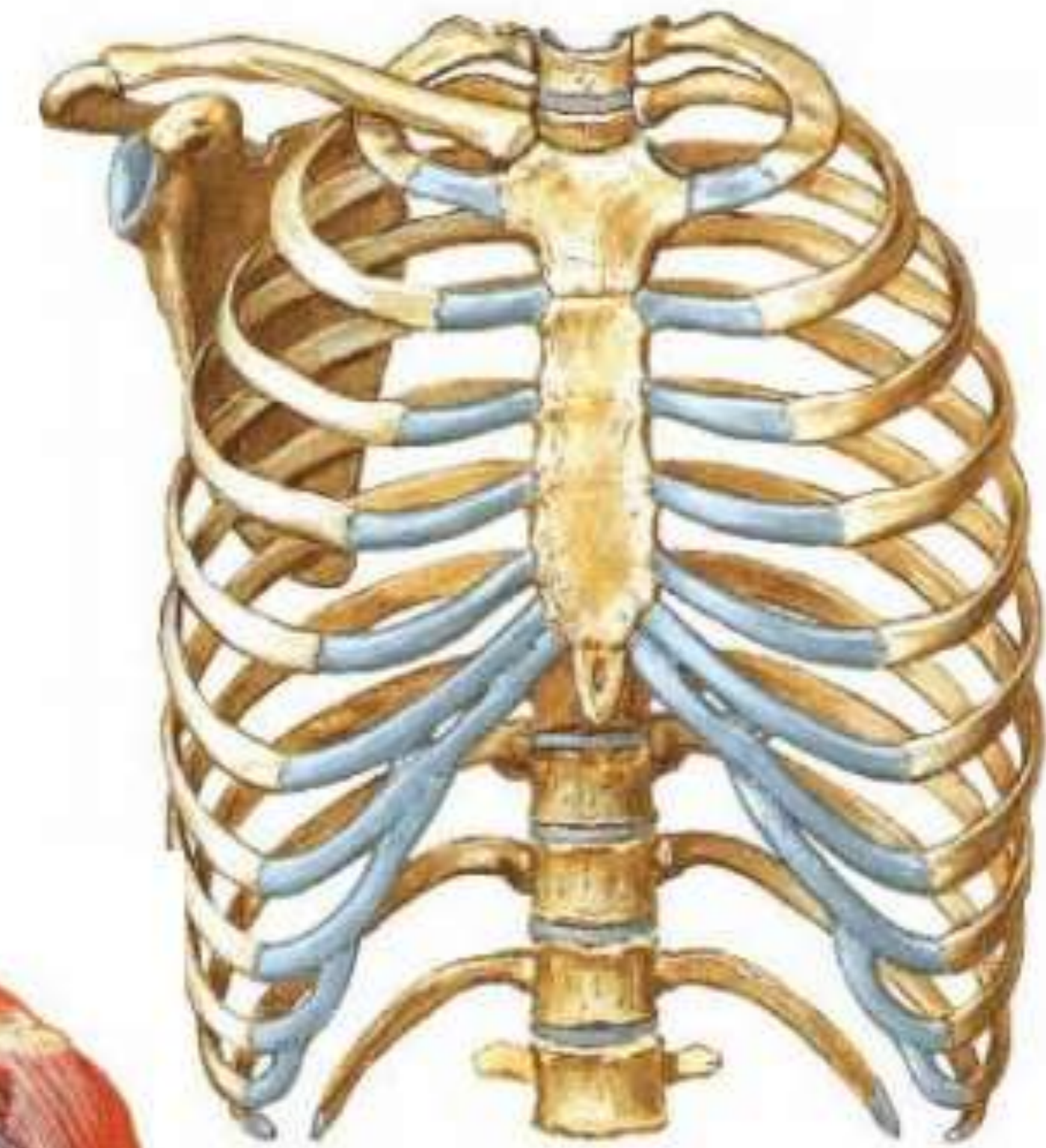
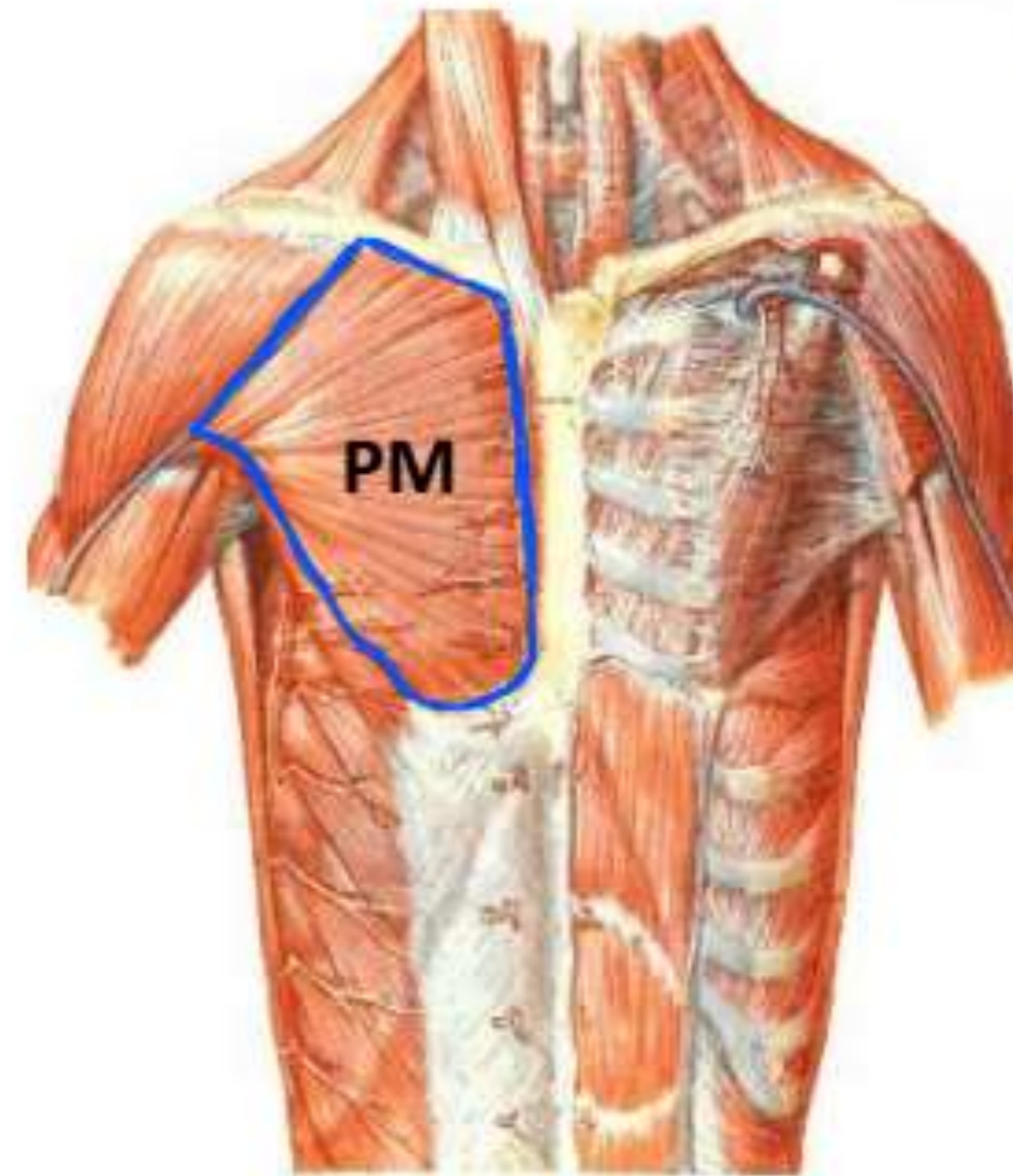
2. Sternocostal head:

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

* Insertion: into bicipital groove of the humerus.

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

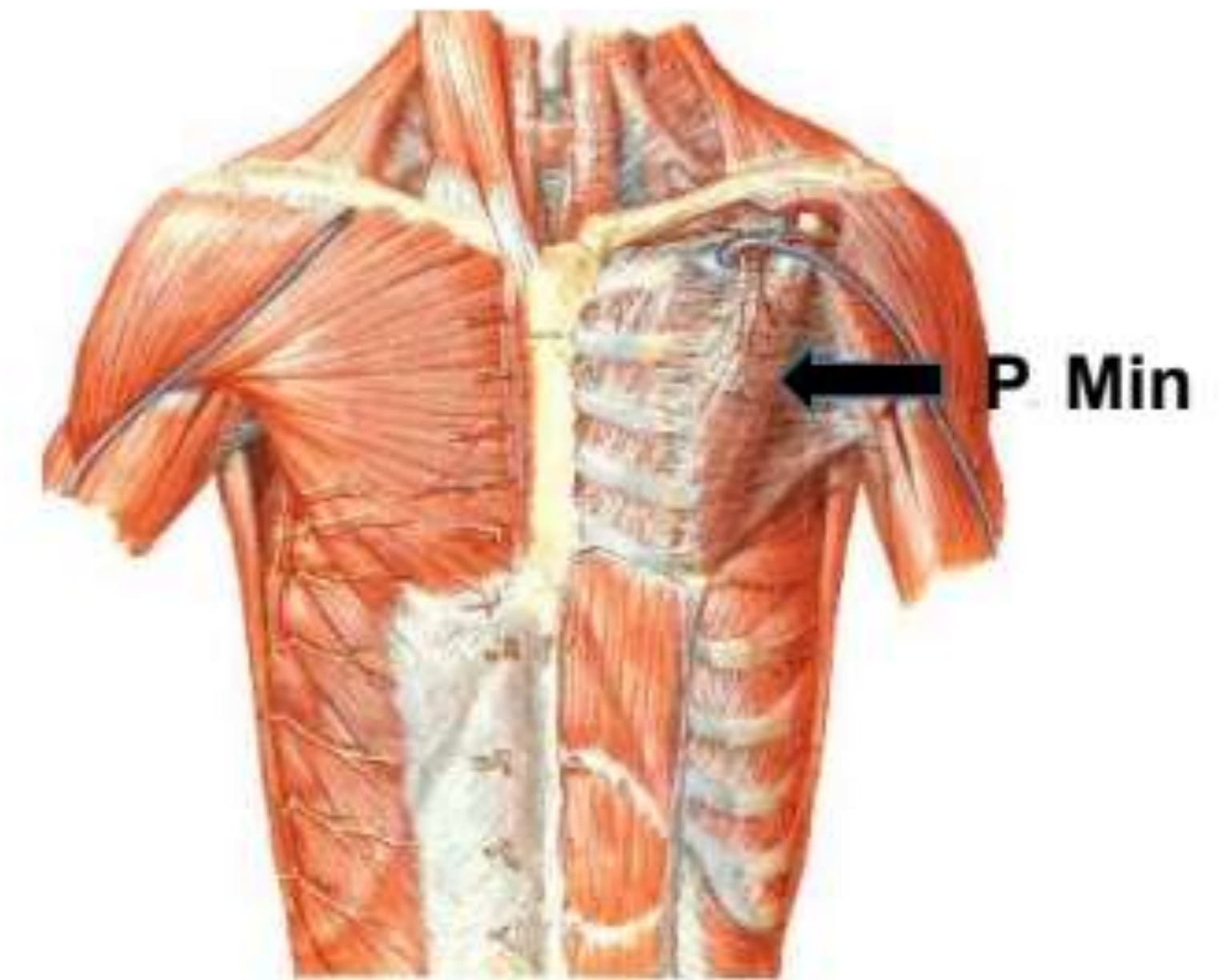
* Action: Adduction & medial rotation of the arm.



Bicipital groove: Intertubercular groove between greater and lesser tuberosities of humerus bone

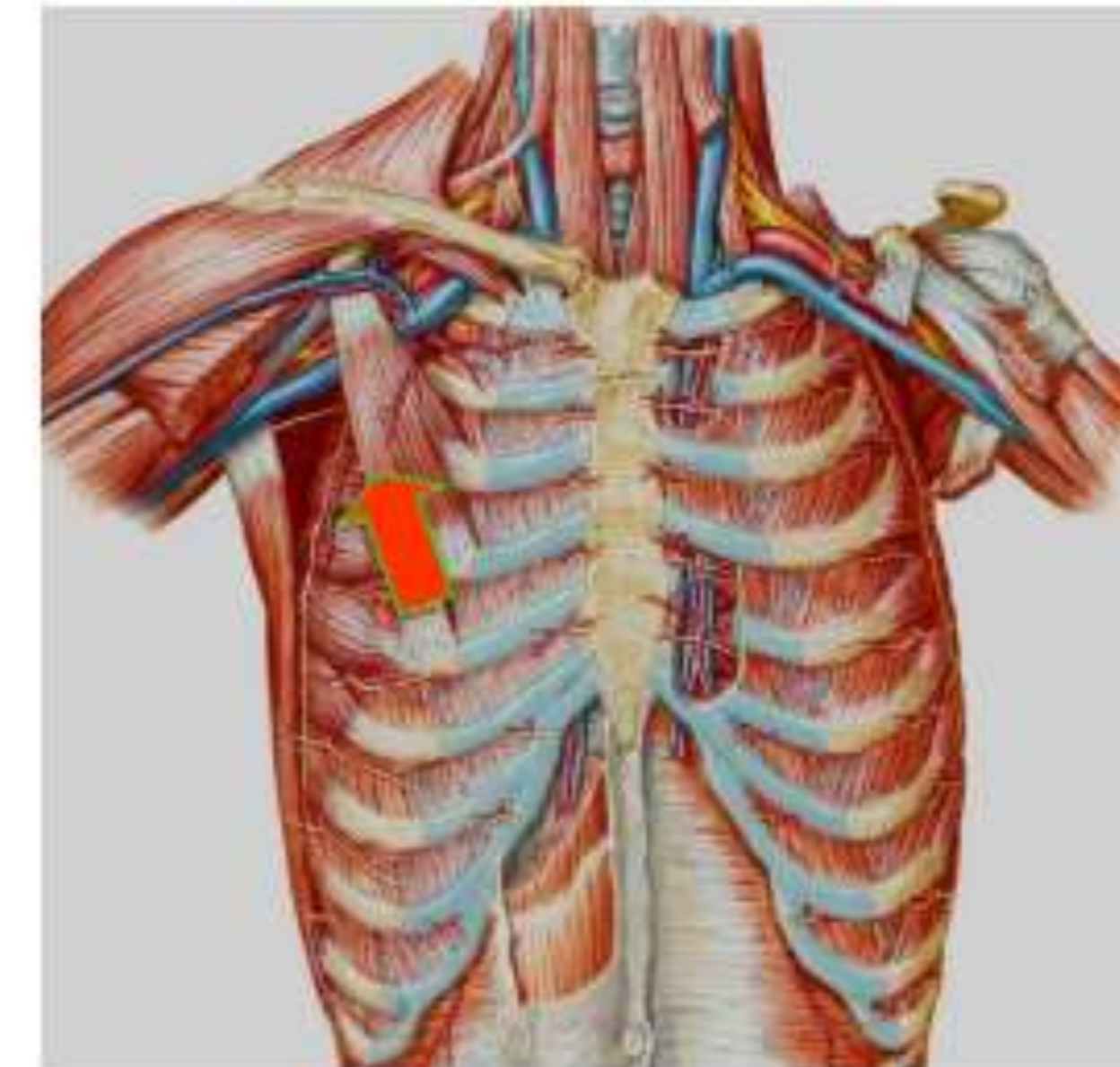
2. Pectoralis minor

- * **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.

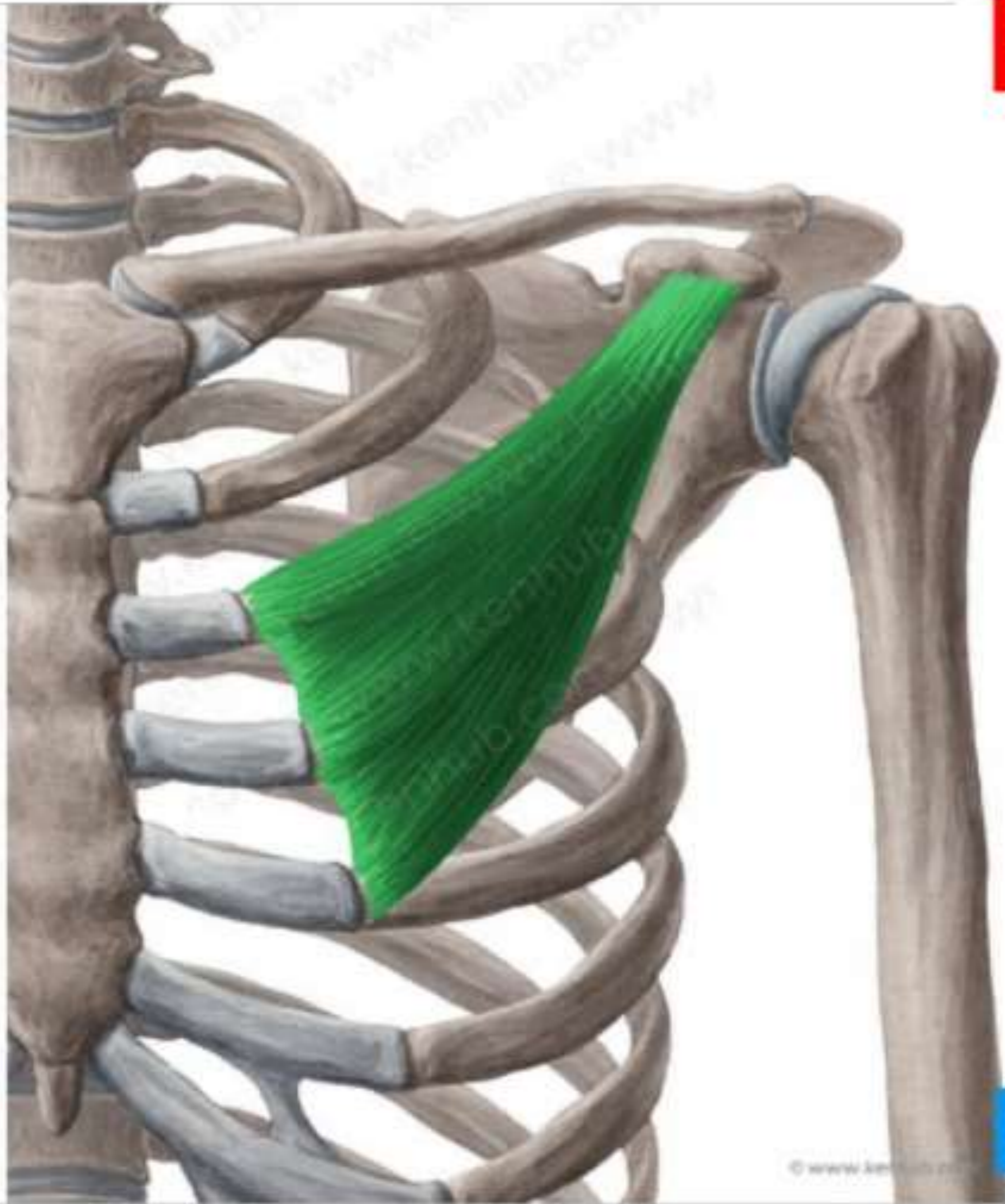


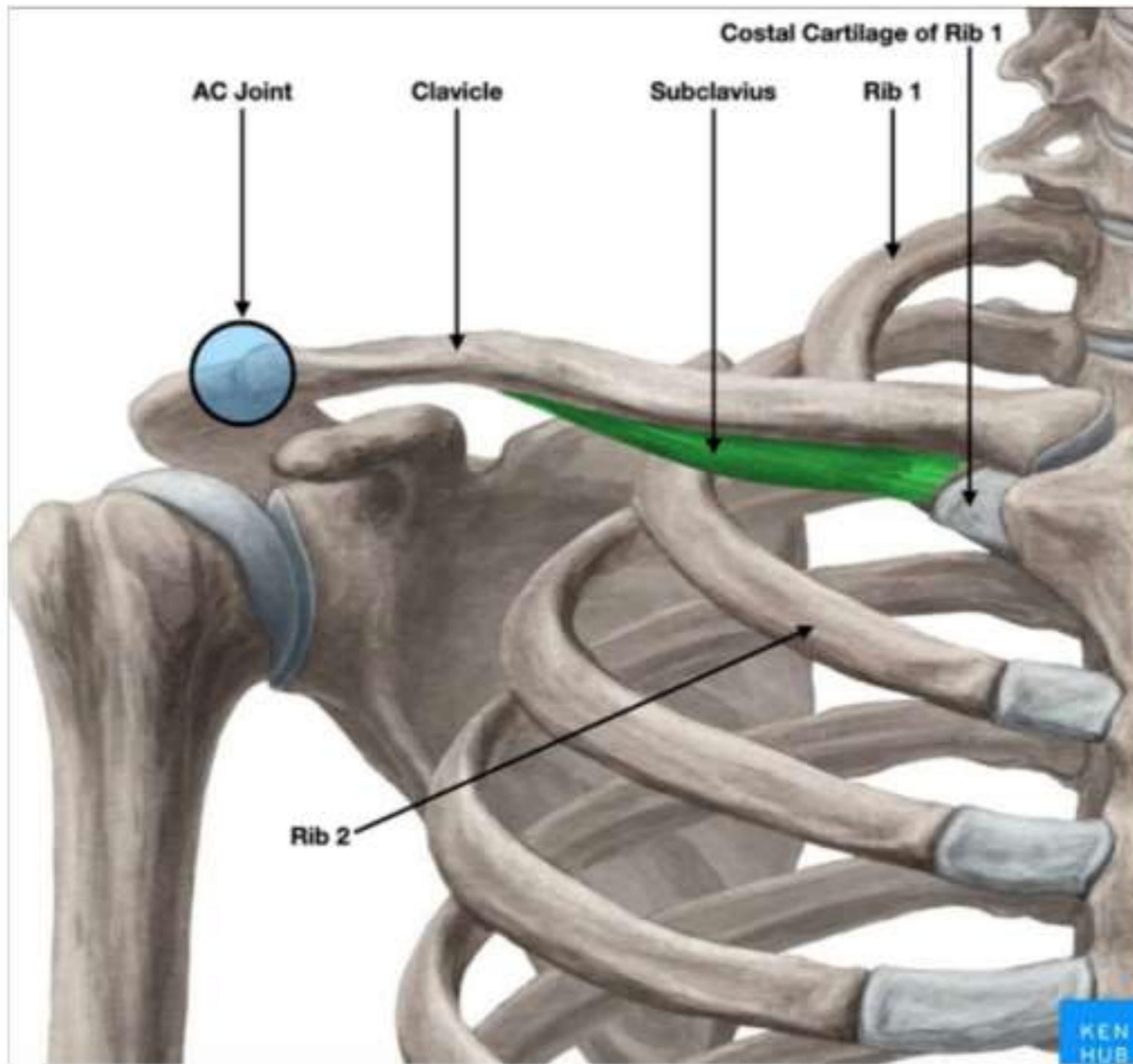
3. Subclavius

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



Pectoralis minor





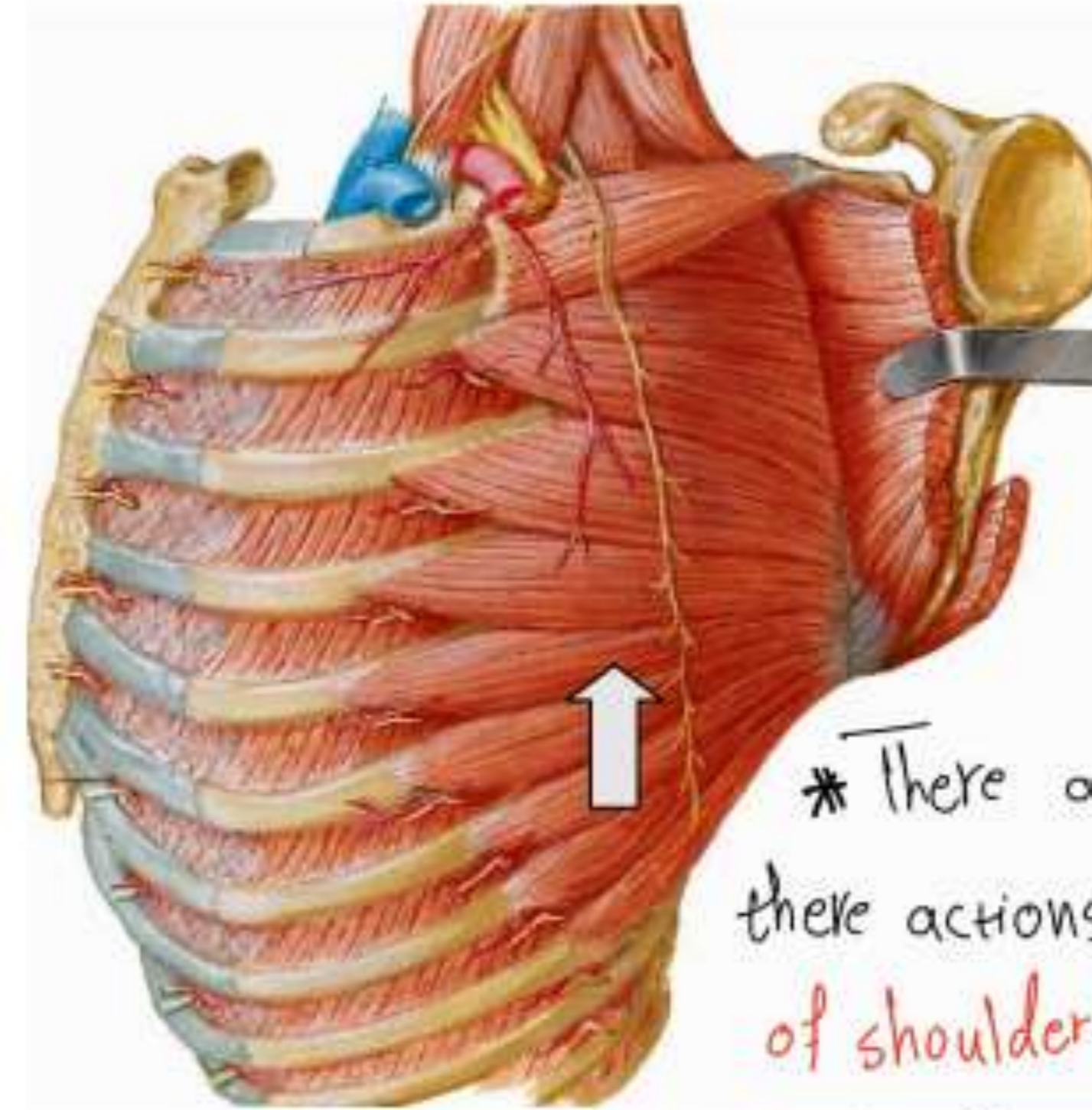
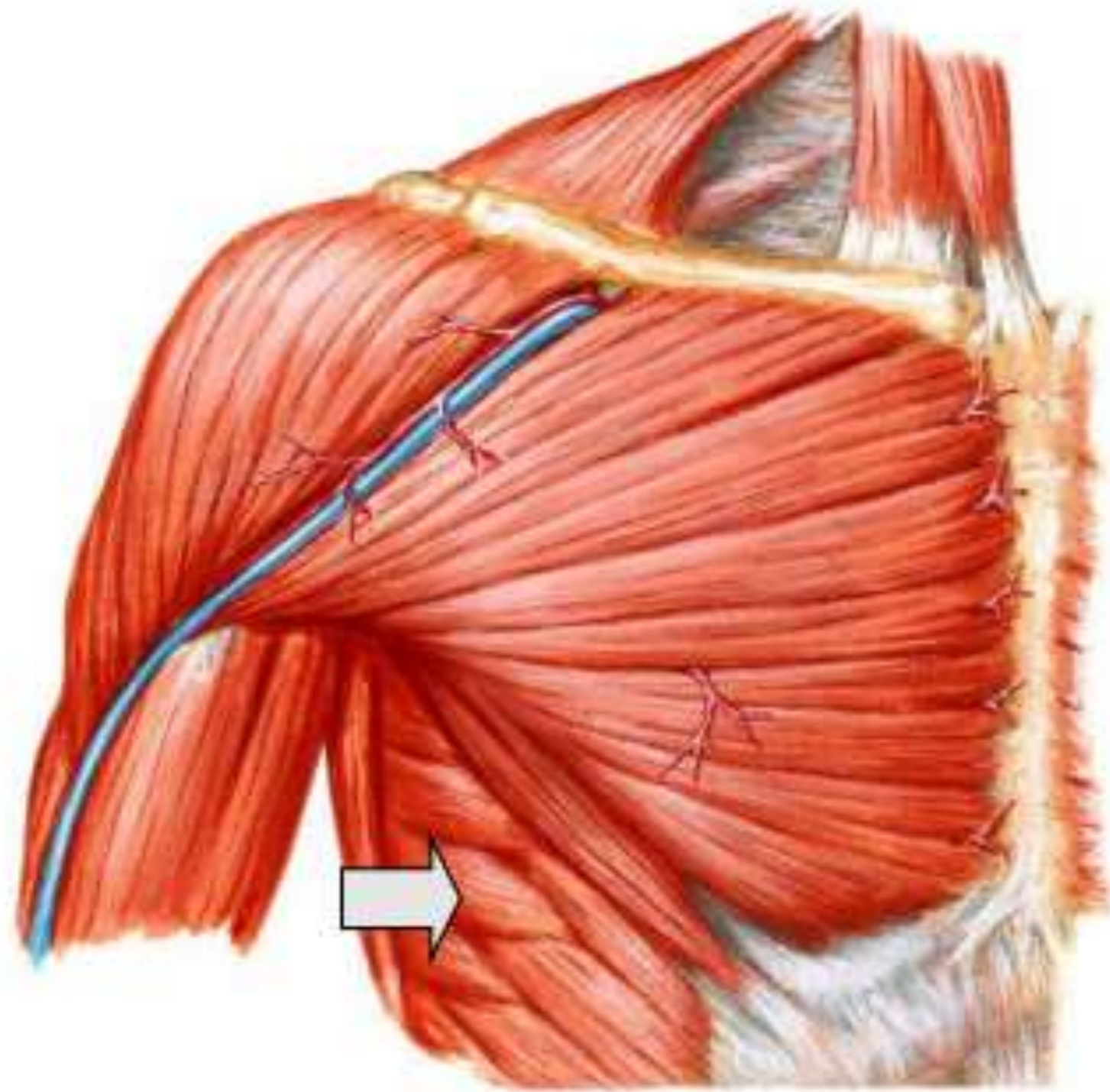
Subclavius

It's function : Stabilize
the clavicle.

It's a smooth muscle.

Pectoralis minor help
it in protraction.

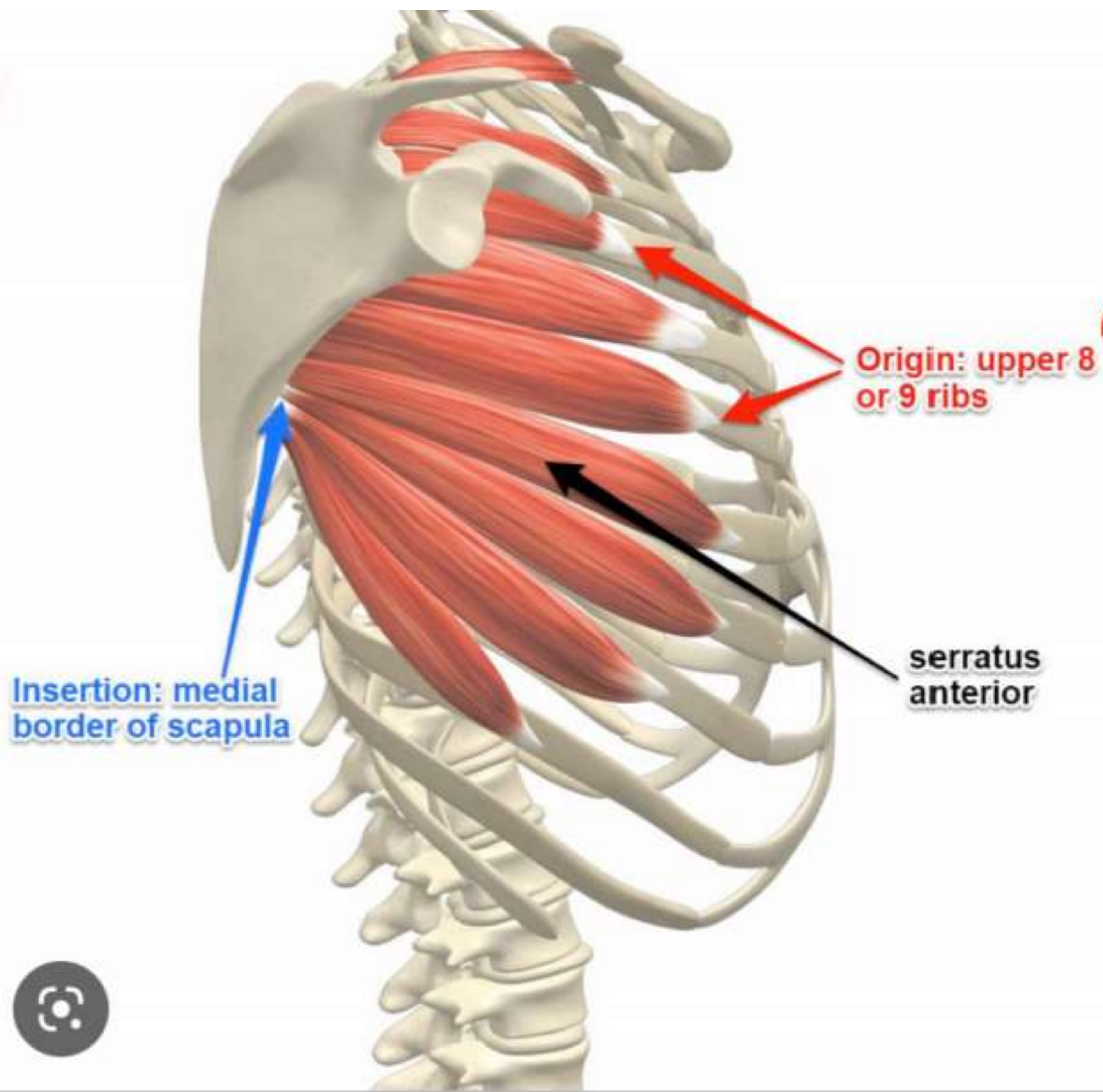
B-Serratus Anterior



Serratus anterior
Pectoralis minor.

* There are 2 muscles
their actions are protraction
of shoulder (scapula), but the
main protractor is 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 (long thoracic nerve).
- * **Action:** ^{Main} Protraction & depression of the shoulder.



* من مع بالرسمة
من كم خلع ماخذة origine
إحنا مطلوب منا انها
ماخذة origine من Upper 8
ribs.
* بين حطيت الرسمة
عشان تشوفوا مكانها.
^^

Winging of scapula گاول اسکپولا action پر ۶ long thoracic nerve بال لوہار عا جرح



* We can examine it in clinical, by making the patient pushing the wall

Muscles of Back

It's related to arm.

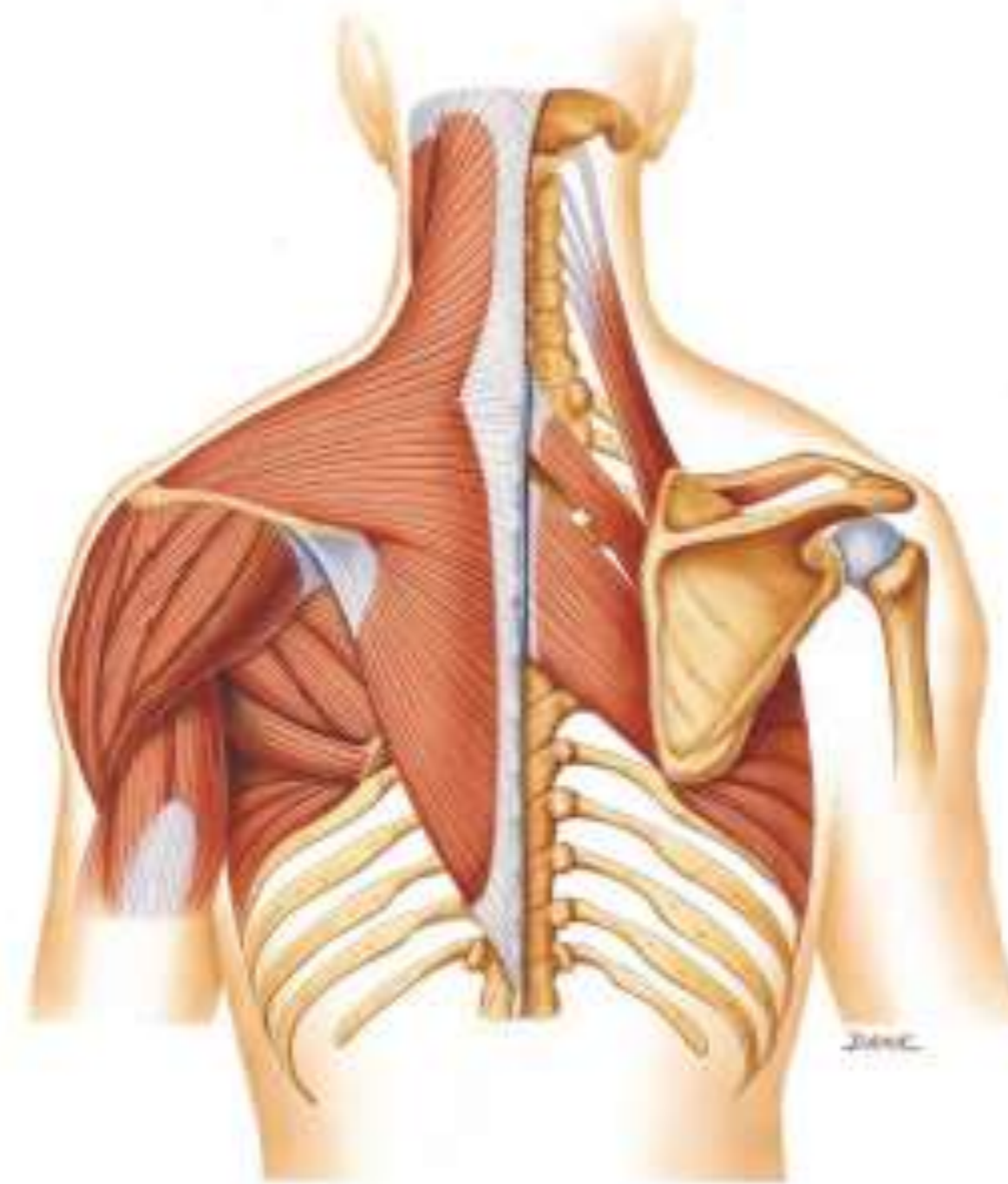
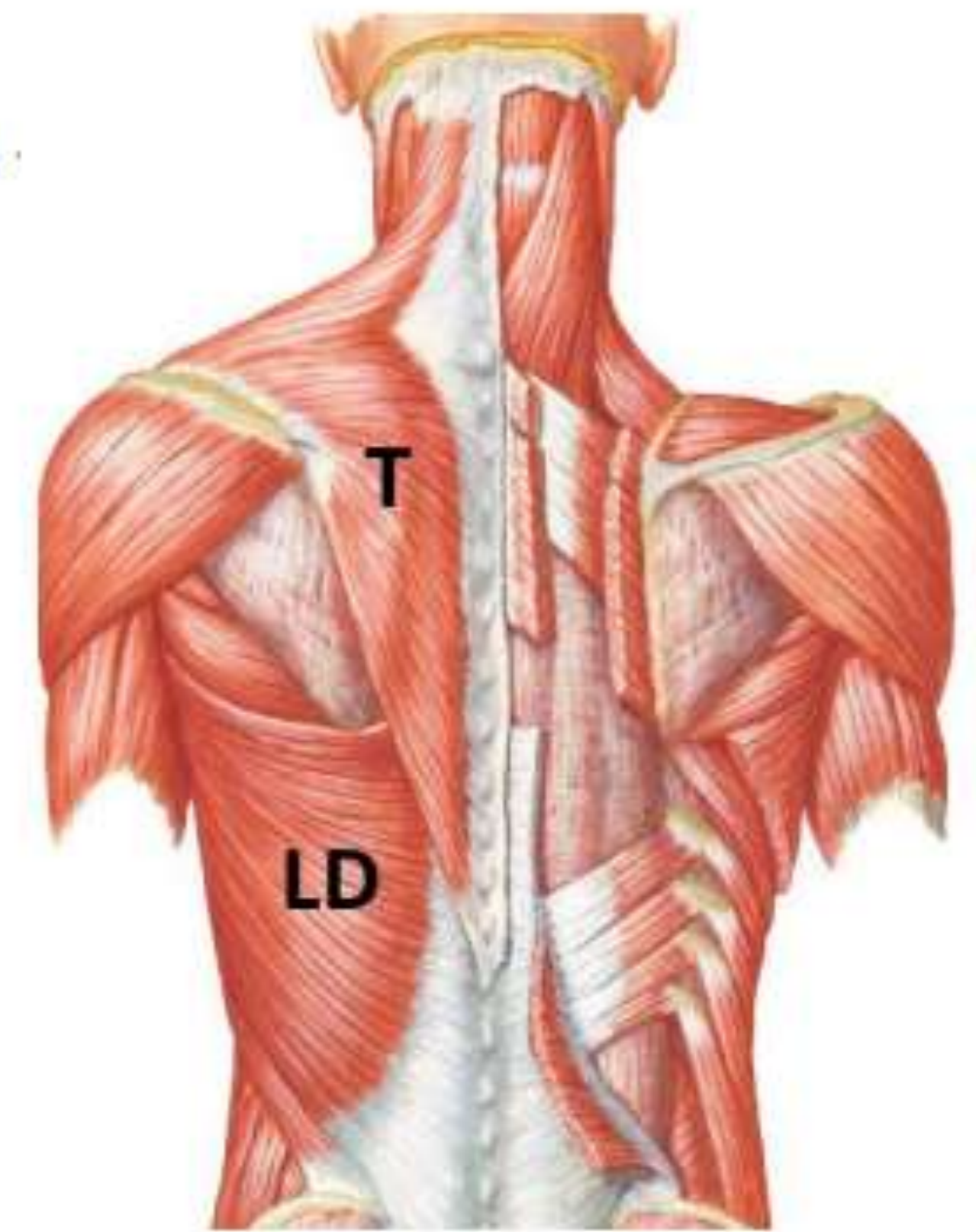
* They are 5 muscles connecting the upper limbs to the vertebral column.

A. Superficial layer:

1. Trapezius.
2. Latissimus dorsi.

B. Deep layer:

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



1. Trapezius

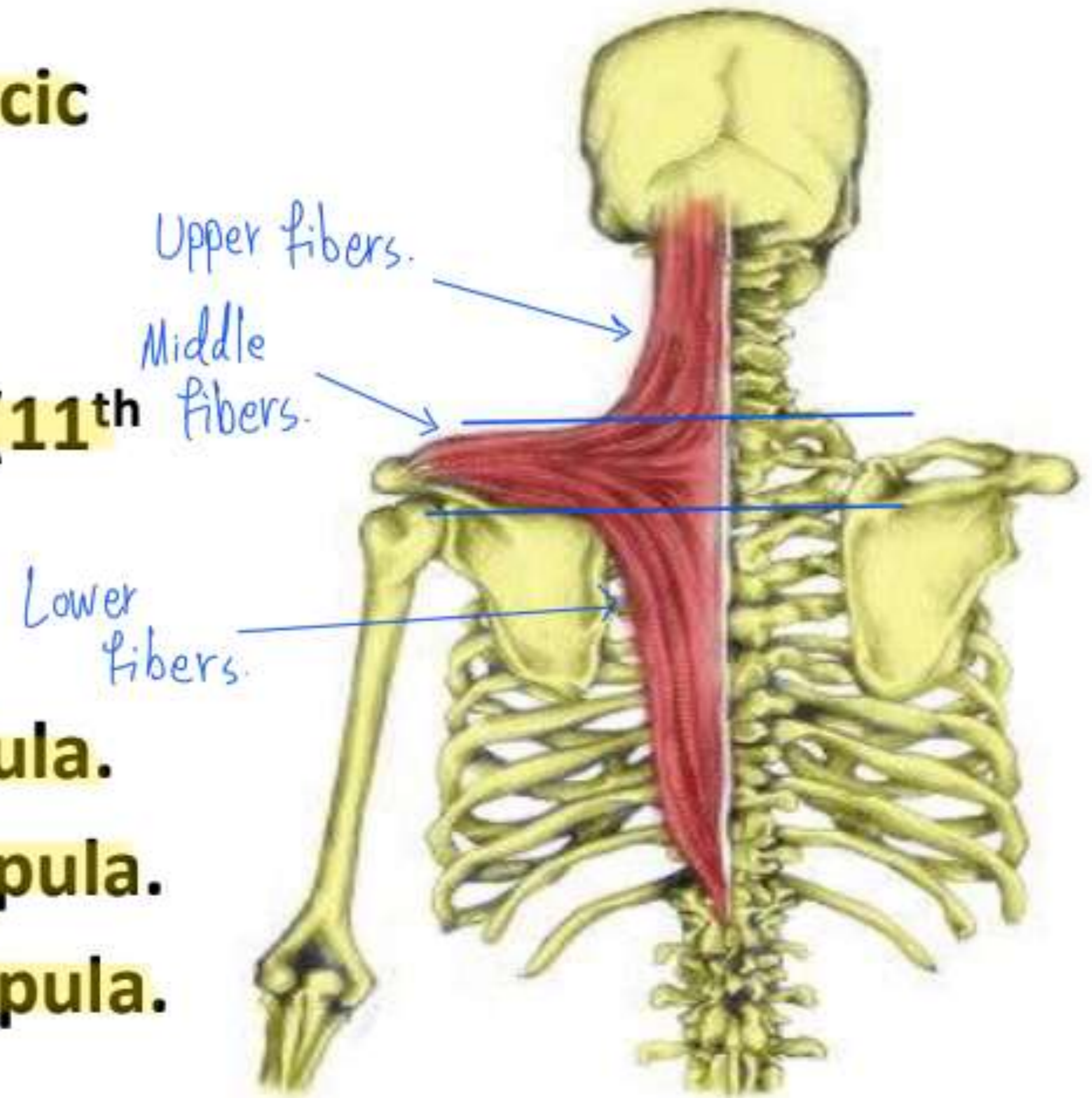
* **Origin:** from skull, cervical & thoracic vertebrae.

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

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

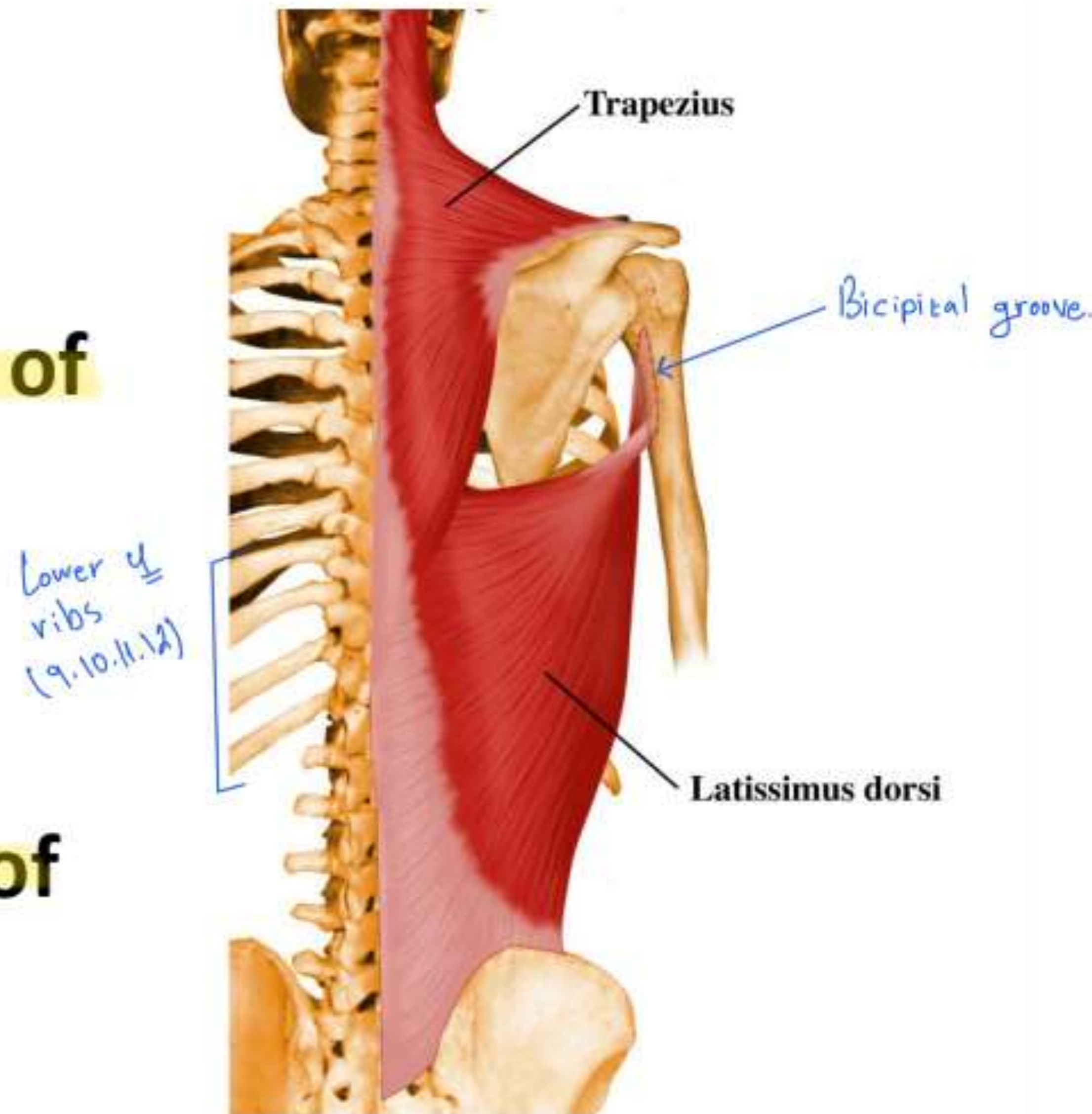
* **Action:**

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



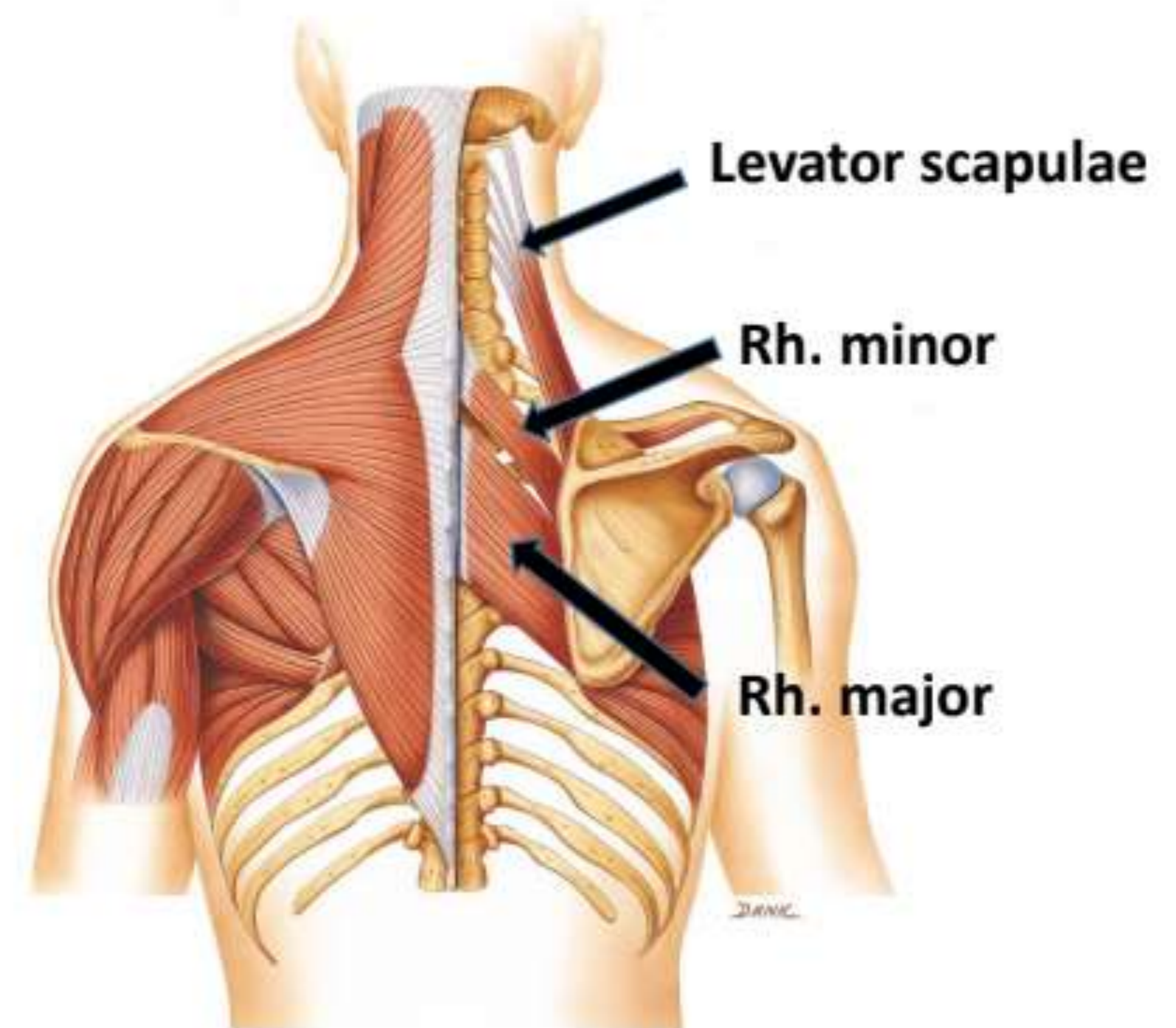
2. Latissimus Dorsi

- * **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. or Arm.



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.

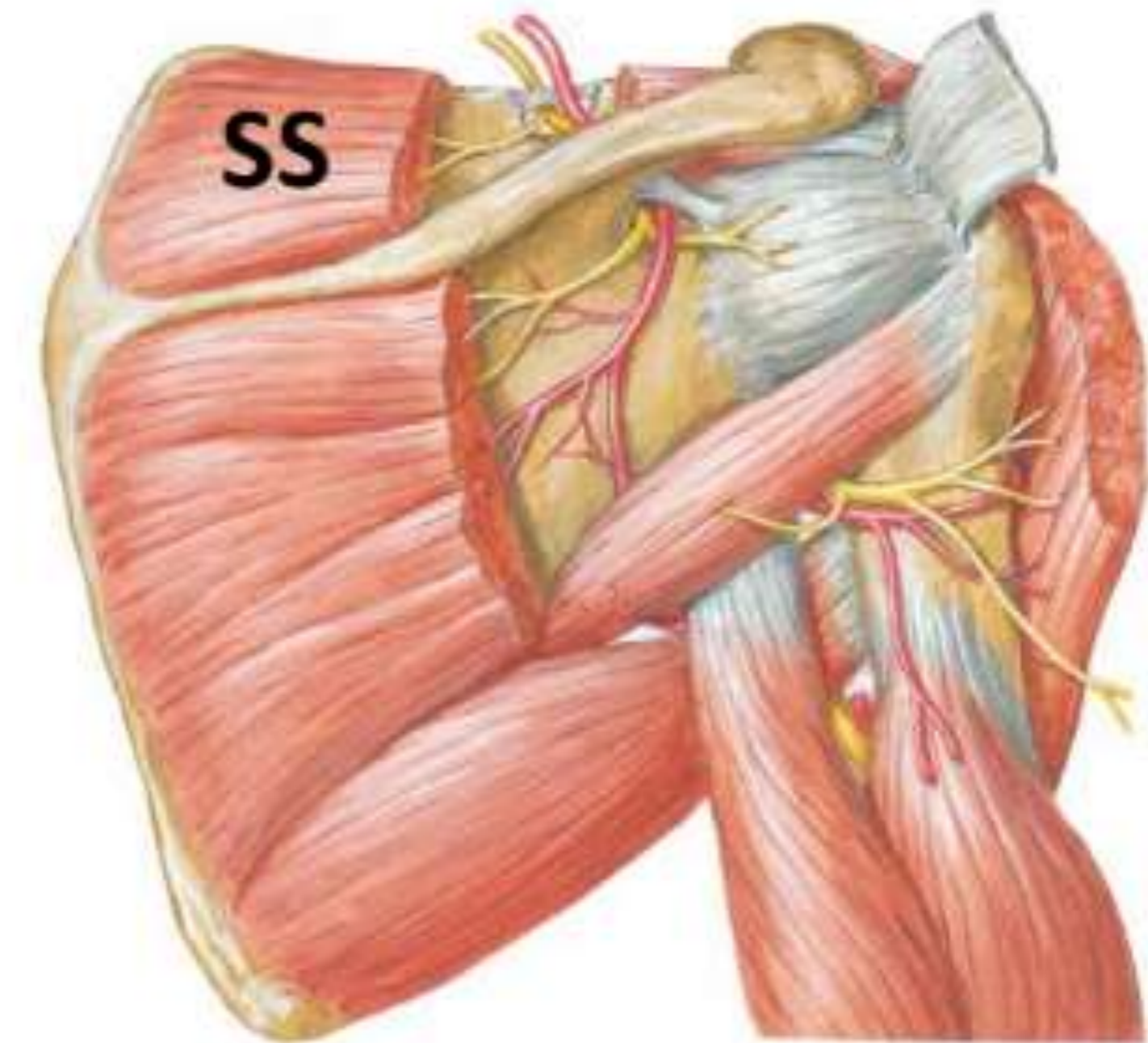
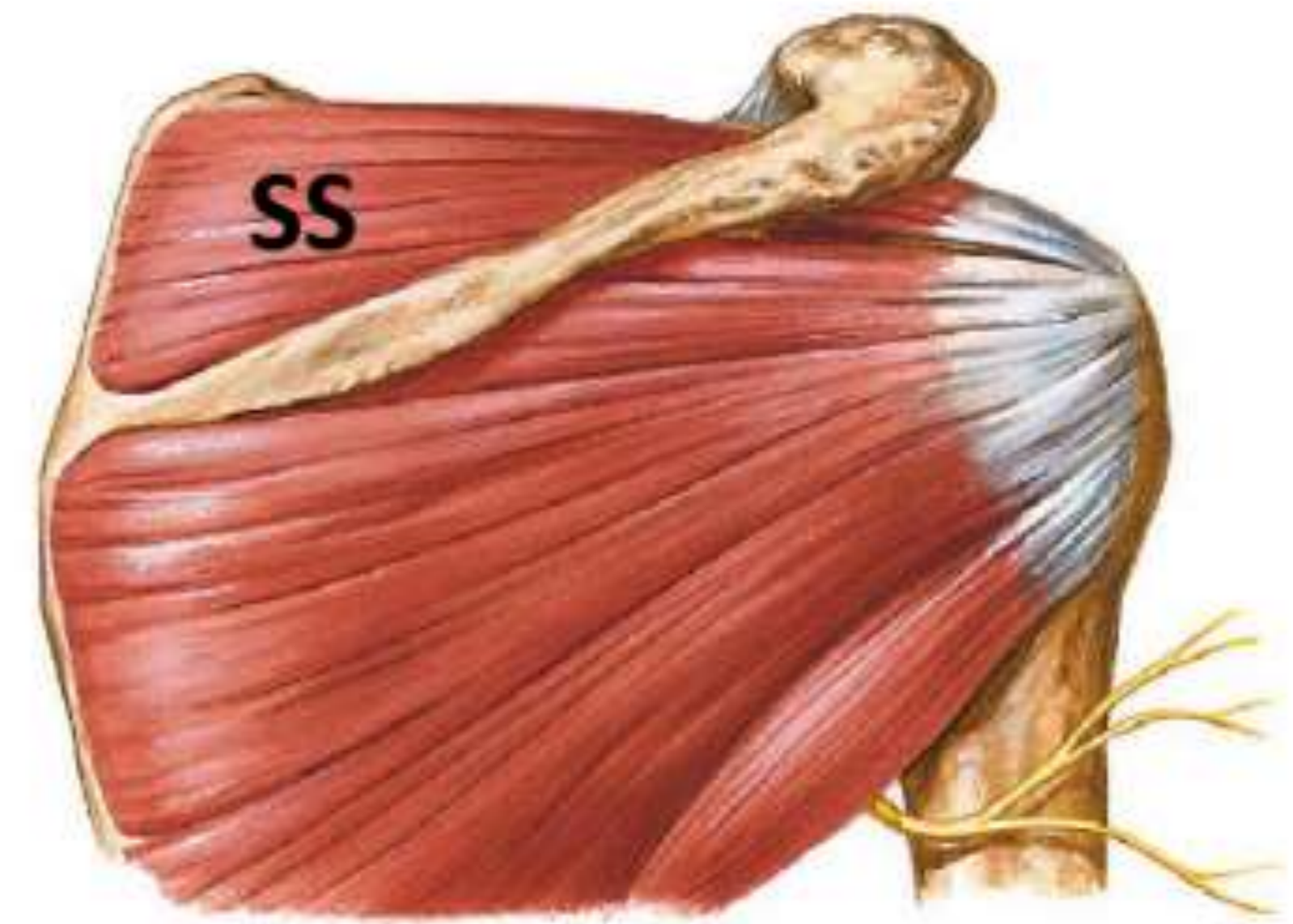
* **Insertion:** in the humerus.

* **Nerve supply:** by nerves from C5&6.

* **Action:** on the shoulder joint.

* **They include:**

1. **Supraspinatus (SS)** → in supraspinous fossa.



Muscles of Shoulder

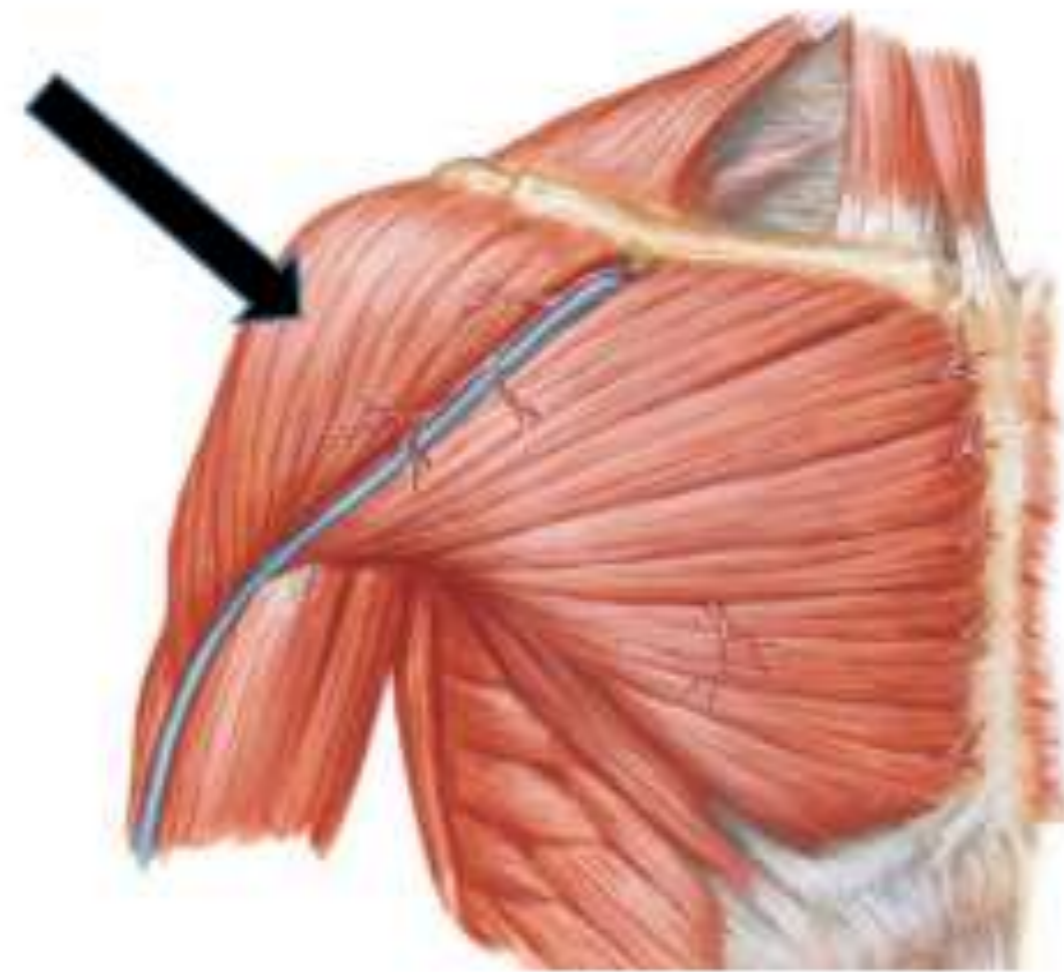
2. **Infraspinatus (IS)** → **in** **infraspinous fossa.**

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

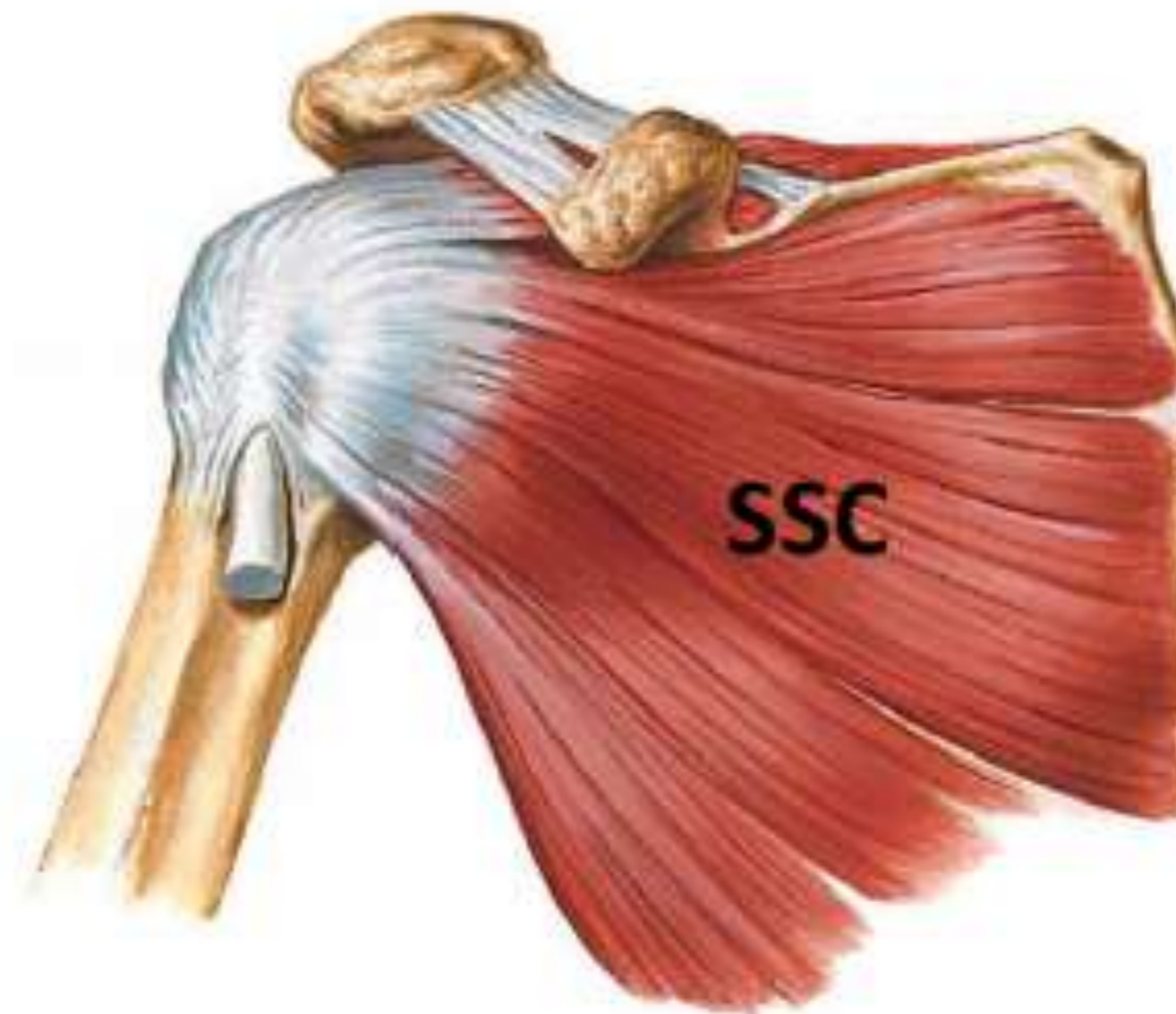
4. **Teres major (TMJ).**

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

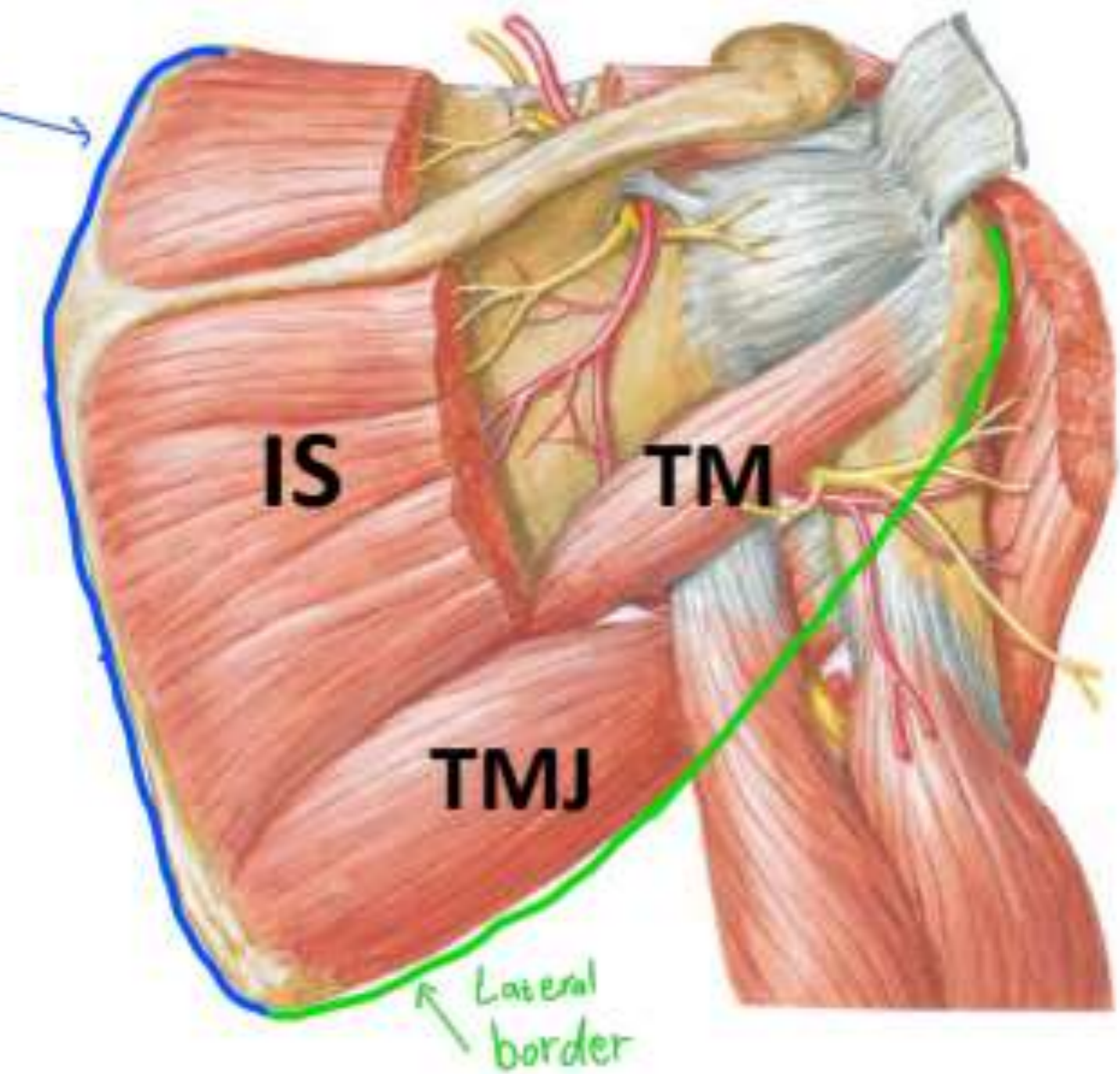
6. **Deltoid.**



On lateral border.

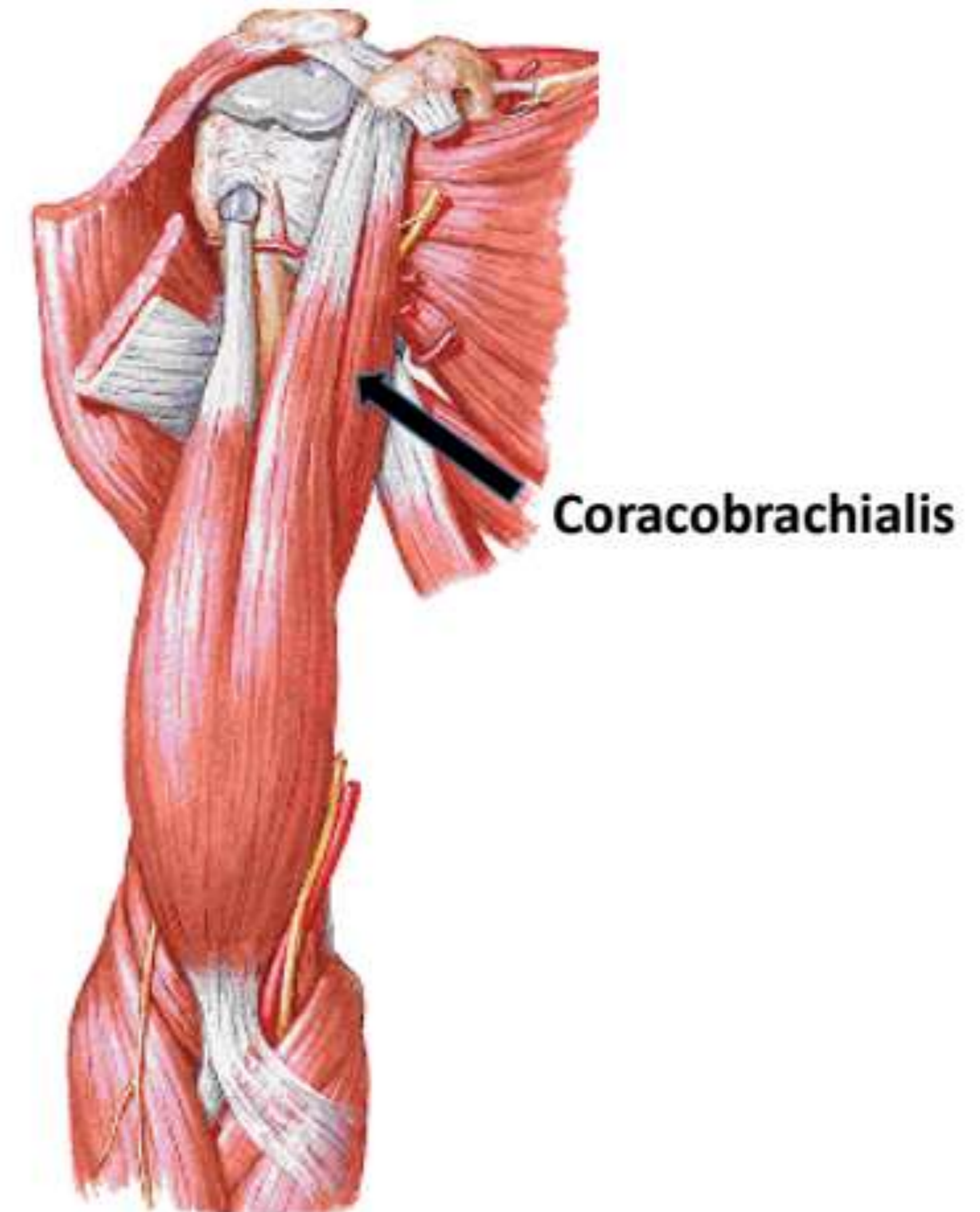


Medial border



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: *→ On medial aspect.*

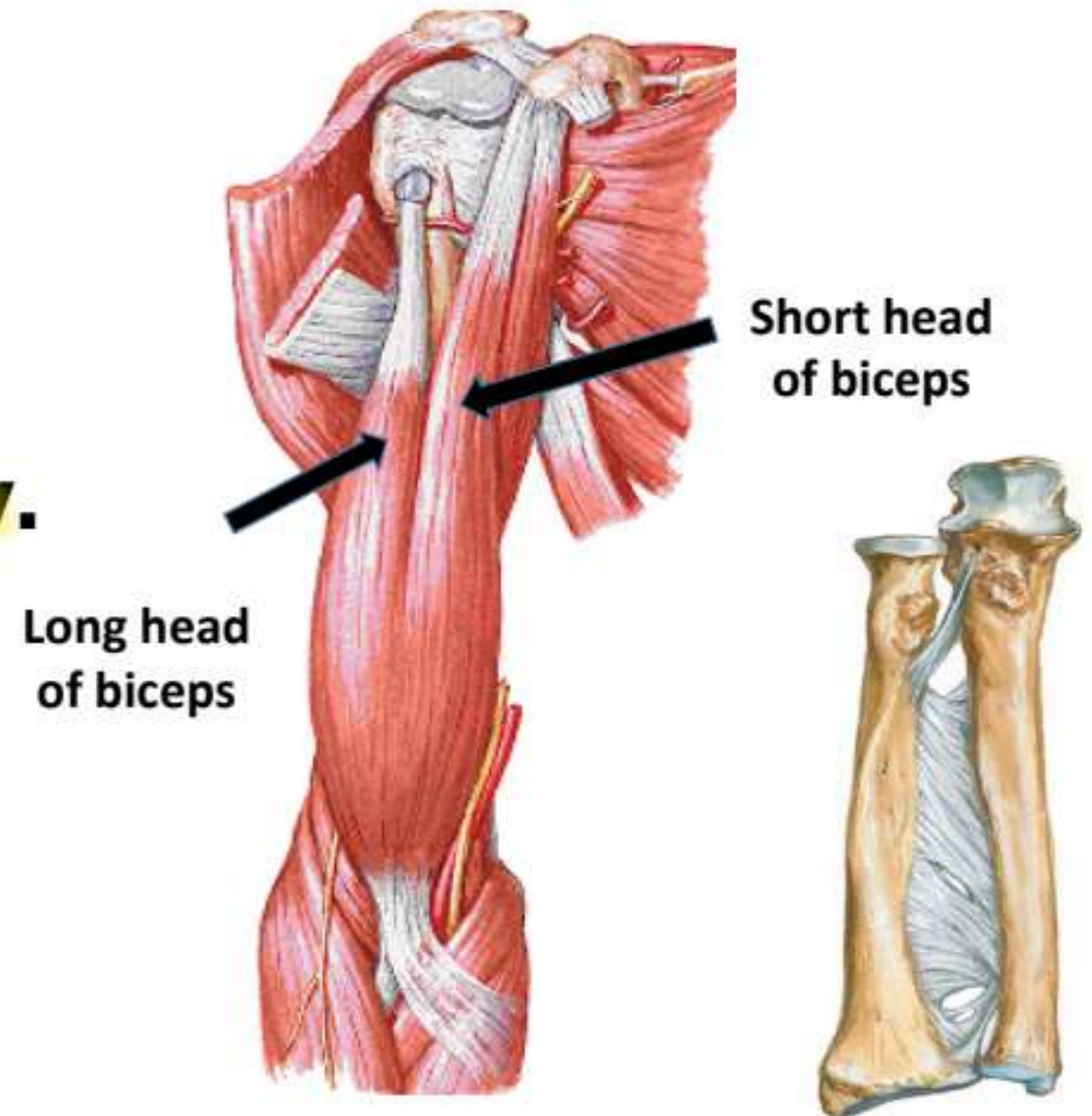
* **Has 2 heads; a short head & a long head.** *→ On lateral aspect.*

* **Inserted in: radial tuberosity.**

* **Action:**

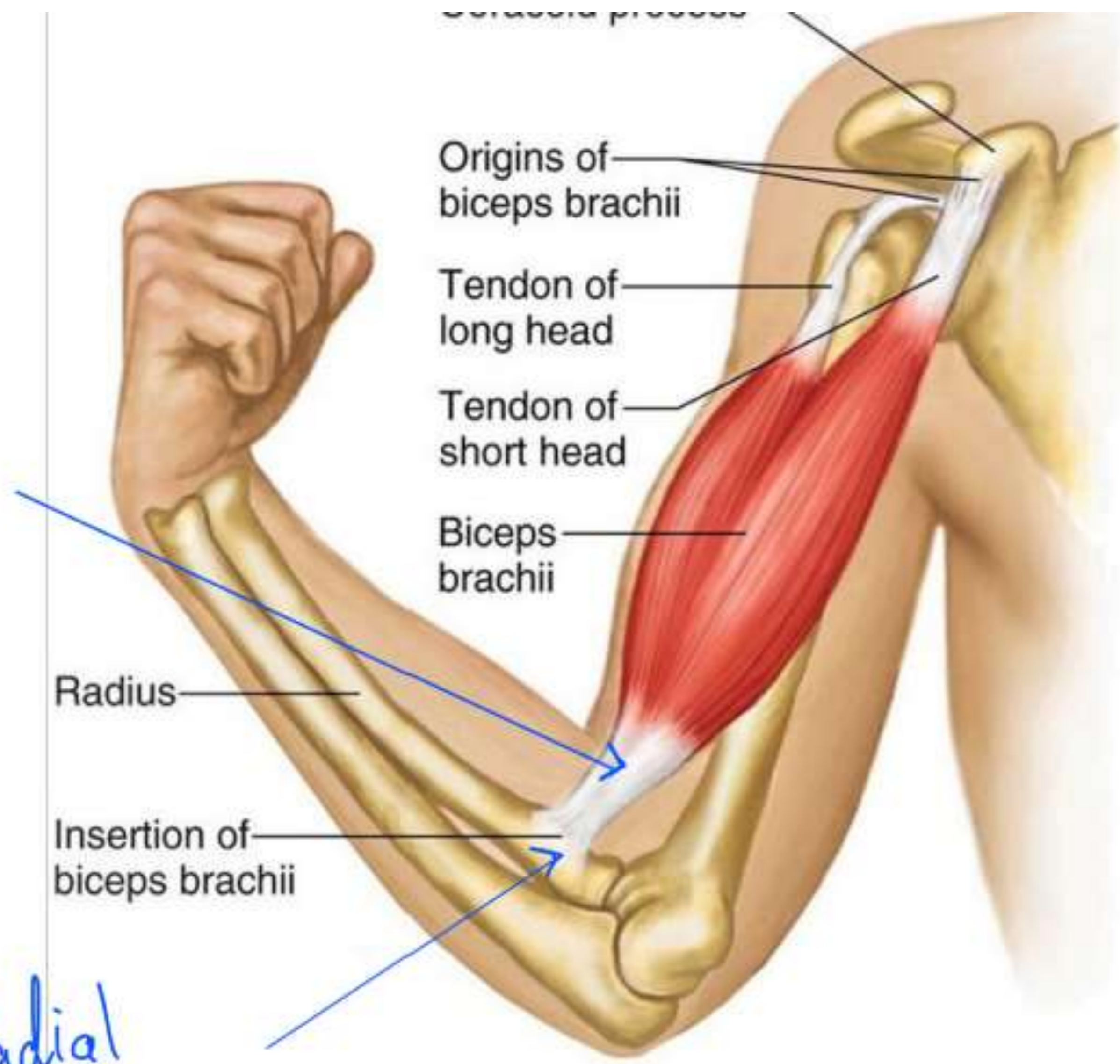
1. Flexion of elbow.

2. Supination of forearm.



Biceps tendon.

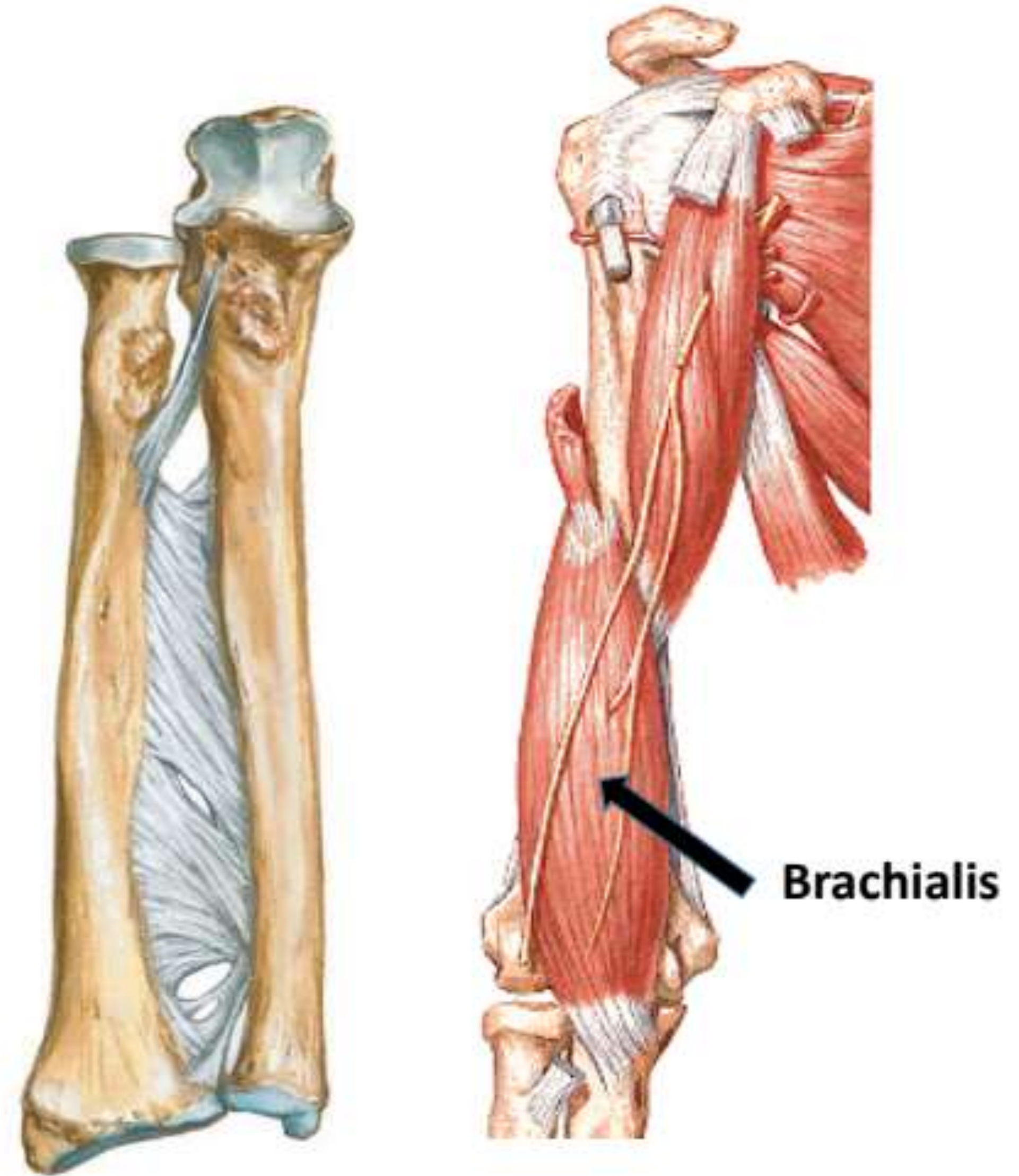
Radial tuberosity.



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.

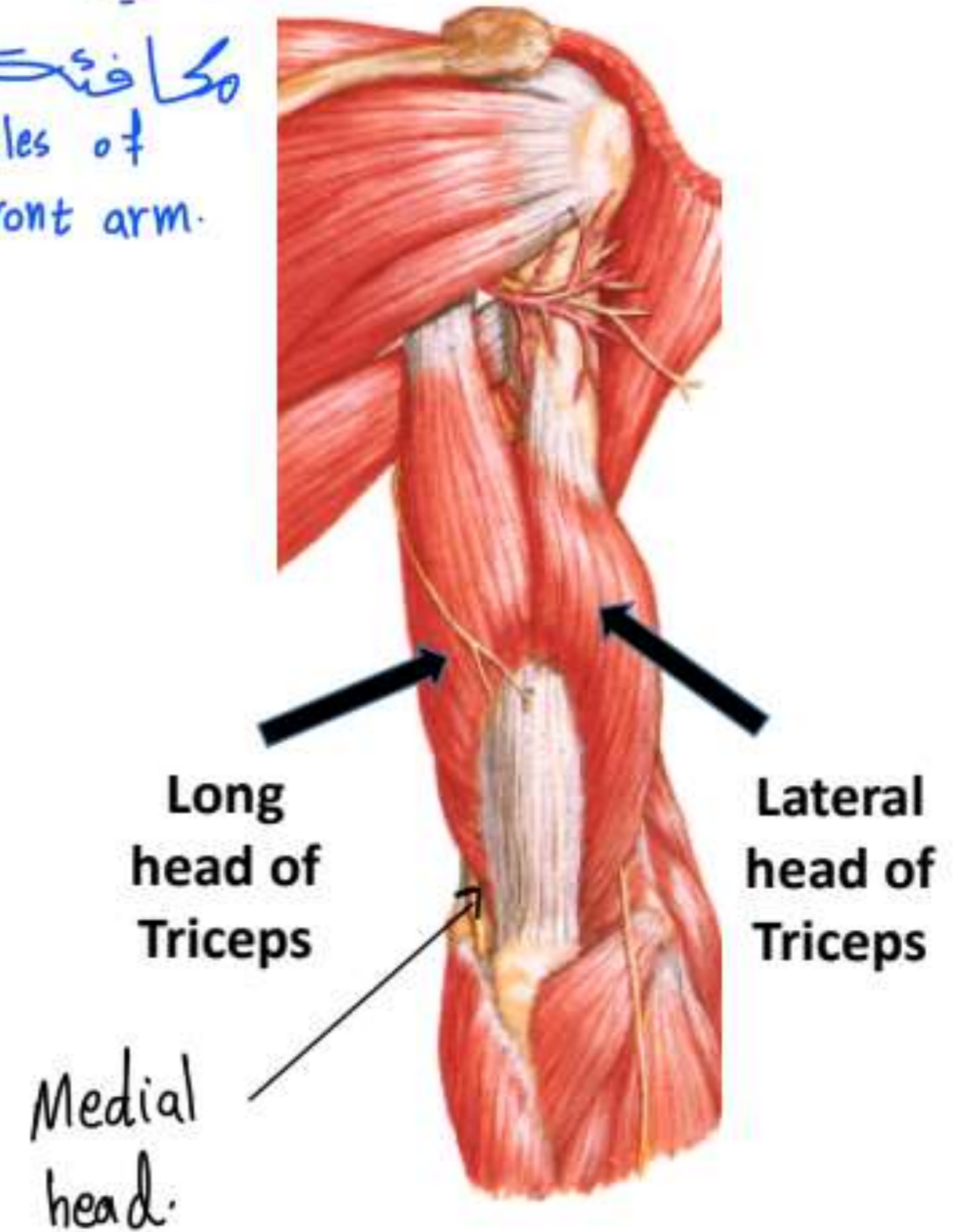
* The medial head lies deep to the other 2 heads.

* **Nerve supply:** Radial nerve.

* **Action:** Main extensor of elbow.

3 Heads لدرج

مكافئة ل
Muscles of
front arm.



G-Muscles of Front of Forearm

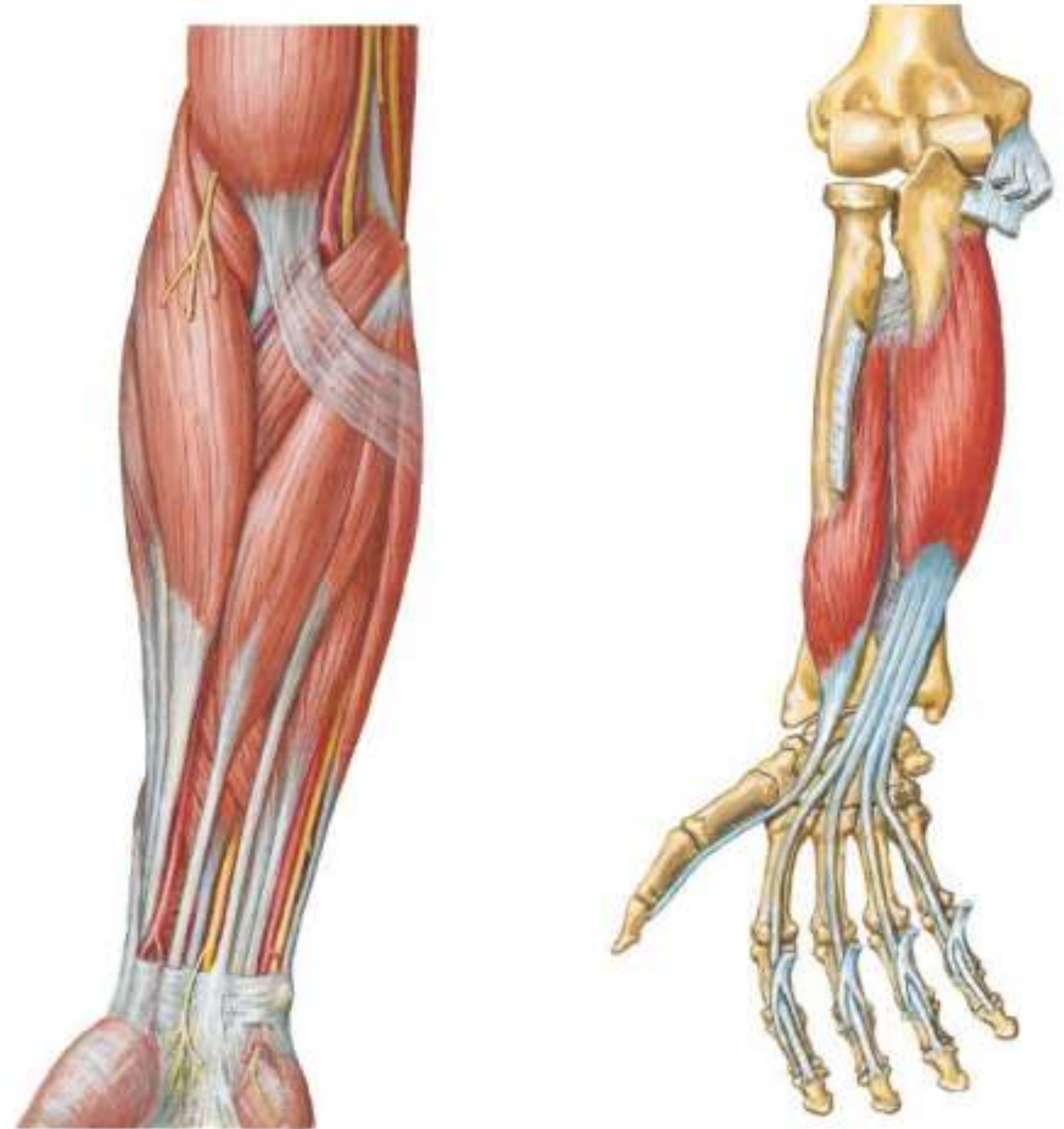
* They are 8 in number.

* They are arranged in 3 layers:

I. A superficial layer → formed of 4 muscles.

II. A middle layer → formed of one muscle.

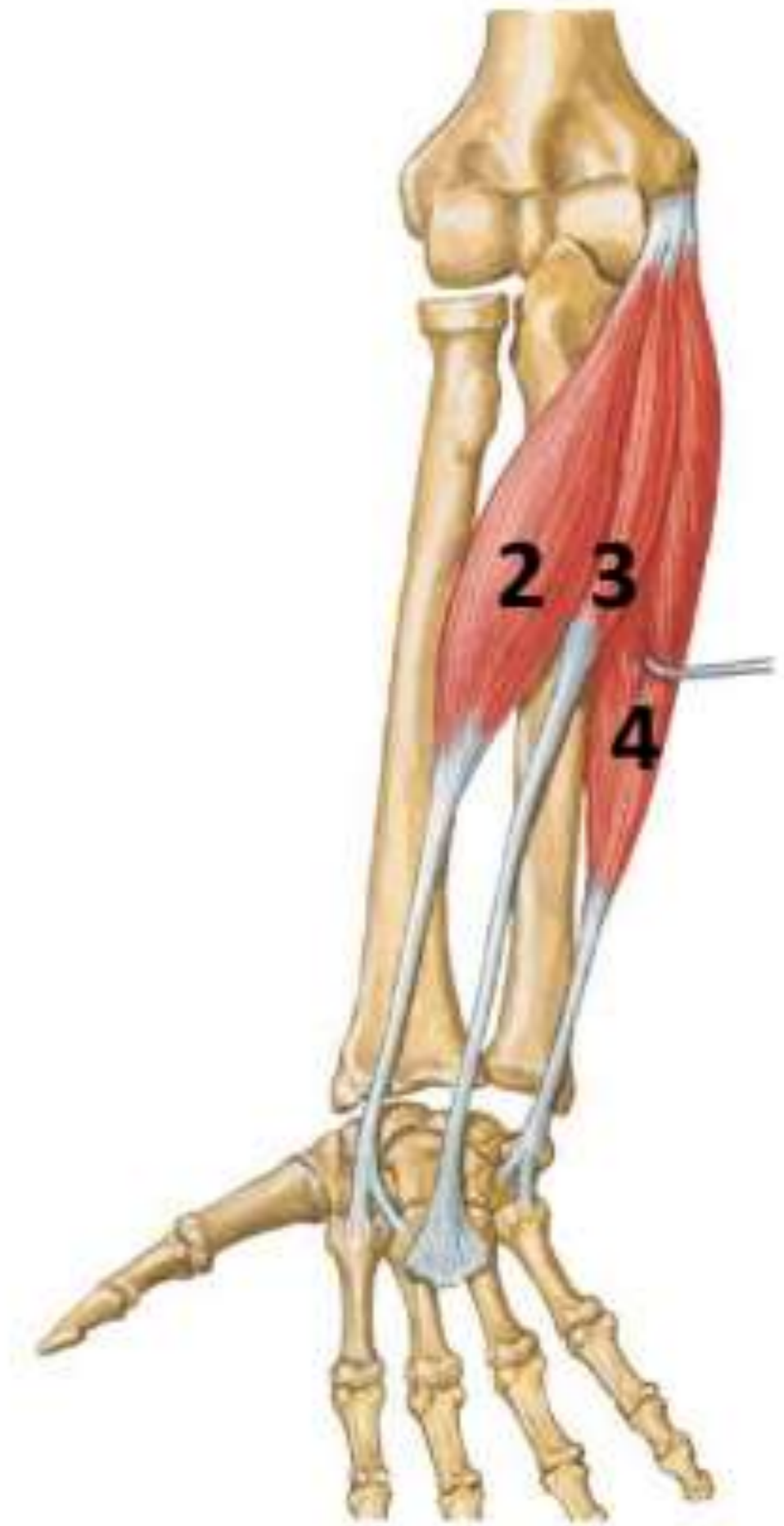
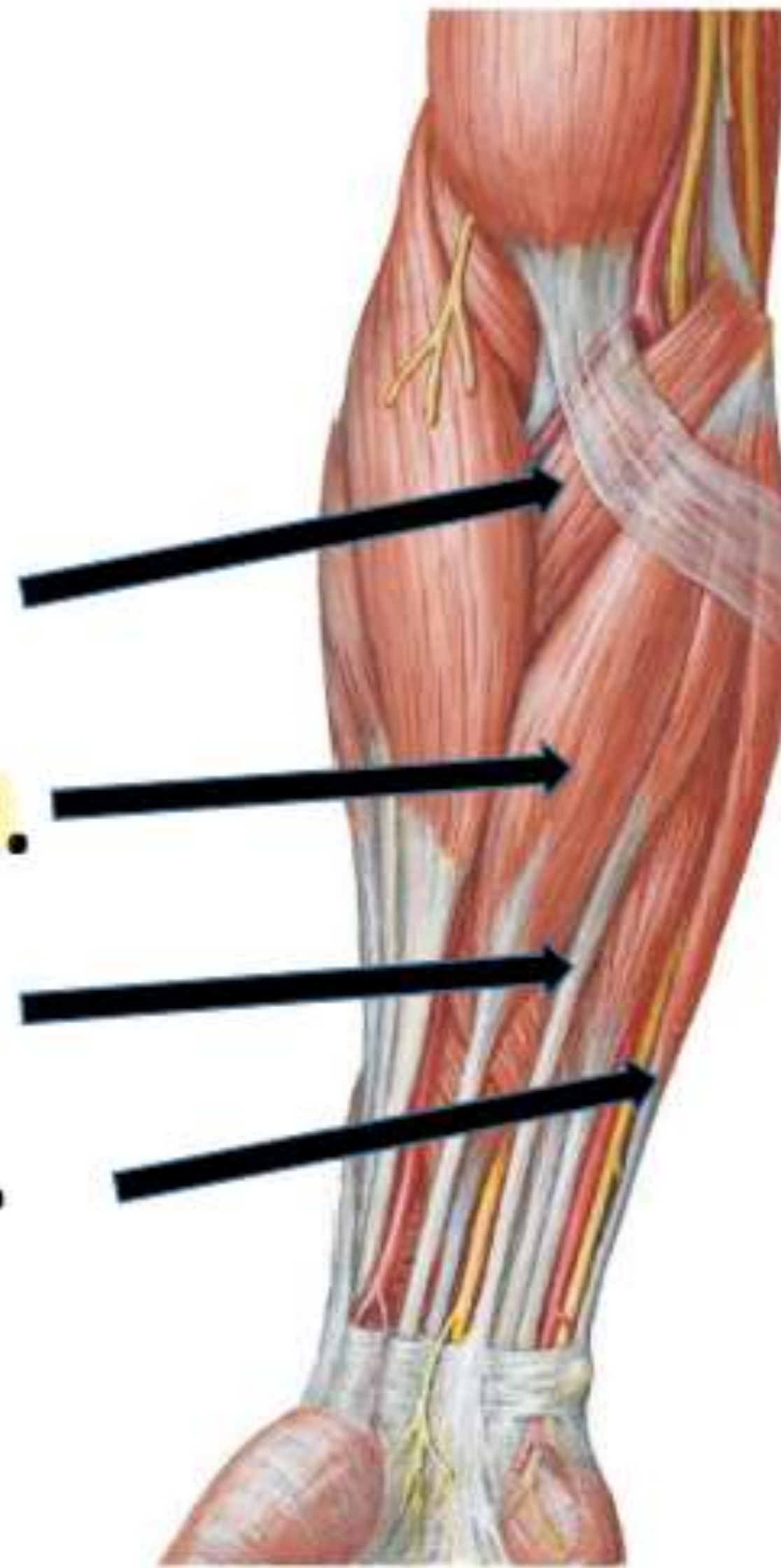
III. A deep layer → formed of 3 muscles.



I. Superficial Layer

* **Formed of:**

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



* Muscles that arrive to wrist It's action → flexion of wrist.

* **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

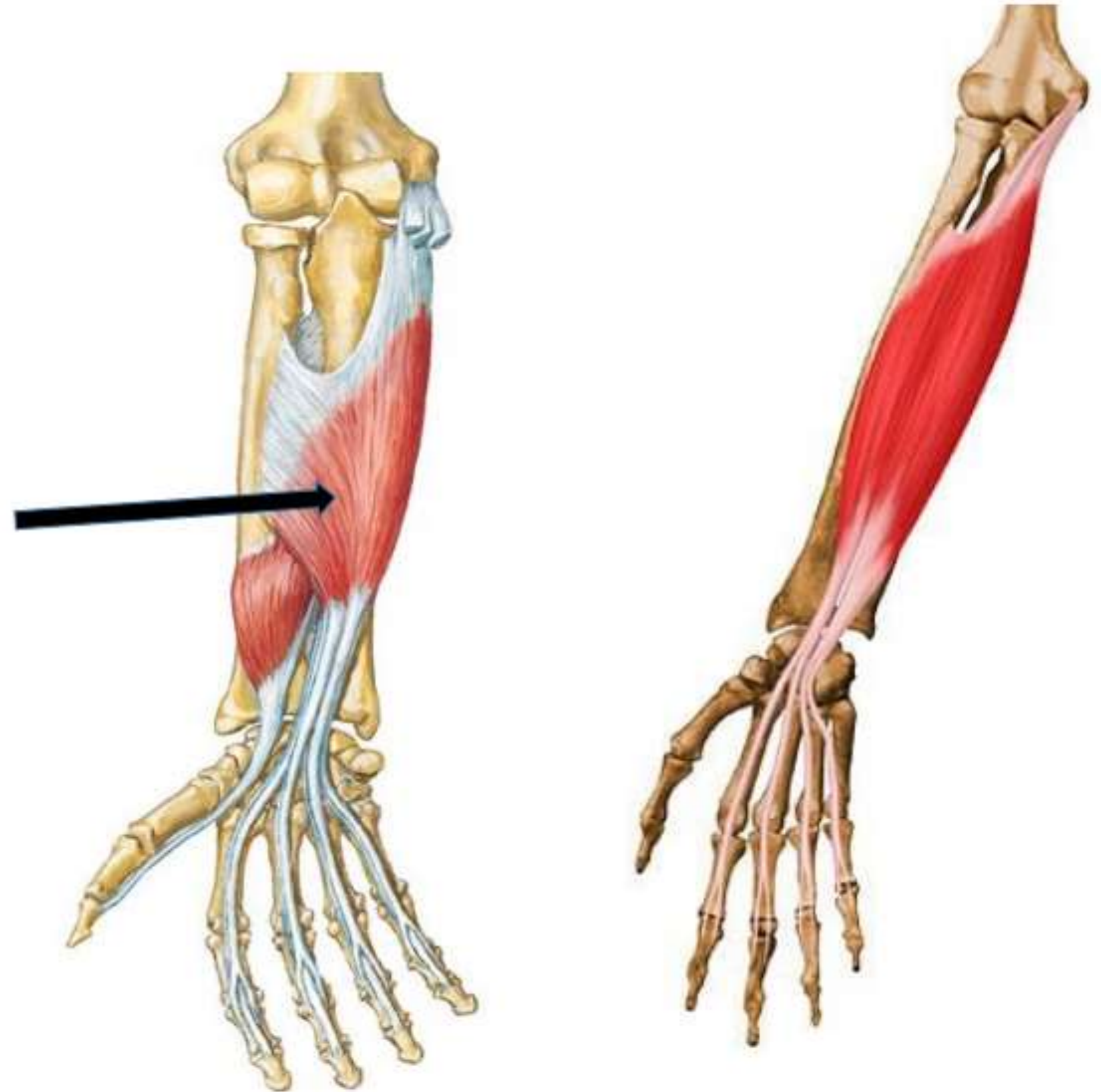
Digit → Finger.

* Formed of:

Flexor digitorum superficialis.

* **Nerve supply: Median nerve.**

* **Action: Flexion of wrist & fingers.**

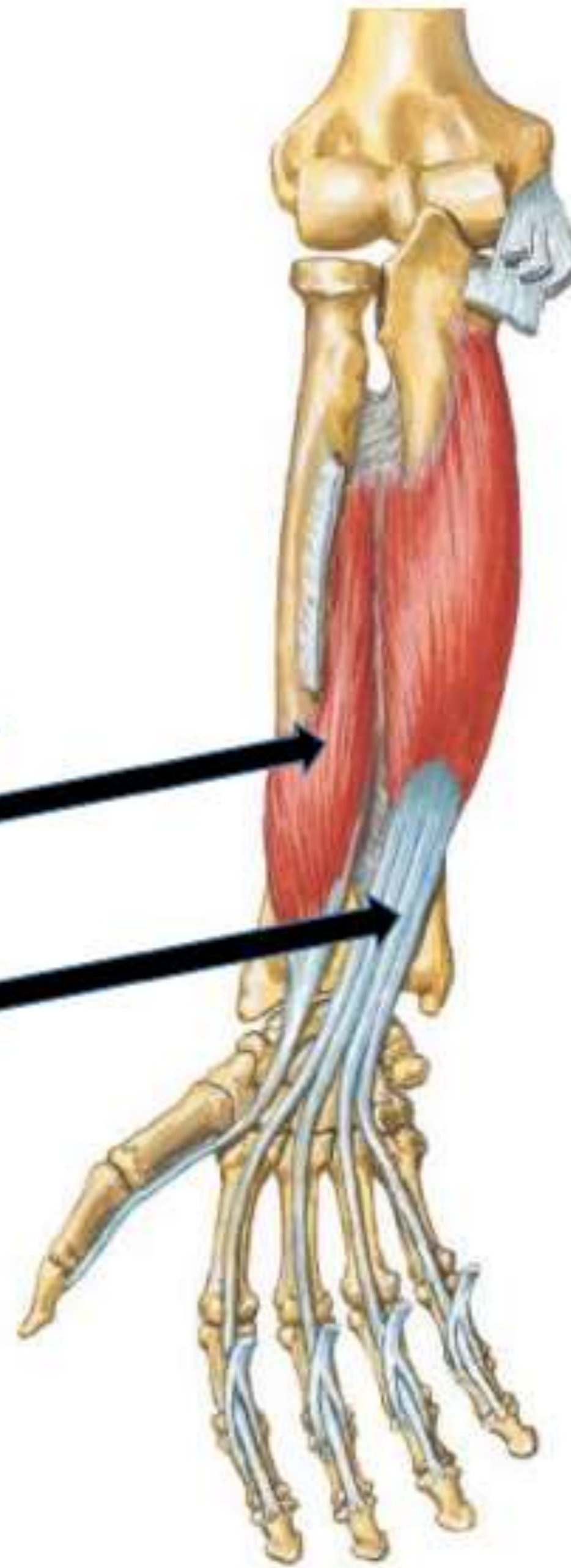


III. Deep Layer

* **Formed of:**

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

→ Arrive to thumb.



*** 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.

There is 2 muscles (Pronator quadratus, Pronator teres) their action is pronation of forearm

but the main pronation is Pronator quadratus.

H-Muscles of Back of Forearm

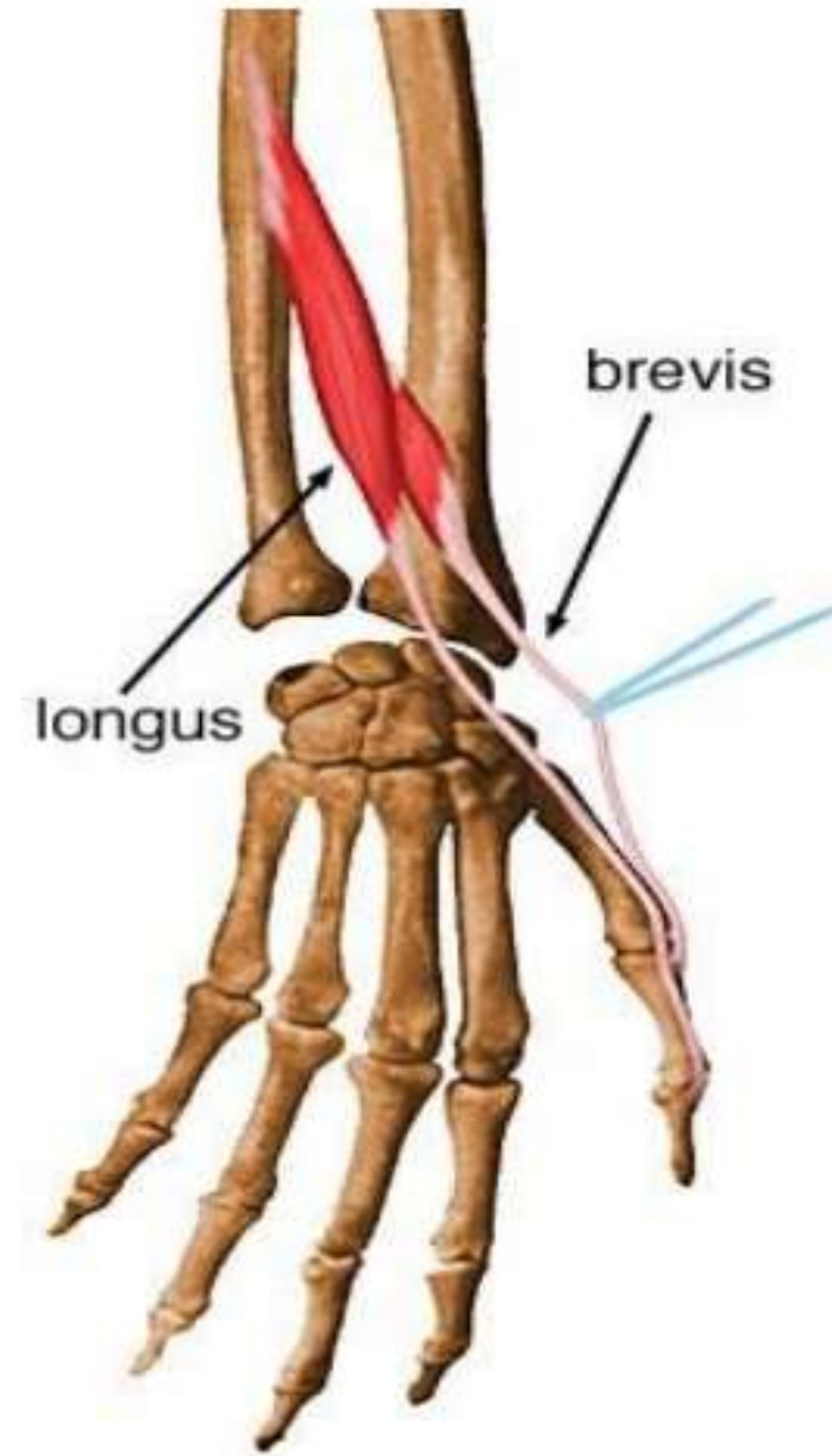
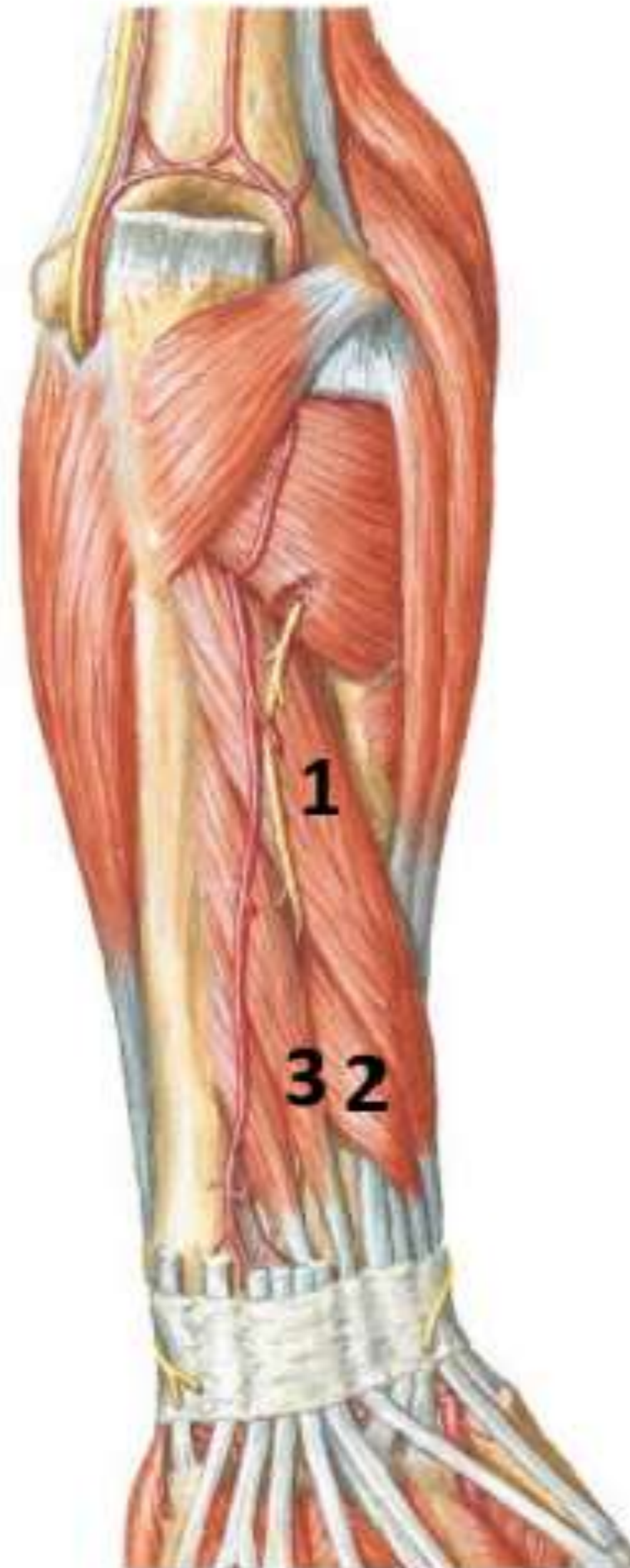
- * They are 12 in number.
- * They are arranged in 4 groups:
 - I. Three muscles acting on thumb.
 - II. Three RADIALIS muscles.
 - III. Three muscles acting on medial 4 fingers.
 - IV. Three miscellaneous muscles.
- * All these muscles are supplied by Radial nerve & its branch (posterior interosseous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



I. Three Muscles acting on Thumb

pollicis → Thumb.

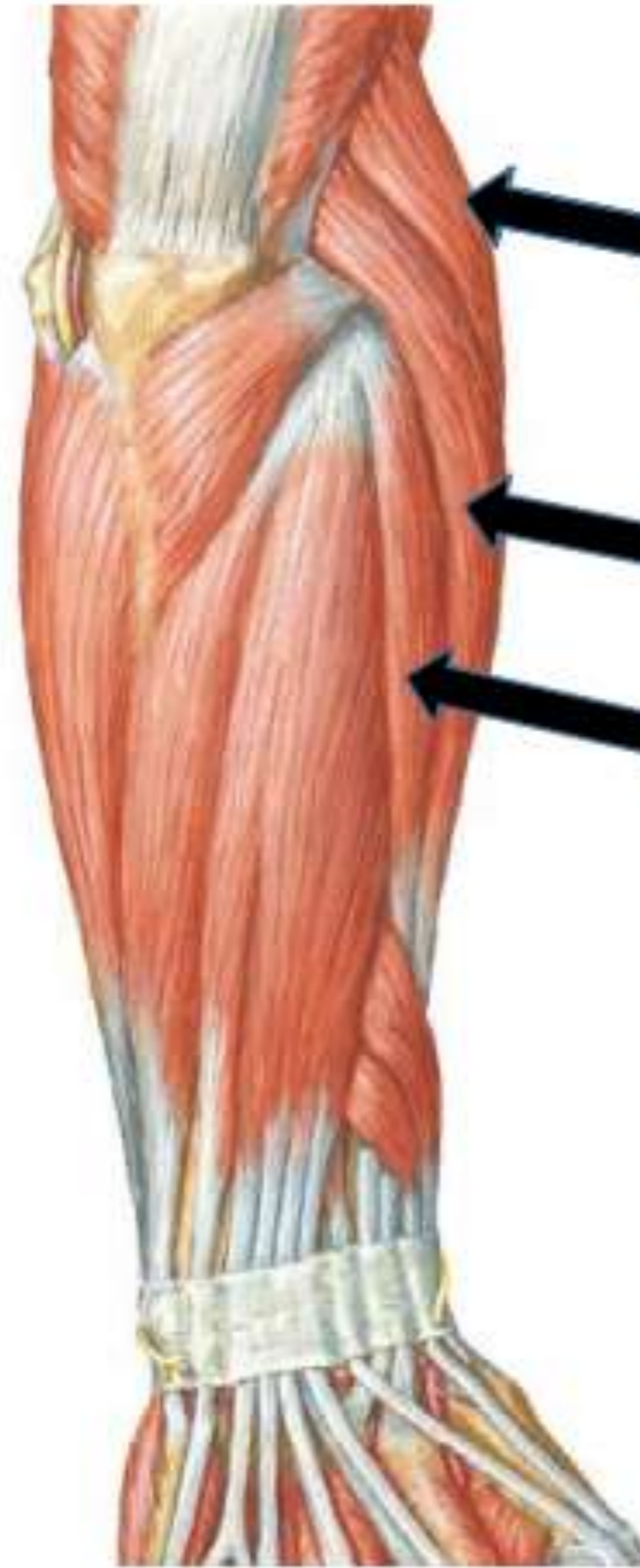
1. **Abductor pollicis longus.**
2. **Extensor pollicis brevis.**
3. **Extensor pollicis longus.**



Abductor Make abduction for the thumb.

Extensor Make extension for the thumb.

II. Three RADIALIS Muscles



1. **Brachioradialis.**

2. **Extensor carpi radialis longus.**

3. **Extensor carpi radialis brevis.**

Make extension
for elbow joint.

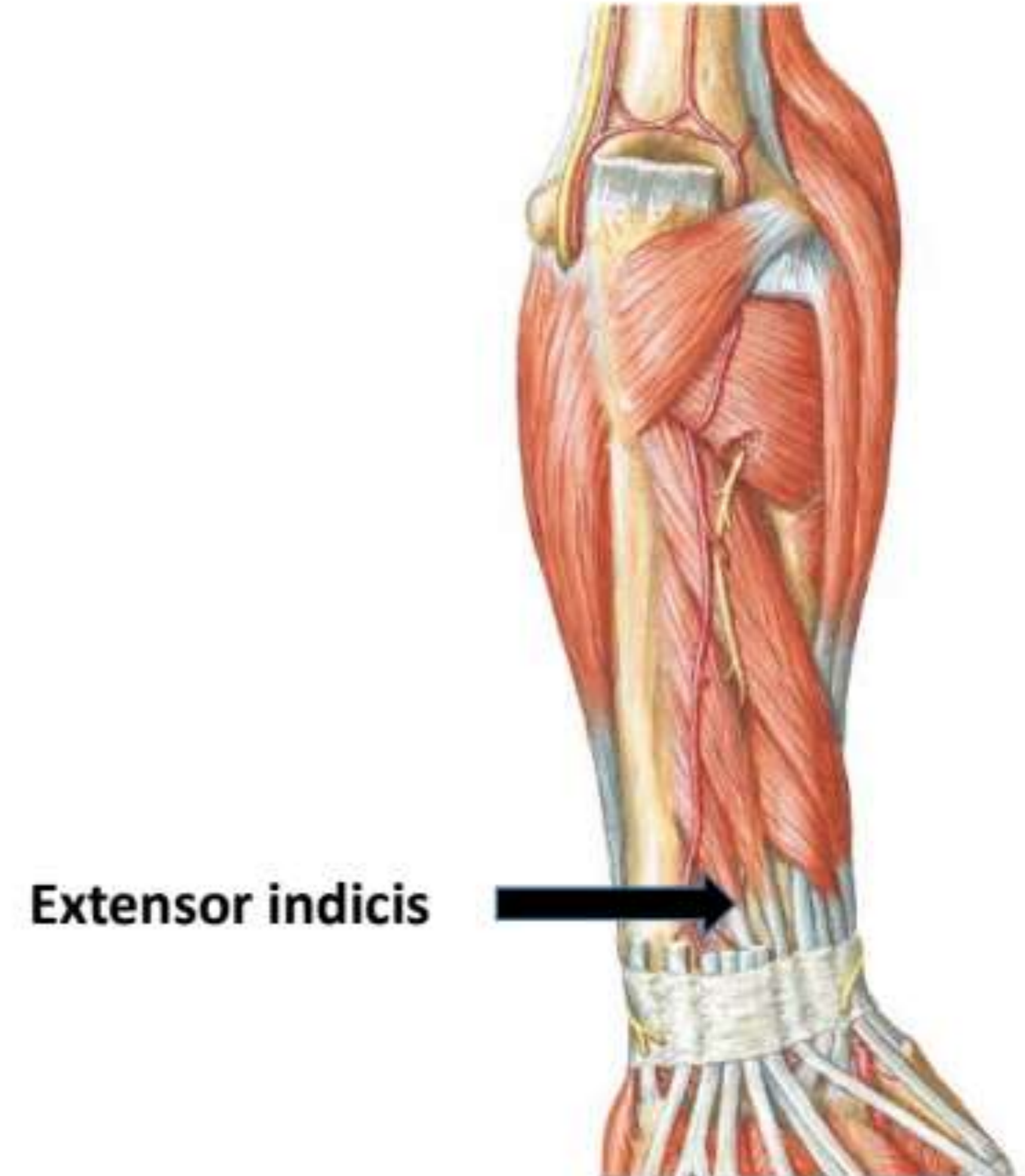
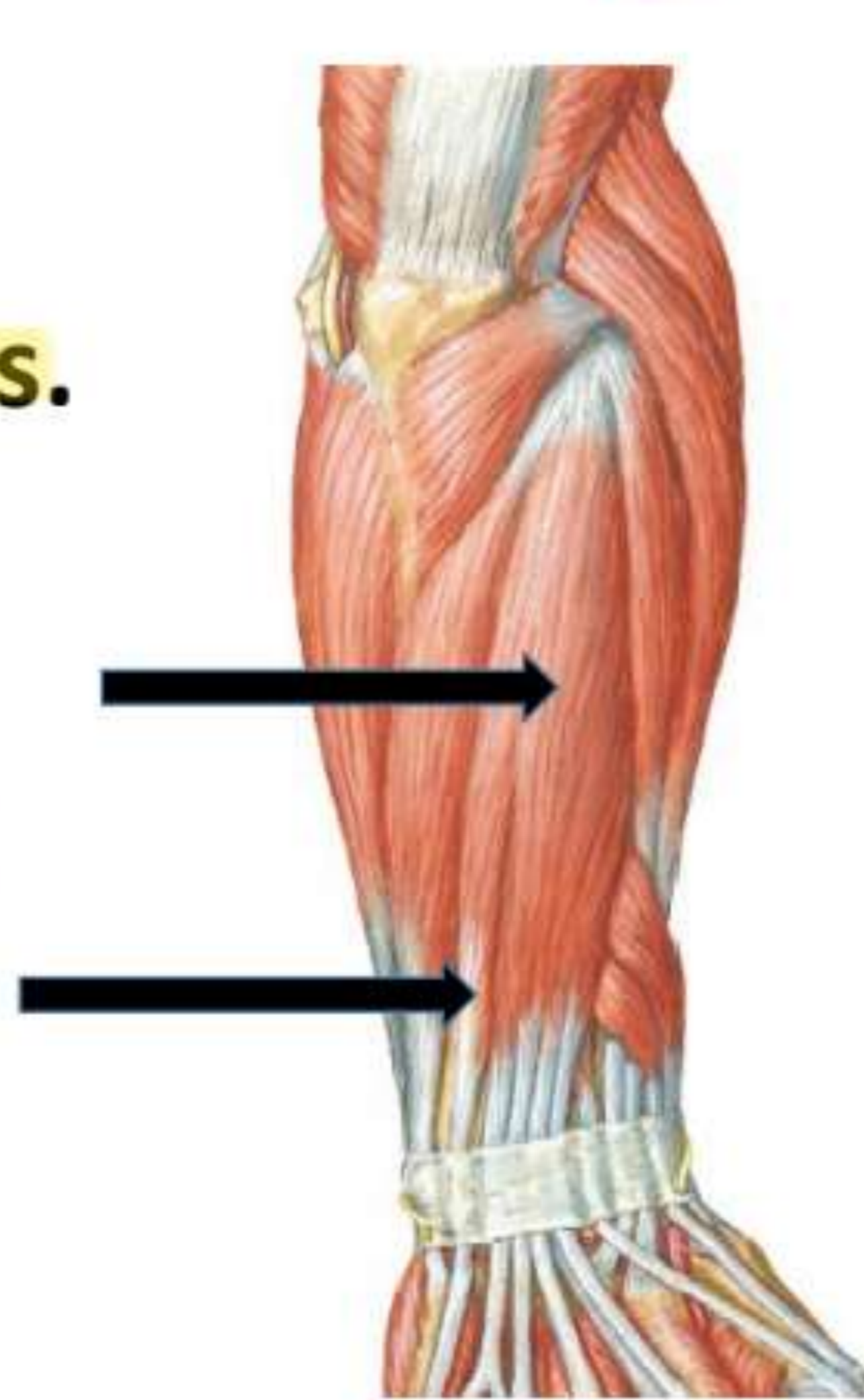
Brachioradialis

REHAB My Patient.com



III. Three Muscles acting on Medial 4 fingers

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



1. Extensor indicis.

Make extension for index finger.

2. Extensor digitorum.

Make extension for middle 4 fingers.

3. Extensor digiti minimi.

Make extension for little finger.

Extensor indicis



Extensor digitorum.

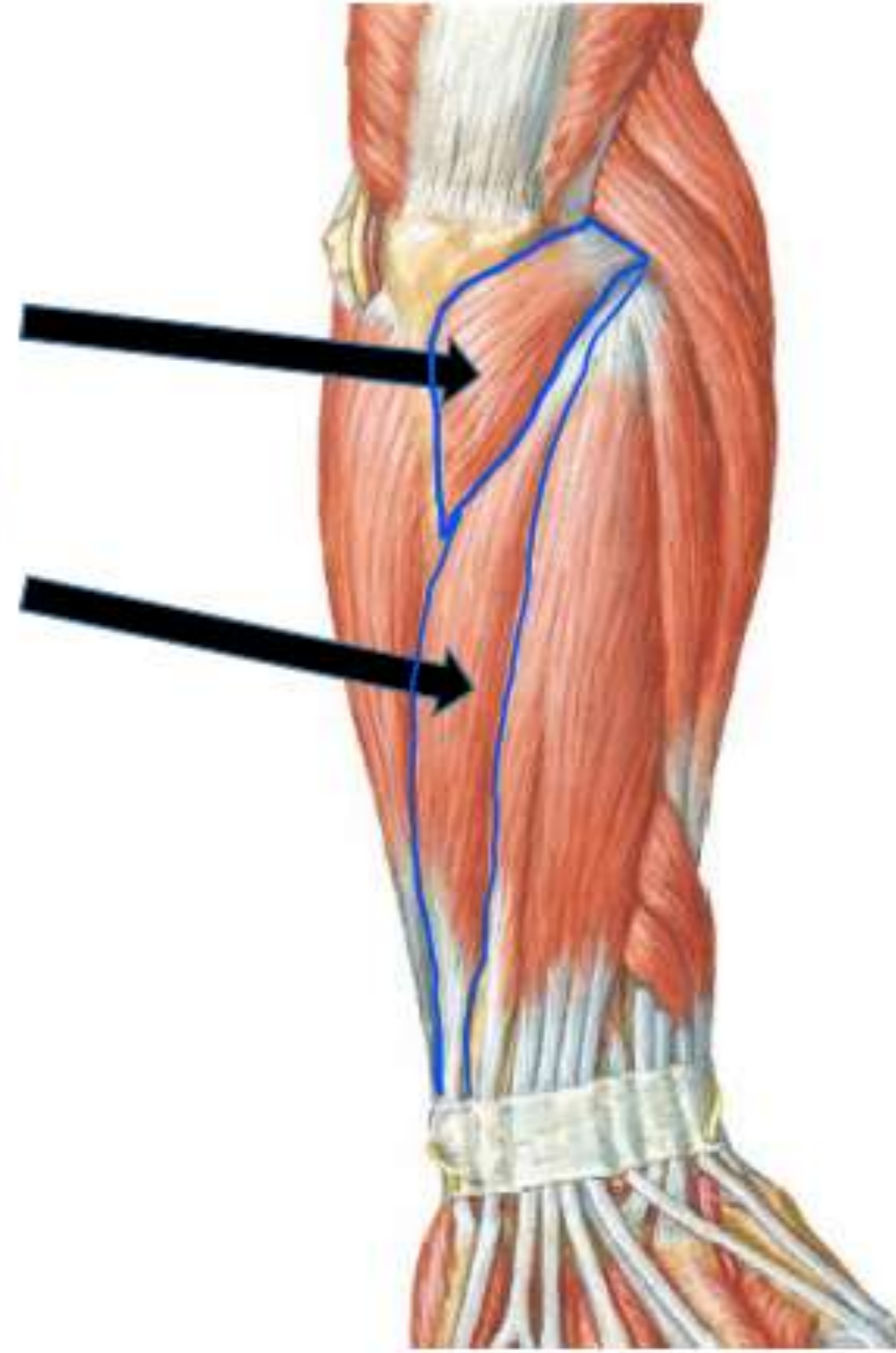


Extensor digiti minimi.

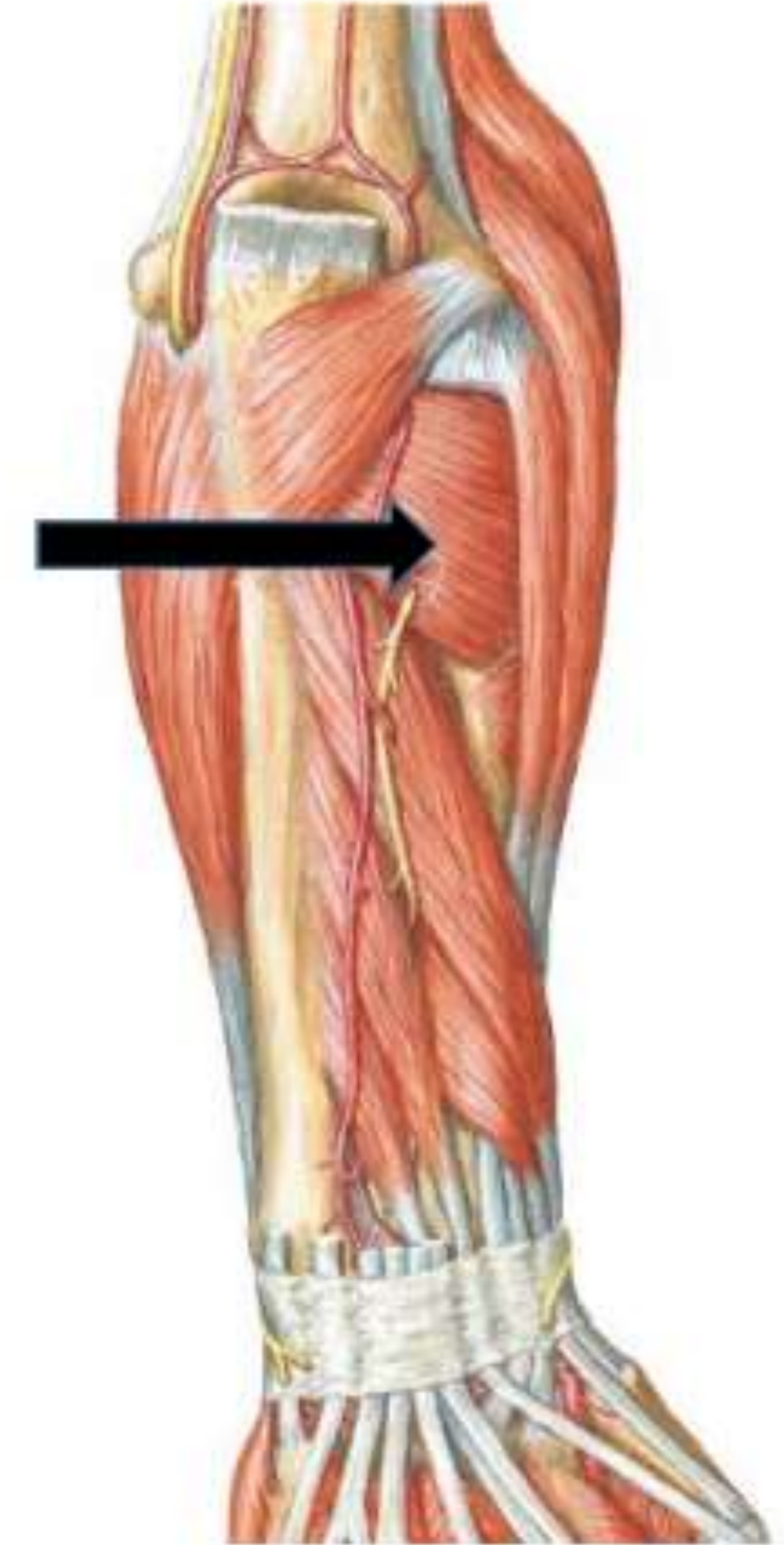


IV. Three Miscellaneous Muscles

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



Supinator



1. Anconeus.

Help the biceps in extension the elbow joint.

3. Supinator.

The main muscle in supination in forearm.



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.**

I. Muscles of Thumb:

1. **Abductor pollicis brevis.** Abduction of the thumb.

2. **Flexor pollicis brevis.** Flexion of the thumb.

3. **Opponens pollicis.** Opposition of the thumb. زي لما تسبح بأصابعك.

4. **Adductor pollicis.** Adduction of the thumb.

II. Muscles of Little finger:

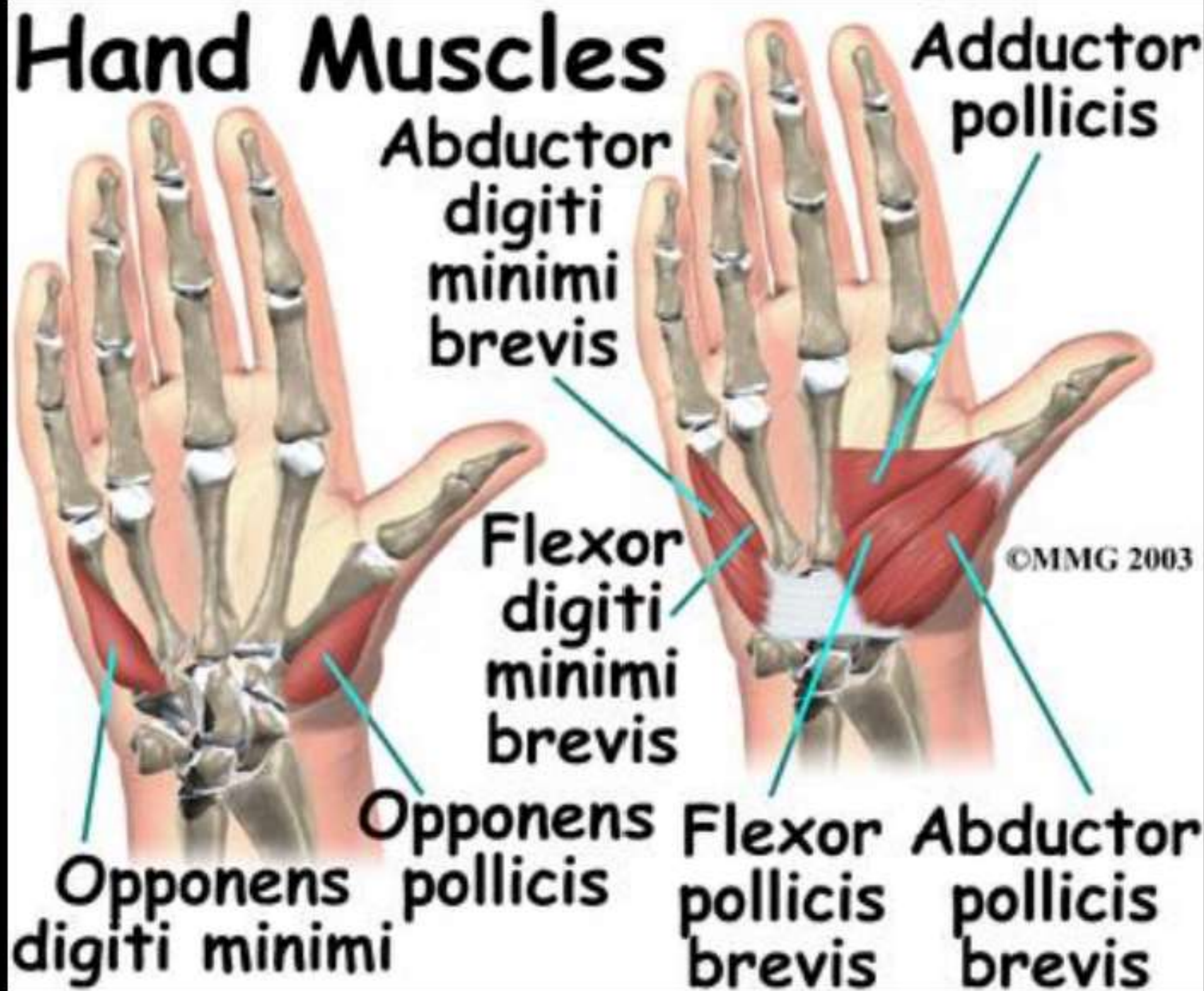
1. **Abductor digiti minimi.** Abduction of the little finger

2. **Flexor digiti minimi.** Flexion of the little finger

3. **Opponens digiti minimi.** Opposition of the little finger

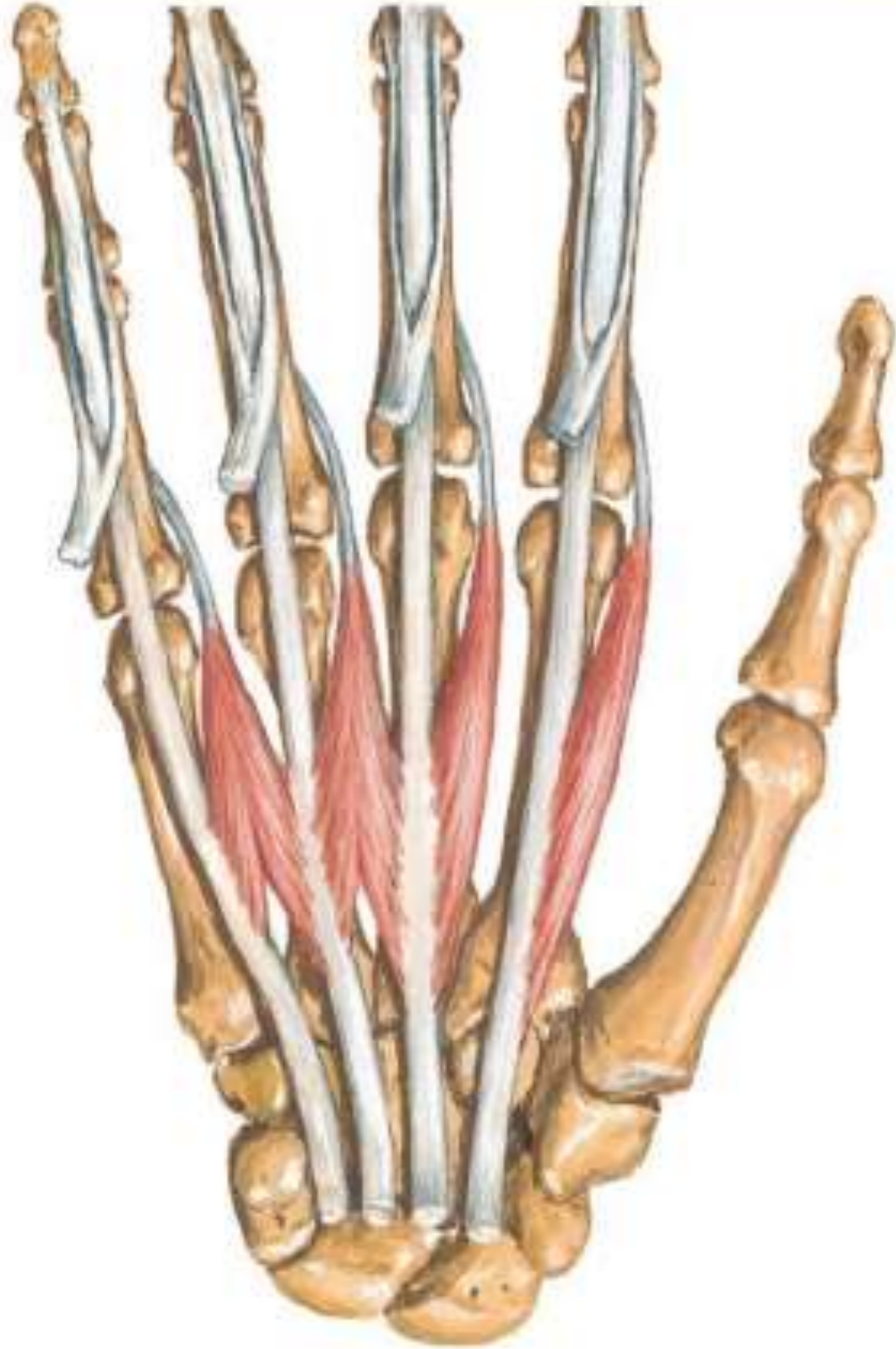
لما تسج بأصابعك
وتجيب thumb قبال little

Hand Muscles



III. Four Lumbrical muscles:

* **Action:** putting the hand in the writing position.



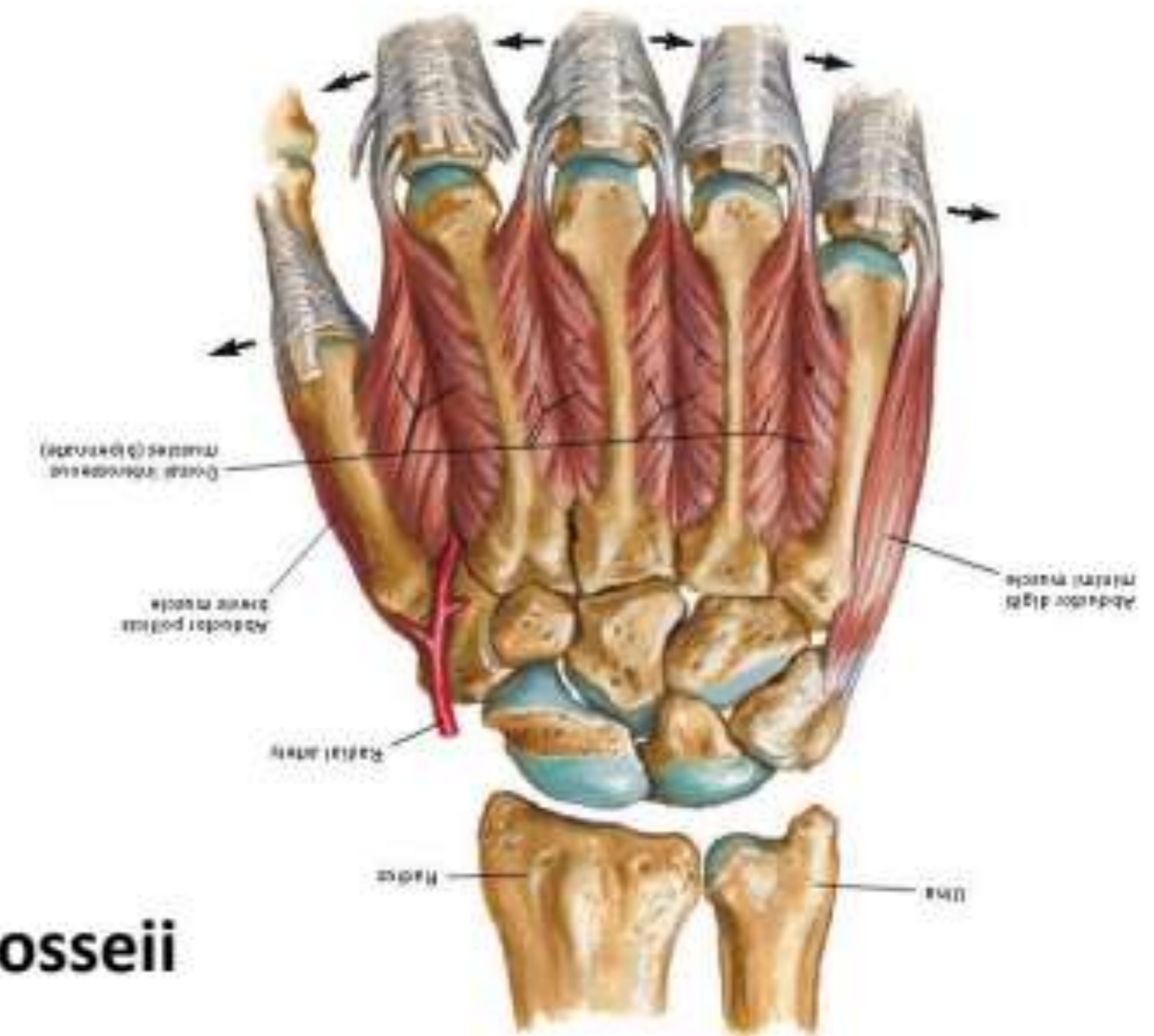
IV. Interossei muscles:

* **Three palmar Interossei & 4 dorsal Interossei.**

* **Action:** abduction & adduction of fingers.



Palmar Interossei



Dorsal Interossei

Palmar Interossei

For Adduction of fingers.

Dorsal Interossei

For Abduction of fingers.

Muscles of upper limb



THANK YOU

