



Lecture: 9

Done By: leen Al.Ashram

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

1. Pectoral region.

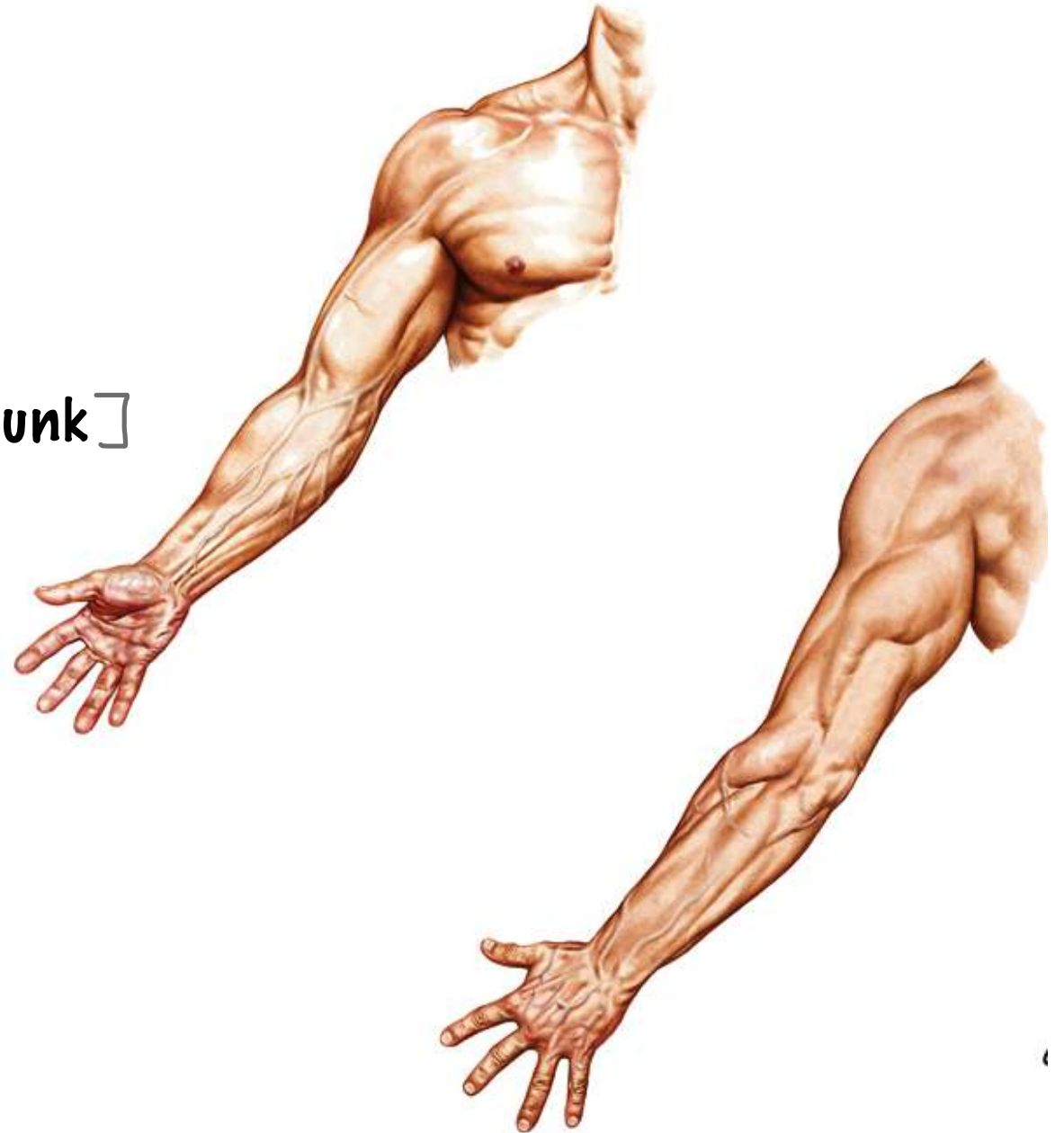
2. Axilla. ^{الابط} → [Between upper limb & trunk]

3. Back.

4. Arm.

5. Forearm.

6. Hand.



glenoid cavity كَيْسَل عِنْد حَرَكَةِ Humerus

multiaxial joint
يَسْتَقِلُّ عَلَى أَكْثَرِ مِنْ أَتْجَاهٍ.

Movements of shoulder joint

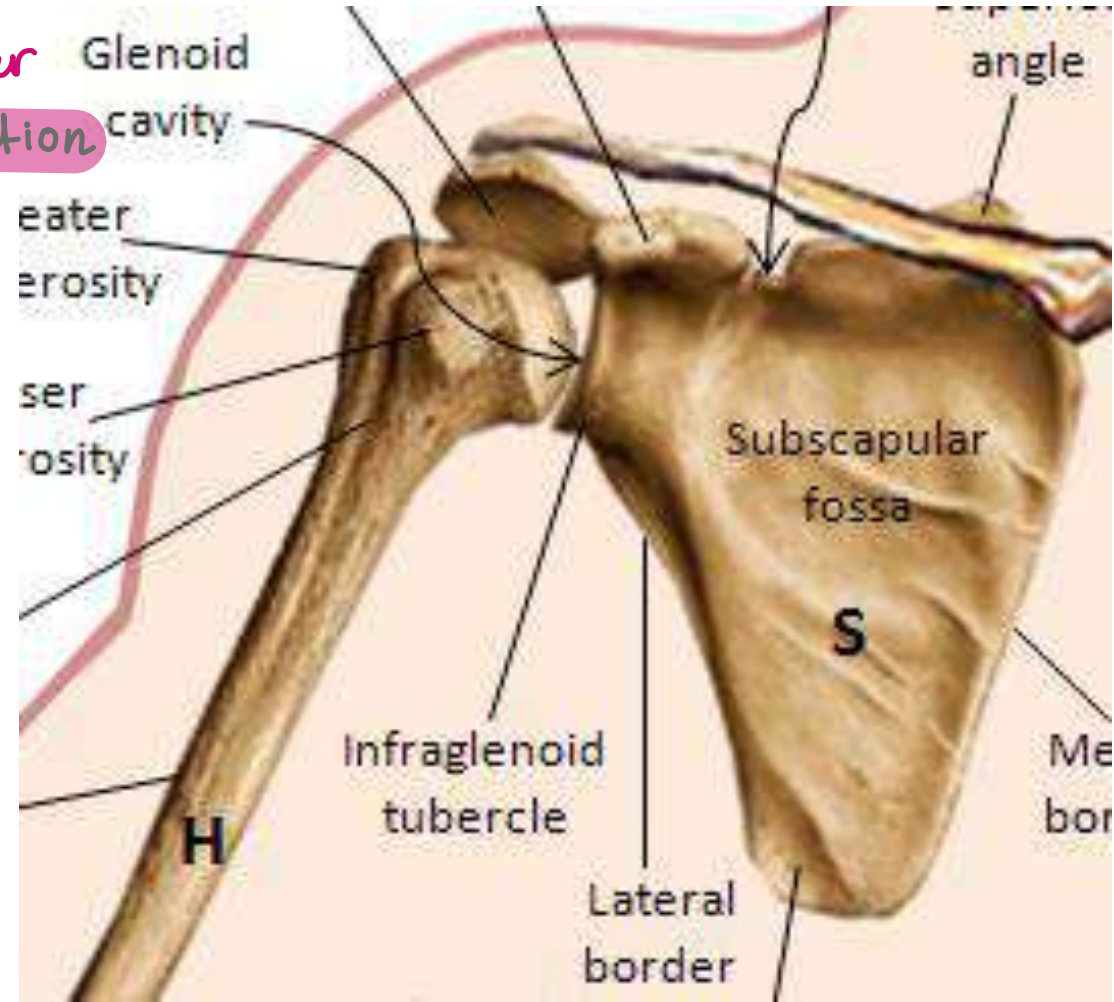
synovial ball + socket

تَمَلُّعٌ لِقَدَامٍ
تَرْجِعُ الْخَلْفَ
1. Flexion & extension.
2. Abduction & adduction.
3. Medial rotation & lateral rotation.

all together
circumduction

longitudinal axis + horizontal axis

* 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 joint



Flexion



Extension

Abduction



Adduction



Lateral
rotation

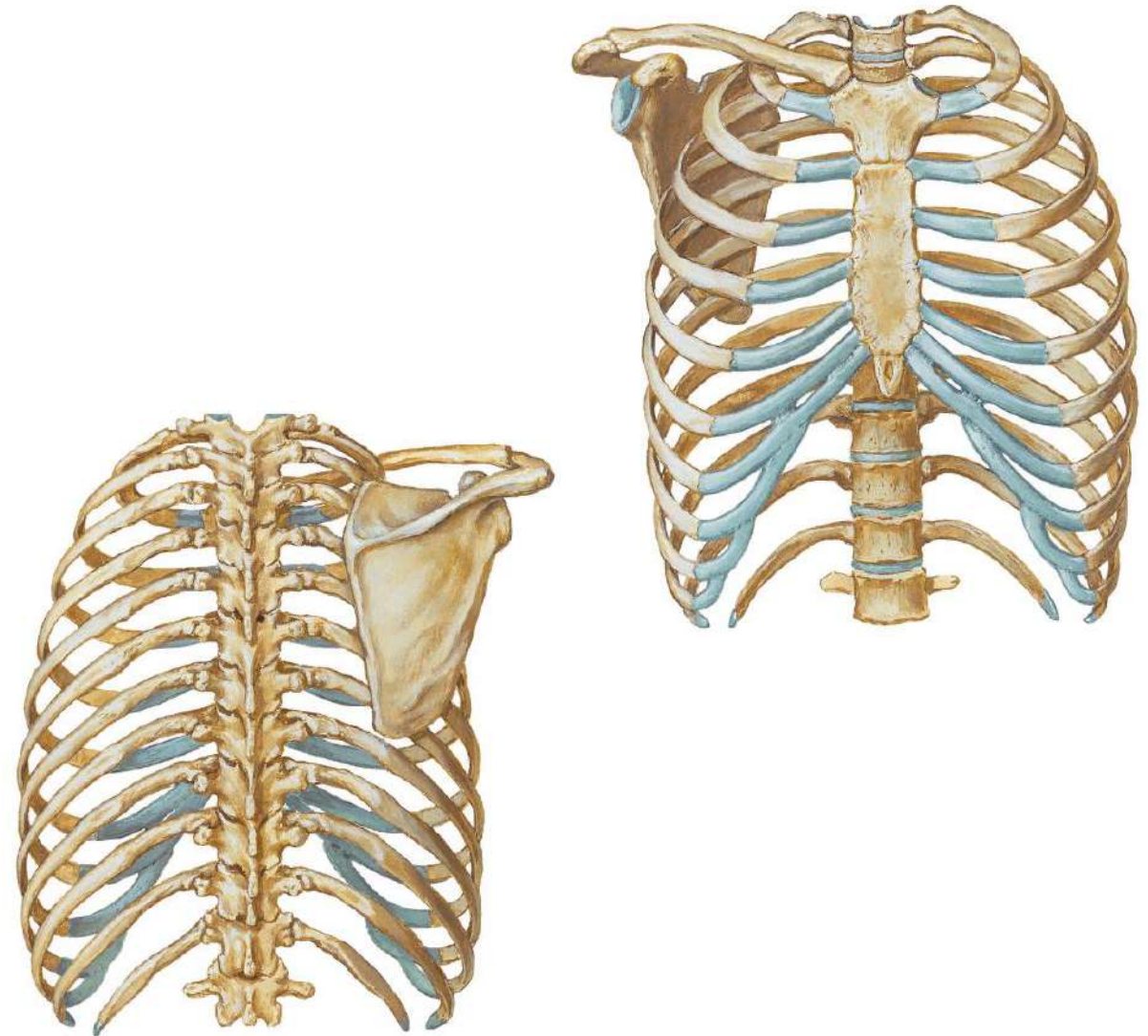


Medial
rotation

* فحليًا ال joint الي فيه هو الذي تحرك *

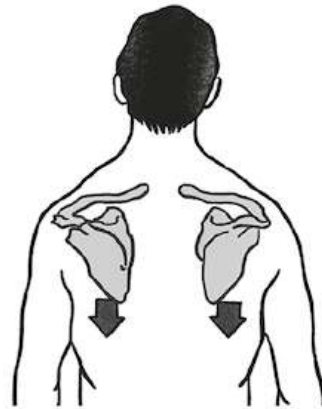
Movements of shoulder girdle

1. Elevation & depression.
رفع الجذع للأعلى / انزله للأسفله
 2. Protraction & retraction.
Abduction ← لتمام / Adduction → لورا
 3. Rotation up (lateral rotation) & rotation down (medial rotation) of scapula.
لما أرفع ابدي لفوقه / inferior angle → بتطلع لبرا
- * These movements take place in **sternoclavicular joint**.
- * Produced by muscles inserted in shoulder girdle (clavicle & scapula).

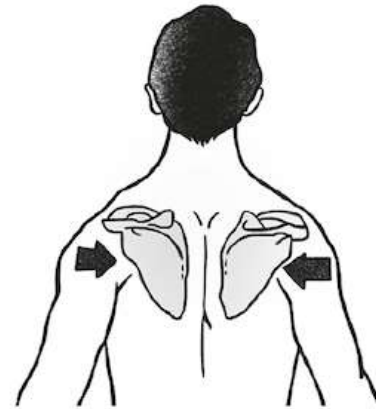




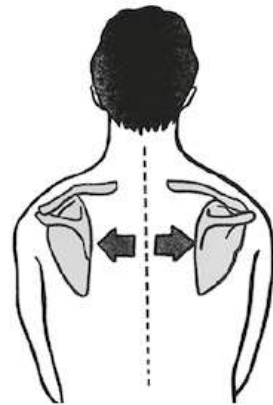
Elevation



Depression



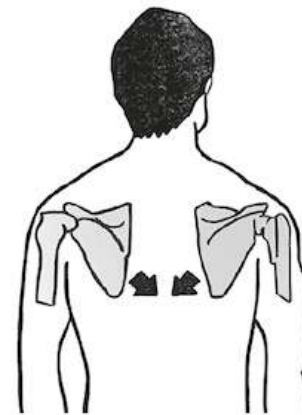
Retraction



Protraction



Upward rotation



Downward rotation

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.

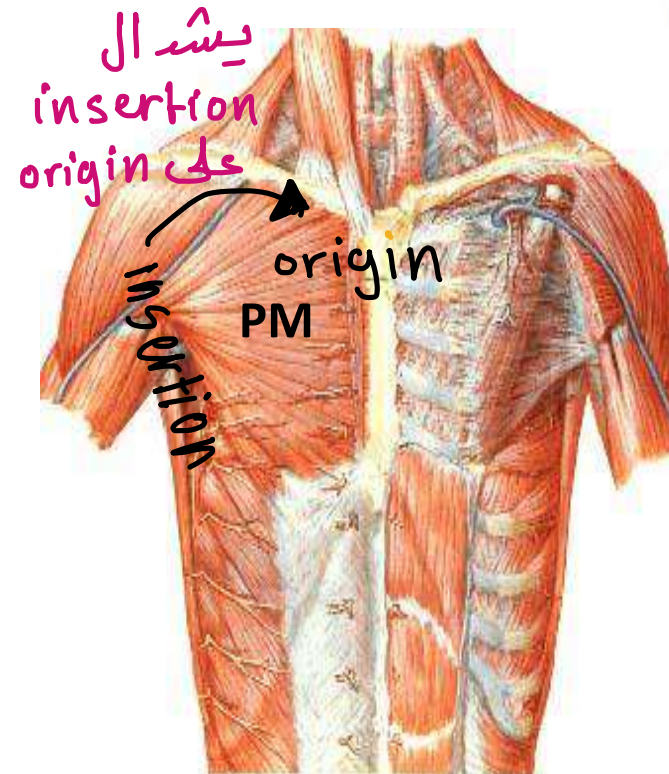
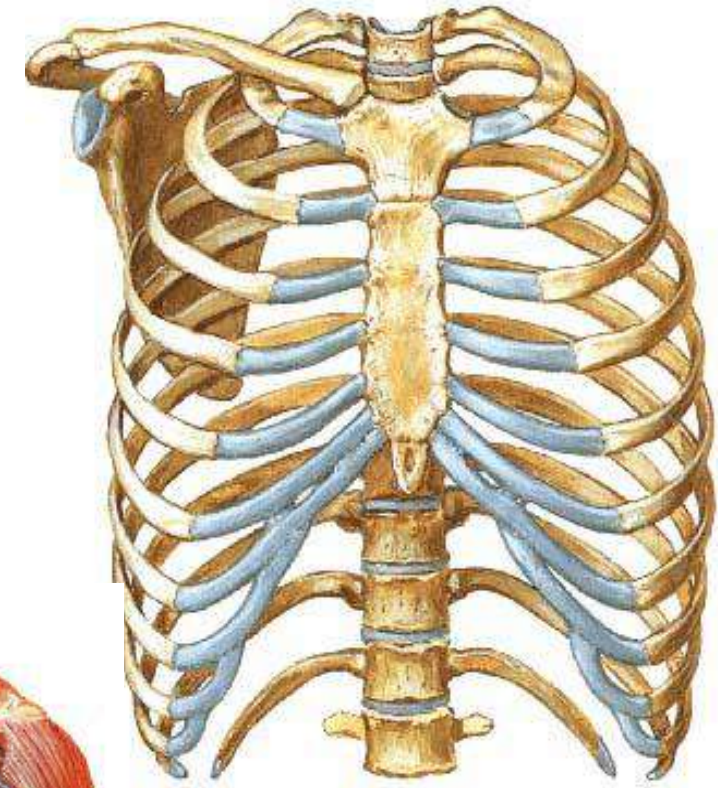
2. Sternocostal head:

→ 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

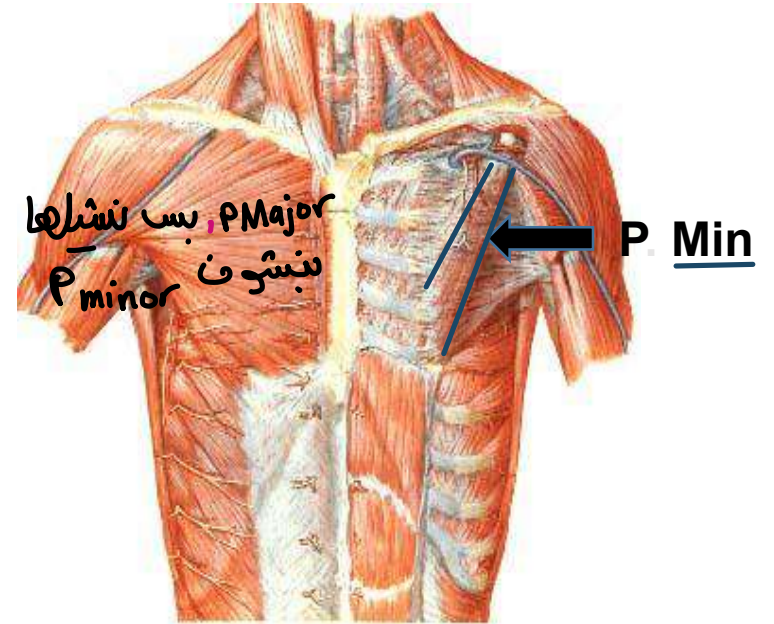
* Lies deep to pectoralis major.

* Origin: From 3rd, 4th & 5th ribs.

* Insertion: Into coracoid process of the scapula.

* Nerve supply: Medial pectoral nerve.

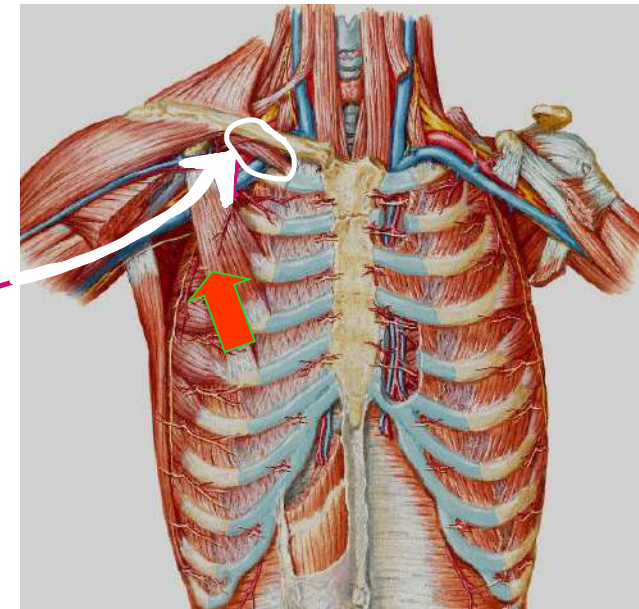
• Action: Protraction & depression of the shoulder.



3. Subclavius

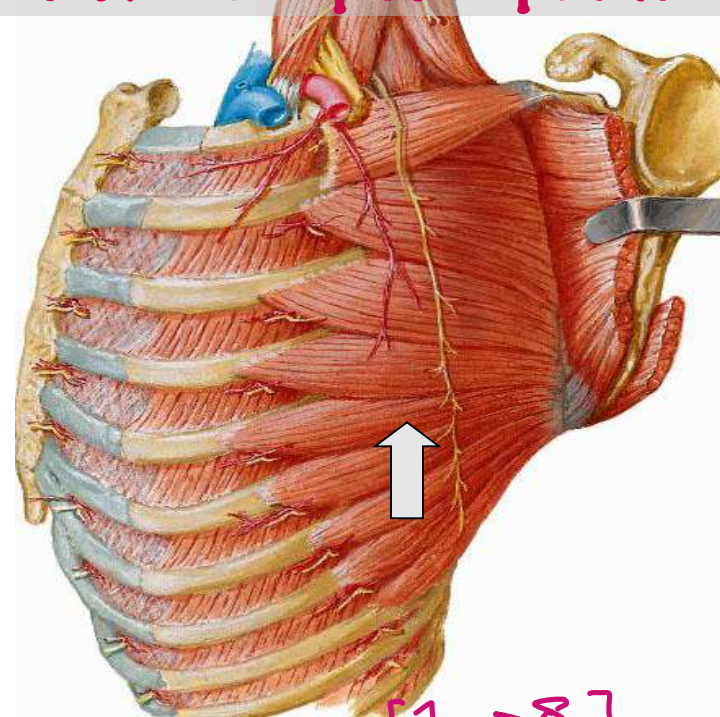
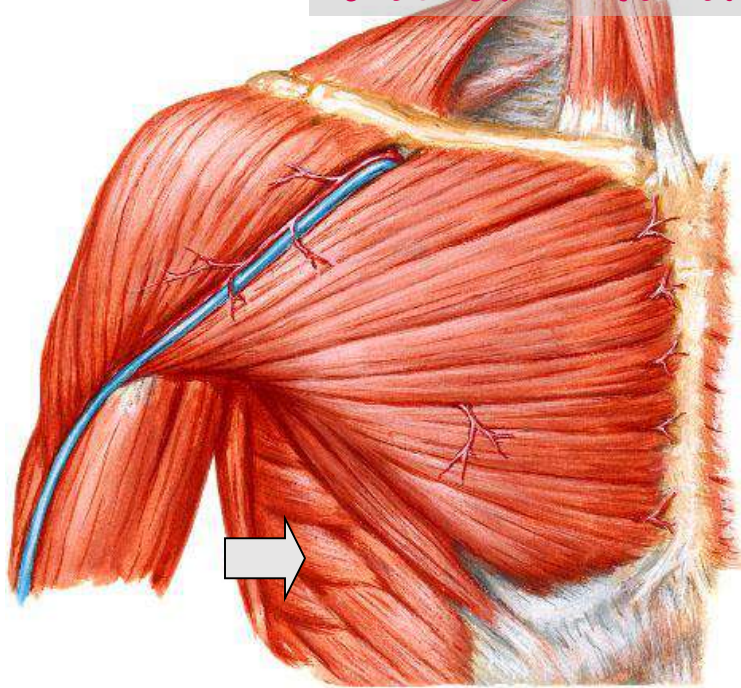
* A small muscle that lies deep to pectoralis major & below the clavicle.

* It anchors the clavicle



B: Serratus Anterior

It is the main protractor of the scapula (prime mover)



Agonistic
is P minor
DCLUB

- * **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.

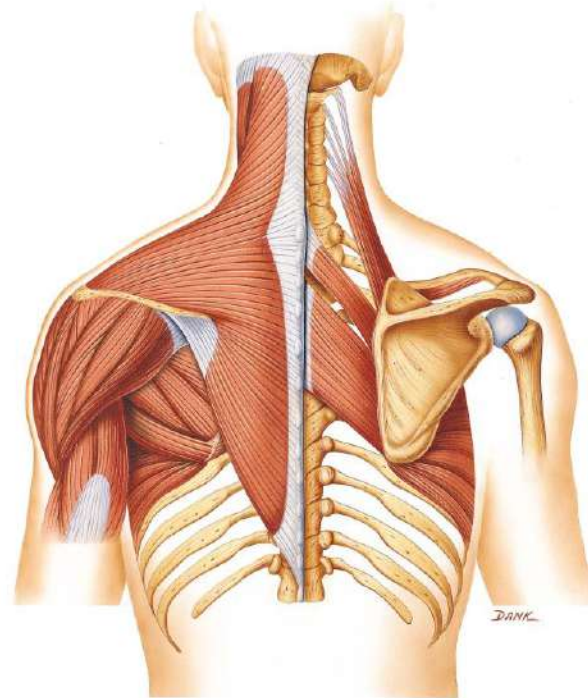
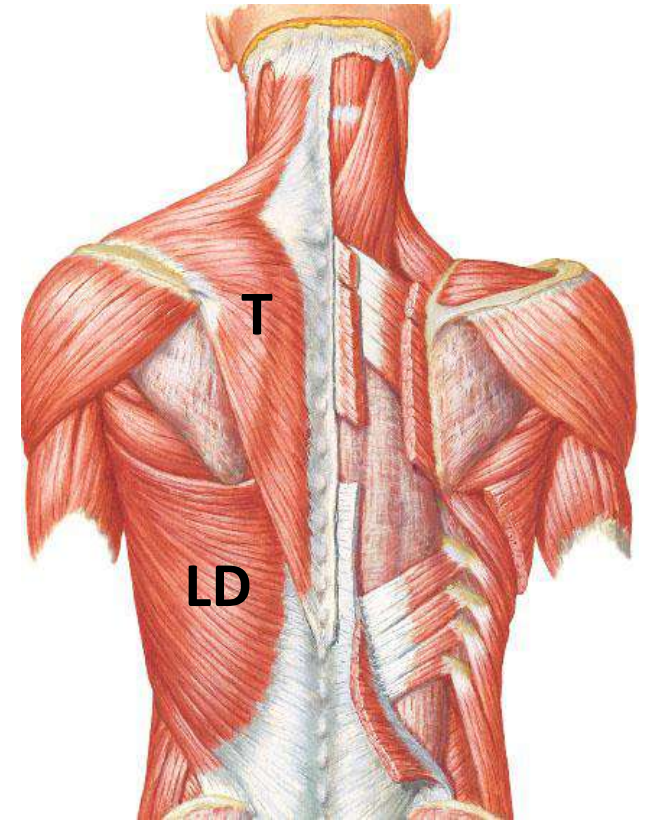
* They are arranged in 2 layers:

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.

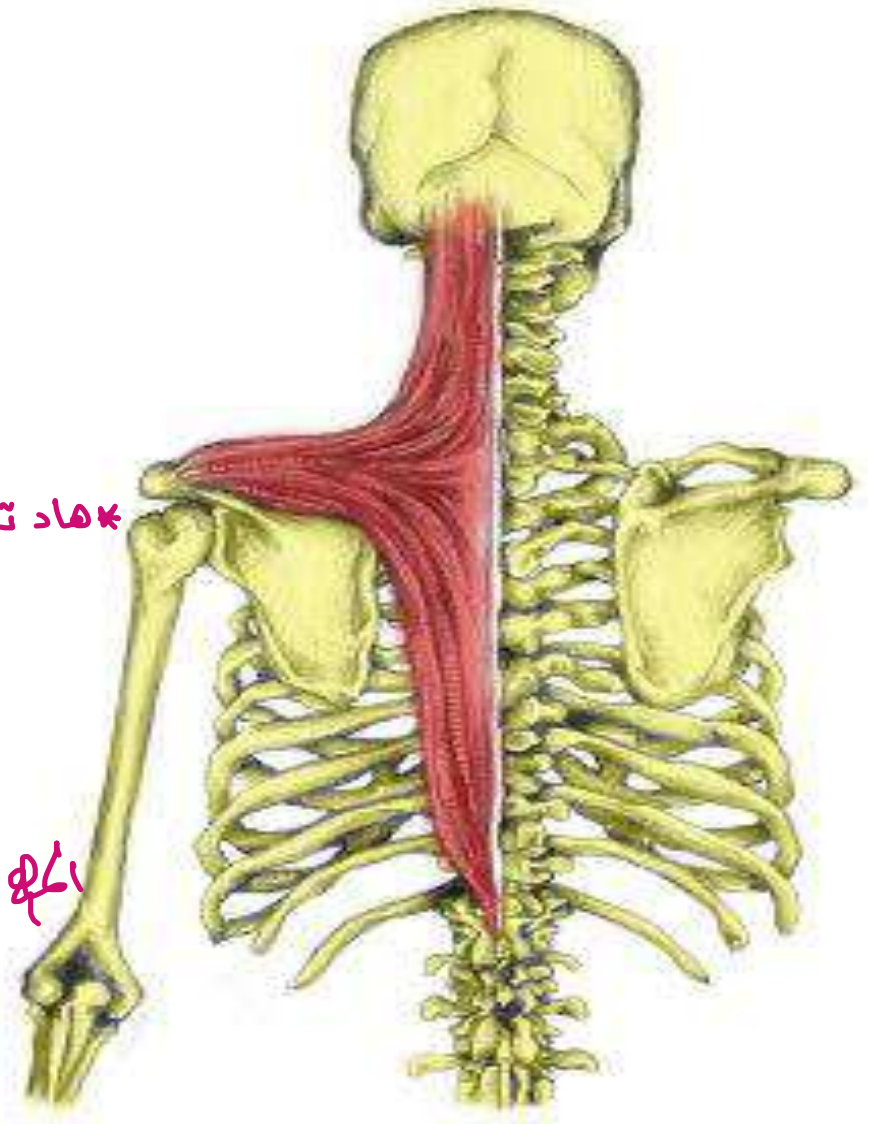
* **Nerve supply:** spinal accessory N. (11th cranial nerve).
لذلك وجع الرقبة والكتف مرتباً بيوانه / sternomastoid أيضاً * هاد تاغ

* **Action:** - مع -

1. Upper fibers → elevation of scapula.

* 2. Middle fibers → retraction of scapula. * انا

3. Lower fibers → depression of scapula.



وهو الذي سوف يشد على
insertion

2. Latissimus Dorsi

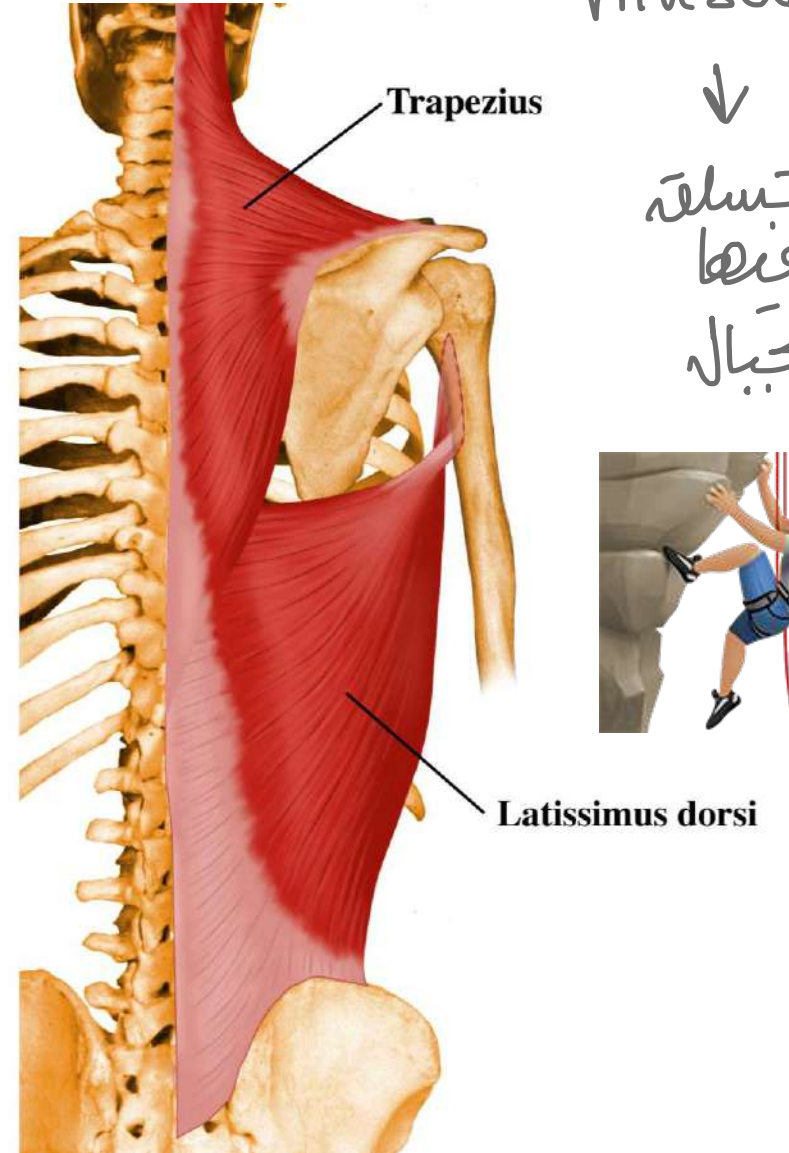
Jumping
muscle

* **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.



المقصورين في الملاحظة تحت

- 3. Levator scapulae
- 4. Rhomboideus minor
- 5. Rhomboideus major

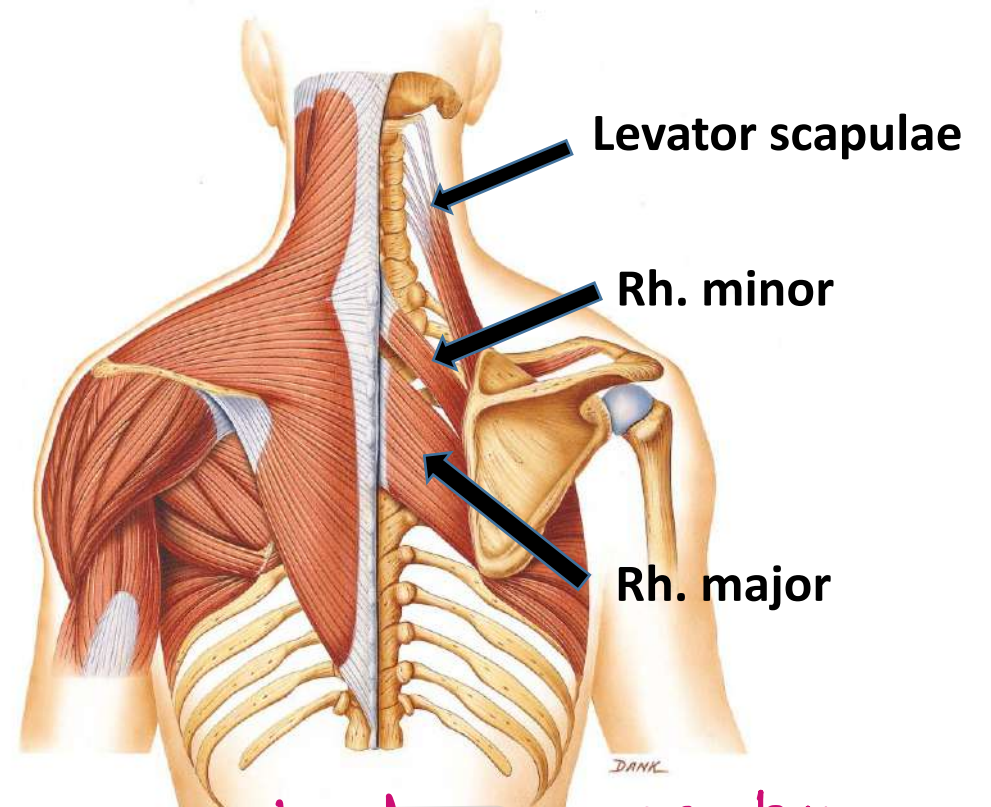
* **Origin:** from cervical & thoracic ^{upper} vertebrae.

* **Insertion:** into medial border of scapula.

كلع ال (3) منة نفس ال nerve

* **Nerve supply:** N. to rhomboides.

* **Action:** Retraction & rotation down of scapula.



* protraction was by serratus + P minor

* Retraction → (3 + 4 + 5) ^{هزول اللى بهاي السلاير}
middle fibers of trapezius

D: Muscles of Shoulder

scapular region

* They are 6 muscles connecting the scapula to the upper part of the humerus.

* **Origin:** Mostly from the scapula.

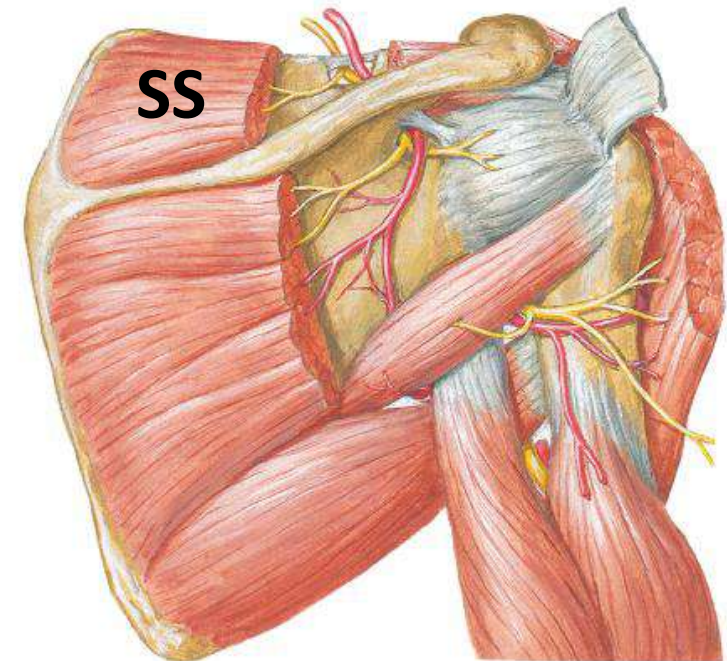
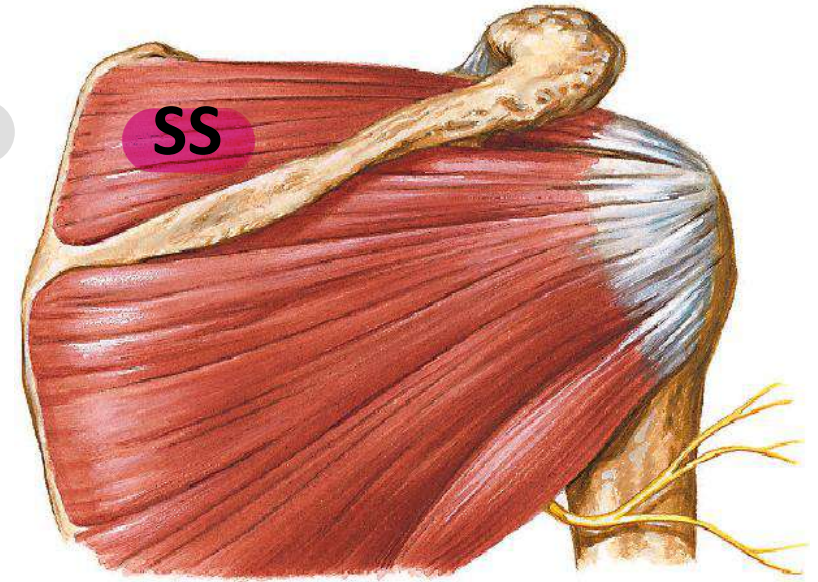
* **Insertion:** in the humerus.

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

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

* **They include:** → هلا بدنا نعدد ال 6

1. Supraspinatus (SS) → in supraspinous fossa.



Muscles of Shoulder

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

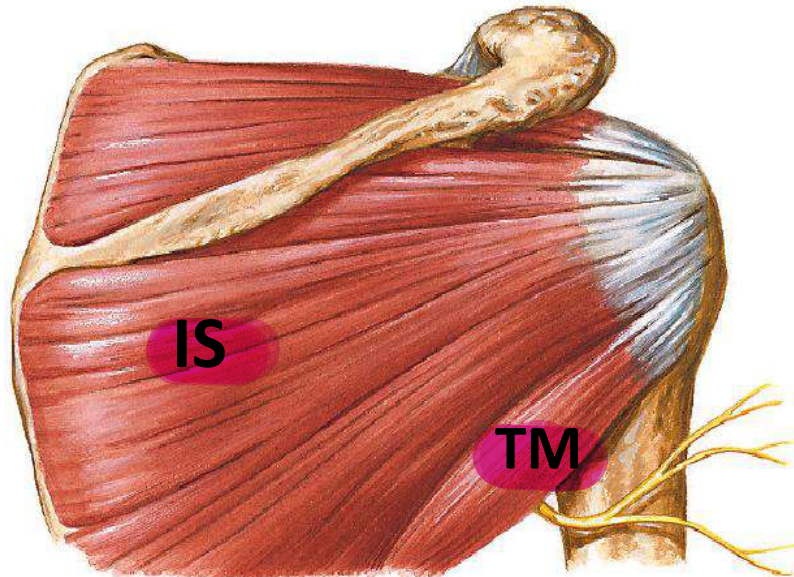
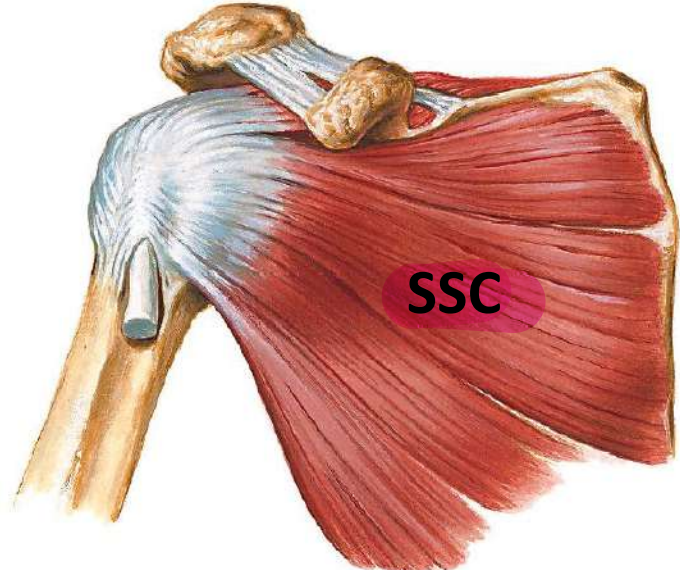
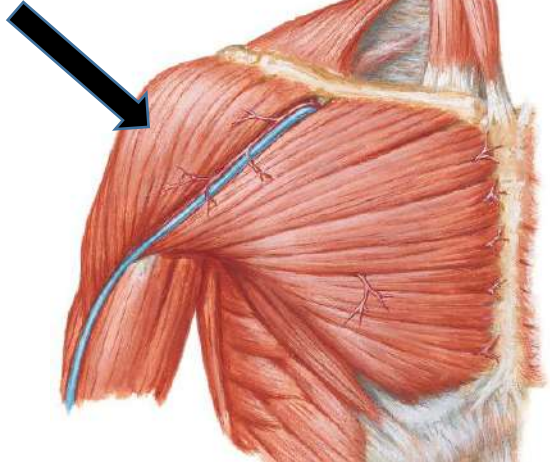
3. **Teres minor (TM).**

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

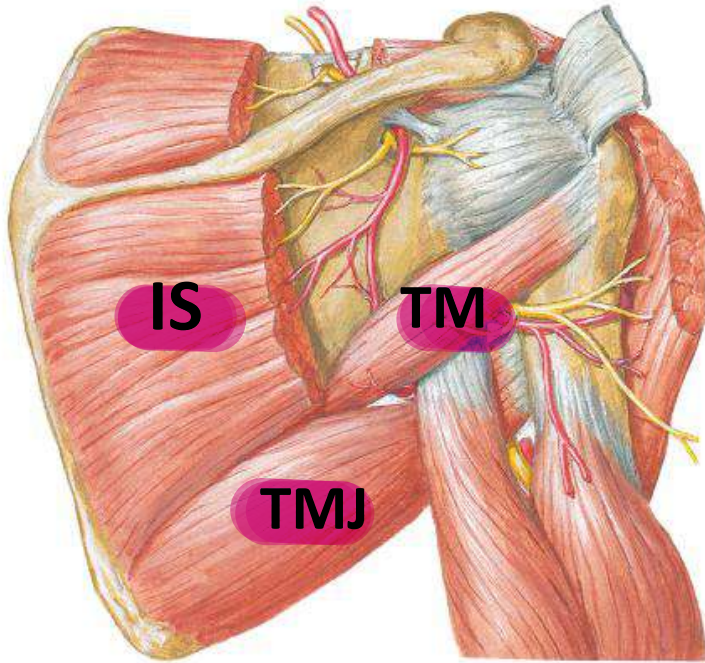
5. **Subscapularis (SSC)** → in subscapular fossa.

6. **Deltoid.**

↓
deltoid tuberosity



*الحدب الجانبي
lateral border
of the scapula*



E: Muscles of Front of Arm

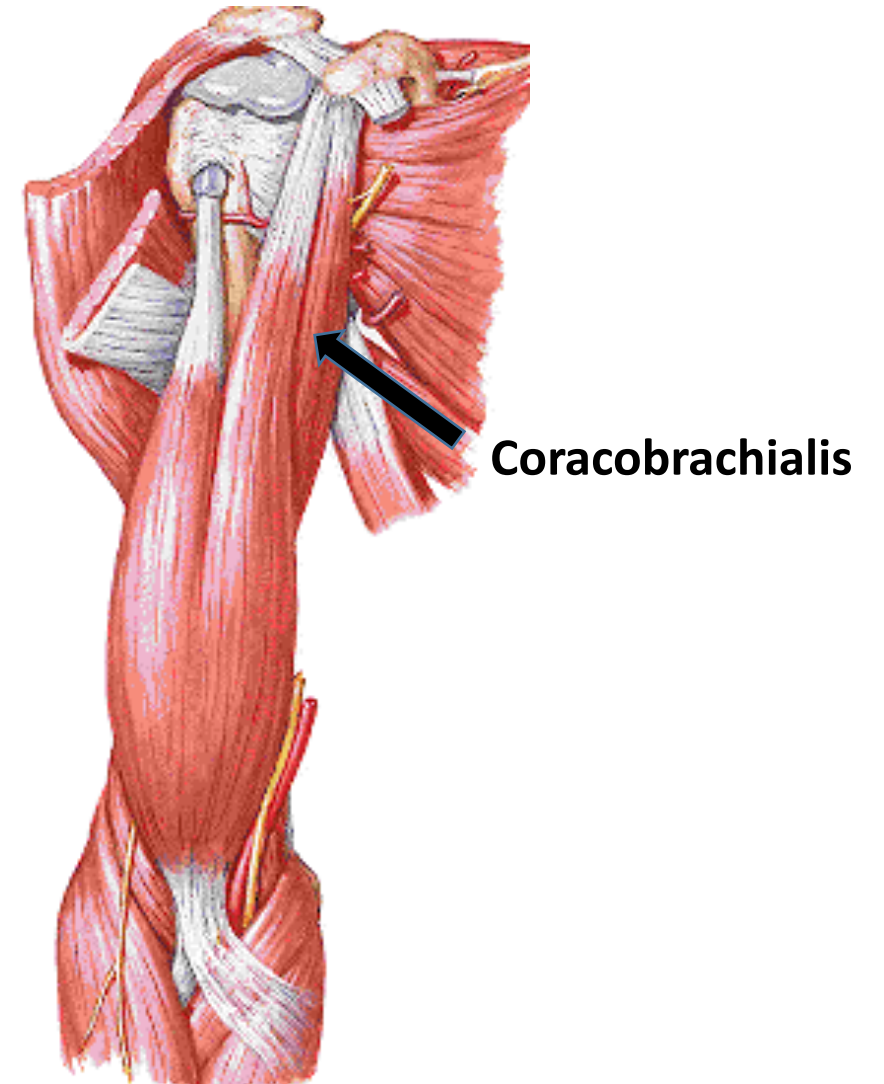
- * They are 3 muscles.
- * All are supplied by musculo-cutaneous nerve.
- * They include:

العصب الذي يستغل على
العضلات هذول + الجلد

1. Coracobrachialis:

- * In upper half of arm.
- * Action: **Flexion** & adduction of shoulder.

N: musculo cutaneous nerve

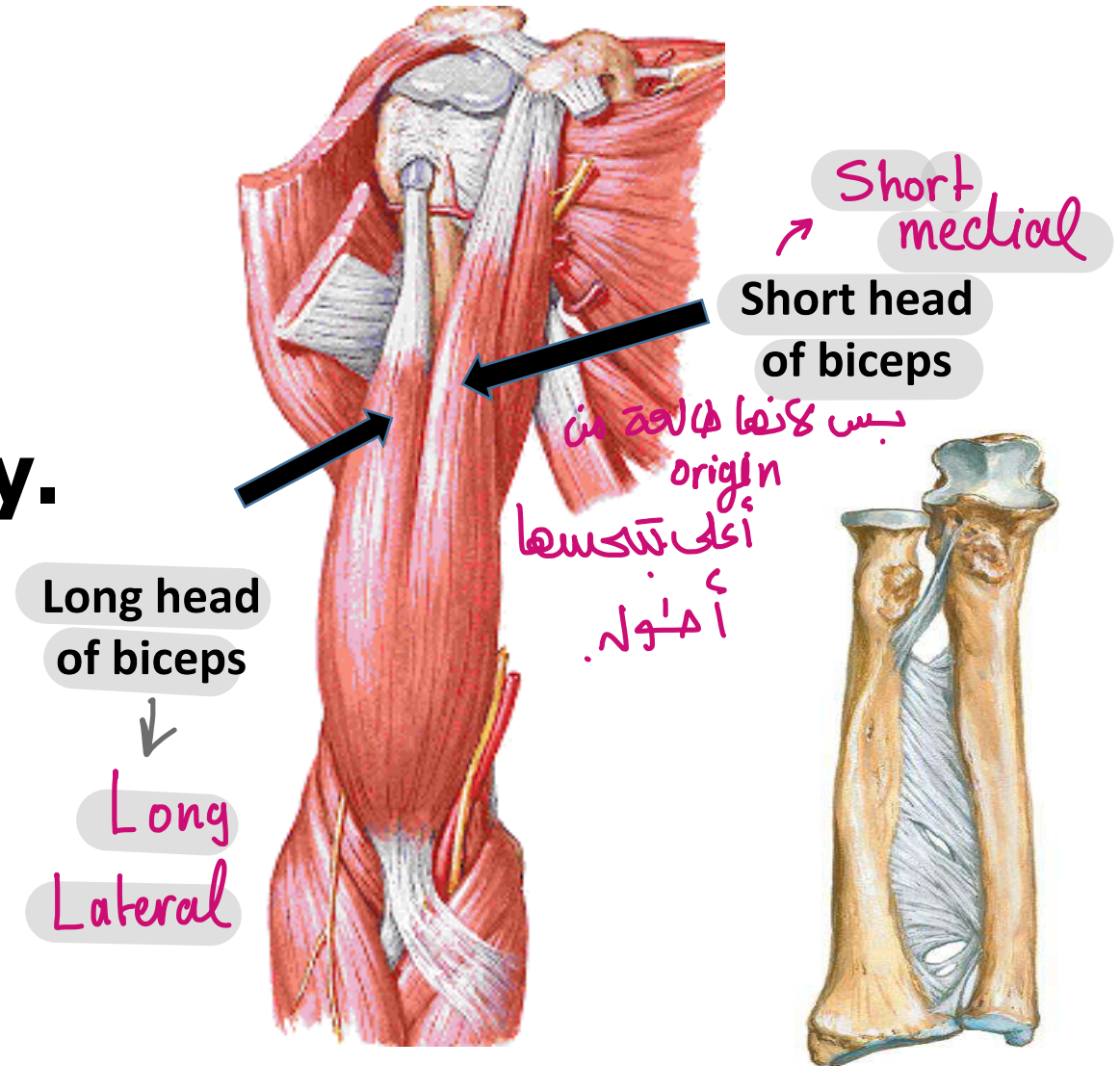


Muscles of Front of Arm (contd.)

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.**

N: musculocutaneous nerve

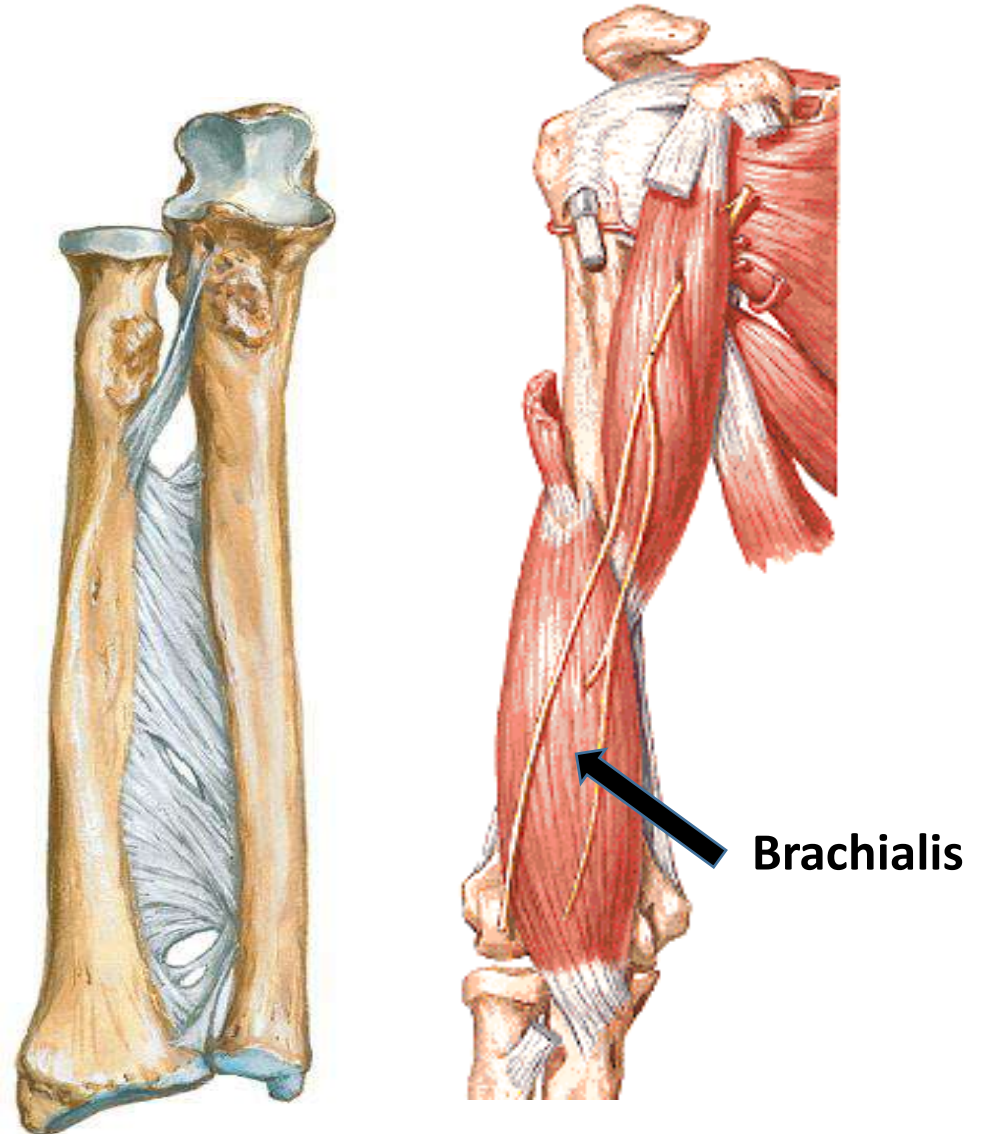


Muscles of Front of Arm (contd.)

3. Brachialis: *main, prime mover of elbow joint, main flexor:*

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

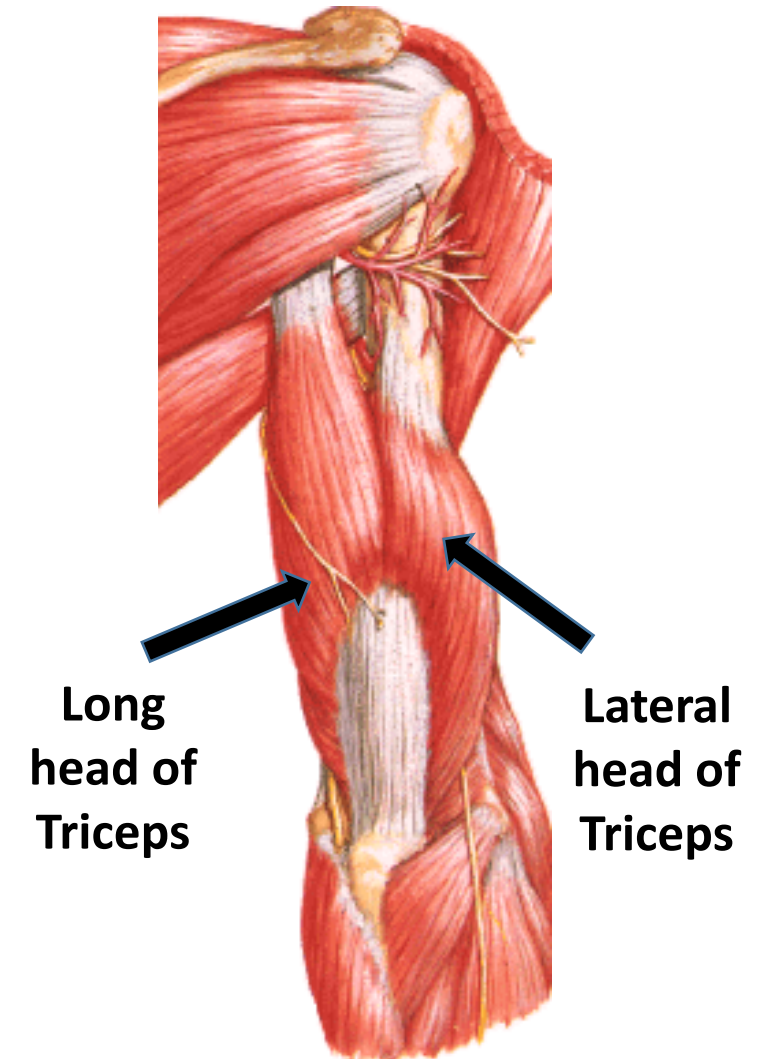
N: musculocutaneous nerve



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.

- *extension* -



G: Muscles of Front of Forearm

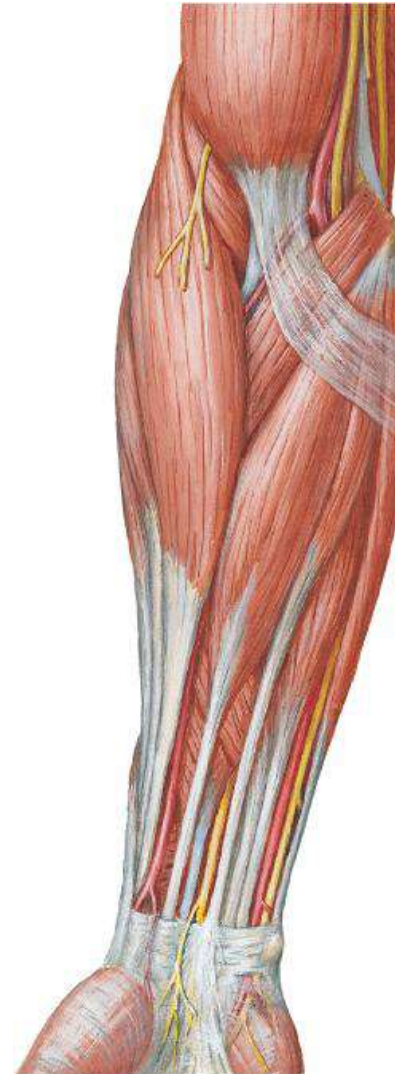
* They are 8 in number.

* They are arranged in 3 layers:

I. A superficial layer → formed of 4 muscles.

II. A middle layer → formed of one muscle.

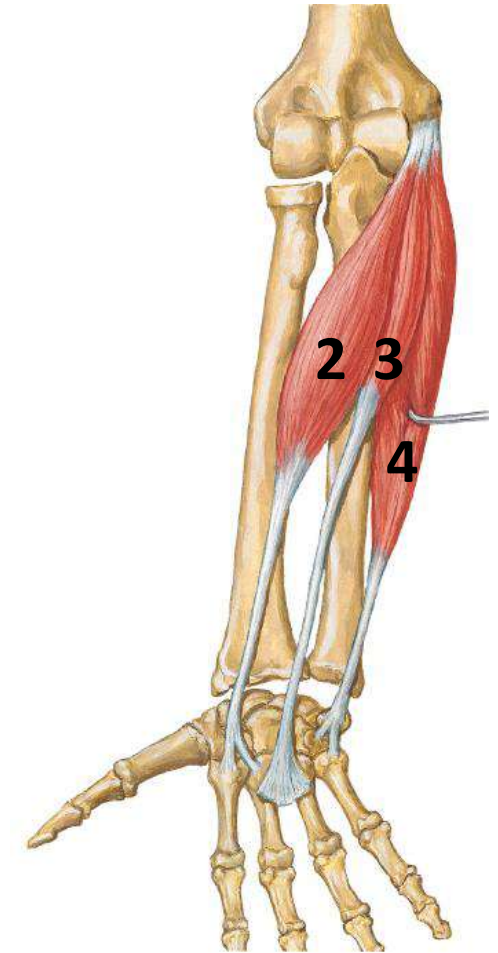
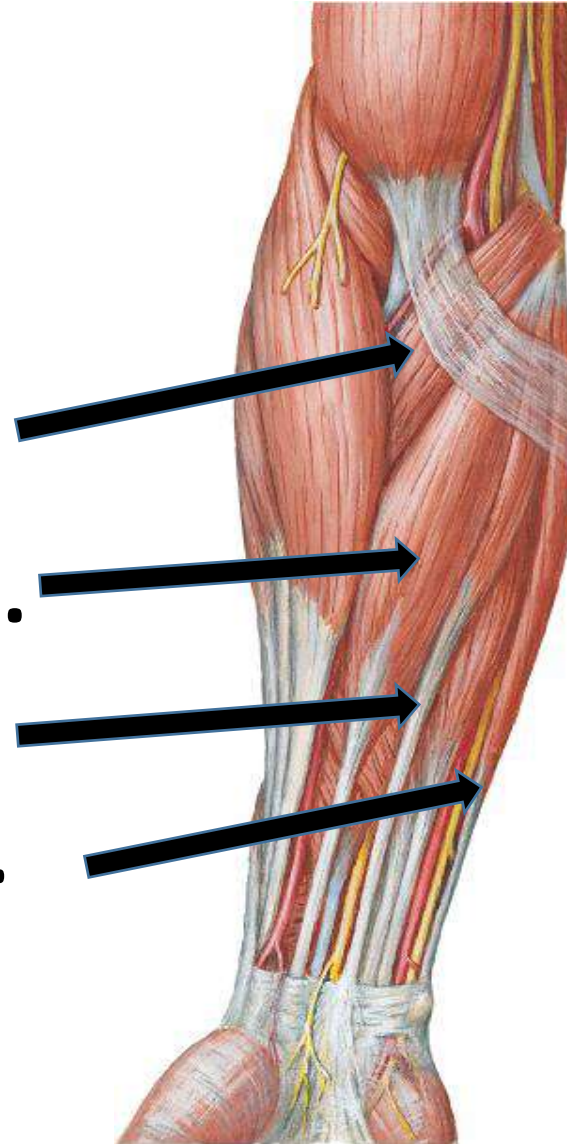
III. A deep layer → formed of 3 muscles.



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.