1/23/2019

Muscles

Voluntary:

1. **Skeletal** ⇨ ~700

   Locations:

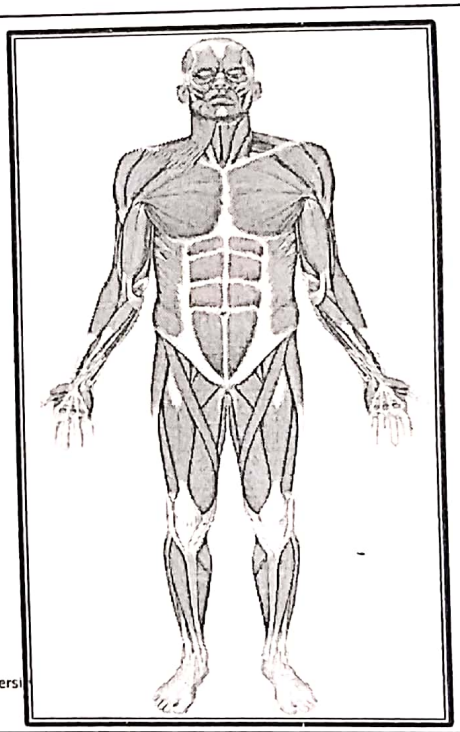
   - Superficial.
   - Deep.

   Functions e.g.. Body Movements.

Involuntary:

2. **Cardiac** ⇨ Wall of Heart.
3. **Smooth** ⇨ Wall of organs.

   e.g. Stomach.



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Skeletal muscles are named according to:

1. **Direction of its fibers** eg Rectus, Transverse, Oblique.
2. **Size of muscle** eg Major, Minor, Vastus (huge).
3. **Shape of muscle** eg Deltoid, Trapezius, Gracilis (slender).
4. **Main action** eg. Flexor, Extensor, Abductor, Adductor.
5. **Number of tendons of origin** eg. Biceps, Triceps.
6. **Location** eg. Superficialis, Profundus (deep), Brachialis.
7. **Origin and insertion** eg. Brachioradialis, [from brachium to radius].

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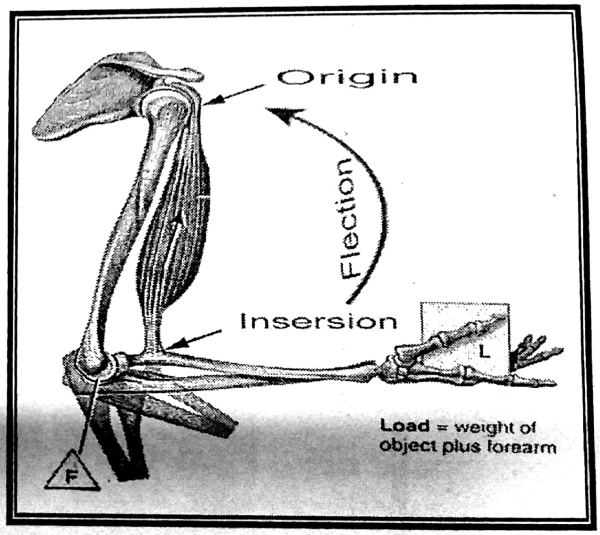
Action of Muscles

Each muscle has:

- **Origin** ⇨ Beginning.
- **Insertion** ⇨ End.
- **Body (belly).**

Law:

When a muscle performs its action, its insertion, moves towards its origin.



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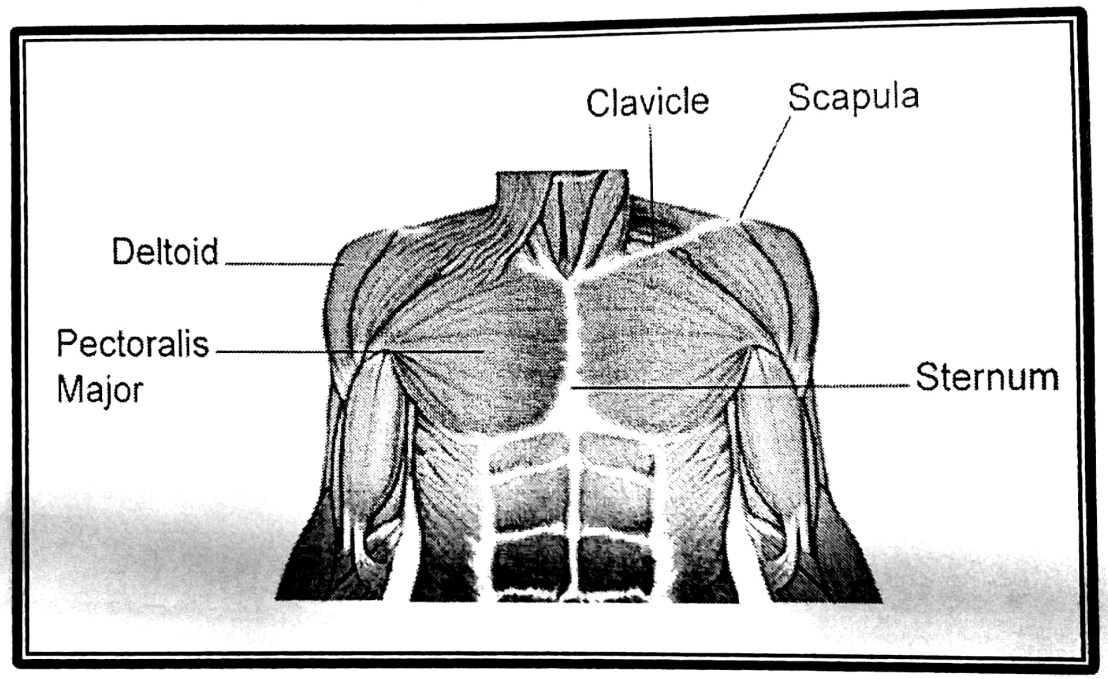
Pectoral Region



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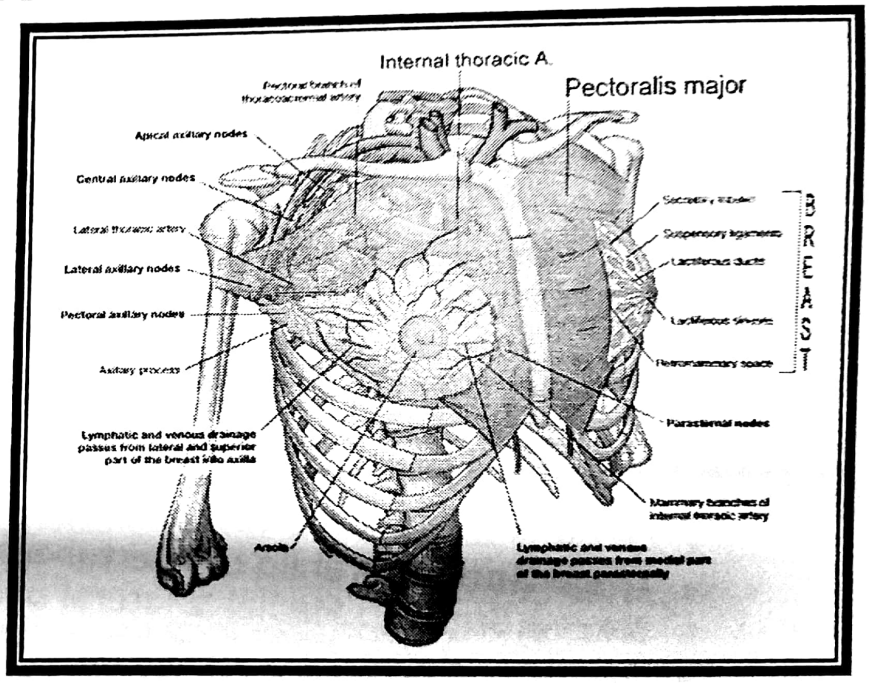
Pectoral Region

Breast region.

Contents:

1. Skin.
2. Superficial fascia.
3. Breast.
4. Deep fascia.
5. 3 Muscles:
   a. Pectoralis major.
   b. Pectoralis minor.
   c. Subclavius.



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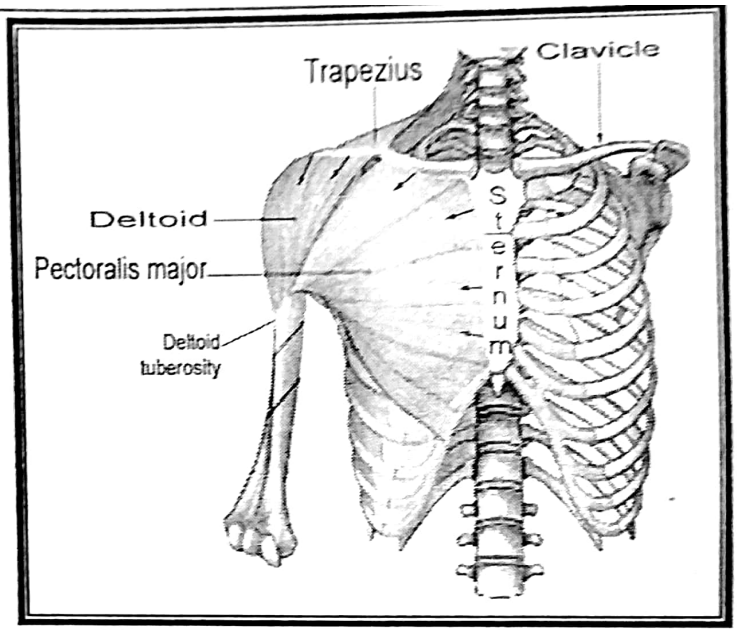
Pectoralis major



- **Origin:** Clavicle (**M ½**) **,** Sternum and upper 6 ribs.
- **Insertion:** lateral lip of intertubercular groove of humerus.
- **Nerve Supply:** Medial & lateral pectoral nerves.
- **Action:** Adducts and medially rotate the arm. (as in **wrestling**)

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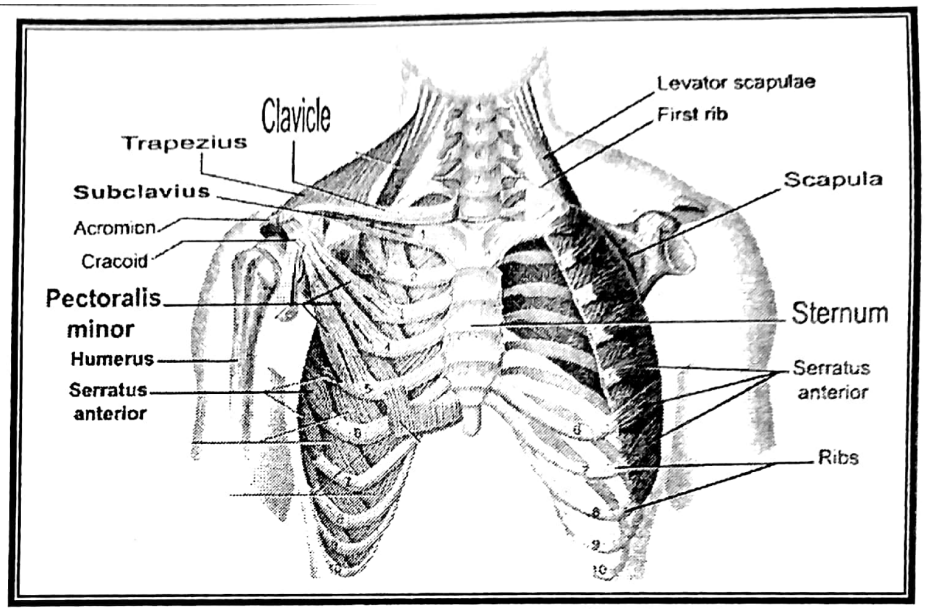
Pectoralis Minor



- O: 3rd, 4th, 5th ribs.
- Ins: Coracoid process.
- NS: Medial pectoral N.
- Action: Depress scapula downward and forward.

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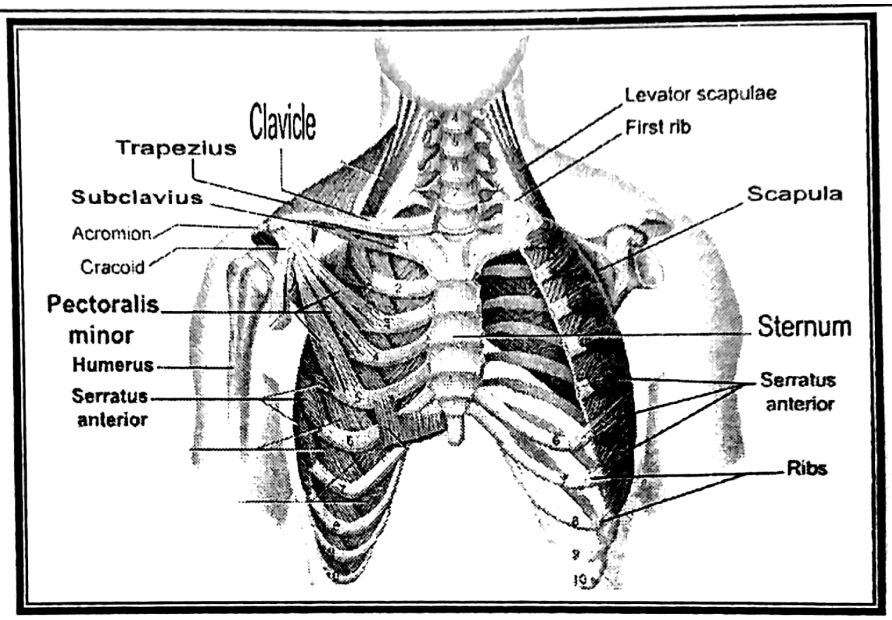
Subclavius



- Origin: 1st rib.
- Ins: Clavicle, inferior surface.
- NS: N. to Subclavius.
- Action: Protects the underlying structures.

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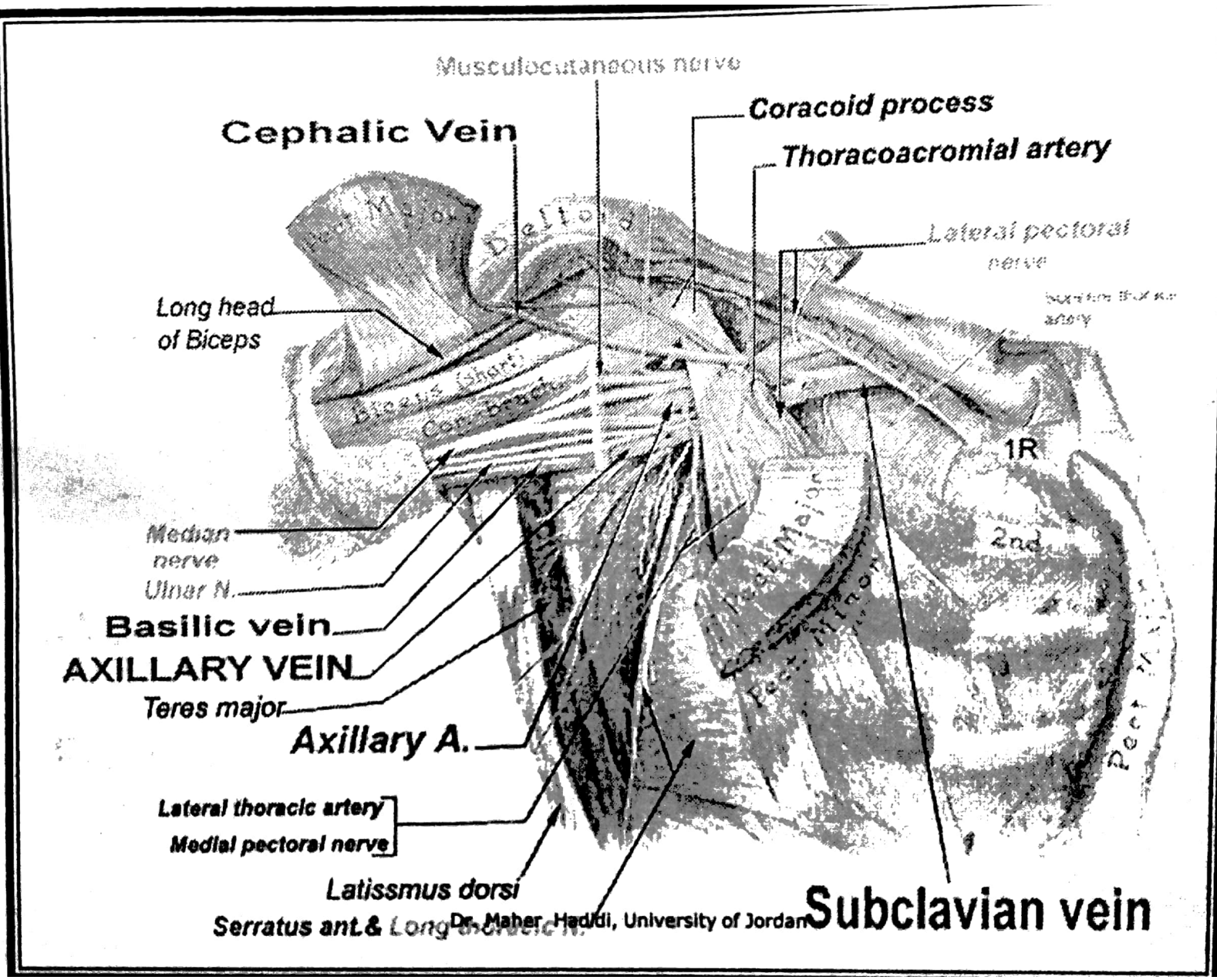

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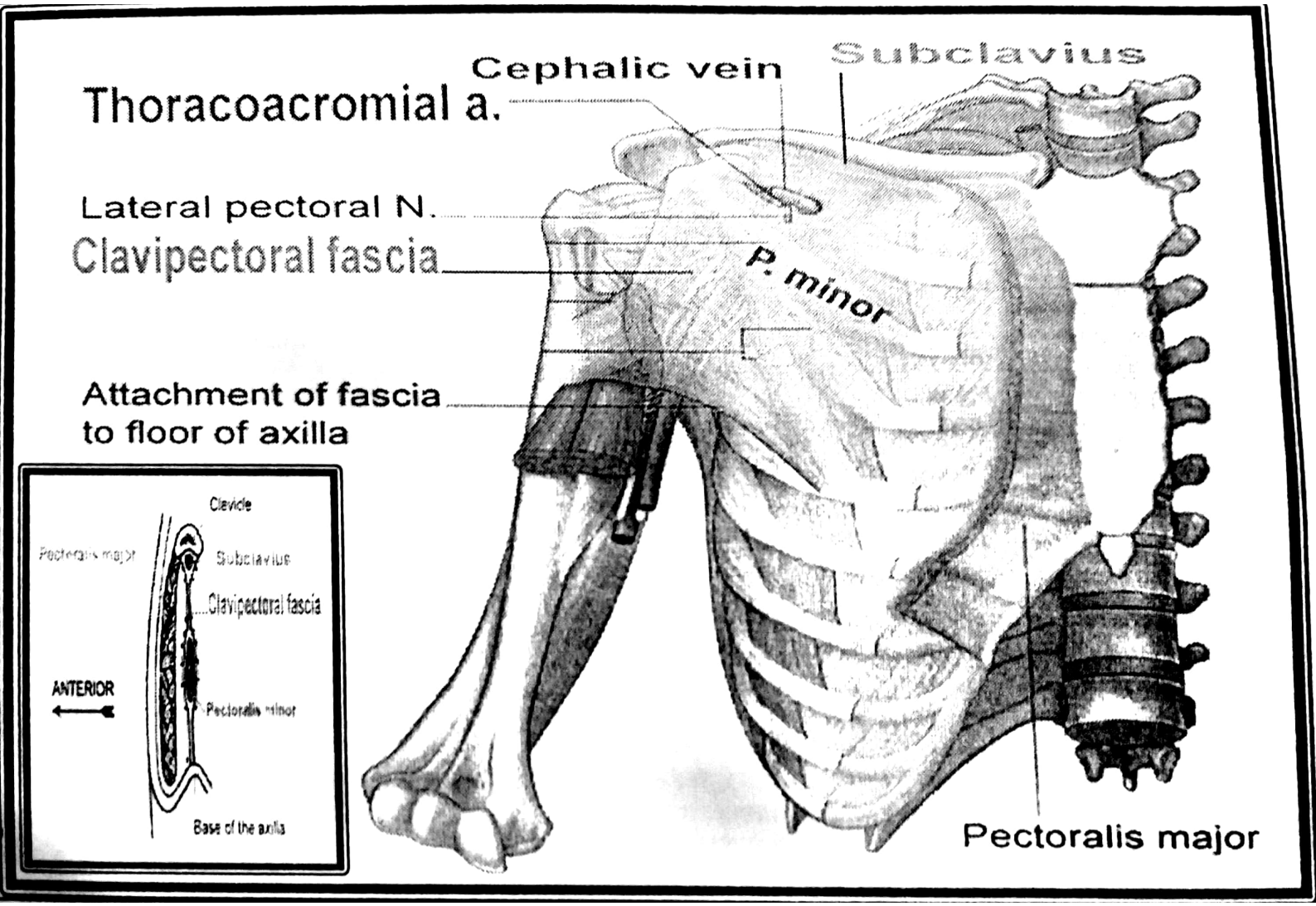

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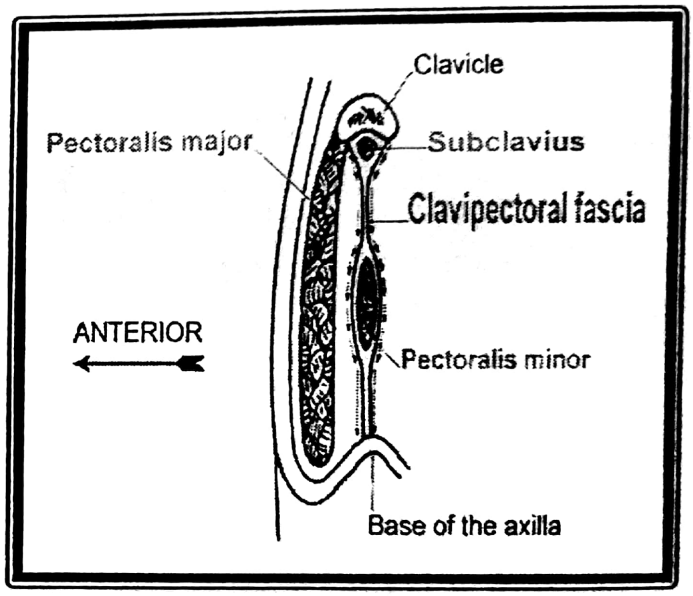
Clavipectoral fascia

- A 2 ply sheet of CT that connects clavicle to the base of the axilla.
- Extends from both borders of the clavicle to envelop the subclavius and pectoralis minor muscles, in order to seal the gap in between.
- <u>Pierced by:</u>
  - Cephalic **v**ein.
  - Thoracoacromial **a**rtery.
  - Lateral pectoral **n**erve.
  - **L**ymph vessels. → [L VAN]



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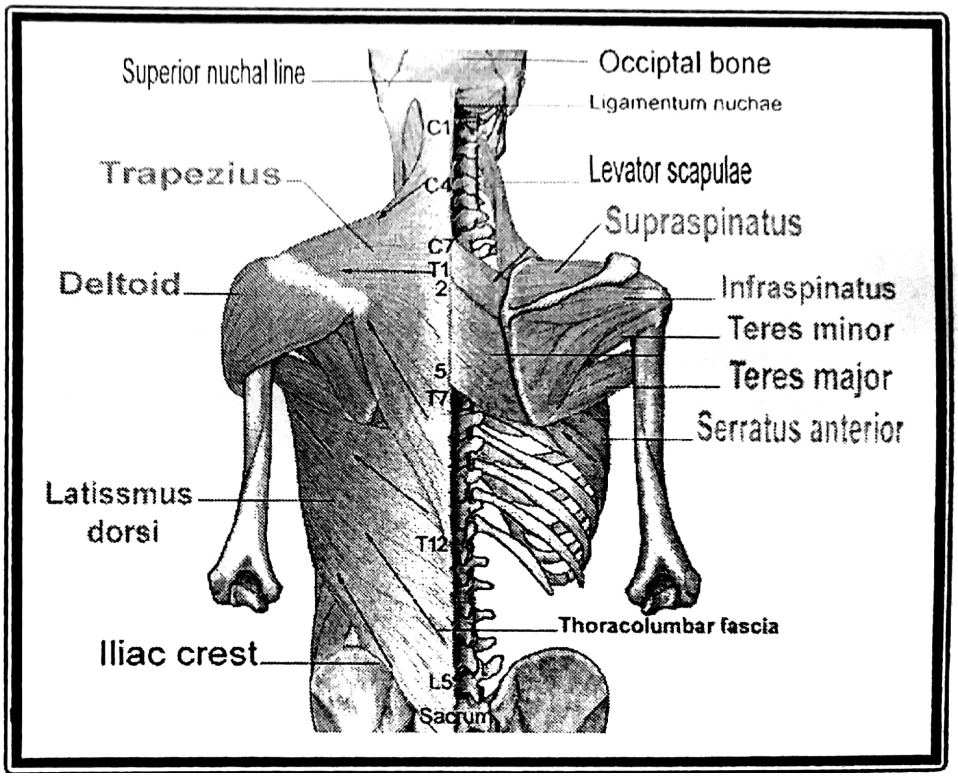
Muscles connecting UL to vertebral column

Arrange in layers:

- **Superficial layer:**
  1. Deltoid
  2. Trapezius
  3. Latissmus dorsi
- **Deep layer:**
  1. Supraspinatus
  2. Infraspinatus
  3. Teres minor
  4. Teres major
  5. Subscapularis
  6. Serratus anterior



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Deltoid

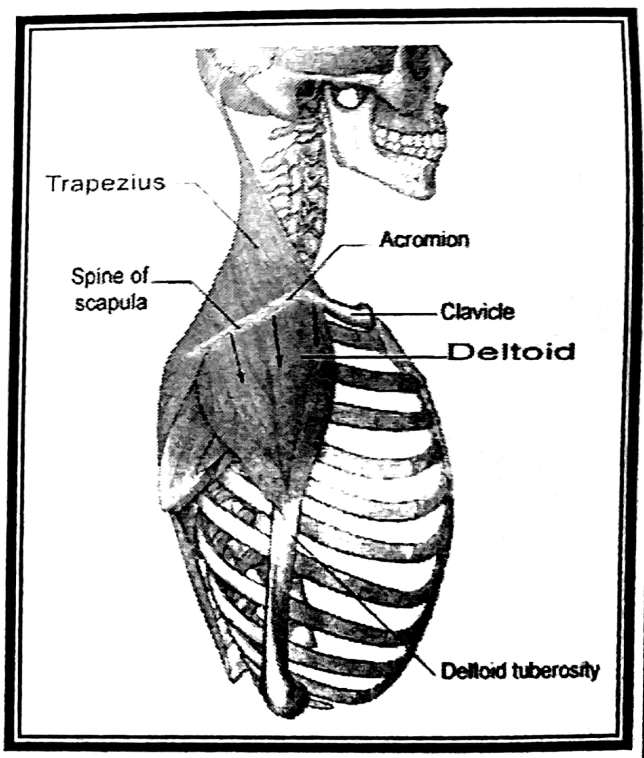
O: Clavicle, acromion and spine of scapula.

Ins: Deltoid tuberosity.

Action: Its fibers runs in 3 directions:

- Ant. ⇒ **Flex** shoulder joint.
- Post. ⇒ **Extend** shoulder joint.
- Middle ⇒ **Abduct** arm 15-90^{0}.

NS: Axillary Nerve



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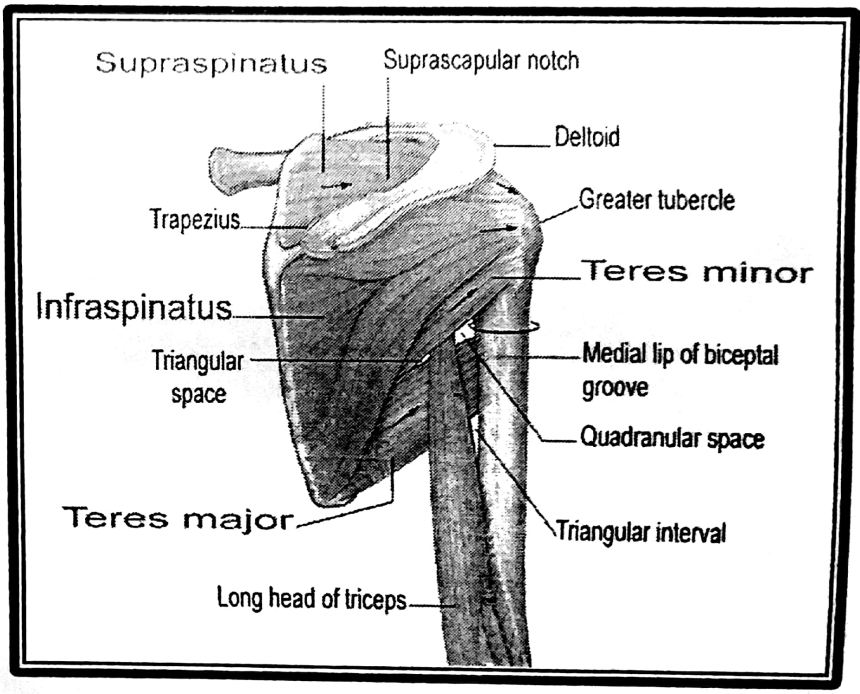
Supraspinatus

O: Supraspinous fossa.
Ins: Greater tubercle of the humerus.
Action: **Abducts** the arm 0-15⁰.
NS: Suprascapular Nerve

Infraspinatus

O: Infraspinous fossa.
Ins: Greater tubercle.
Action: **L**ateral **R**otation the of arm.
NS: Suprascapular N.



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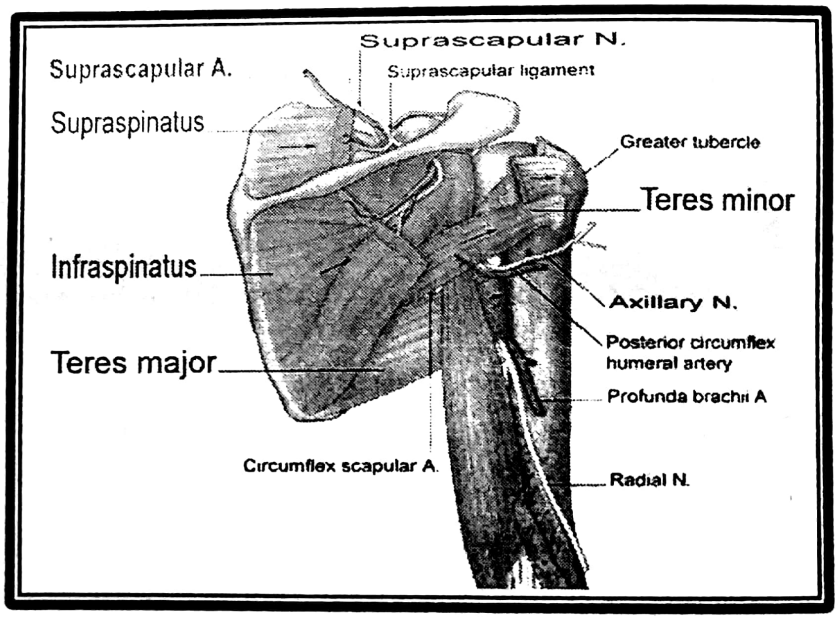
Teres Minor (L. Rounded)

O: Lateral border of Scapula.
Ins: Greater tubercle of humerus.
Action: **L**ateral **R**otation of arm.
NS: Axillary n.

Teres Major

O: Lateral border of the Scapula.
Ins: Medial lip of intertubercular groove.
Action: **Add**uction & **M**edial **R**otation of the arm.
Remember ⇒ (**T**. Major like **P**. major)
NS: Lower subscapular n.



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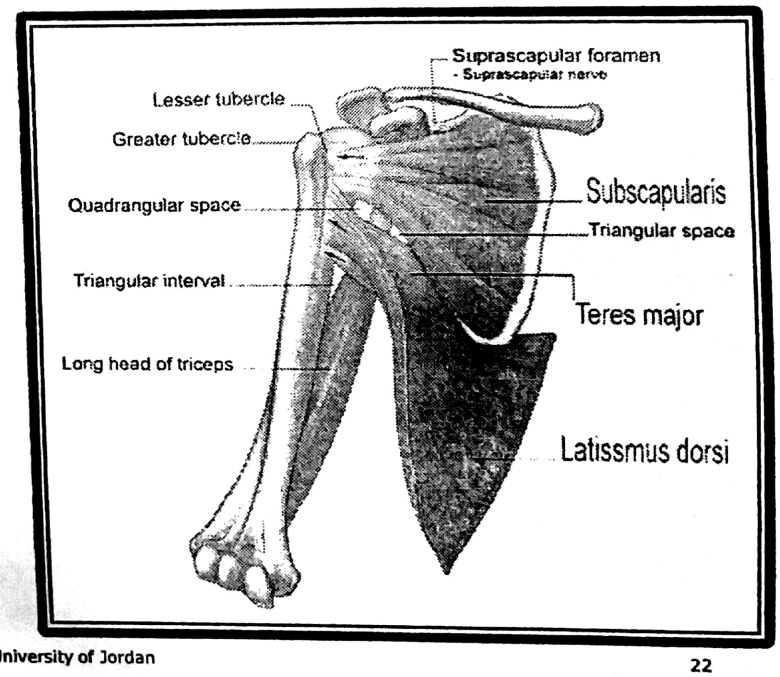
Subscapularis

Origin: Subscapular fossa.

Ins: Lesser tubercle of humerus.

Action: **M**edial **R**otation of the arm.

NS: Upper and lower subscapular Ns.



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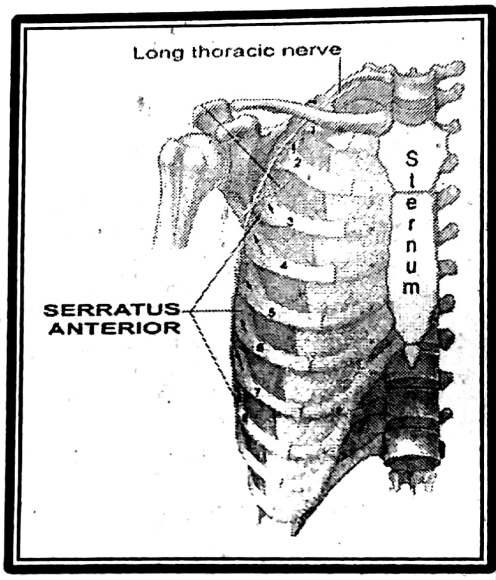
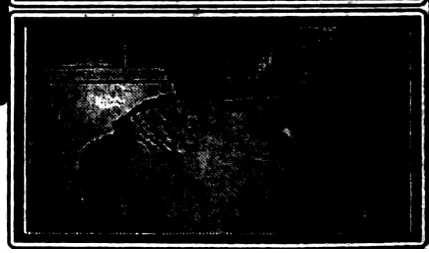
Serratus anterior

- **Origin:** upper **8** ribs.
- **Ins:** Medial border of scapula.
- **Act: Protraction** of scapula (pulls the scapula forward over the thoracic wall).
  - ➢ It assists trapezius to elevate the arm 180⁰ above the shoulder.
- **NS:** Long thoracic N.
  - ➢ Nerve injury cause Winging of scapula.



Right winged scapula



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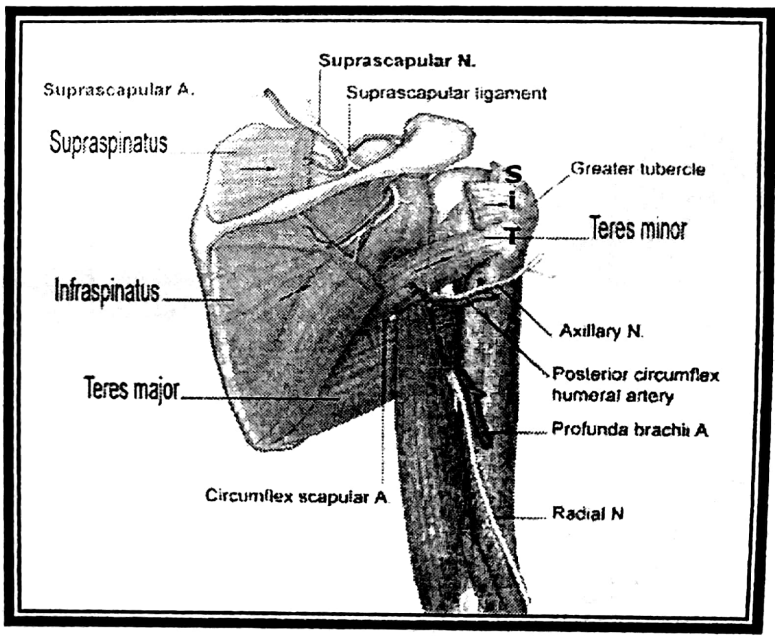
Rotator cuff muscles of shoulder

- Form of 4 muscles:
  - **S**upraspinatus
  - **I**nfraspinatus
  - **T**eres minor
  - **S**ubscapularis
- Their tendons flatten at their insertion and blend with the fibrous capsule of the shoulder joint. They act as a ***handcuff*** that strengthen the shoulder joint (superior, posterior & anterior) But NOT inferior?



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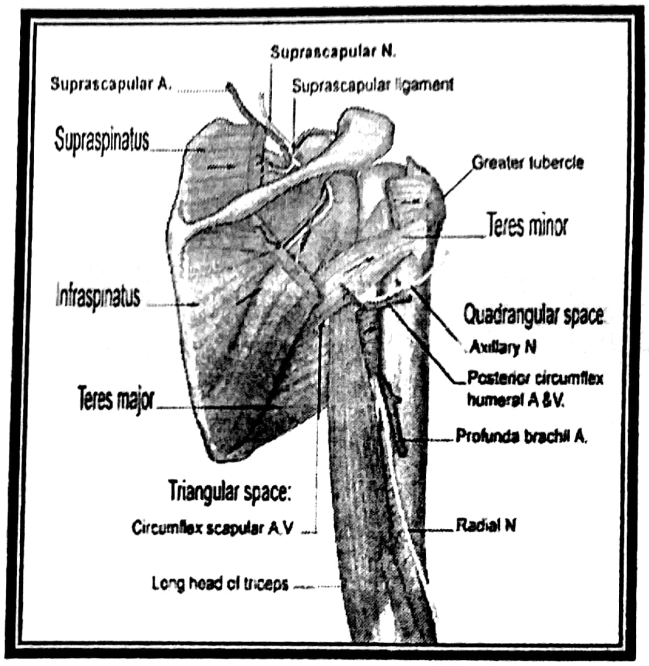
Spaces between scapular muscles

☐ Quadrangular space

- Borders:
  - Sup. ⇨ T. minor
  - Inf. ⇨ T. major
  - Med. ⇨ Triceps, long head
  - Lat. ⇨ Humerus
- Contents:
  - Axillary N.
  - Post. circ. hum. A,V.

△ Triangular space

- Borders:
  - Sup. ⇨ T. minor
  - Inf. ⇨ T. major
  - Lat. ⇨ Triceps, long head
- Contents:
  - Circumflex scapular A & V.



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Trapezius

O: Skull, spines of C1-T12 v.

Ins: Its fibers runs in 3 directions:

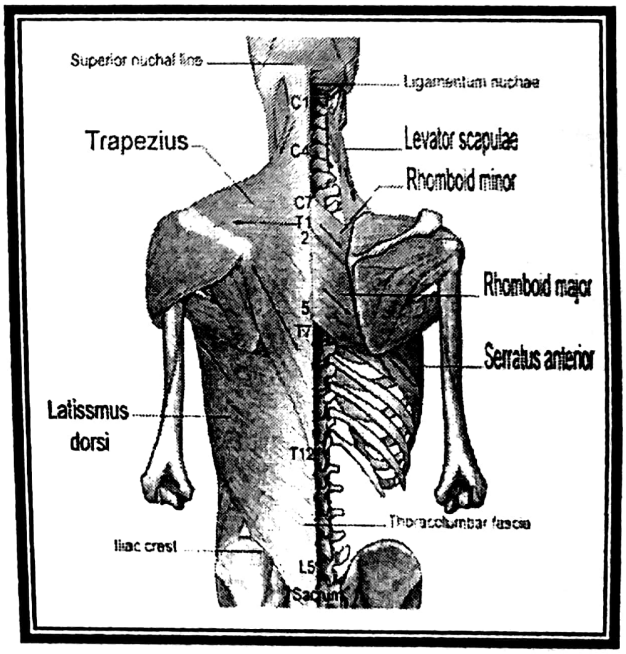
- Inferior ➡ To Clavicle.
- Horizontal ➡ To Acromion.
- Sup. ➡ To Spine of scapula.

Action:

- Sup. Fibers ➡ Elevate arm.
- Middle Fibers ➡ Adduct medial
- Inf. Fibers ➡ Pull downward

- Assist the serratus anterior muscle in abducting the arm 180⁰ above the head.

NS: Spinal accessory (IX) N.



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Latissmus dorsi

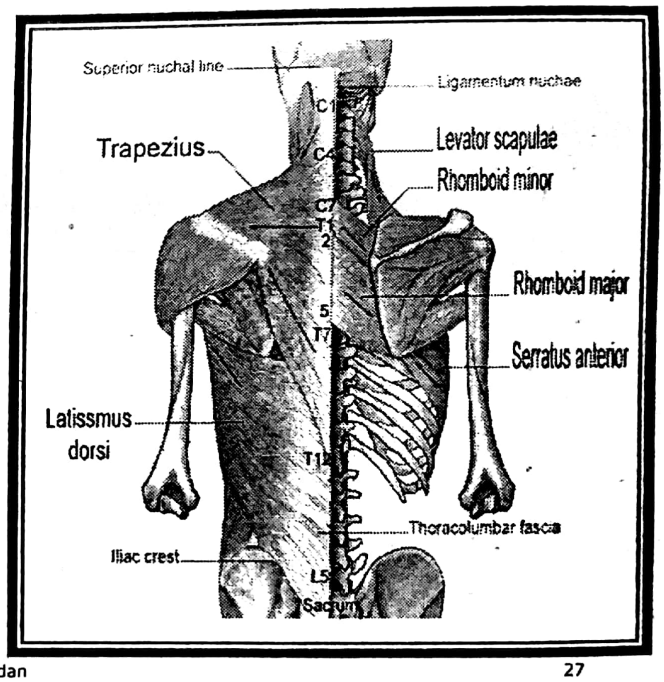
O: T7-T12, L1- L5, Sacrum & Iliac crest.

Ins: Floor of bicipital groove.

Action:

Extends, **A**dducts and **M**edially **R**otate the humerus such as in canoeing. **EAMR**

NS: Thoracodorsal N.



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