Muscles of the shoulder

Anterior Axioappendicular muscles

Axioappendicular muscles are a group of muscles that originates from the axial skeleton and goes toward the appendicular skeleton like the upper limbs.

The Anterior portion of this Axioappendicular muscles includes:

- **Pectoralis major**
  Superficial, large muscle that covers the anterior portion of the thoracic cavity and makes the anterior fold of the axilla (or the armpit region)
  **Originates** from two main places one from the anterior surface of the medial half of the clavicle and the other place is the sternum and the ribs or the costal cartilage mostly.
  **Insert** on the lateral lip of the bicipital groove (or the intertubercular groove) of the humerus bone.
  **Its action** according to its origin is adduction, flexion and medial rotation of the arm.

- **Pectoralis minor**
  Beneath the pectoralis major
  **Originates** from the ribs (3rd, 4th, and 5th) near their costal cartilage
  **Insert** in the coracoid process of the scapula so its **main action** is stabilizing the scapula in addition to its action in respiration process (elevate the ribs).

- **Subclavius**
  Small muscle that link the clavicle with the first rib, it act like a cushion in case of any fracture that’s happen to the clavicle so it can protect the underneath arteries or veins from the sharp broken clavicle.
  **Originates** from the 1st rib and **insert** on the inferior surface of the medial clavicle
  Its **action** is depression of the clavicle and stabilizing the shoulder girdle. Also, it protects the underlying brachia plexus and vessel from the broken clavicle.

- **Serratus anterior**
  **Originates** from the outer surface of the ribs **insert** on the medial border of the scapula anteriorly (it almost run backward and upward).
  Its **action** since it runs backward and upward is abduction of the scapula. Also it can take little part in the rotation as well.

  ✓ Anterior Axioappendicular Muscles Relations: the pectoralis major and pectoralis minor runs anteriorly to the brachial plexus and other axilla arteries and veins (which act like a connection between the cervical region and the upper limb), and the subclavius is superior to the plexus.

Posterior Axioappendicular Muscles

The Posterior Axioappendicular Muscles are divided into superficial muscles and deep muscles, the superficial muscle include the:

- **Trapezius muscle**: large broad superficial back muscle that **originates** from the occipital bone and the spinous process (c7-t12) **insert** on the clavicle and the scapula posteriorly, it is divided in to 3 parts with 3 different **action**:
- Upper or Superior fibers: which elevate the scapula mainly
- Middle fibers: adduct the scapula
- Lower fibers: depress the scapula

✓ Their innervations is from XI cranial nerve

- Latissimus dorsi muscle: it represents the Posterior axillary fold
  Originate from the spinous process of the vertebra and part of the iliac crest then it goes upward and insert on the medial lip of the bicipital groove (opposite to the pectoralis major).
  Its action is adduction, extension and medial rotation of the arm at the shoulder.

Deep posterior axioappendicular muscles

- Levator scapulae: Superior part is deep to sternocleidomastoid muscle and forms the occipital triangle (triangular space that is bounded by different muscle mainly the sternocleidomastoid and trapezius). Inferior part is deep to trapezius m.
  Its origin is from the cervical vertebra and insert on the scapula, and from the name amplifies its action is to elevate the scapula.

- Romboids
  Deep to the trapezius m. Romboid minor is thicker Romboid major is wider.

Scapulohumeral muscles: This is a group of muscles that runs from the scapula toward the humerus and this include:

- Deltoid muscle: It is named after the Greek letter delta, which is shaped like an equilateral triangle. It comprises 3 distinct portions each of which produces a different movement of the glenohumeral joint, commonly named the anterior (originates from the clavicle), Middle (or lateral and originate from the acromion process) and posterior heads (originates from the spine of the scapula), and it covers the lateral portion of the shoulder girdle.
  Fibers from all heads converge to insert into the deltoid tuberosity on the humerus.

  The action: the anterior head (flexion of the arm), posterior head (extension of the arm) and the middle or the lateral head (abduction of arm) but it is not considered the primary abductor of the arm because the supraspinatus is the muscle who initiates the abduction then the deltoid completes the action.

- Teres major: it originates from the lateral border of the scapula and insert on the medial lip of bicipital groove (just like the latissimus dorsi muscle and it will start looping around each other "مثل بداية الشعر" but still the latissimus dorsi insertion would be more anterior than the insertion of the teres major unlike their origin where the latissimus dorsi is more superficial)

Rotator Cuff Muscles: is a group of 4 muscles that arise from the scapula mainly and connect to the head of the humerus, forming a cuff at the glenohumeral joint.
### Quadrangular space

Space that is bounded superiorly (subscapularis), medially (long head of triceps), laterally (Surgical neck of humerus) and inferiorly (teres major).

It's content: most importantly the axillary nerve (and any damage that may occur to this area will affect the action of the abduction) and the posterior circumflex humeral artery.

### Clavipectoral (Deltpectorral) Triangle

Is a triangle space that is deficient from bulky muscle mass so in Clinical examination we can feel or palpate the coracoid process of the scapula.

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**Best of luck!**