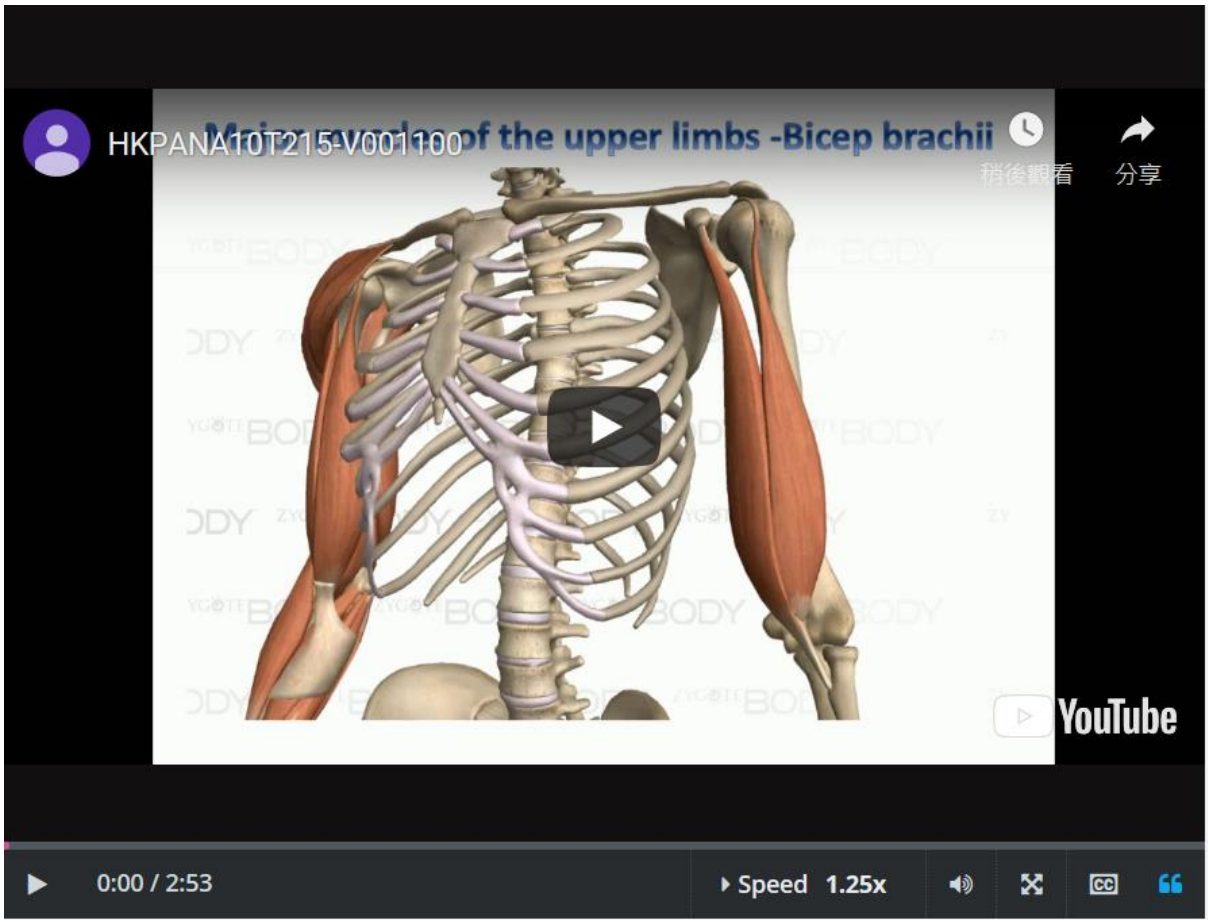
# HKPolyUx: ANA101x Human Anatomy

**Module 2 – Human Anatomy >**
**Submodule 2.2 - Muscular system >**
**Session 2.2.3 - Major muscles of the upper limbs**

Now, let's look at some examples about muscles of the upper limbs, particularly the **Biceps brachii** and the **Deltoid**.

The two-headed **biceps brachii** crosses the shoulder and elbow joints to flex the forearm, also taking part in supinating the forearm at the radioulnar joints and flexing the arm at the shoulder joint.

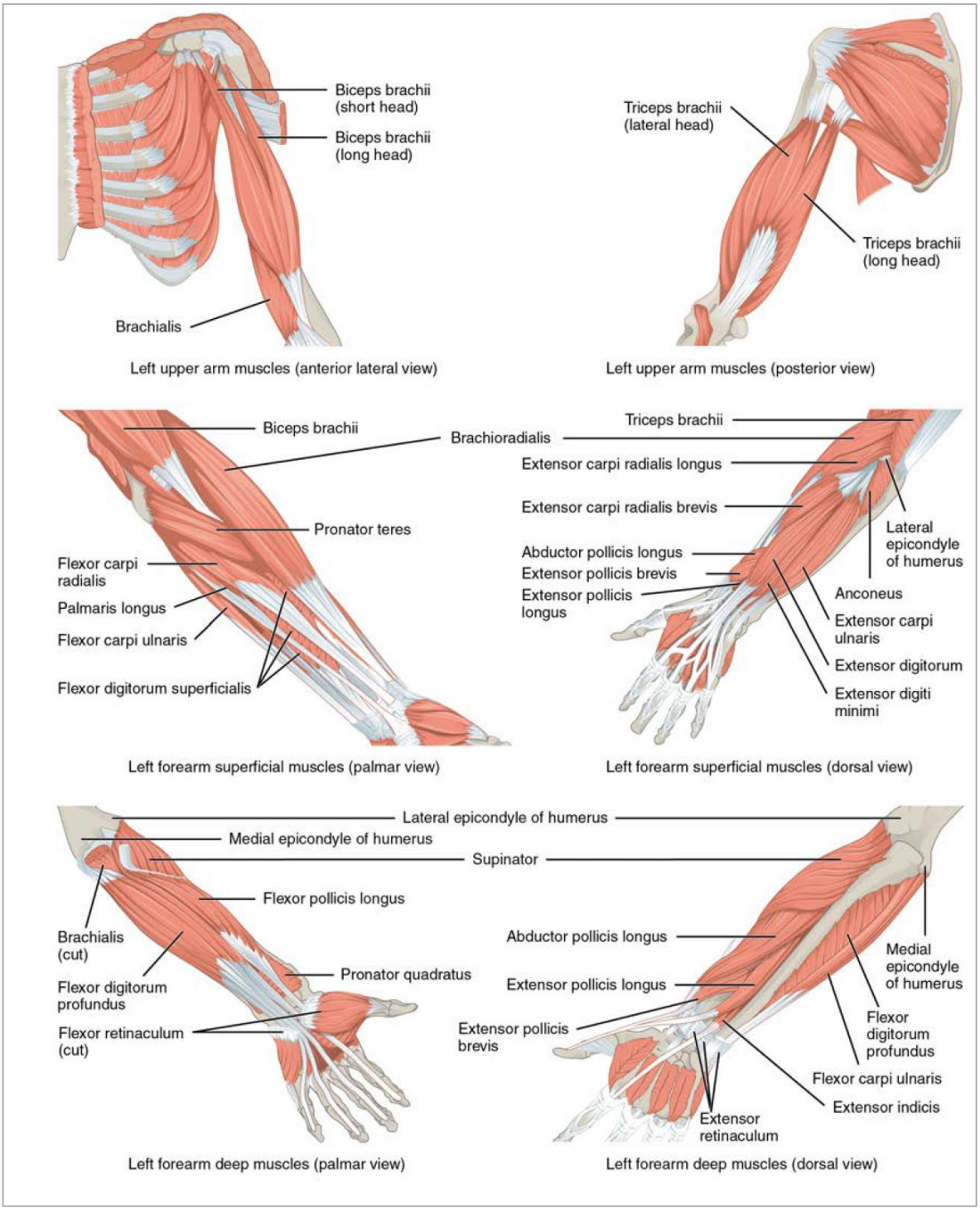
The **deltoid**, the thick muscle that creates the rounded lines of the shoulder is the major abductor of the arm, but it also facilitates flexing and medial rotation, as well as extension and lateral rotation.



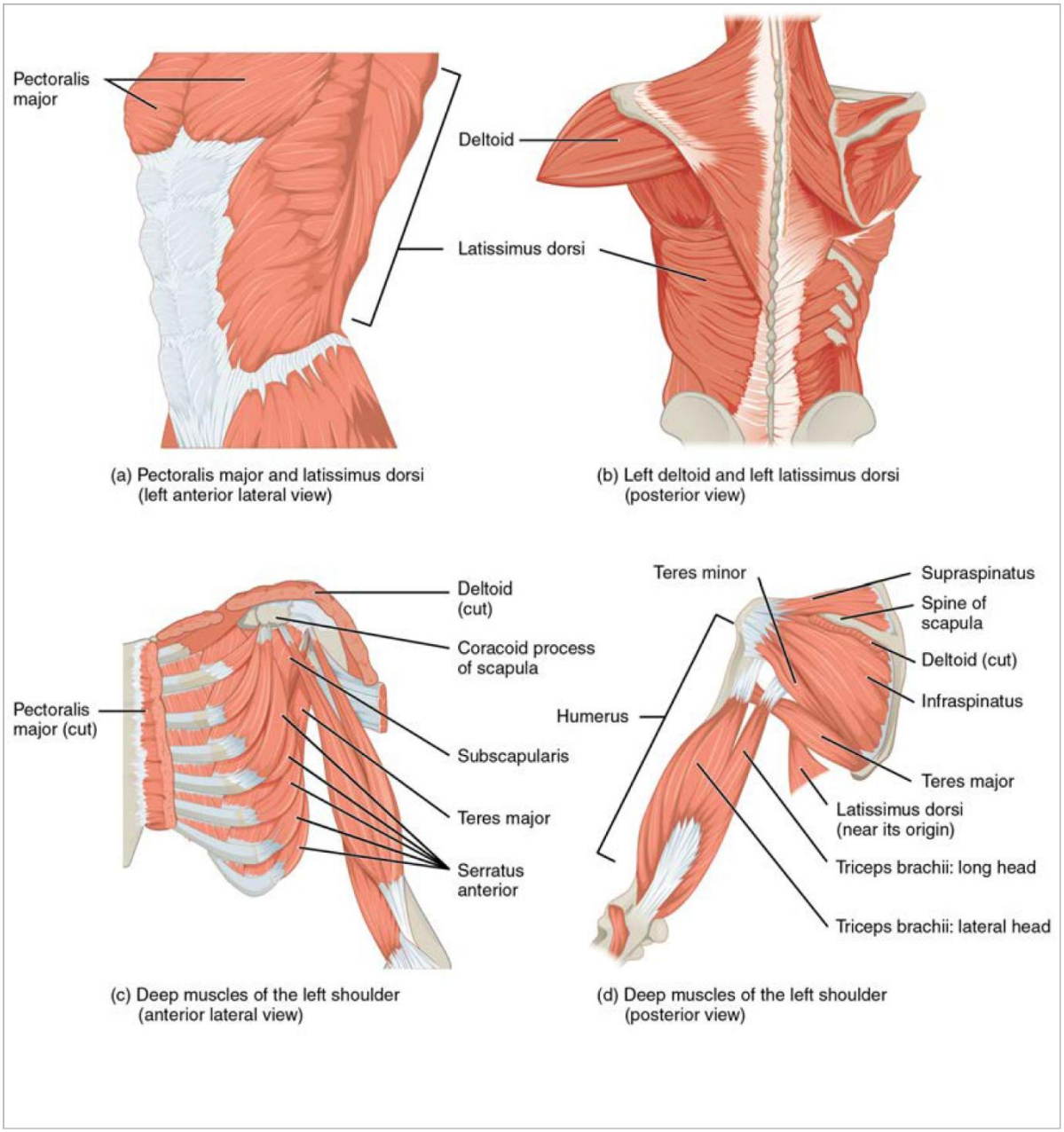
In fact these two important muscles, bones and joints are working together with other muscles to exhibit their functions. Let's look at more about the following two examples:

**Muscles That Move the Forearm:** The forearm, made of the radius and ulna bones, has four main types of action at the hinge of the elbow joint: flexion, extension, pronation, and supination. The forearm flexors include the biceps brachii, brachialis, and brachioradialis. The extensors are the triceps brachii and anconeus. The pronators are the pronator teres and the pronator quadratus, and the supinator is the only one that turns the forearm anteriorly. When the forearm faces anteriorly, it is supinated. When the forearm faces posteriorly, it is pronated.

The biceps brachii, brachialis, and brachioradialis flex the forearm. The two-headed biceps brachii crosses the shoulder and elbow joints to flex the forearm, also taking part in supinating the forearm at the radioulnar joints and flexing the arm at the shoulder joint. Deep to the biceps brachii, the brachialis provides additional power in flexing the forearm. Finally, the brachioradialis can flex the forearm quickly or help lift a load slowly. These muscles and their associated blood vessels and nerves form the anterior compartment of the arm (anterior flexor compartment of the arm).


Biceps brachii (short head)
Biceps brachii (long head)
Brachialis
Left upper arm muscles (anterior lateral view)
Triceps brachii (lateral head)
Triceps brachii (long head)
Left upper arm muscles (posterior view)
Biceps brachii
Brachioradialis
Pronator teres
Flexor carpi radialis
Palmaris longus
Flexor carpi ulnaris
Flexor digitorum superficialis
Left forearm superficial muscles (palmar view)
Triceps brachii
Extensor carpi radialis longus
Extensor carpi radialis brevis
Abductor pollicis longus
Extensor pollicis brevis
Extensor pollicis longus
Lateral epicondyle of humerus
Anconeus
Extensor carpi ulnaris
Extensor digitorum
Extensor digiti minimi
Left forearm superficial muscles (dorsal view)
Lateral epicondyle of humerus
Medial epicondyle of humerus
Supinator
Flexor pollicis longus
Brachialis (cut)
Flexor digitorum profundus
Pronator quadratus
Flexor retinaculum (cut)
Left forearm deep muscles (palmar view)
Abductor pollicis longus
Extensor pollicis longus
Extensor pollicis brevis
Medial epicondyle of humerus
Flexor digitorum profundus
Flexor carpi ulnaris
Extensor indicis
Extensor retinaculum
Left forearm deep muscles (dorsal view)

**Muscles That Move the Humerus:** (a, c) The muscles that move the humerus anteriorly are generally located on the anterior side of the body and originate from the sternum (e.g., pectoralis major) or the anterior side of the scapula (e.g., subscapularis). (b) The muscles that move the humerus superiorly generally originate from the superior surfaces of the scapula and/or the clavicle (e.g., deltoids). The muscles that move the humerus inferiorly generally originate from middle or lower back (e.g., latissiumus dorsi). (d) The muscles that move the humerus posteriorly are generally located on the posterior side of the body and insert into the scapula (e.g., infraspinatus).



| Movement | Target | Target motion direction | Prime mover | Origin | Insertion |
|---|---|---|---|---|---|
| **Axial muscles** | | | | | |
| Brings elbows together; moves elbow up (as during an uppercut punch) | Humerus | Flexion; adduction; medial rotation | Pectoralis major | Clavicle; sternum; cartilage of certain ribs (1–6 or 1–7); aponeurosis of external oblique muscle | Greater tubercle of humerus |
| Moves elbow back (as in elbowing someone standing behind you); spreads elbows apart | Humerus; scapula | Humerus: extension, adduction, and medial rotation; scapula: depression | Latissimus dorsi | Thoracic vertebrae (T7–T12); lumbar vertebrae; lower ribs (9–12); iliac crest | Intertubercular sulcus of humerus |
| **Scapular muscles** | | | | | |
| Lifts arms at shoulder | Humerus | Abduction; flexion; extension; medial and lateral rotation | Deltoid | Trapezius; clavicle; acromion; spine of scapula | Deltoid tuberosity of humerus |
| Assists pectoralis major in bringing elbows together and stabilizes shoulder joint during movement of the pectoral girdle | Humerus | Medial rotation | Subscapularis | Subscapular fossa of scapula | Lesser tubercle of humerus |
| Rotates elbow outwards, as during a tennis swing | Humerus | Abduction | Supraspinatus | Supraspinous fossa of scapula | Greater tubercle of humerus |
| Rotates elbow outwards, as during a tennis swing | Humerus | Extension; adduction | Infraspinatus | Infraspinous fossa of scapula | Greater tubercle of humerus |
| Assists infraspinatus in rotating elbow outwards | Humerus | Extension; adduction | Teres major | Posterior surface of scapula | Intertubercular sulcus of humerus |
| Assists infraspinatus in rotating elbow outwards | Humerus | Extension; adduction | Teres minor | Lateral border of dorsal scapular surface | Greater tubercle of humerus |
| Moves elbow up and across body, as when putting hand on chest | Humerus | Flexion; adduction | Coracobra chialis | Coracoid process of scapula | Medial surface of humerus shaft |