Fascial Compartments of the Upper Arm

- The upper arm is enclosed in a sheath of deep fascia and has two fascial septa:
  1. **Medial fascial septum** (medial intermuscular septum): attached to the medial supracondylar ridges of the humerus
  2. **Lateral fascial septum** (lateral intermuscular septum): attached to the lateral supracondylar ridges of the humerus

- The upper arm is divided into an anterior and a posterior fascial compartment,
Contents of the Anterior Fascial Compartment

- **Muscles:** Biceps brachii, coracobrachialis, and brachialis
- **Blood supply:** Brachial artery
- **Nerve supply to the muscles:** Musculocutaneous nerve
- **Structures passing through the compartment:** Musculocutaneous, median, and ulnar nerves; brachial artery and basilic vein. The radial nerve is present in the lower part of the compartment.
Muscles of the Anterior Fascial Compartment of the Upper arm

Biceps brachii

- **Origin of long head:** Supraglenoid tubercle of scapula

- **Origin of short head:** Coracoid process of scapula

- **Insertion:** Radial tuberosity and bicipital aponeurosis into deep fascia of forearm

- **NS:** Musculocutaneous nerve

- **Action:** Supinator of forearm and flexor of elbow joint; weak flexor of shoulder joint
Muscles of the Anterior Fascial Compartment of the Upper arm

**Coracobrachialis**
- **Origin**: Coracoid process of scapula
- **Insertion**: Medial aspect of shaft of humerus
- **NS**: Musculocutaneous nerve
- **Action**: Flexes arm and also weak adductor

**Brachialis**
- **Origin**: Front of lower half of humerus
- **Insertion**: Coronoid process of ulna
- **NS**: Musculocutaneous nerve
- **Action**: Flexor of elbow joint
Brachial Artery

- **Begins:** at the lower border of the teres major muscle.
- **Terminates:** opposite the neck of the radius by dividing into the radial and ulnar arteries.
- **Relations:**
  1. **Anteriorly:** The vessel is superficial and is overlapped from the lateral side by the coracobrachialis and biceps. The medial cutaneous nerve of the forearm lies in front of the upper part; the median nerve crosses its middle part; and the bicipital aponeurosis crosses its lower part.
Brachial Artery

2- **Posteriorly**: triceps, the coracobrachialis insertion, and the brachialis

3- **Medially**: In the upper part of the arm; The ulnar nerve and the basilic vein. In the lower part of the arm, the median nerve lies on its medial side

4- **Laterally**: The median nerve and the coracobrachialis and biceps muscles above; the tendon of the biceps lies lateral to the artery in the lower part
Brachial Artery Branches

- **Muscular branches:** to the anterior compartment of the upper arm
- **The nutrient artery:** to the humerus
- **The profunda artery:** arises near the beginning of the brachial artery and follows the radial nerve into the spiral groove of the humerus
- **The superior ulnar collateral artery:** arises near the middle of the upper arm and follows the ulnar nerve
- **The inferior ulnar collateral artery:** arises near the termination of the artery and takes part in the anastomosis around the elbow joint
Musculocutaneous Nerve

- originate from the lateral cord of the brachial plexus
- It runs downward and laterally, pierces the coracobrachialis muscle
- then passes downward between the biceps and brachialis muscles
- It appears at the lateral margin of the biceps tendon and pierces the deep fascia just above the elbow.
- It runs down the lateral aspect of the forearm as the lateral cutaneous nerve of the forearm
Median Nerve

- Originate from the medial and lateral cords of the brachial plexus
- It runs downward on the lateral side of the brachial artery. Halfway down the upper arm, it crosses the brachial artery and continues downward on its medial side.
- At the elbow, it is crossed by the bicipital aponeurosis.
- No branches in the upper arm except for a small vasomotor nerve to the brachial artery.
Ulnar Nerve

- Originate from the medial cord of the brachial plexus.
- It runs downward on the medial side of the brachial artery as far as the middle of the arm.
- At the insertion of the coracobrachialis, the nerve pierces the medial fascial septum, accompanied by the superior ulnar collateral artery, and enters the posterior compartment of the arm covered posteriorly by the medial head of triceps.
- Then passes behind the medial epicondyle of the humerus.
- No branches in the anterior compartment of the upper arm.
Contents of the Posterior Fascial Compartment

- **Muscles**: The three heads of the triceps muscle
- **Blood supply**: Profunda brachii and ulnar collateral arteries
- **Nerve supply to the muscles**: Radial nerve
- **Structures passing through the compartment**: Radial nerve and ulnar nerve
Muscles of the Posterior Fascial Compartment of the Upper arm

Triceps brachii

- **Origin of long head:** Infraglenoid tubercle of scapula
- **Origin of lateral head:** Upper half of posterior surface of shaft of humerus
- **Origin of medial head:** Lower half of posterior surface of shaft of humerus
- **Insertion:** Olecranon process of ulna
- **NS:** Radial nerve
- **Action:** Extensor of elbow joint
Radial Nerve

- Originate from posterior cord of the brachial plexus
- The nerve runs around the back of the arm in the spiral groove on the back of the humerus between the heads of the triceps
- It pierces the lateral fascial septum above the elbow and continues downward into the cubital fossa in front of the elbow, between the brachialis and brachioradialis muscles
Radial Nerve branches

- **In the axilla:**
  - Long and medial heads of the triceps
  - Posterior cutaneous nerve of the arm

- **In the spiral groove:**
  - Lateral and medial heads of the triceps and to the anconeus.
  - The lower lateral cutaneous nerve of the arm supplies the skin over the lateral and anterior aspects of the lower part of the arm.
  - The posterior cutaneous nerve of the forearm

- **In the anterior compartment of the arm:**
  - The brachialis, the brachioradialis, and the extensor carpi radialis longus muscles
  - Articular branches to the elbow joint
The Upper Arm

- **Superficial Sensory Nerves**
  - **Supraclavicular nerves (C3 and 4):** skin over the point of the shoulder to halfway down the deltoid muscle
  - **Upper lateral cutaneous nerve of the arm (a branch of the axillary nerve (C5 and 6):** skin over the lower half of the deltoid
  - **Lower lateral cutaneous nerve of the arm (a branch of the radial nerve (C5 and 6):** The skin over the lateral surface of the arm below the deltoid
  - **Medial cutaneous nerve of the arm (T1) and the intercostobrachial nerves (T2):** The skin of the armpit and the medial side of the arm
  - **Posterior cutaneous nerve of the arm, (a branch of the radial nerve (C8):** The skin of the back of the arm.
Veins

- **Deep veins:**
  1. **Venae comitantes:** accompany all the large arteries
  2. **The axillary vein.**

- **Superficial veins** (lie in the superficial fascia)
  1. **The cephalic vein:** ascends in the superficial fascia on the lateral side of the biceps and drains into the axillary vein.
  2. **The basilic vein:** ascends in the superficial fascia on the medial side of the biceps. Halfway up the arm, it pierces the deep fascia and at the lower border of the teres major joins the venae comitantes of the brachial artery to form the axillary vein.
The Cubital Fossa

- Triangular depression that lies in front of the elbow
- Boundaries:
  - **Laterally:** The brachioradialis muscle
  - **Medially:** The pronator teres muscle
  - **The base:** is formed by an imaginary line between the two epicondyles of the humerus.
  - **The floor:** is formed by the supinator muscle laterally and the brachialis muscle medially.
  - **The roof:** is formed by skin, fascia and bicipital aponeurosis.
The Cubital Fossa

- Contents (from the medial to the lateral side):
  1- The median nerve
  2- The bifurcation of the brachial artery into the ulnar and radial arteries
  3- The tendon of the biceps muscle
  4- The radial nerve and its deep branch.