

Anatomy of the arm

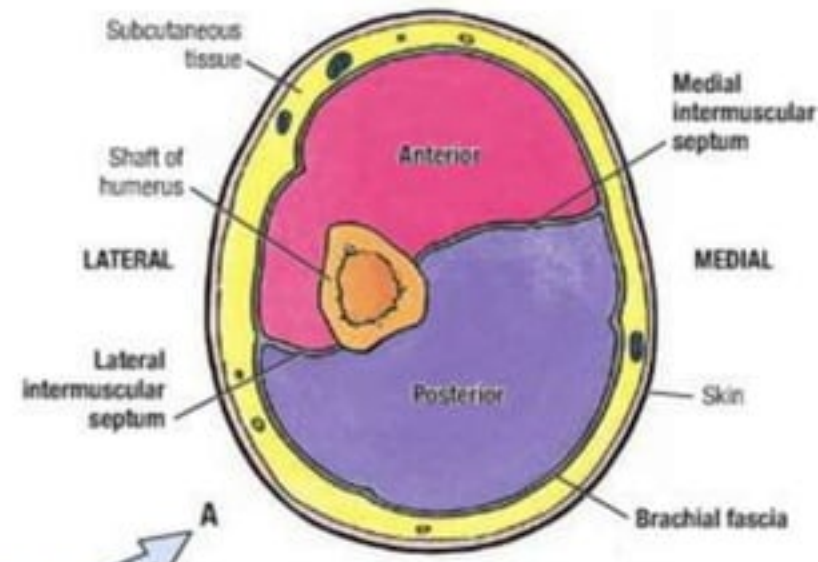
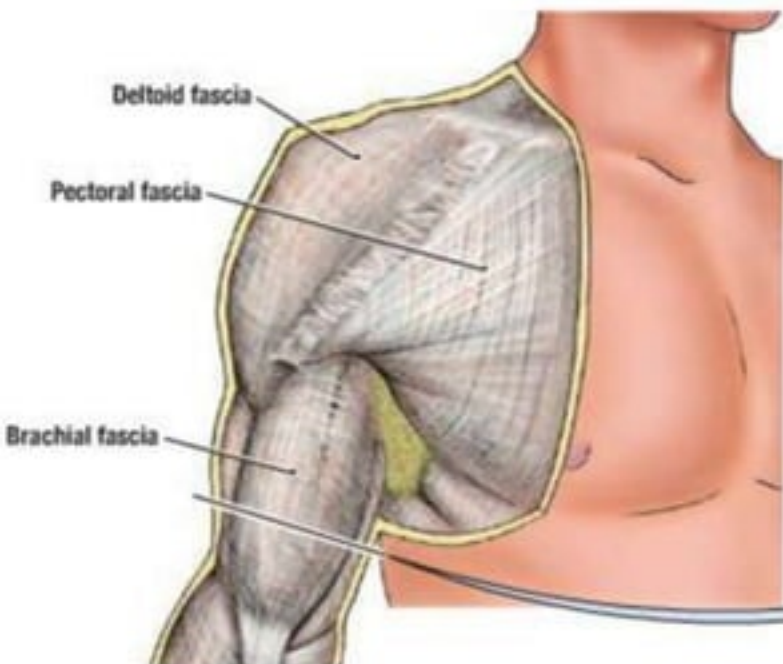
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Cutaneous Innervation

- **The upper medial surface of the arm** is supplied by the lateral branch of the second intercostal nerve (**the intercostobrachial nerve**).
- **The lower medial surface of the arm** is supplied by the medial cutaneous nerve of the arm.
- **The lateral aspect of the arm** is supplied by the upper lateral cutaneous nerve (a branch of the axillary nerve) and the lower lateral cutaneous nerve (a branch of the radial nerve).
- **The posterior aspect** is supplied by the posterior cutaneous nerve of the arm, a branch of the radial nerve

Fascial Compartments of the Upper Arm

- The upper arm is enclosed in a sheath of deep fascia.
- Two fascial septa;
- **medial intermuscular septum** on the medial side extend from this sheath and are attached to the medial supracondylar ridge of the humerus
- **lateral intermuscular septum** on the lateral side, extend from this sheath and are attached to the lateral supracondylar ridge of the humerus.
- By this means, the upper arm is divided into an **anterior and a posterior fascial compartment**, each having its muscles, nerves, and arteries



Contents of the anterior compartment of the arm

- **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

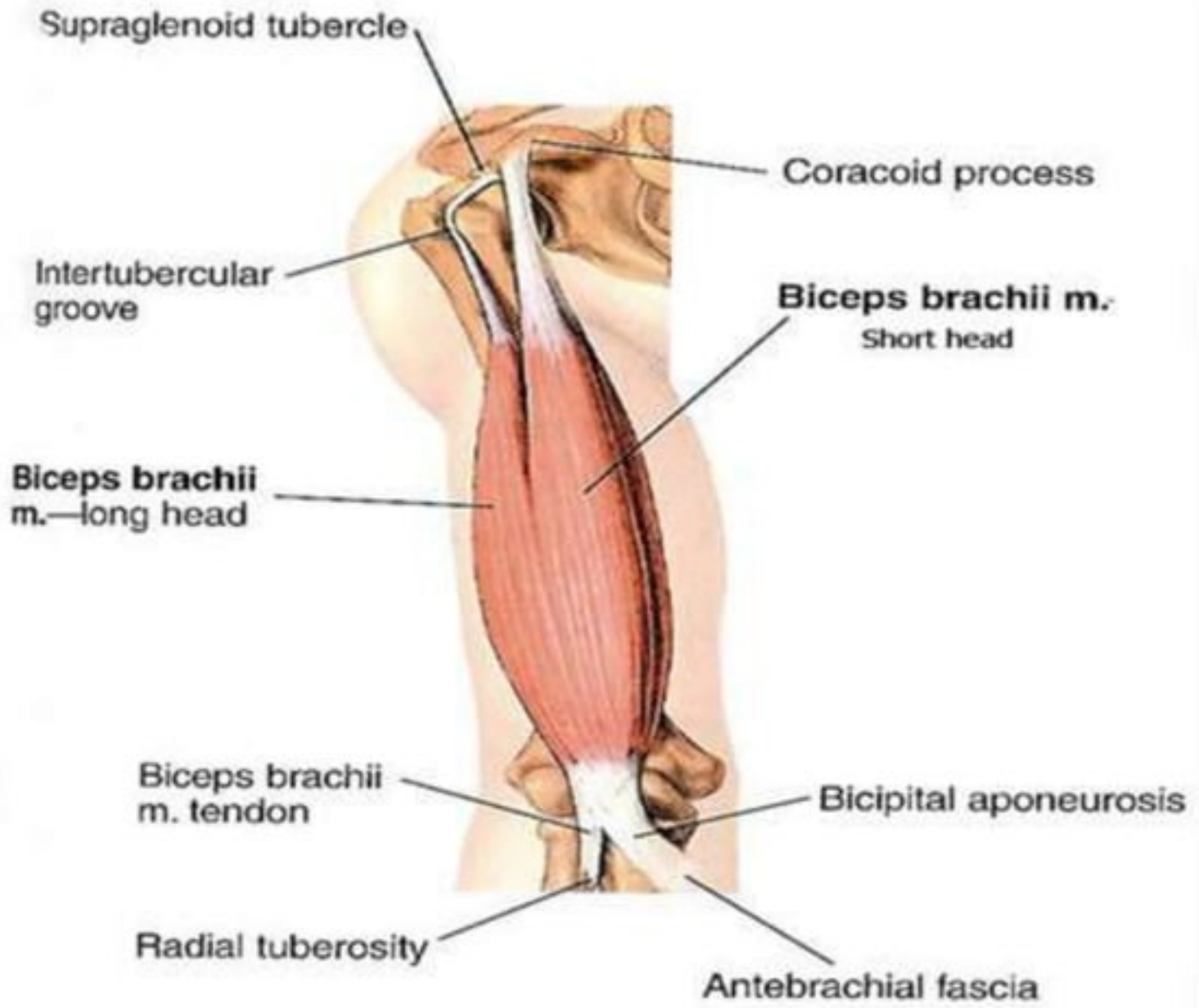
- **The biceps brachii.**
- **Coracobrachialis.**
- **Brachialis muscles.**

Biceps brachii muscle

- **Origin:**
- **Long head:** from the supraglenoid tubercle of the scapula.
- **Short head:** from the tip of coracoid process of the scapula.
- **Insertion:** Into the posterior part of the tuberosity of the radius.

The bicipital aponeurosis inserted into the deep fascia of the upper part of the medial side of the forearm.

- **Nerve Supply:** From musculocutaneous nerve.
- **Action:**
- Supination of the forearm at the radio-ulnar joints.
- Flexion of the forearm at the elbow joint.
- Weak flexion of the shoulder joint.



Coracobrachialis muscle

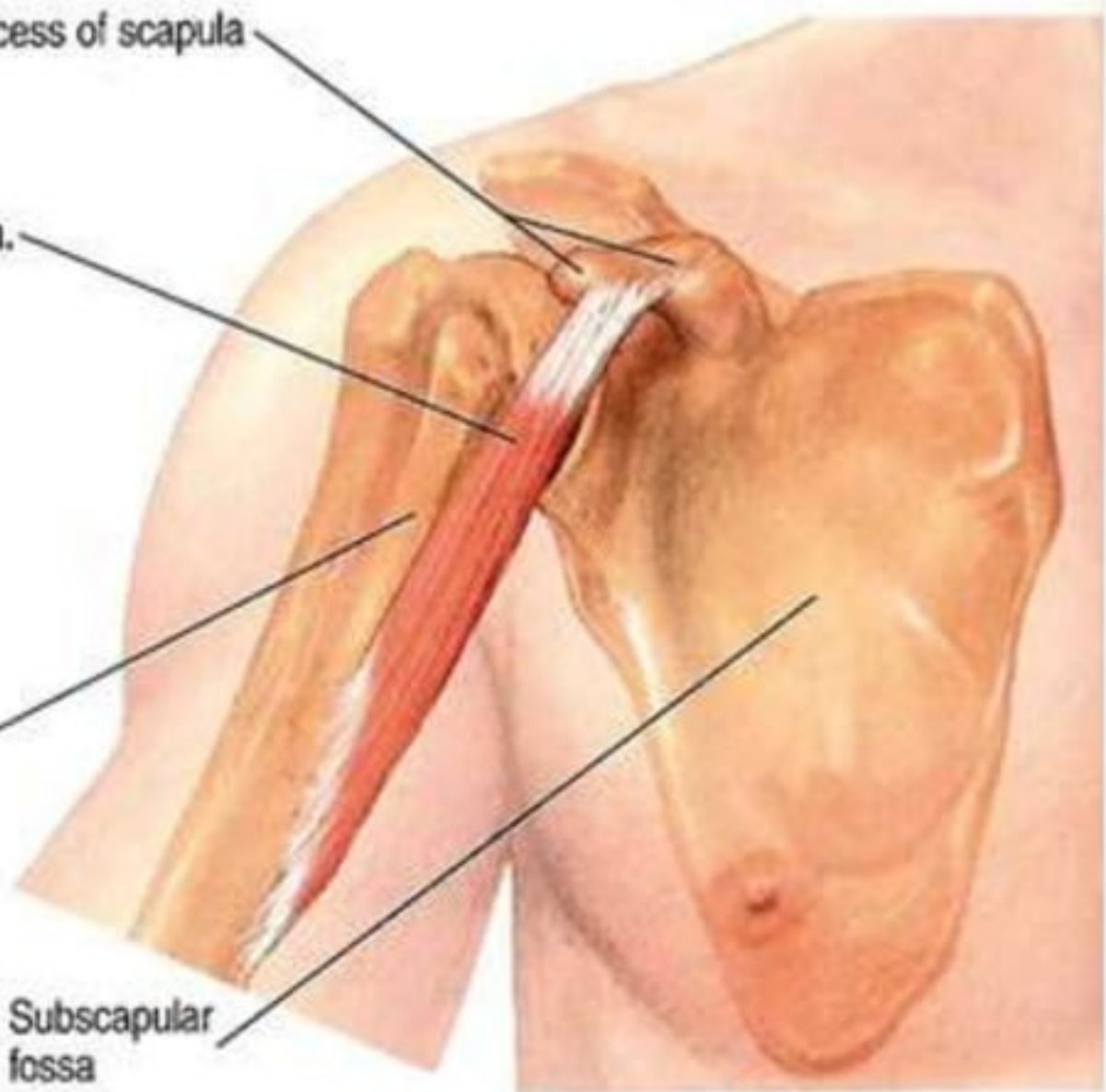
- **Origin:** From the tip of coracoid process of the scapula (with short head of biceps).
- **Insertion:** Into the middle third of the medial side of the shaft of the humerus.
- **Blood Supply:** Muscular branches of brachial artery
- **Nerve Supply:** From musculocutaneous nerve.
- **Action:**
 - Flexion of the shoulder joint.
 - Weak adduction of the shoulder joint.

Coracoid process of scapula

Coracobrachialis m.

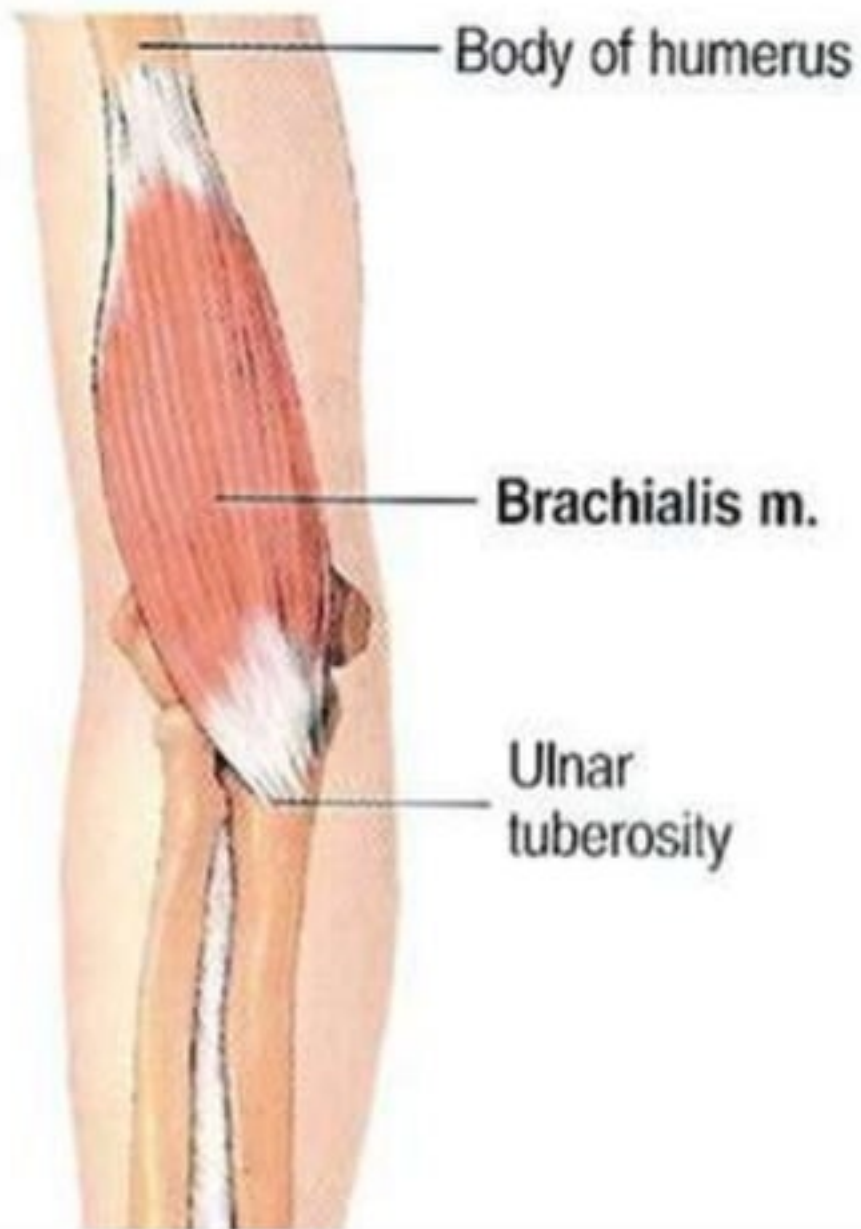
Crest of lesser tubercle

Subscapular
fossa



Brachialis muscle

- **Origin:**
- From the lower half of the anterior surface of the shaft of the humerus.
- **Insertion:** Into the anterior surface of the coronoid process of the ulna.
- **Nerve Supply:**
- Majority of the muscle from musculocutaneous nerve.
- Small lateral part from the radial nerve.
- **Action:** Strong flexion of the elbow joint.



Structures Passing Through the Anterior Fascial Compartment

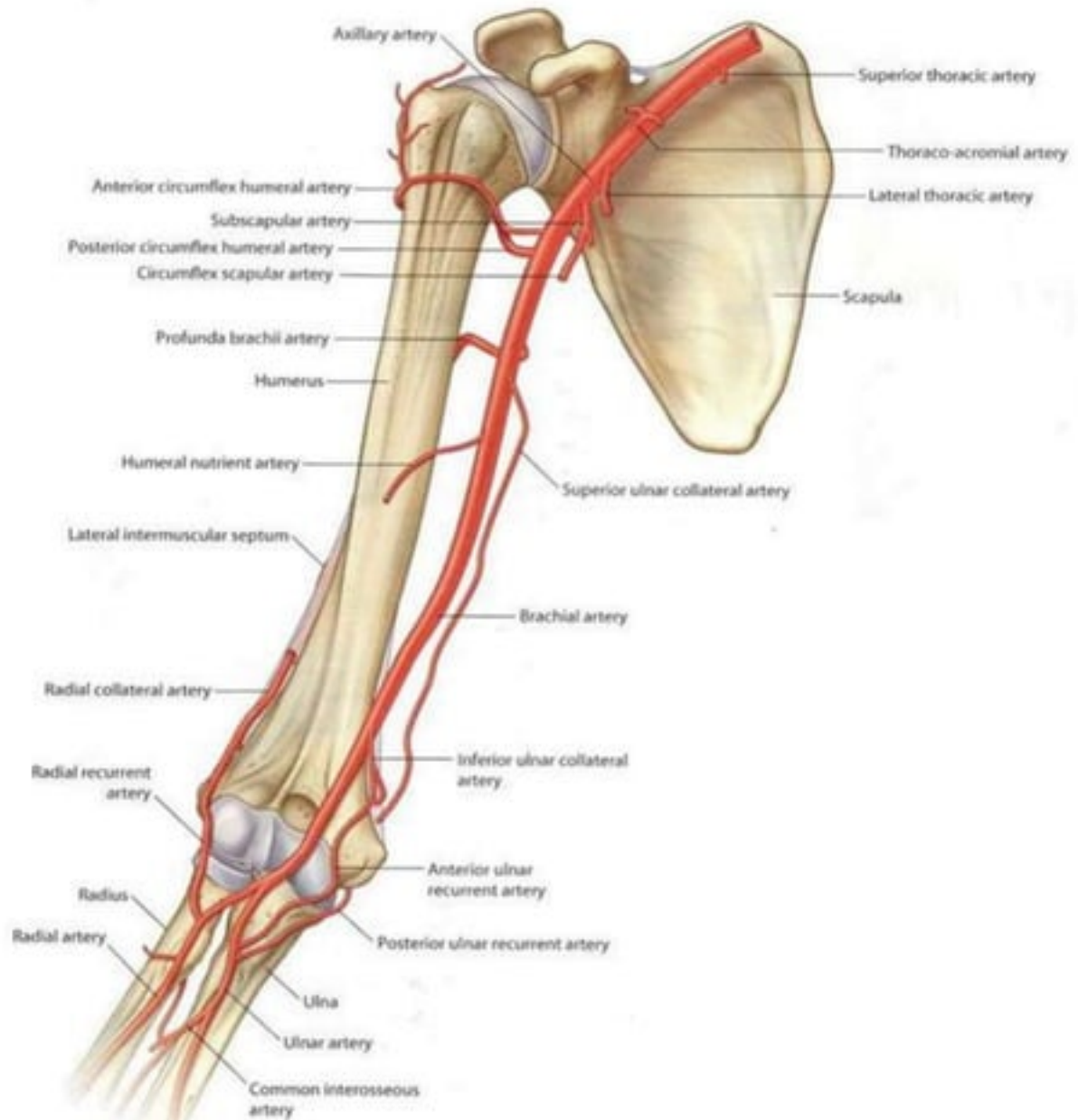
- Brachial artery**
- Musculocutaneos nerve**
- Median nerve**
- Ulnar nerve**

Brachial Artery

- **Beginning** The brachial artery begins at the lower border of the teres major muscle as a continuation of the axillary artery.
- It provides the main arterial supply to the arm.
- **Termination** It terminates opposite the neck of the radius by dividing into the radial and ulnar arteries.
- **Relations**
 - **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.
 - **Posteriorly:** The artery lies on the triceps, the coracobrachialis insertion, and the brachialis
 - **Medially:** The ulnar nerve and the basilic vein in the upper part of the arm; in the lower part of the arm, the median nerve lies on its medial side
 - **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 of its course

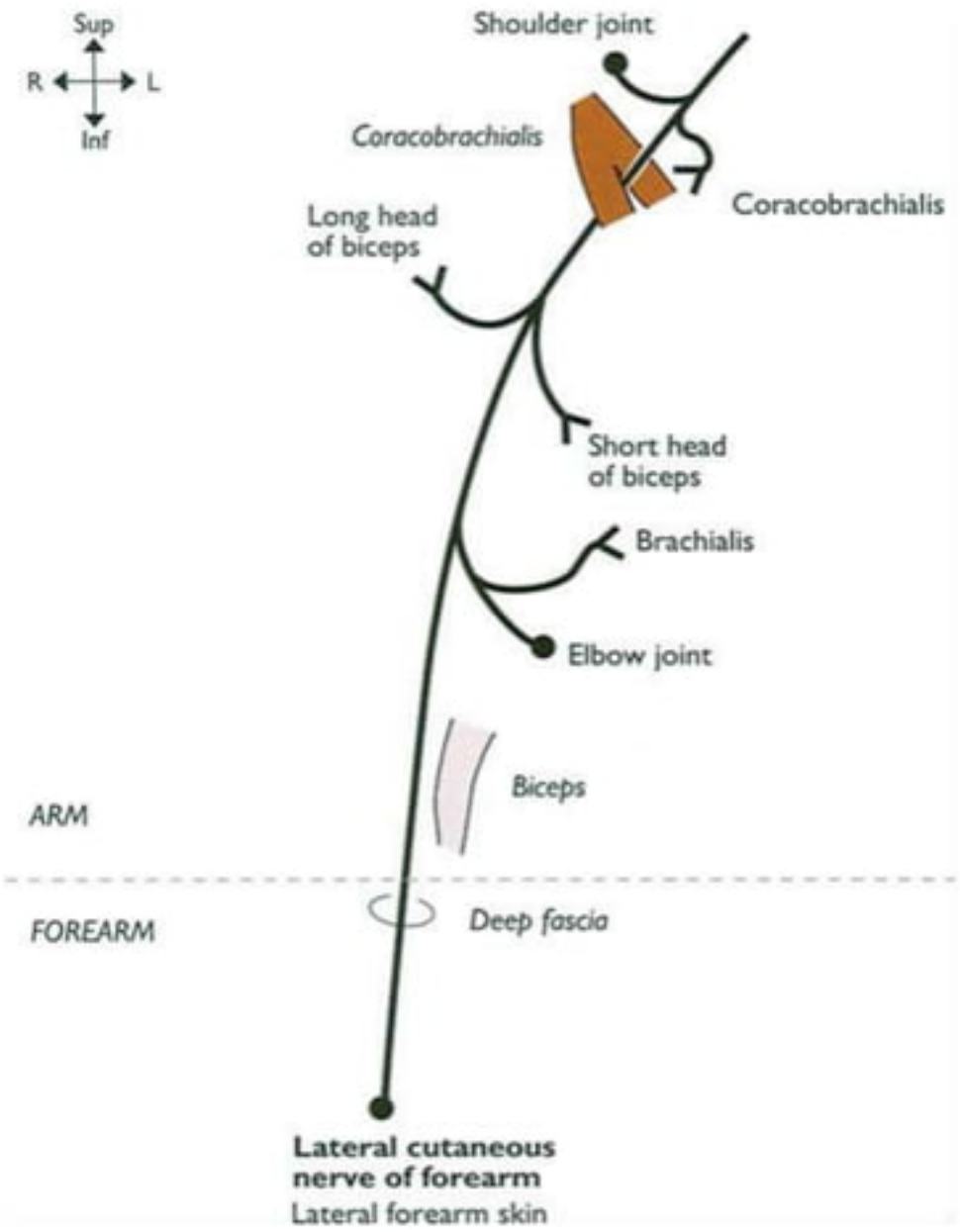
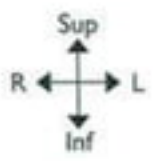
Branches of brachial artery

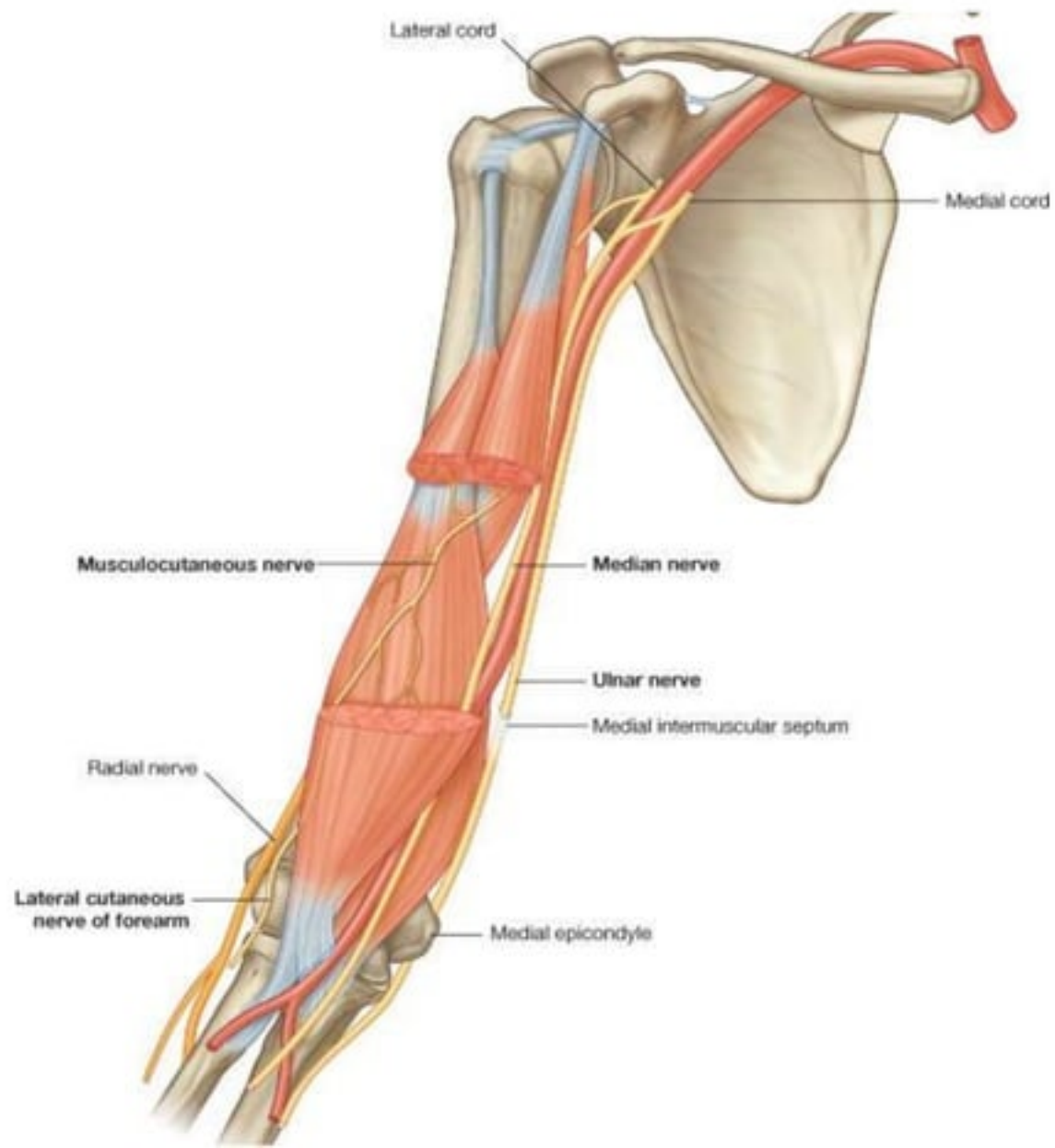
- **Muscular branches** to the anterior compartment of the upper arm
- **The nutrient artery** to the humerus
- **The profunda artery** arises near the beginning of the brachial artery and follows the radial nerve into the spiral groove of the humerus.
- It supplies muscular branches, the nutrient artery of the humerus, and finally divides into terminal radial and middle collateral branches.
- **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

- The origin of the musculocutaneous nerve from the lateral cord of the brachial plexus (C5, 6, and 7).
- It runs downward and laterally, pierces the coracobrachialis muscle, and 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**





Branches of musculocutaneous nerve

- **Muscular branches** to the biceps, coracobrachialis, and brachialis
- **Cutaneous branches;** the lateral cutaneous nerve of the forearm supplies the skin of the front and lateral aspects of the forearm down as far as the root of the thumb.
- **Articular branches** to the elbow joint

Median Nerve

- The origin of the median nerve from the medial and lateral cords of the brachial plexus in the axilla.
- 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.
- The nerve, like the artery, is therefore superficial, but at the elbow, it is crossed by the bicipital aponeurosis.
- The median nerve has no branches in the upper arm , except for a small vasomotor nerve to the brachial artery.

Branches Cords Divisions Trunks Roots

Musculocutaneous n.

Radial n.

Median n.

Ulnar n.

