

Learning Objectives

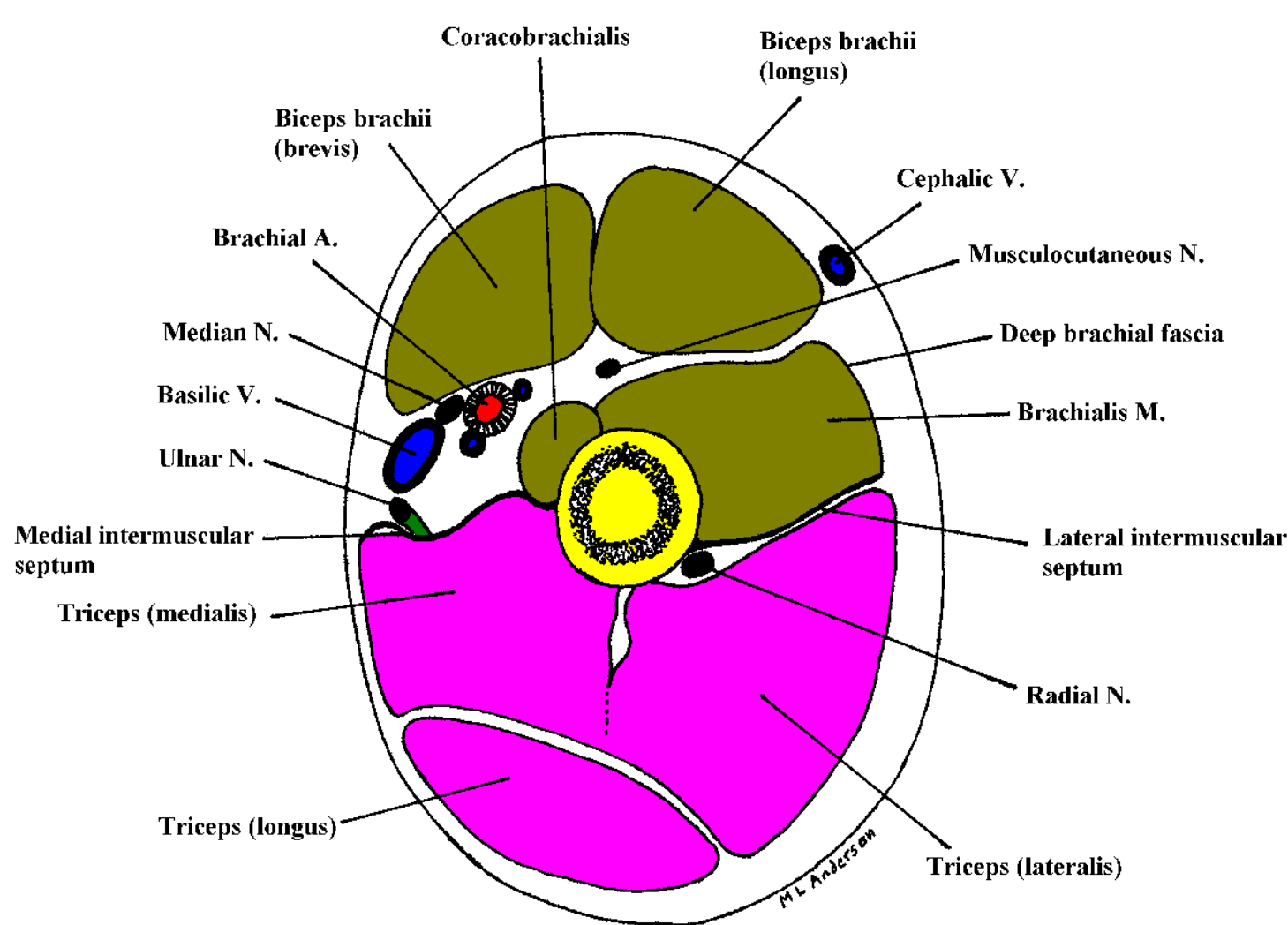
- ***At end of this session, students should be able to:***
- DESCRIBE
- Attachments, actions & innervations of - biceps brachii, coracobrachialis, brachialis, triceps brachii
- Contents of ant & post compartment of arm , their anatomical Relations and clinical importance
- Boundaries of cubital fossa and its contents.

Medial Intermuscular Septum

- From subcutaneous sheath to humerus.
- Separates muscles of anterior arm from medial side of triceps complex.

Lateral Intermuscular Septum

- From subcutaneous sheath to humerus.
- Separates muscles of anterior arm from lateral side of triceps complex.



Anterior Brachial Compartment

BBC – Musculocutaneous nerve

Muscles

- **Components:**

Biceps brachii

Coracobrachialis

Brachialis

- **Function:**

Forearm flexors

Biceps also supinates forearm

Innervation

- **Musculocutaneous nerve C5-6**

- Nerves passing through compartment - But *not innervating anterior compartment structures* are : **Median & Ulnar nerve**

Through proximal part of anterior compartment.

- **Blood supply –**

- Brachial artery

- Basilic vein and venae comitantes

Posterior compartment

Triceps & anconeus – Radial Nerve

Muscles

- **Components:**

- Triceps brachii.

- Anconeus.

- **Function:**

- Forearm extensors.

- **Long head of triceps can extend shoulder (arm).**

- Synergists in forearm supination.

- **Innervation/Vascularization**

- Radial nerve C7

- Deep brachial artery

Nerves and Vessels in Arm

Median Nerve

- Supplies flexor muscles on radial side of forearm.
- Travels with brachial artery:
 - **upper half - Lateral** to brachial artery.
 - **lower half - Medial** to brachial artery .
- **Crosses cubital fossa superficially:**
- With brachial artery &
- Deep to bicipital aponeurosis

Ulnar Nerve

- Supplies flexor muscles on ulnar side of forearm.
- Starts in anterior brachial compartment - MC
- Medial to brachial artery
- Runs with superior ulnar collateral artery.
- ***Pierces medial intermuscular septum:***
- Enters posterior compartment of arm.
- Passes around (superficial) posterior to medial epicondyle.
- Passes into forearm between two heads of flexor carpi ulnaris muscle.

Radial Nerve - PC

- Supplies extensor muscles in posterior compartment of brachium as well as extensor muscles of wrist and hand.
- Also supplies brachioradialis muscle- Proprioceptive
- Descends posterior to axillary artery:
- Spirals around the posterior surface of humerus in spiral (radial) groove.
- Accompanied with Profunda brachial artery.

Radial Nerve

- Pierces lateral intermuscular septum distal to deltoid insertion – enters into anterior compartment.
- Passes into forearm:
- Between the brachialis medially and brachioradialis laterally.
- Divides into superficial and deep branches near lateral epicondyle.

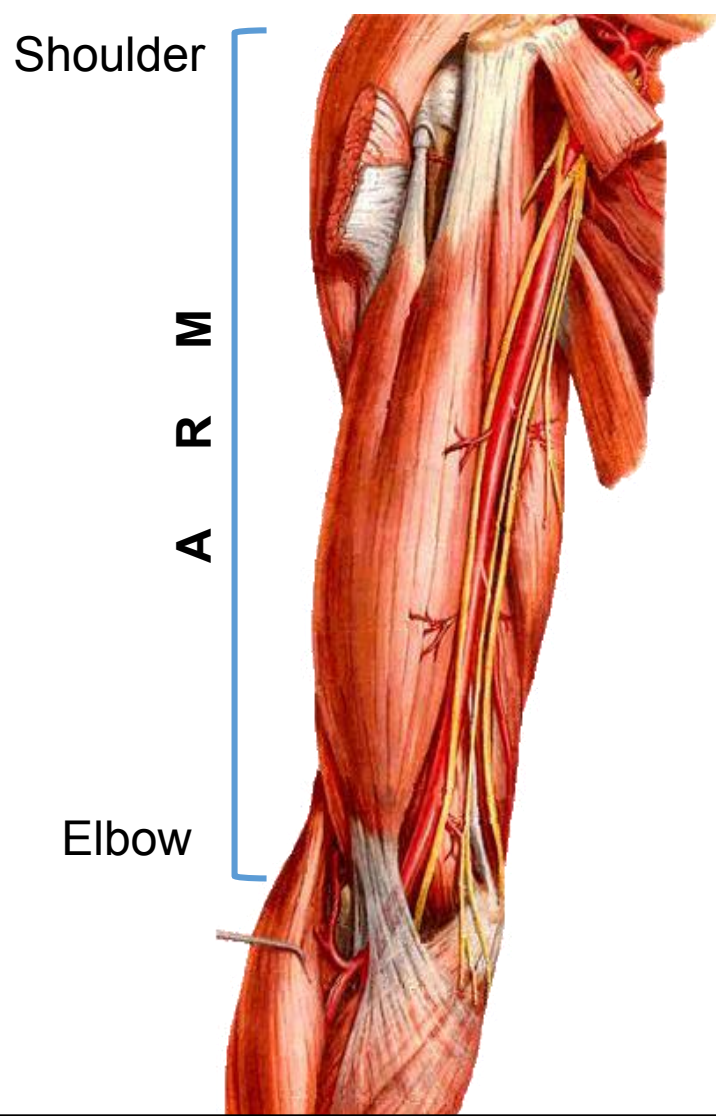
Radial Nerve

- Branches in the axilla and upper third of arm:
 - Muscular branch to long head of triceps.
 - Muscular branch to medial head of triceps.
 - Posterior cutaneous nerve of arm.

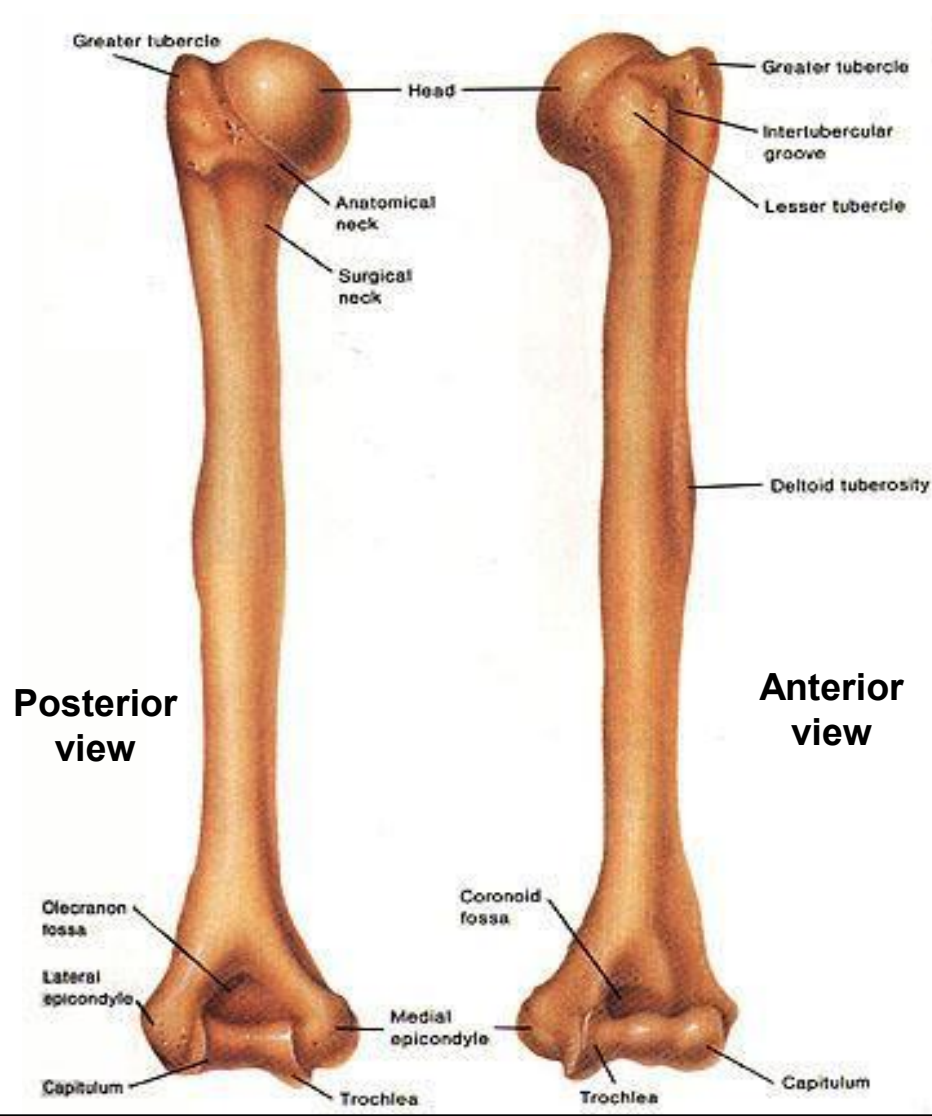
Radial Nerve

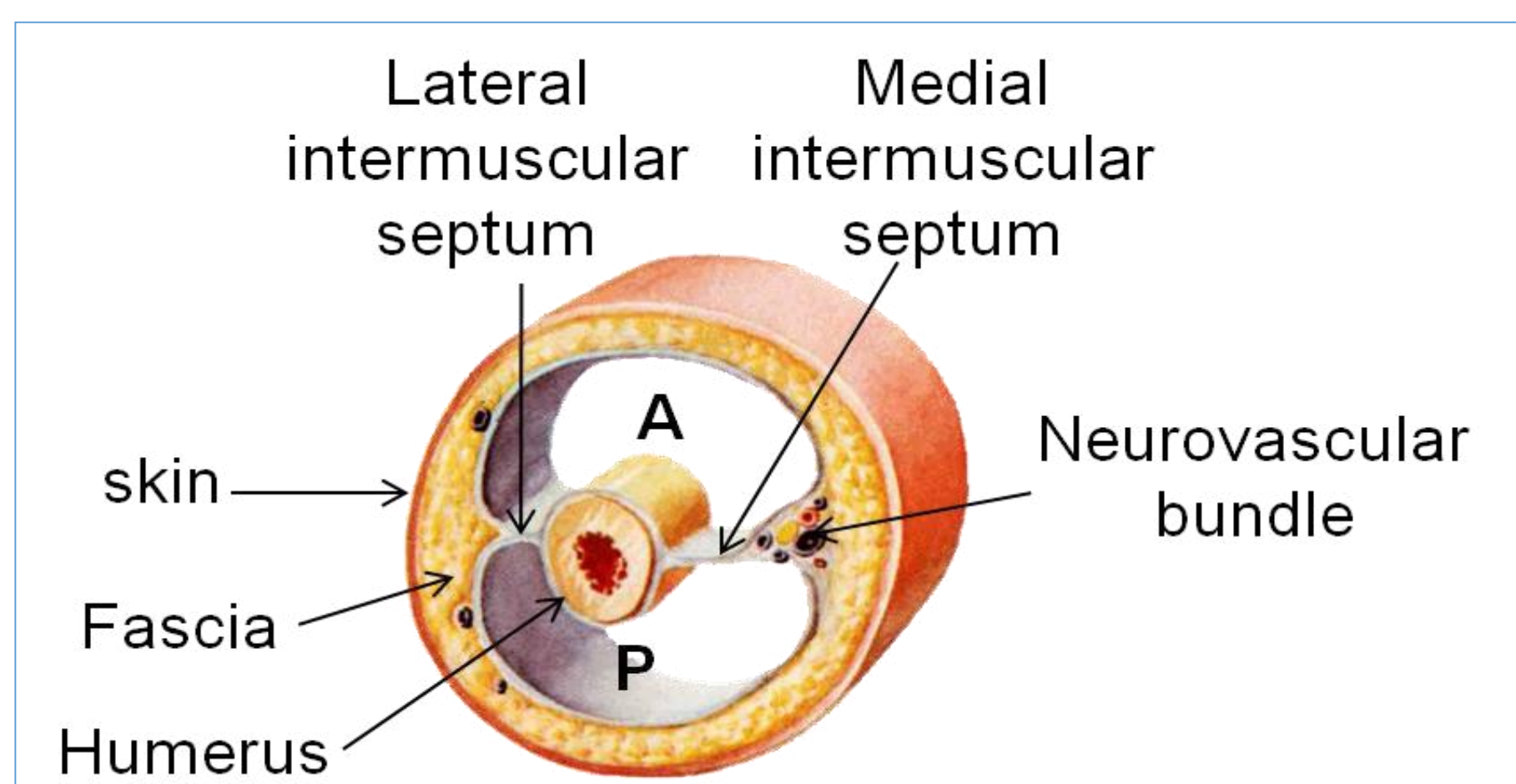
- Branches in radial groove in middle third of arm:
- Branch to lateral head, medial head of triceps and anconeus.
- Lower lateral cutaneous nerve of arm.
- Posterior cutaneous nerve of forearm.

Arm



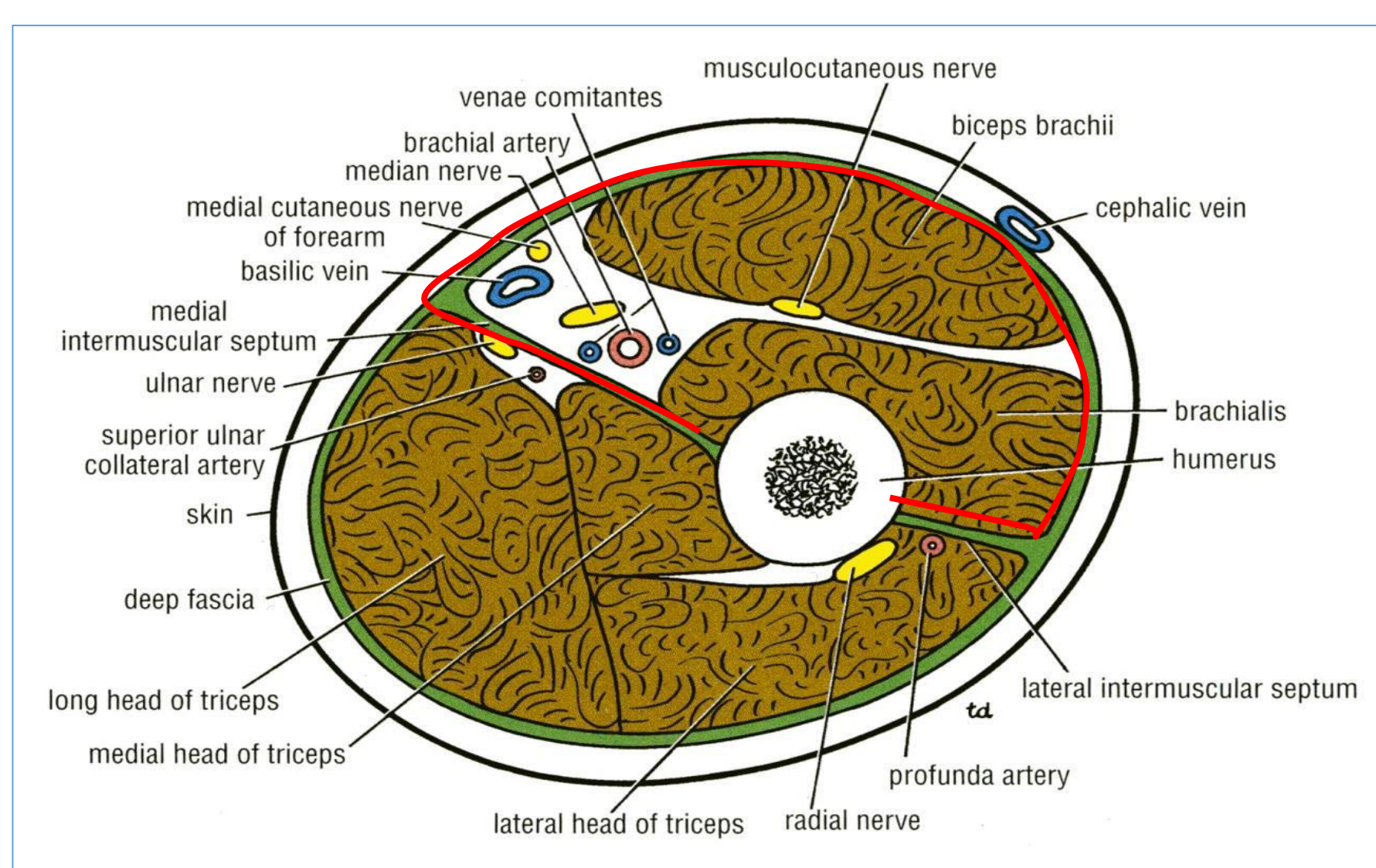
Bone of Arm Humerus





- lateral & medial intermuscular septa divide distal part of arm into:
 - Anterior &
 - Posterior compartments

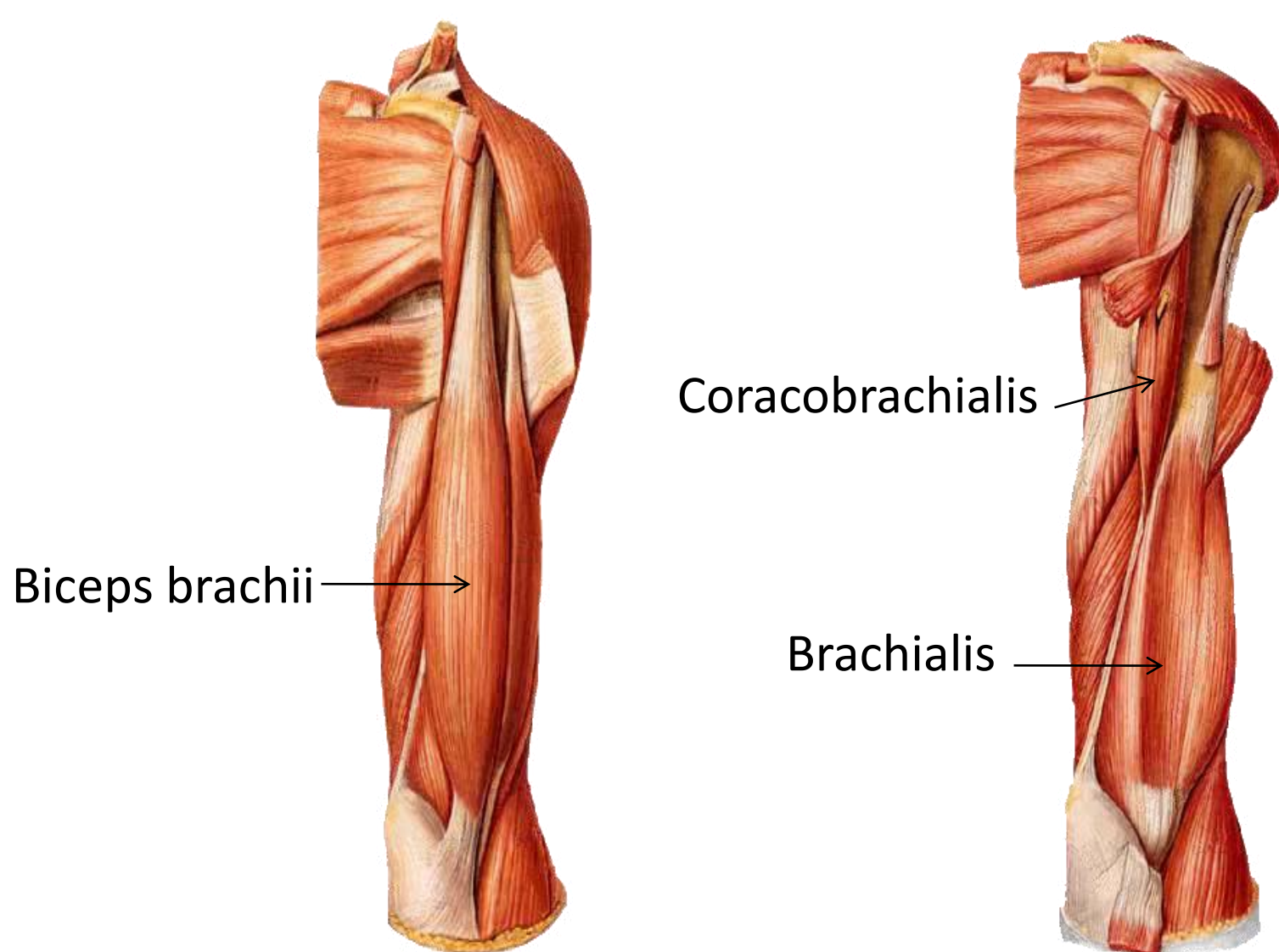
Anterior Compartment: Contents



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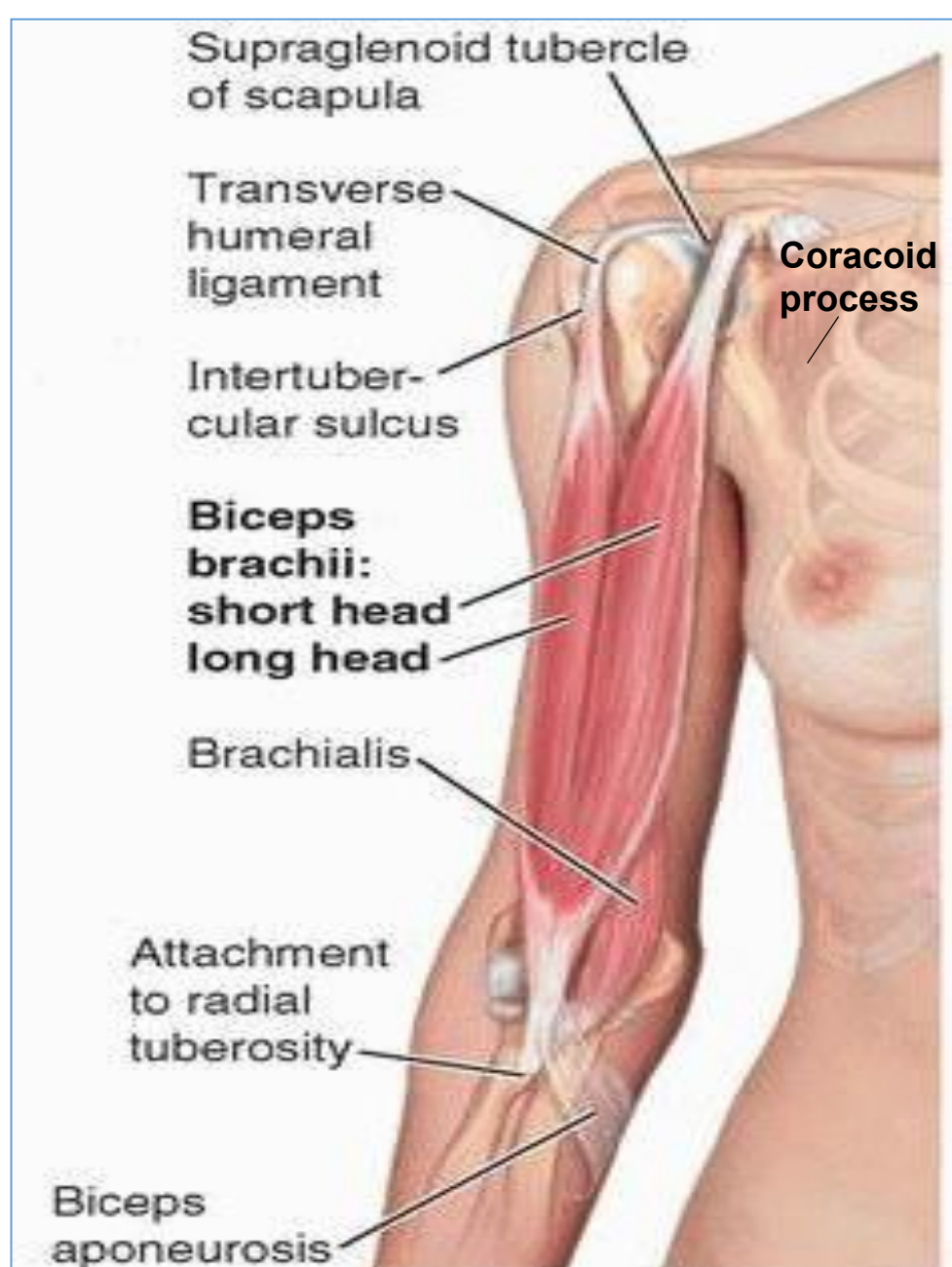
- Muscles:** Biceps brachii, Coracobrachialis, Brachialis
- Blood Vessels:** Brachial artery, Basilic vein
- Nerves :** Musculocutaneous, Median, Ulnar & Radial

Muscles of the Anterior Compartment

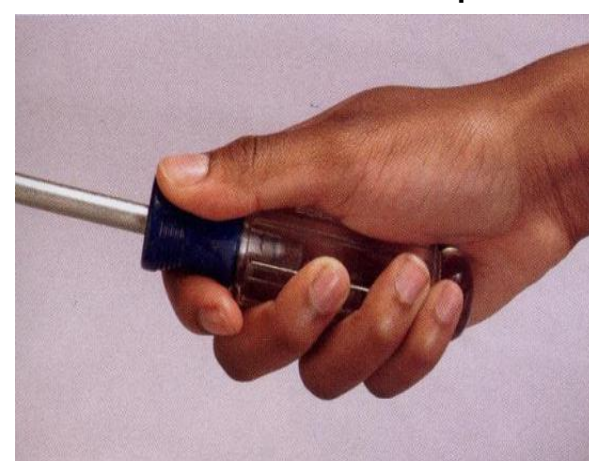
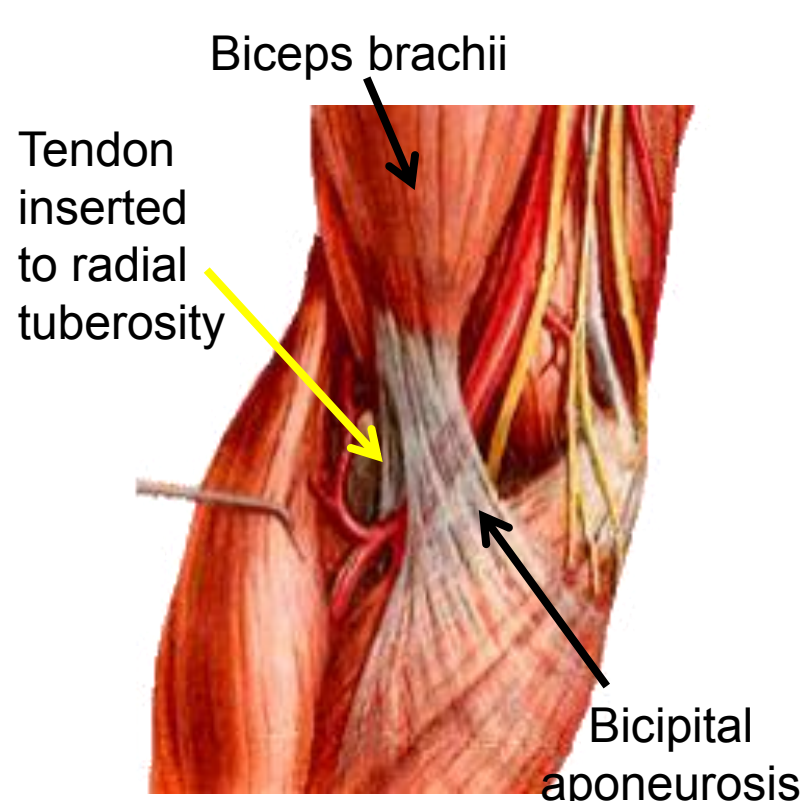


Biceps Brachii

- **Origin:** Two heads:
 - **Long head** from supraglenoid tubercle of scapula (intracapsular)
 - **Short head** from the tip of coronoid process of scapula
- Two heads join in the middle of the arm

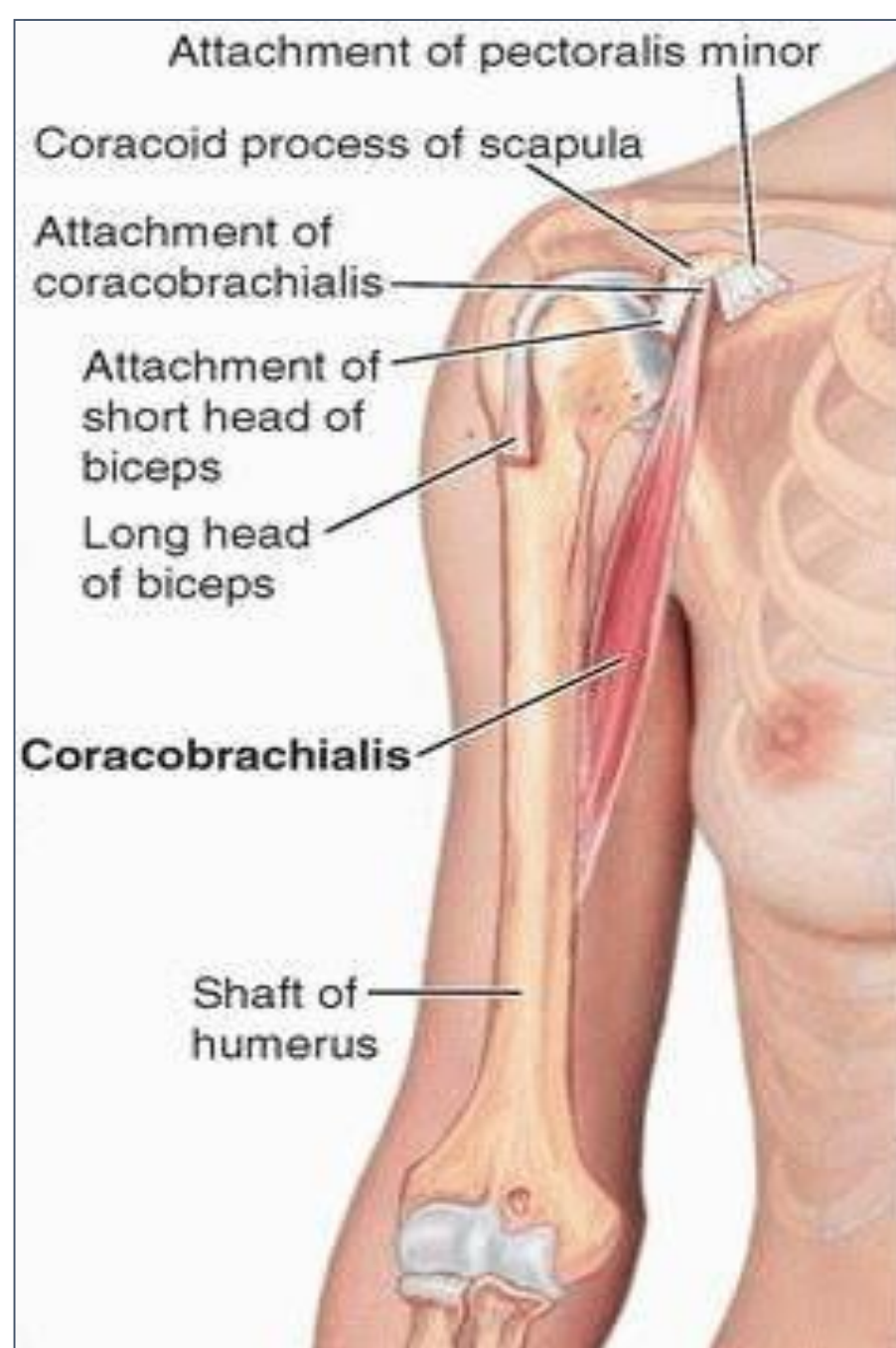


- **Insertion:**
 - posterior part of **radial tuberosity**, &
 - deep fascia of medial aspect of forearm through - **bicipital aponeurosis**
- N/S : **Musculocutaneous**
- **Action:**
 - **Strong supinator** of the forearm (used in screwing)
 - **Powerful flexor** of elbow
 - Weak flexor of shoulder



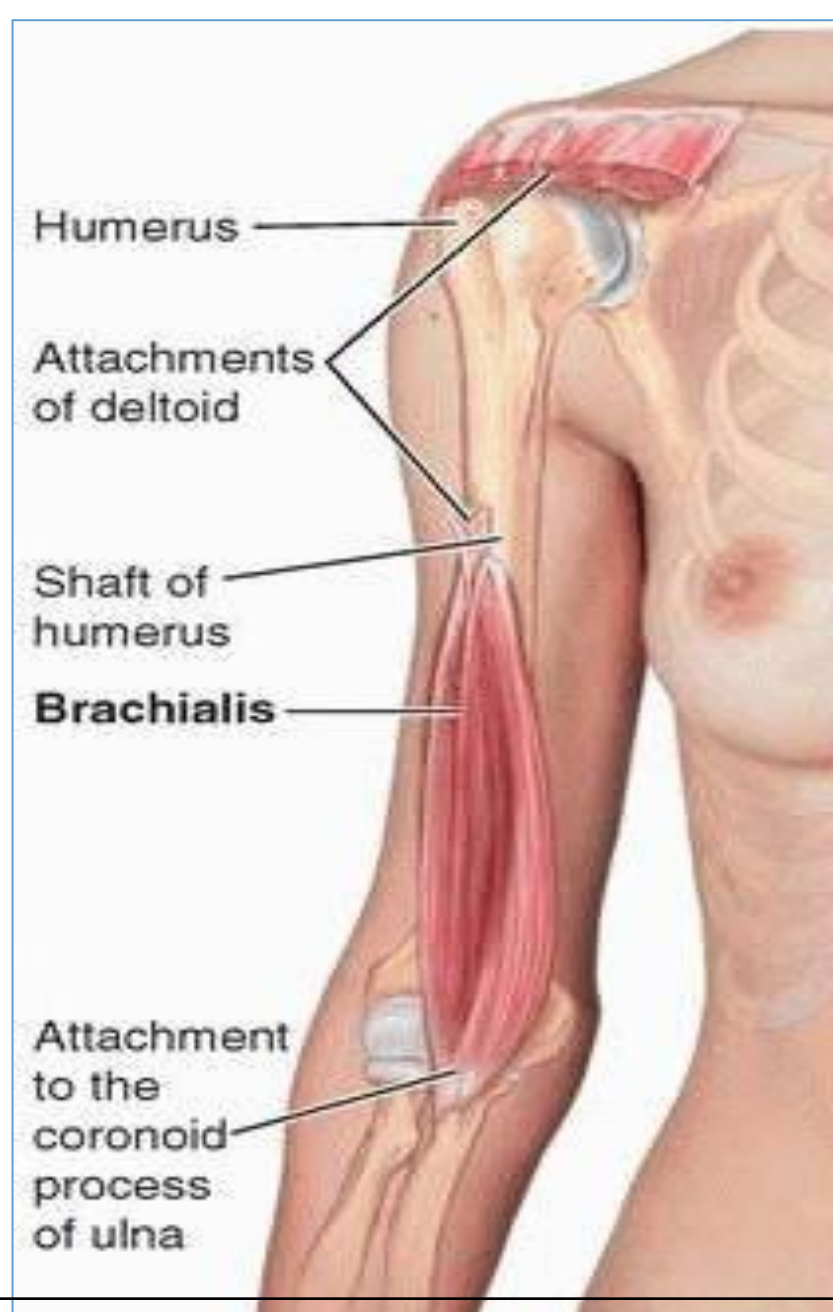
Coracobrachialis

- **Origin:** Tip of coracoid process
- **Insertion:** Middle of medial side of shaft of humerus
- **Nerve supply:** Musculocutaneous
- **Action:** Flexor & a weak adductor of the arm



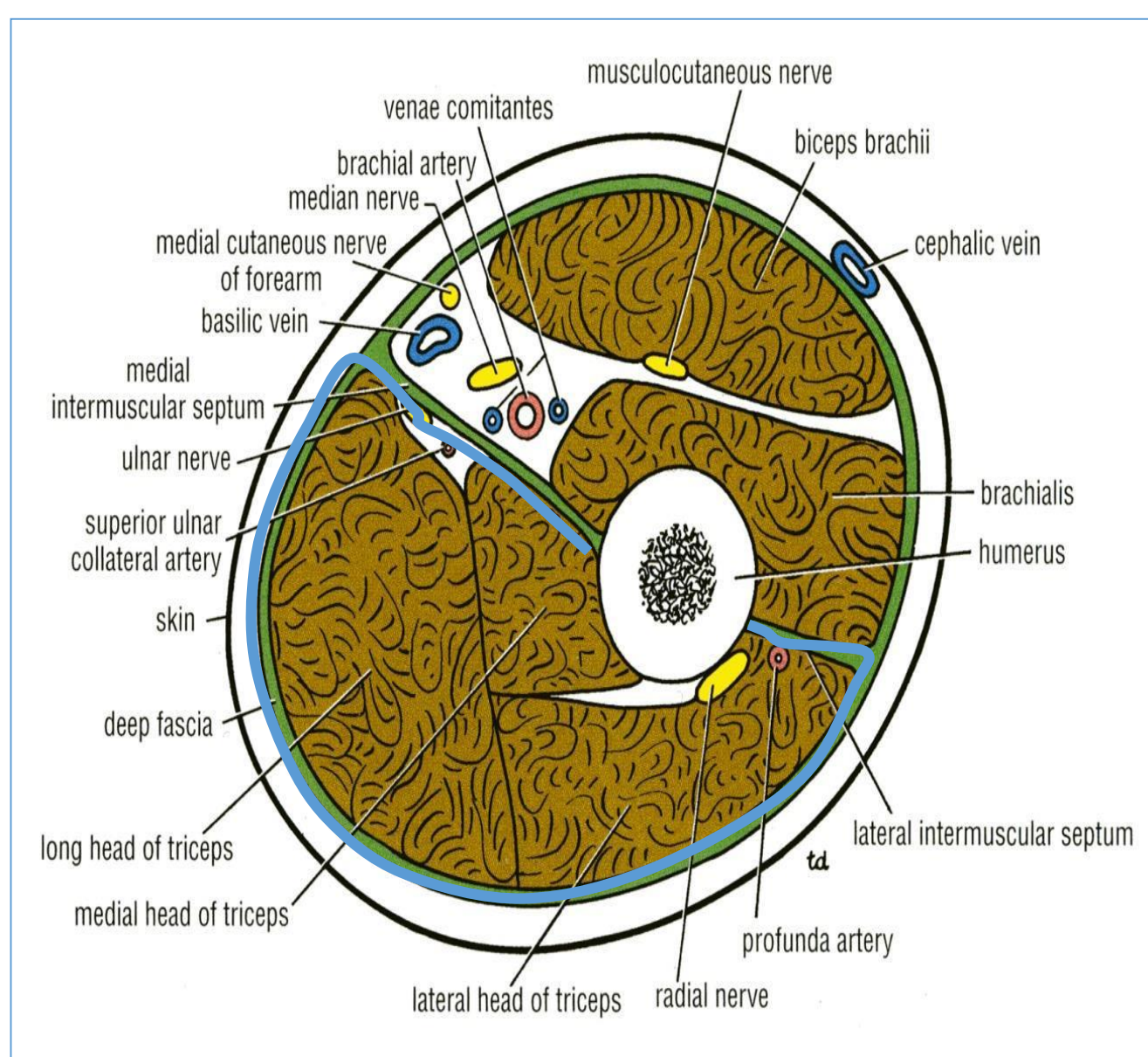
Brachialis

- **Origin:** front of lower half of humerus
- **Insertion:** anterior surface of coronoid process of ulna
- **Nerve supply:** Musculocutaneous & Radial
- **Action:** Strong flexor of the forearm



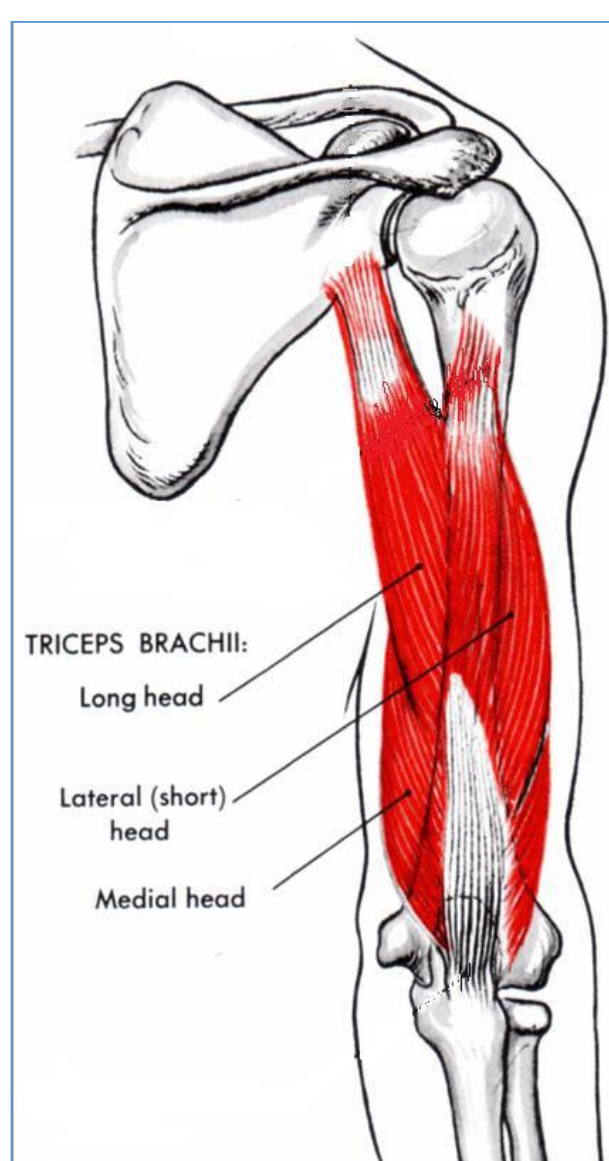
Posterior Compartment: Contents

- **Muscles:**
Triceps
- **Vessels:**
Profunda brachii & Ulnar collateral arteries
- **Nerves:**
• Radial & Ulnar



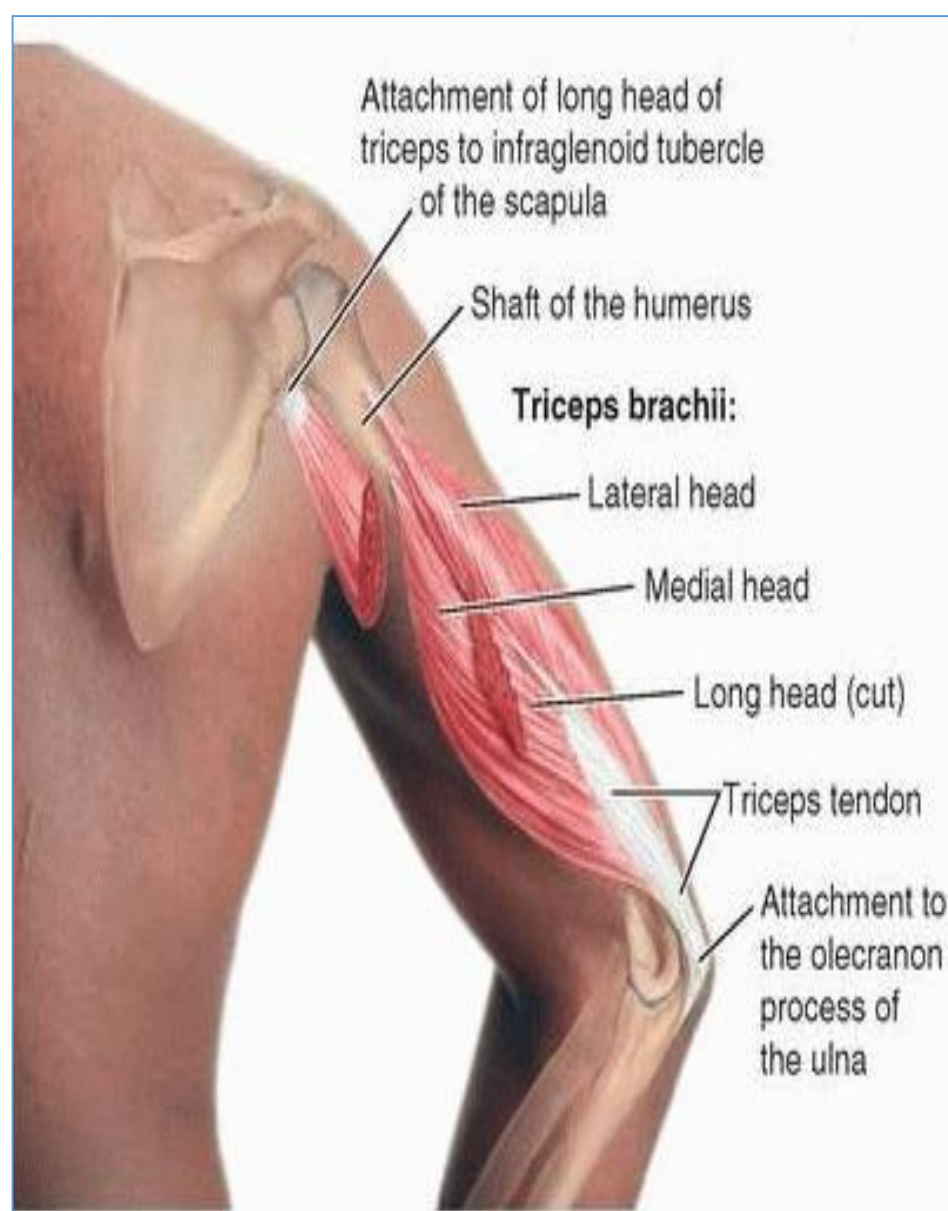
Muscle of Posterior Compartment

- Triceps brachii

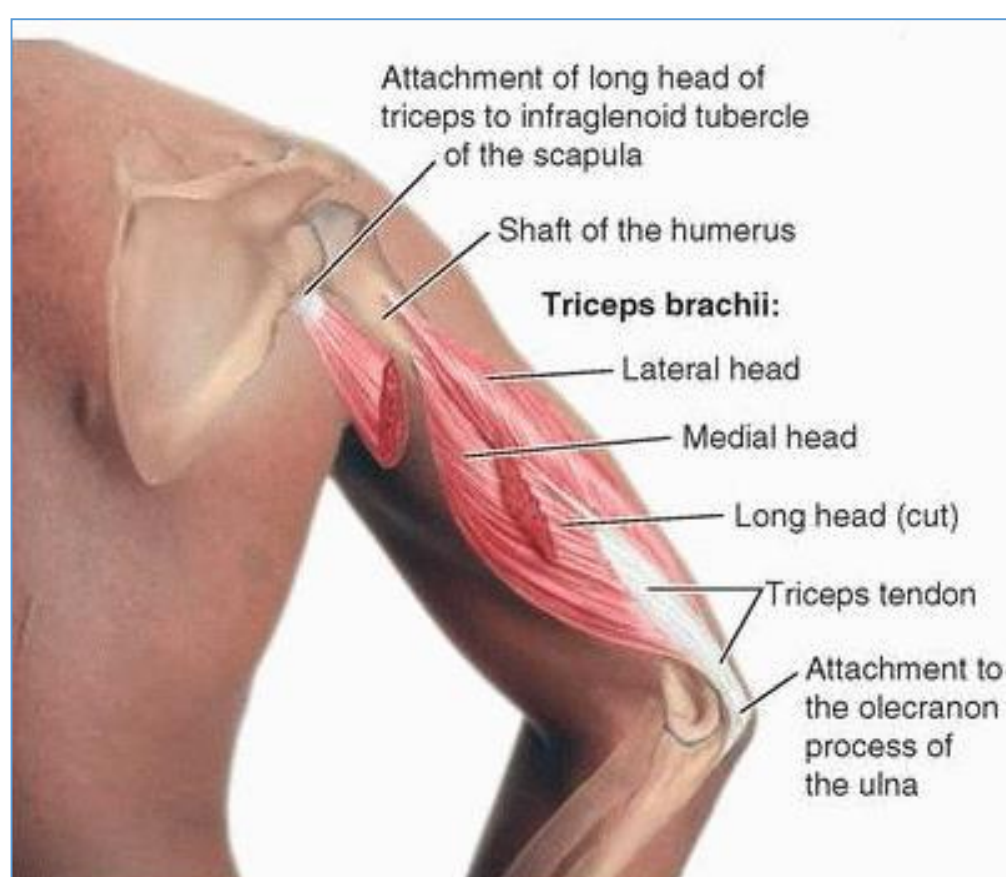


Triceps

- **Origin:**
- Three heads
 - **Long head** - infraglenoid tubercle of scapula
 - **Lateral head** from upper half of posterior surface of shaft of humerus above spiral groove
 - **Medial head** from lower half of posterior surface of shaft of humerus below spiral groove



- **Insertion:** Common tendon inserted into the upper surface of the olecranon process of ulna
- **Nerve supply:** Radial nerve
- **Action:** Strong extensor of the elbow joint



Radial Nerve

- Branches in distal third of arm:
- brachioradialis.
- extensor carpi radialis longus & brevis?
- Articular branches to elbow joint.

Musculocutaneous Nerve

- Pierces coracobrachialis in upper half or third of brachium.
- Innervates muscles of anterior brachial compartment.
- Pierces fascia lateral to biceps tendon:
- Continues as **lateral cutaneous nerve of forearm**.
- Supplies skin on lateral forearm as far as wrist.

Nerves in arm

- Medial cutaneous nerve of arm :
Direct branch from medial cord.
- Medial cutaneous nerve of forearm:
Direct branch from medial cord.

Cephalic Vein

- Lateral continuation of dorsal venous arch.
- Ascends in superficial fascia along lateral aspect of forearm and arm.
- Passes through deltopectoral triangle.
- Empties into axillary vein.

Basilic Vein

- Medial continuation of dorsal venous arch.
- Ascends in superficial fascia along lateral aspect of forearm and arm to middle of arm.
- Pierces deep fascia and ascends in upper aspect of arm in deep fascia.
- Joins venae comitantes to form axillary vein:
- Usually near inferior border of teres major.

Median Cubital Vein

- Connects cephalic and basilic vein.
- Extends diagonally across bicipital aponeurosis.
- Receives blood from median antebrachial vein.
- Drains blood from palmar hand.

Venae Comitantes

- Veins that parallel arteries:
- Usually two per artery.
- Countercurrent heat exchange.

Brachial Artery

- Direct continuation of axillary artery.
- Begins at inferior border of teres major.
- Main branch is deep brachial artery.
- Other branches:
 - Superior ulnar collateral:
 - To posterior ulnar recurrent.
 - Inferior ulnar collateral:
 - To anterior ulnar collateral.

Relationships

- Radial nerve to deep brachial artery in radial (spiral groove).
- Brachial artery to median nerve.
- Brachial artery to bicipital aponeurosis.
- Superior ulnar collateral artery to medial epicondyle.

Relationships

- Ulnar nerve to medial epicondyle.
- Musculocutaneous nerve to coracobrachialis muscle.
- Musculocutaneous nerve to biceps and brachialis muscles.
- Lateral cutaneous nerve of the forearm to the bicipital tendon.

CUBITAL FOSSA

Cubital fossa

A triangular space in front of elbow joint.

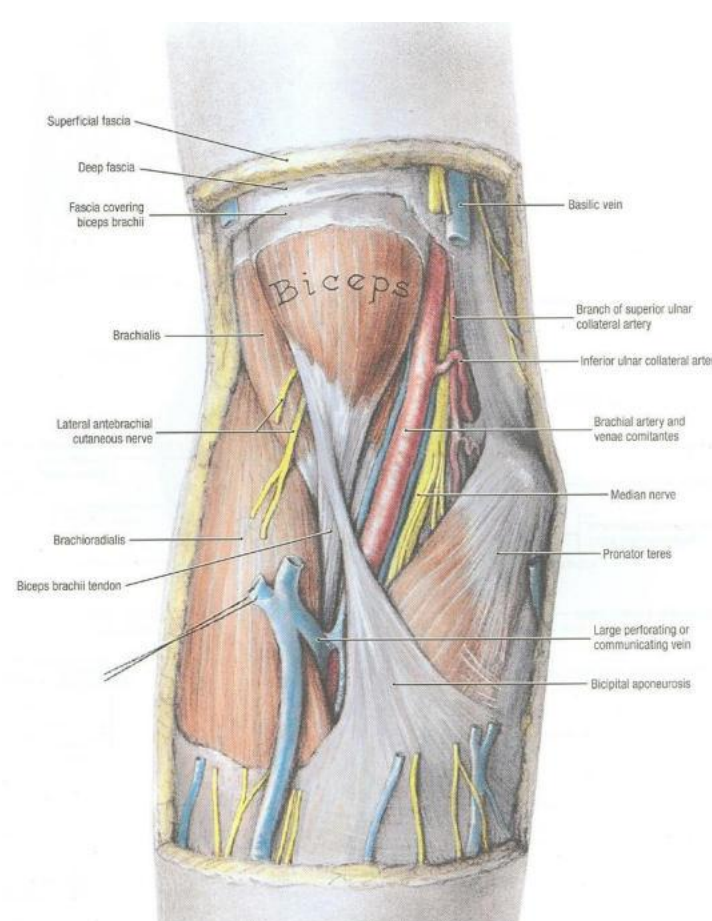
Boundaries:

- **Base:** an imaginary line between 2 epicondyles of humerus
- **Laterally:** medial border of brachioradialis
- **Medially:** lateral border of pronator teres
- **Apex:** brachioradialis overlaps pronator teres

Cubital Fossa Boundaries

- Lateral:
Brachioradialis muscle
- Medial:
Pronator teres muscle
- Superior base:
Line between two humeral epicondyles
- Floor:
Supinator and brachialis muscles

Cubital fossa (boundaries)



Cubital fossa

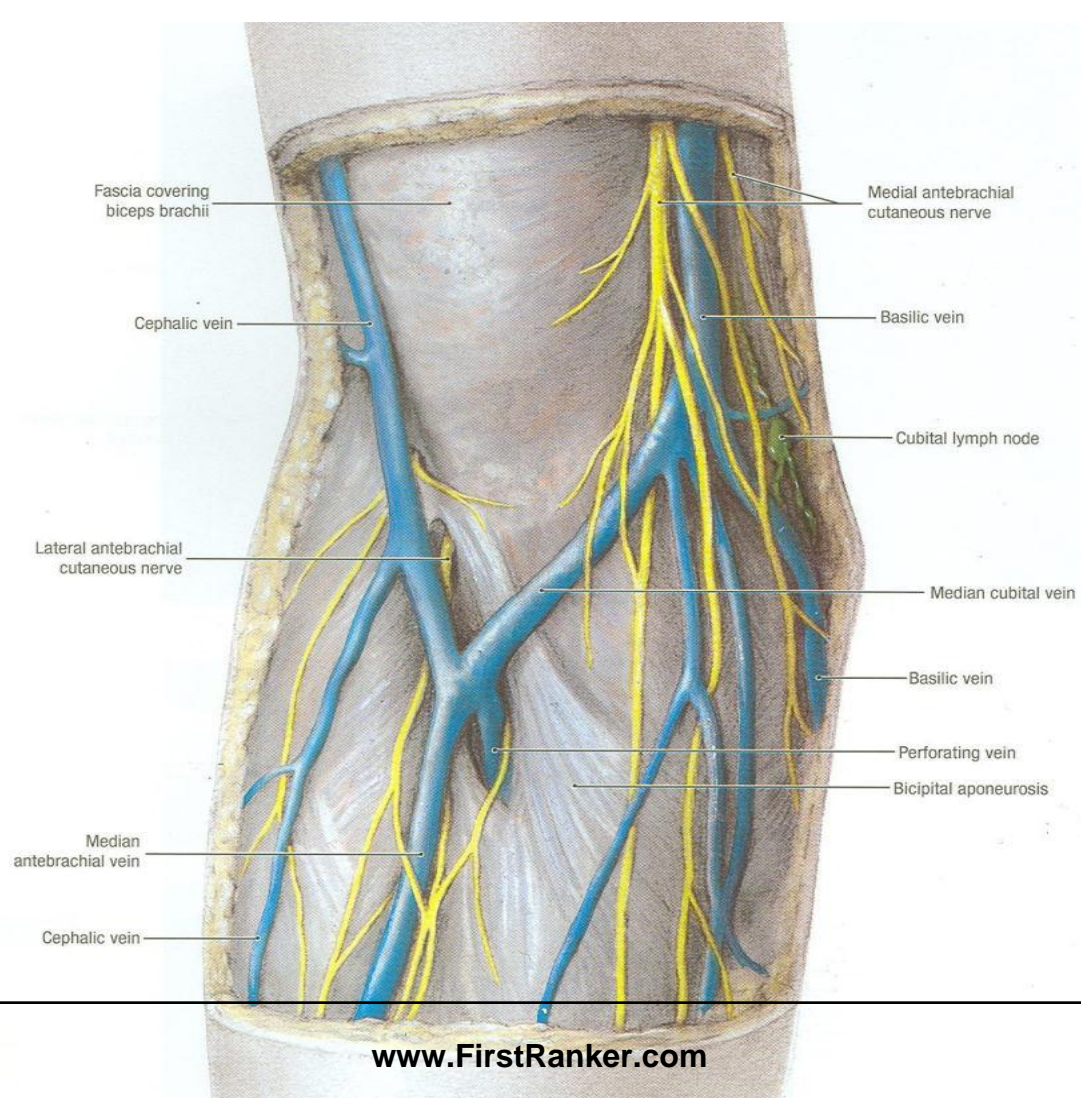
Roof:

- Skin
- Superficial fascia containing: cephalic vein, lateral cutaneous nerve of forearm, basilic vein, medial cutaneous nerve of forearm & medial cubital vein
- Deep fascia
- Bicipital aponeurosis

Floor:

1. Brachialis (medially)
2. Supinator (laterally)

Cubital fossa (roof)



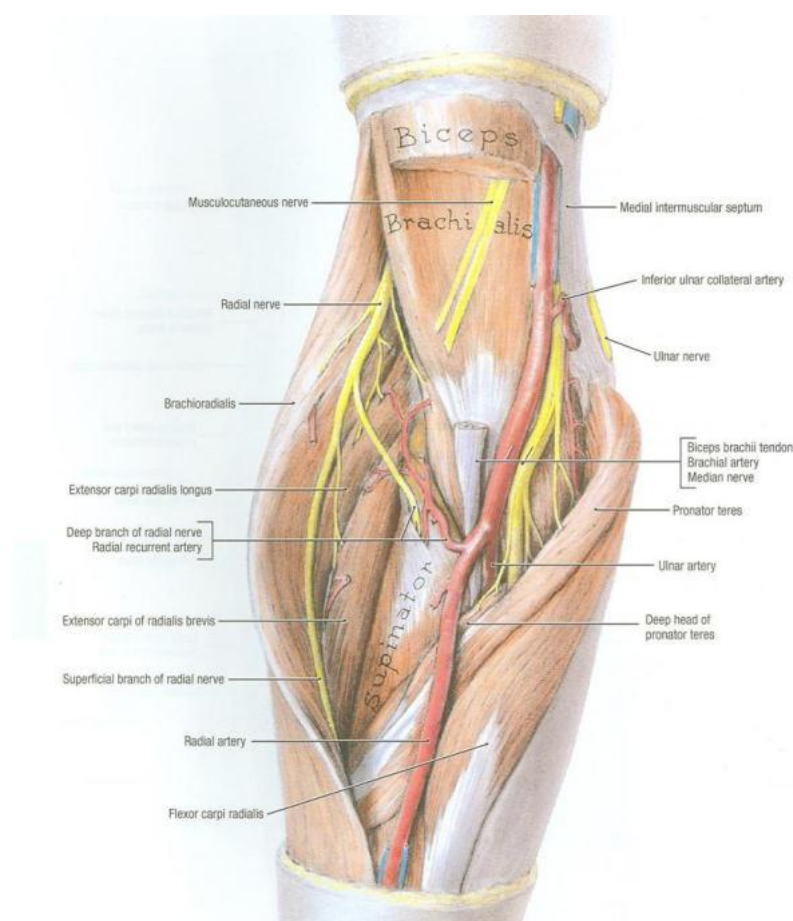
Cubital fossa

• CONTENTS:

From lateral to medial:

- Radial nerve & its deep branch
- Tendon of biceps brachii
- Termination of brachial artery & beginning of radial & ulnar arteries
- Median nerve

Cubital fossa (contents)

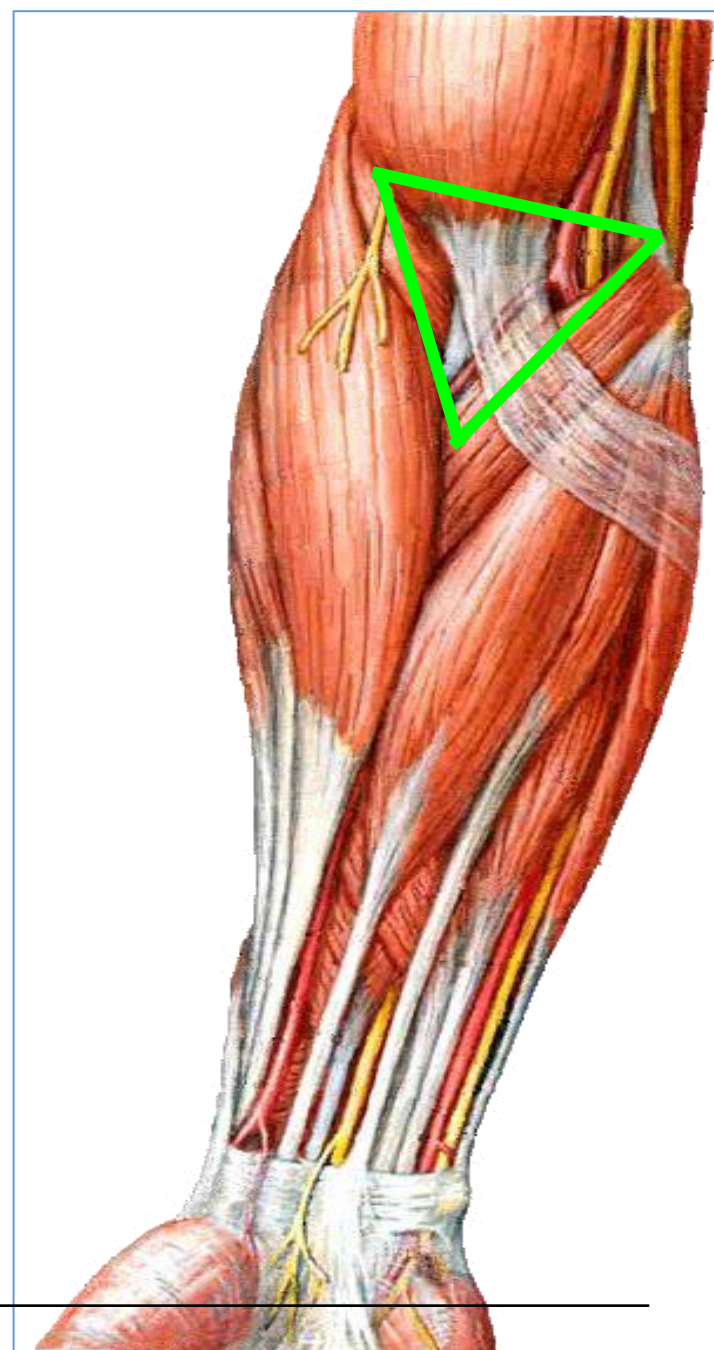


Cubital Fossa Contents

- Lateral to medial:
 - Biceps Tendon
 - Brachial Artery
 - Median Nerve

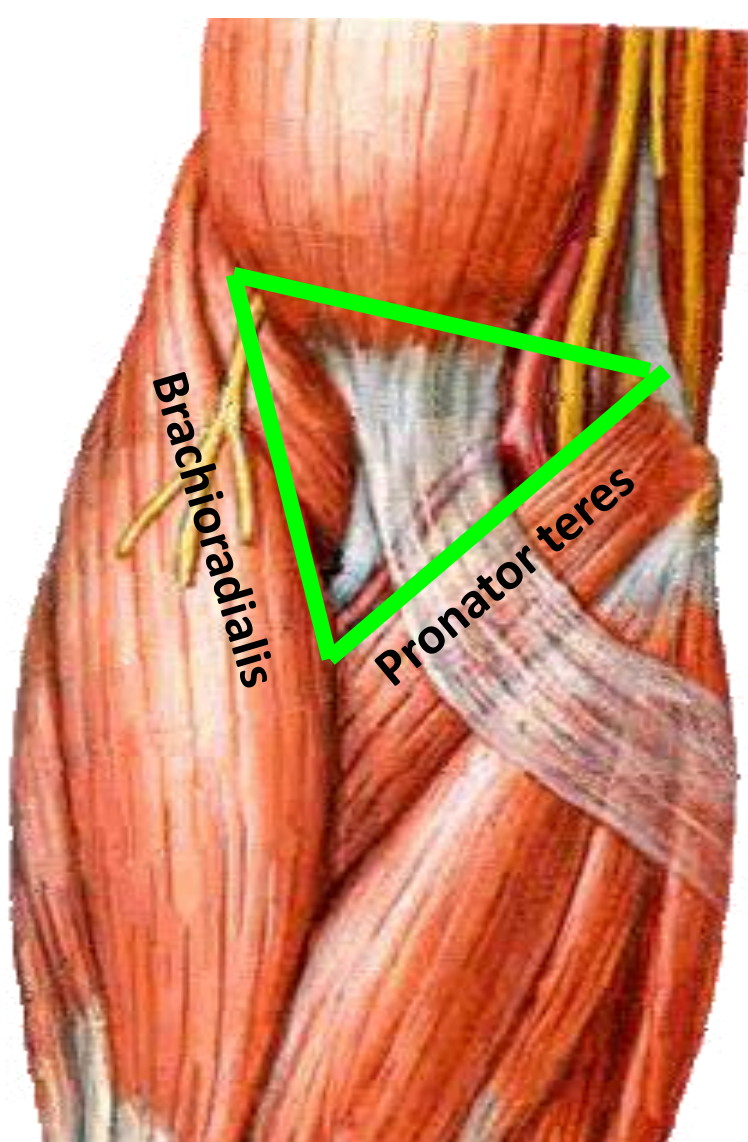
Cubital Fossa

is a triangular depression on anterior aspect of the elbow



Boundaries

- **Base:** line drawn through two epicondyles of humerus
- **Laterally:** brachioradialis
- **Medially:** pronator teres
- **Roof:** skin, superficial, deep fascia and bicipital aponeurosis
- **Floor:** brachialis medially and supinator laterally.



Contents of the Cubital Fossa

(From medial to lateral side)

