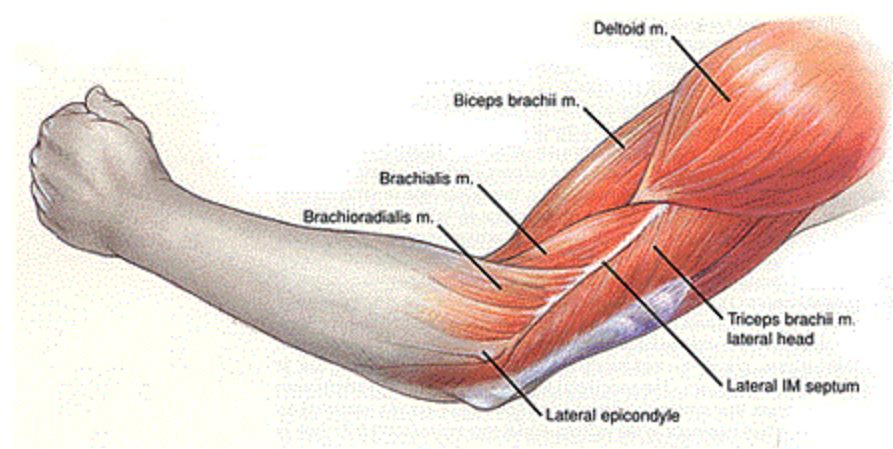




**Knowledge is freedom
Ignorance is boredom**



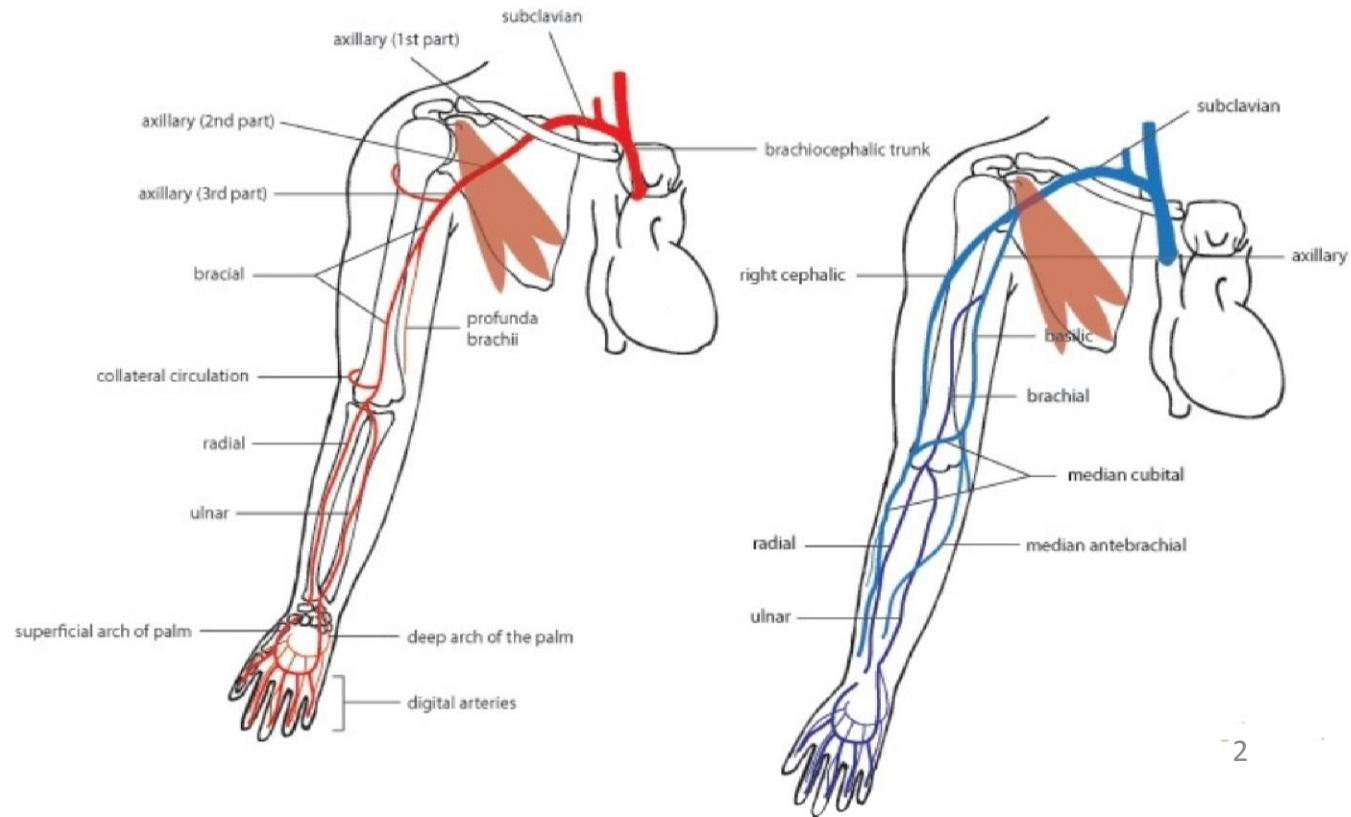
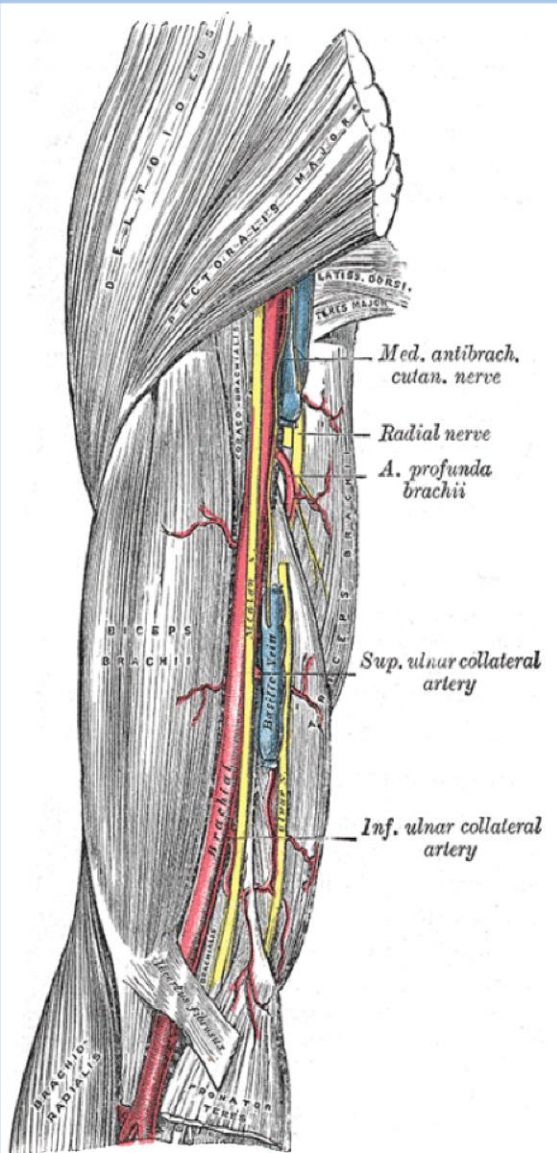
ARM

ARM

region of the upper limb between the shoulder and the elbow

Superiorly communicates with the axilla.

Inferiorly, a number of important structures pass between arm & forearm through cubital fossa.



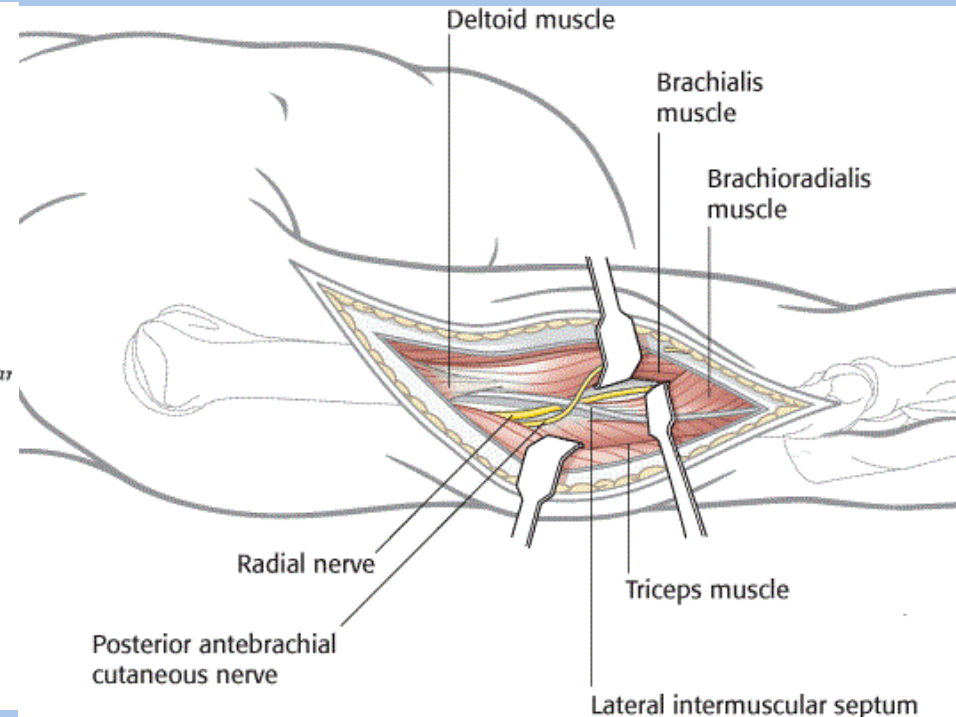
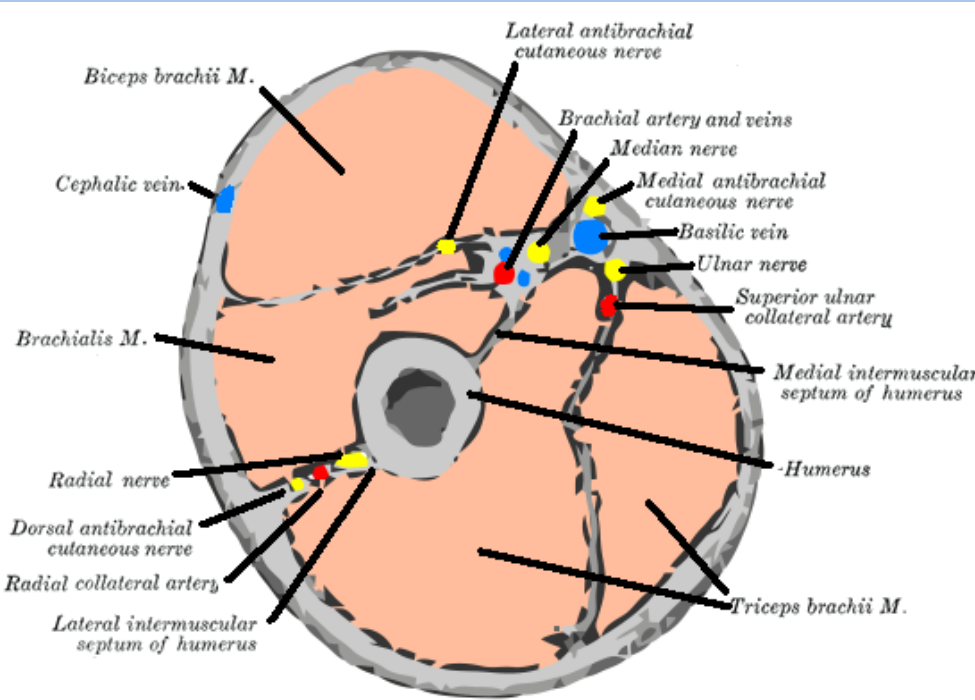
ARM

Flexion
Extension
Pronation
Supination

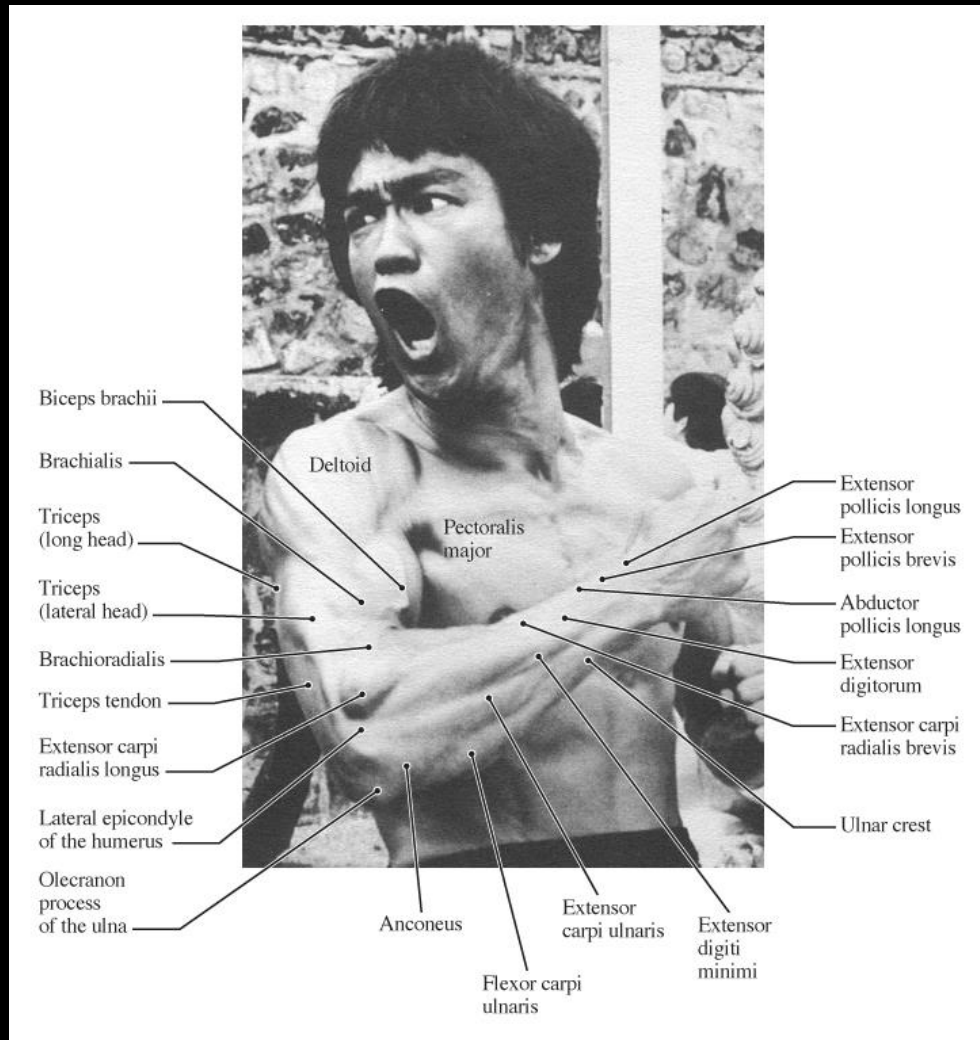
medial & lateral intermuscular septa

Anterior compartment – flex the elbow joint

Posterior compartment- extend the elbow joint



Muscles of the Arm I

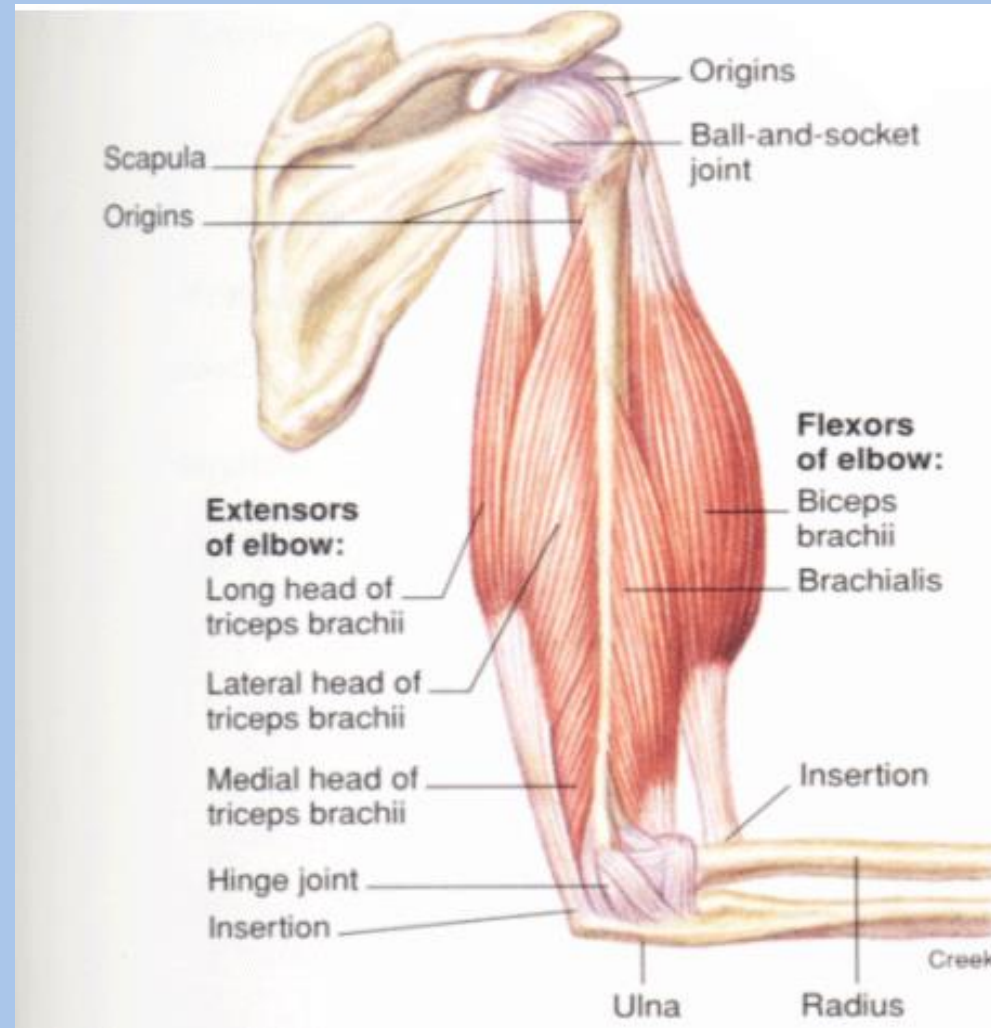


Anterior compartment of the arm
coracobrachialis, brachialis, and biceps brachii muscles

innervated predominantly by musculocutaneous nerve.

Posterior compartment
triceps brachii muscle

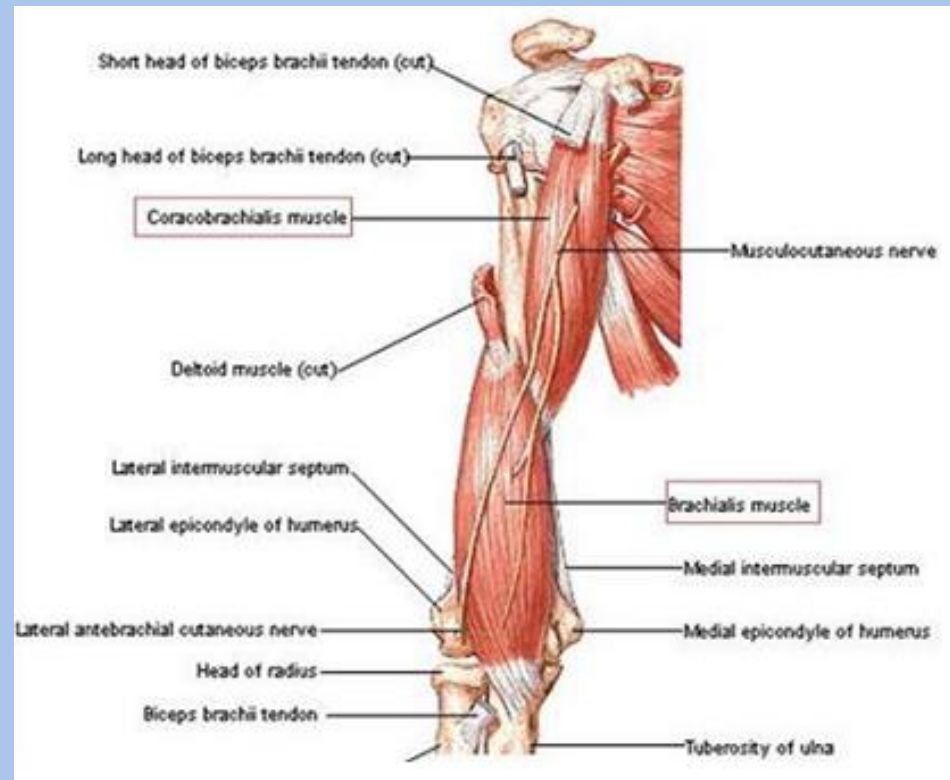
innervated by radial nerve.



Anterior Compartment

Coracobrachialis

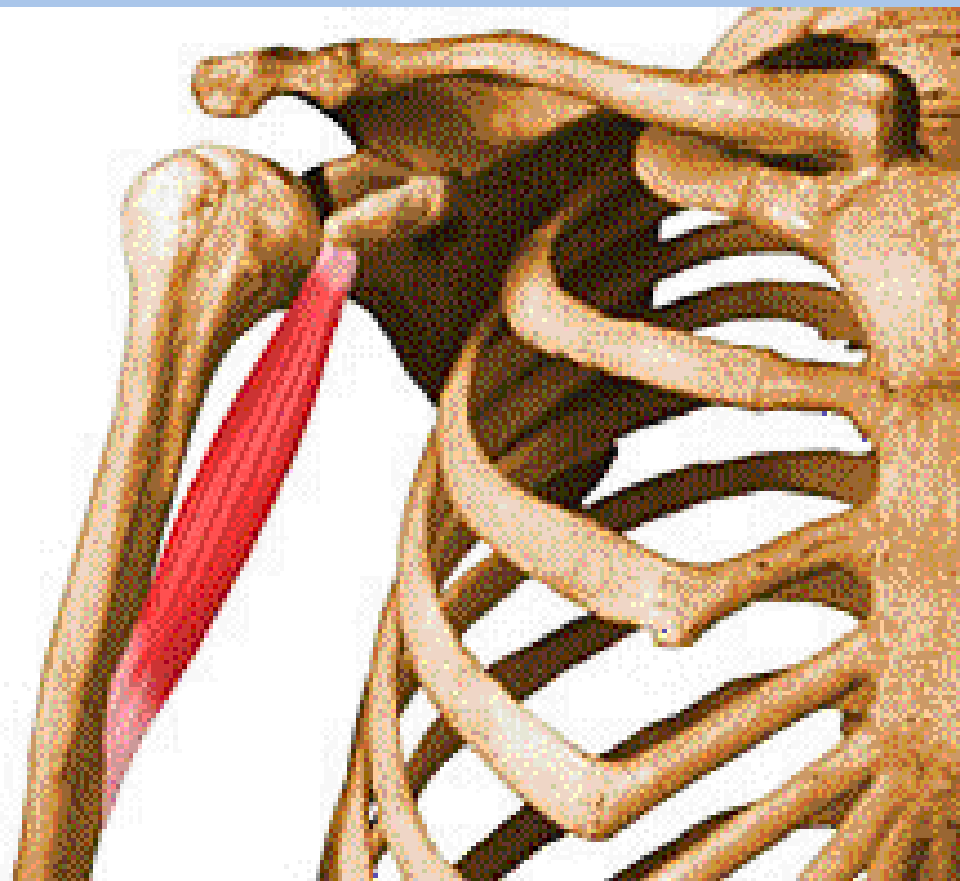
- An elongated muscle in the superomedial part of the arm.
- Useful landmark for locating other structures in the arm
musculocutaneous nerve pierces it
distal part of its attachment indicates location of nutrient foramen of the humerus



Coracobrachialis

Tip of coracoid process of scapula

Middle 1/3 of medial surface of humerus



Coracobrachialis

1. helps flex and adduct the arm
2. stabilize the glenohumeral joint.

With **deltoid** + **long head of triceps**

a shunt muscle, resisting downward dislocation of the head of the humerus, as when carrying a heavy suitcase.

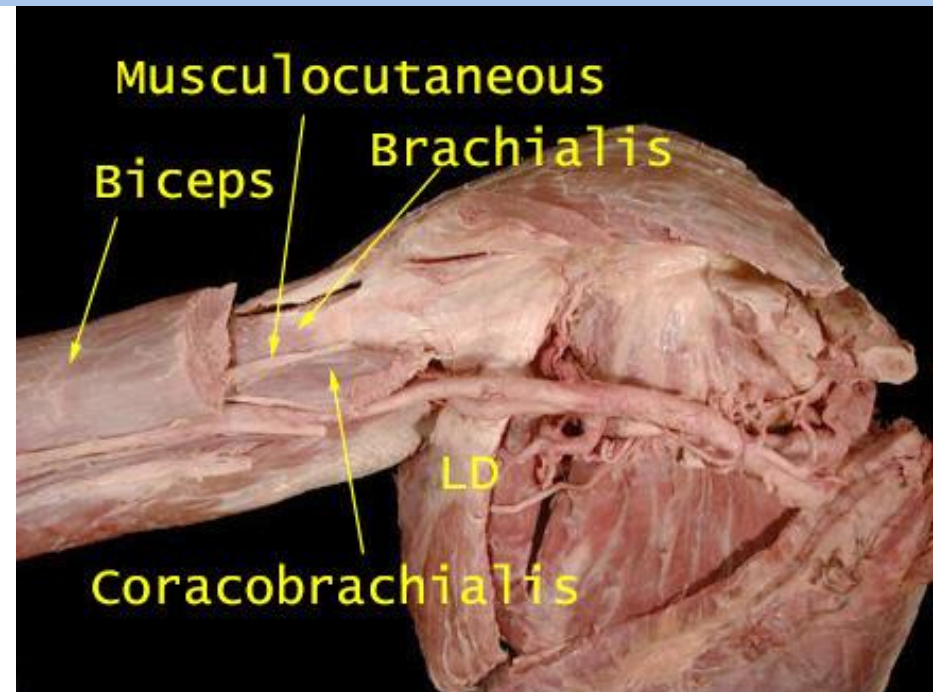
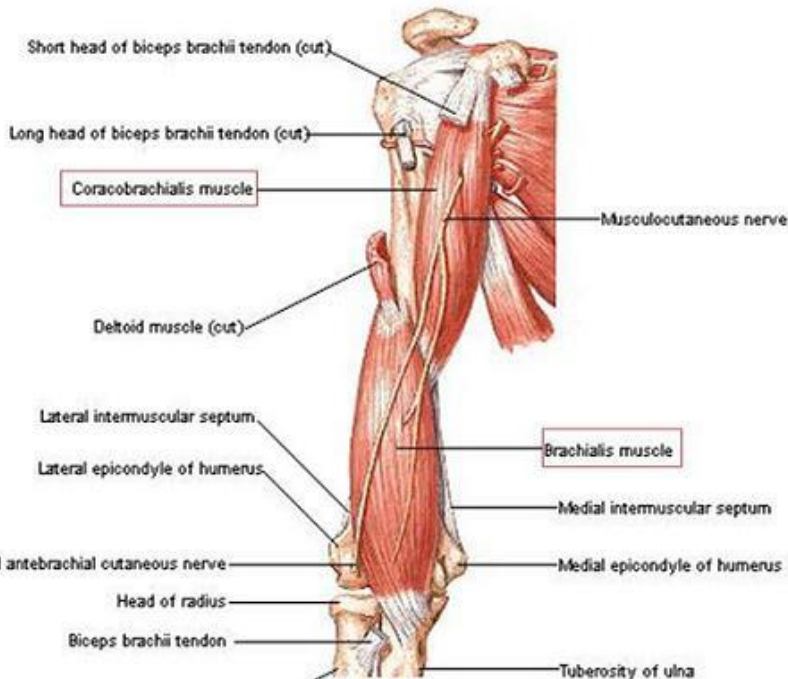
Median nerve and/or **brachial artery** may run deep to coracobrachialis and be compressed by it.

[Shunt muscle](#)

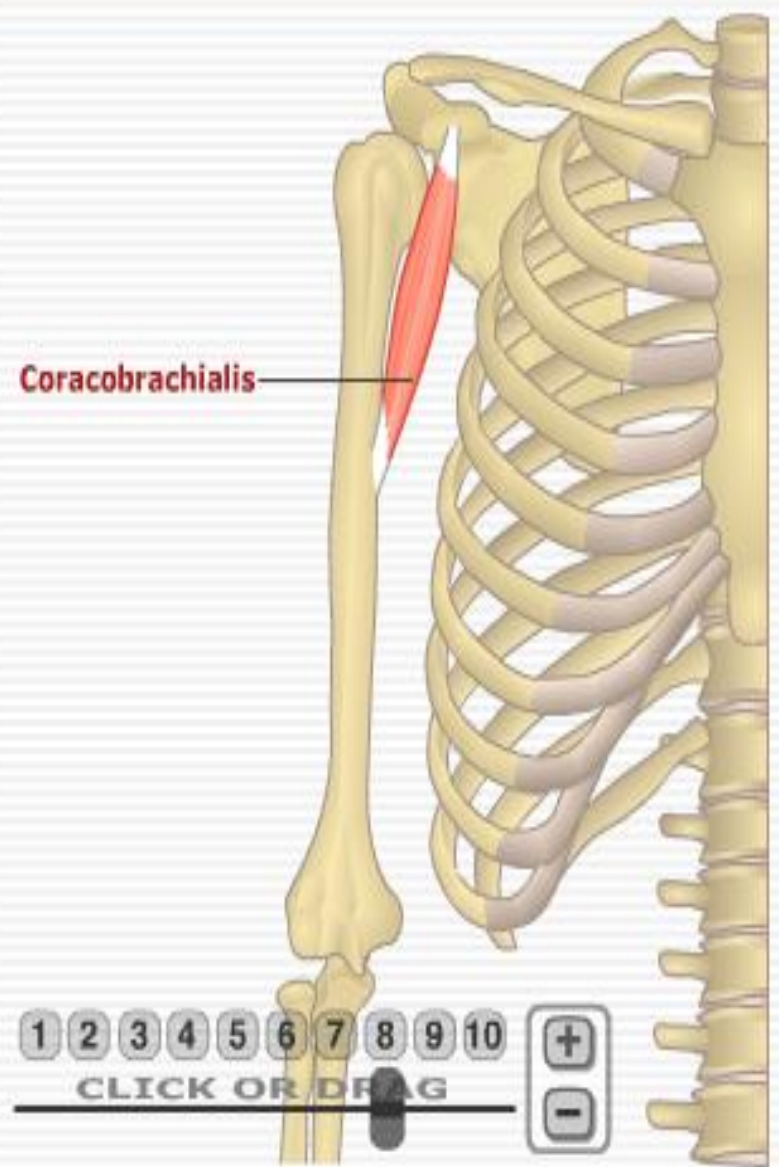
Coracobrachialis

It passes through the axilla and is penetrated and innervated by the **musculocutaneous nerve**.

Muscles of Arm
Anterior View - Deep Layer



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Coracobrachialis Muscle:

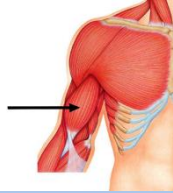
Origin (proximal) attachments:
Coracoid process of scapula.

Insertion (distal) attachments:
Mid-medial surface of humerus.

Actions on the arm (humerus):
Flexes and *adducts* arm at shoulder.

Nerve to muscle and its spinal segment:
Musculocutaneous nerve (C6, C7).

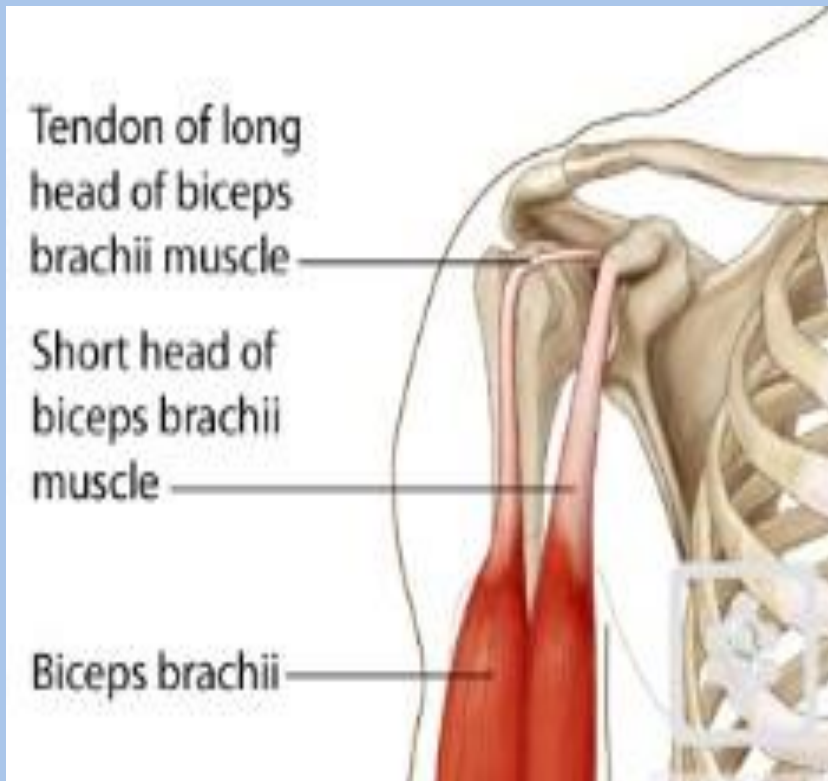
Biceps brachii



short head tip of coracoid process of scapula

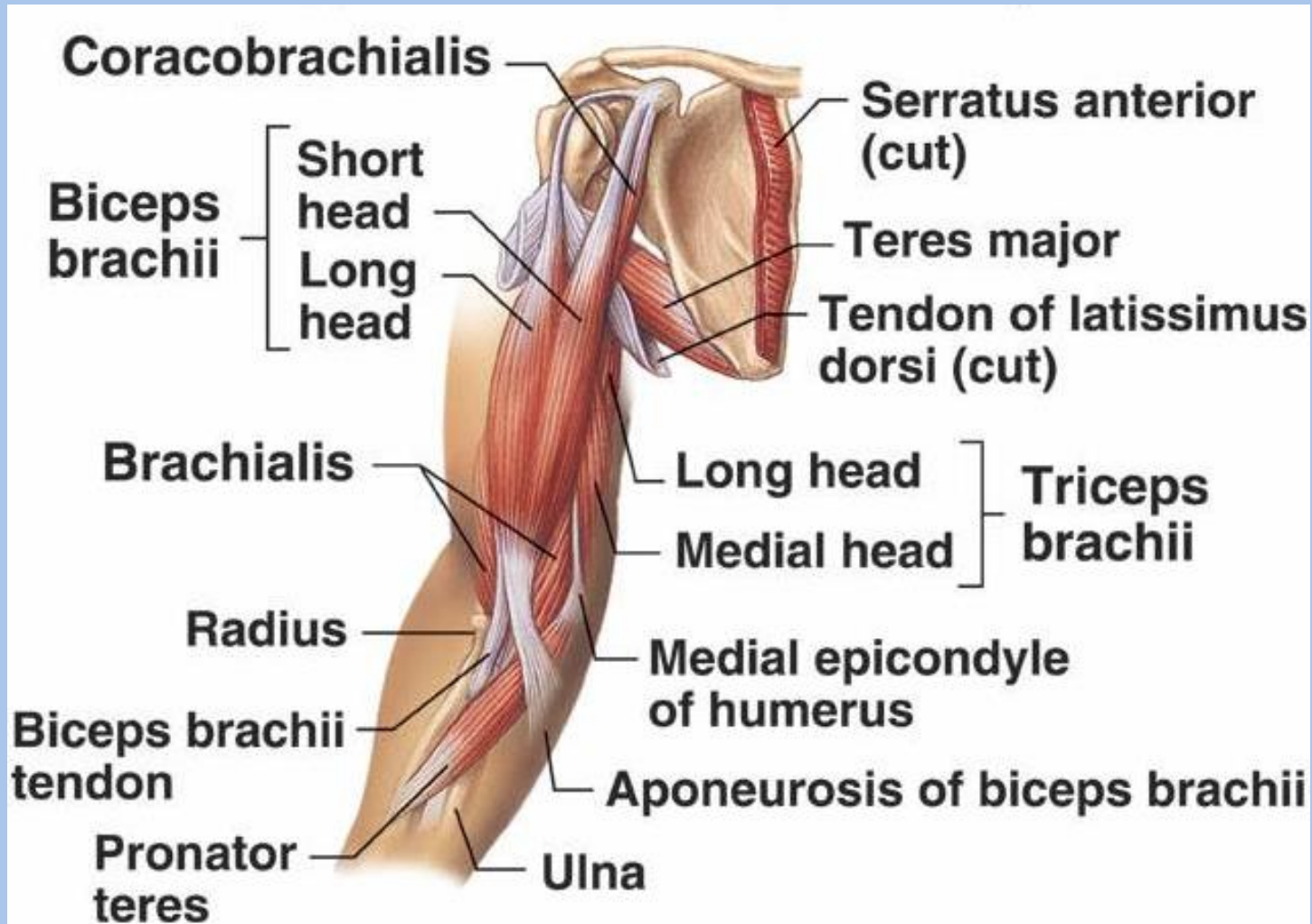
long head supraglenoid tubercle of scapula

Tuberosity of radius and fascia of forearm via bicipital aponeurosis



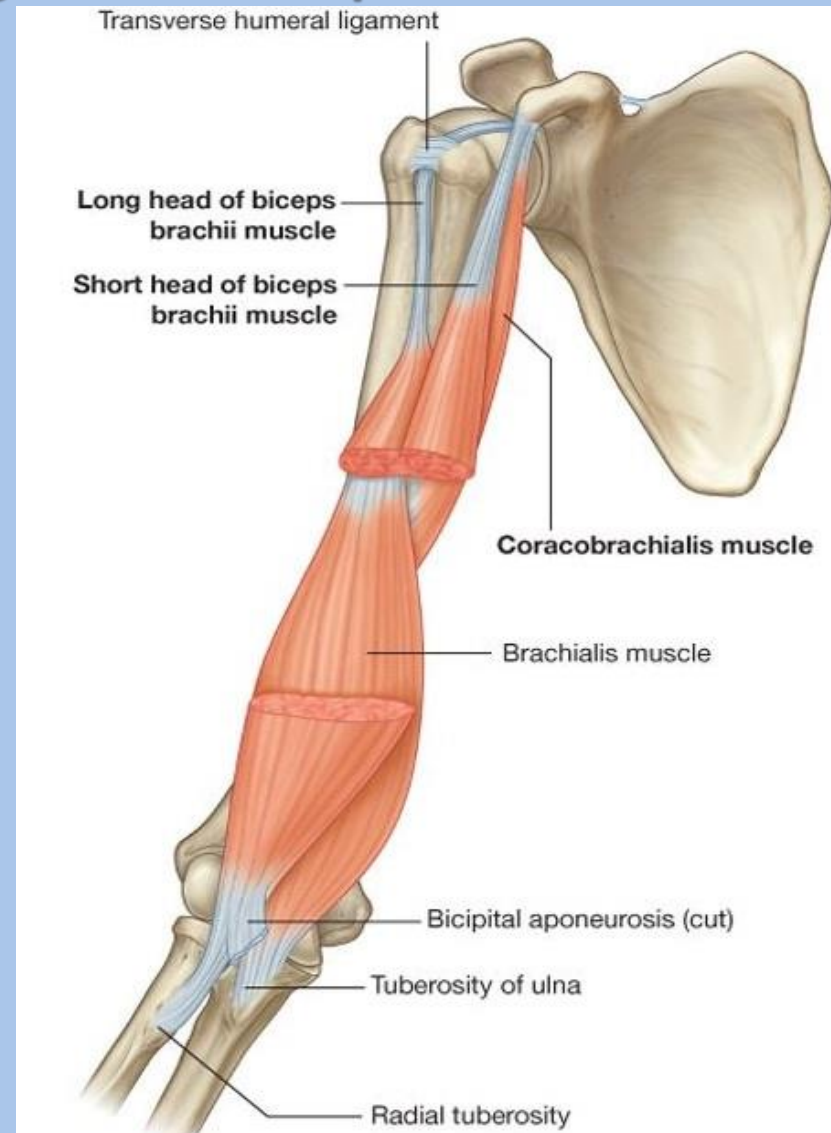
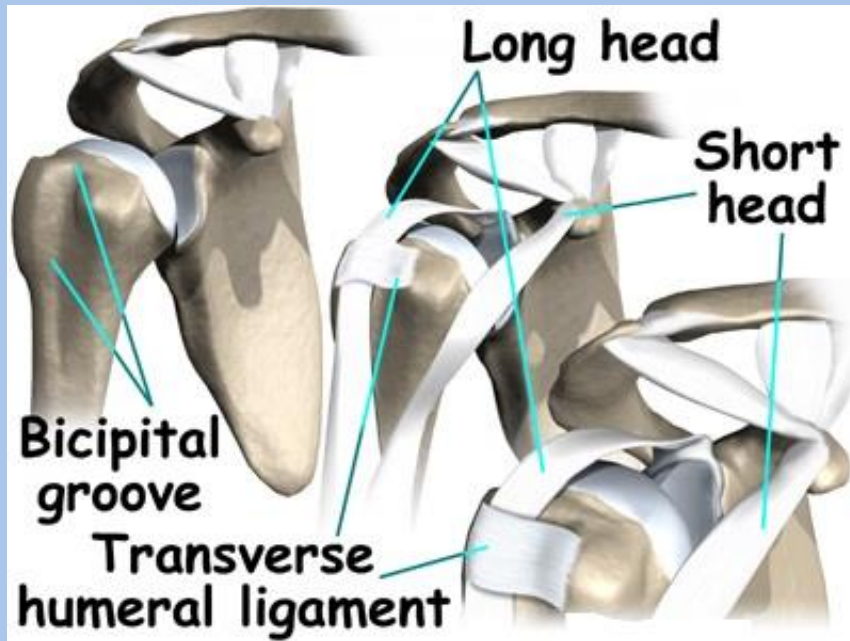
Biceps brachii

Two heads a single tendon, inserts onto **radial tuberosity**.
and fascia of forearm via bicipital aponeurosis



Biceps brachii

Transverse humeral ligament converts the intertubercular groove into **a canal** & holds the tendon of **long head of biceps** in the groove.



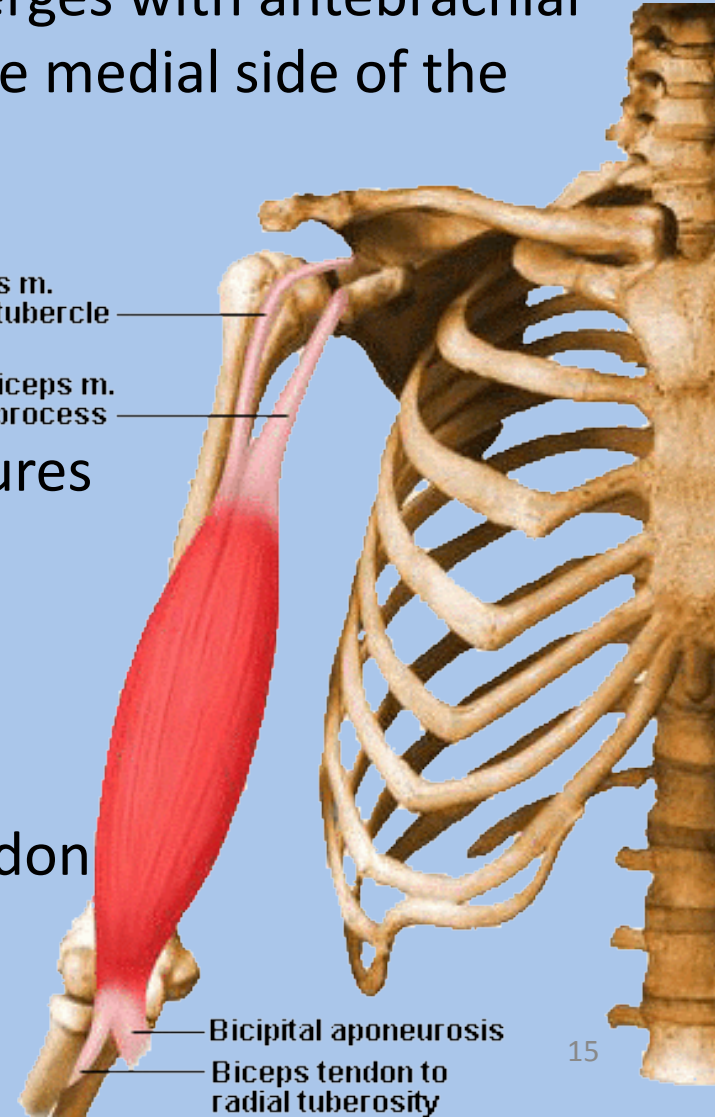
Biceps brachii

Triangular membranous band, **bicipital aponeurosis**, runs from the biceps tendon across the cubital fossa and merges with antebrachial (deep) fascia covering the flexor muscles in the medial side of the forearm.

- Affords protection for these & other structures in the cubital fossa.
- Helps lessen the pressure of the biceps tendon on the radial tuberosity during pronation & supination of the forearm.

Long head of biceps m.
from supraglenoid tubercle

Short head of biceps m.
from coracoid process



Bicipital aponeurosis

Biceps tendon to
radial tuberosity

Biceps brachii

“**Three-joint muscle**,” crossing & capable of effecting movement at the

- **Glenohumeral joint**
- **Elbow joint**
- Radio-ulnar joint primarily acts at the latter two.

● **Powerful flexor of the forearm** at the elbow joint

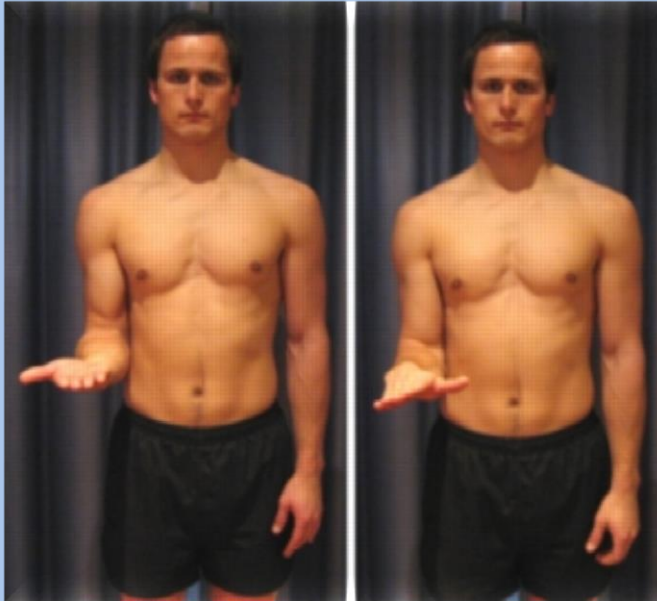
● **Most powerful supinator of the forearm** when elbow joint is flexed.

● Because two heads of biceps brachii muscle cross the glenohumeral joint, the muscle can also **flex the glenohumeral joint**.

Biceps brachii

Elbow flexion approaches 90° and more power is needed against resistance, capable of 2 powerful movements, depending on the position of the forearm.

1) Elbow is flexed close to 90° & forearm supinated: biceps most efficient in producing **flexion**.



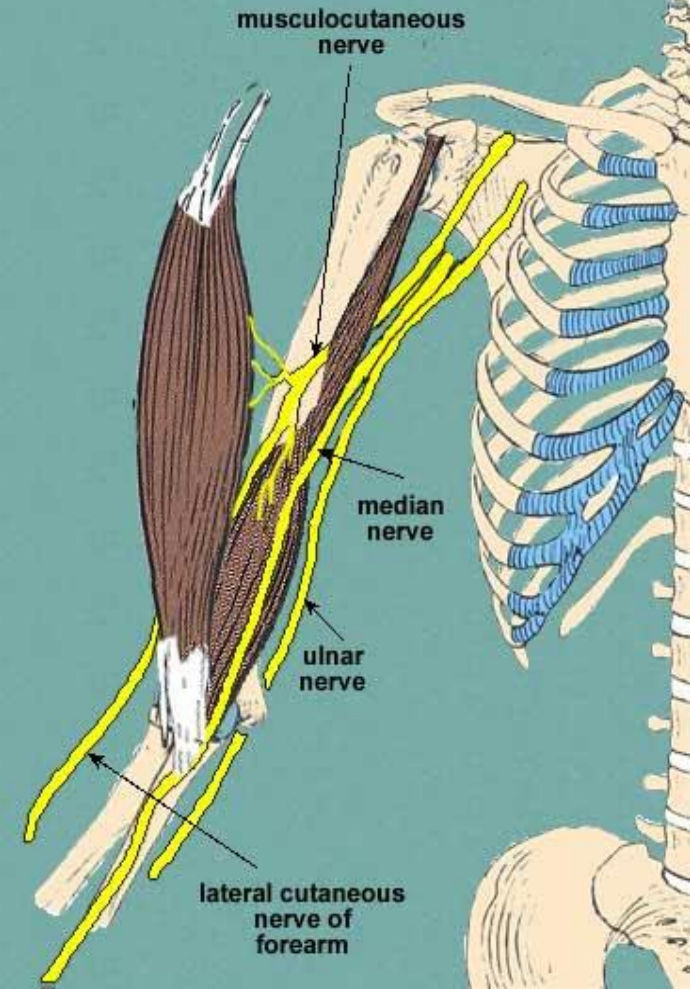
2) Forearm pronated, biceps primary (most powerful) **supinator of forearm**.

Biceps brachii

Innervated by the **musculocutaneous nerve**.



A tap on the tendon of biceps brachii at the elbow is used to test **predominantly spinal cord segment C6**.



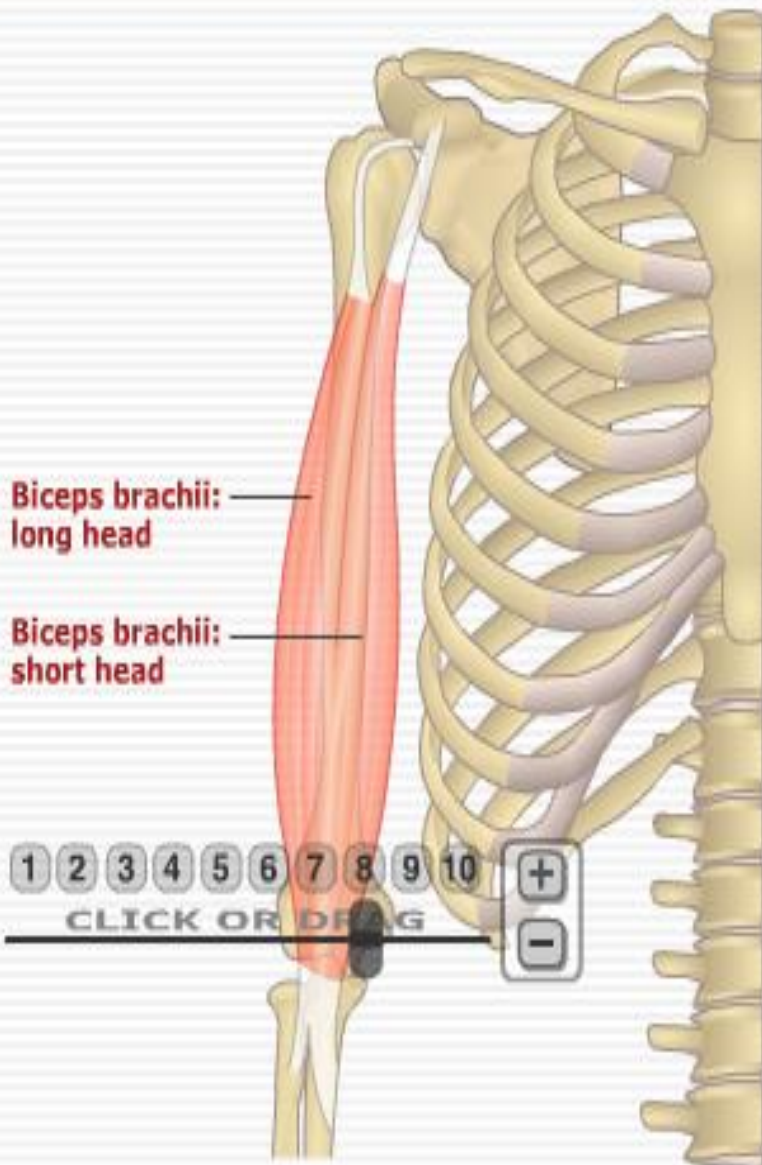
Expand

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Biceps Brachii Muscle:

Origin (proximal) attachments:

Long head: supraglenoid tubercle of scapula.

Short head: coracoid process of scapula.

Insertion (distal) attachments:

Radial tuberosity and bicipital aponeurosis to fascia of forearm.

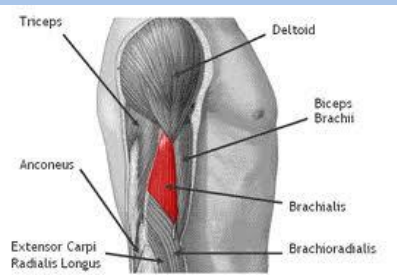
Actions on the arm (humerus):

*Both heads: weakly **flex arm** at shoulder. (Also flex & supinate forearm at elbow).*

Nerve to muscle and its spinal segment:

Musculocutaneous nerve (C5, C6).

Brachialis



Distal half of anterior surface of humerus

Coronoid process and tuberosity ulna

Lies beneath the biceps brachii muscle

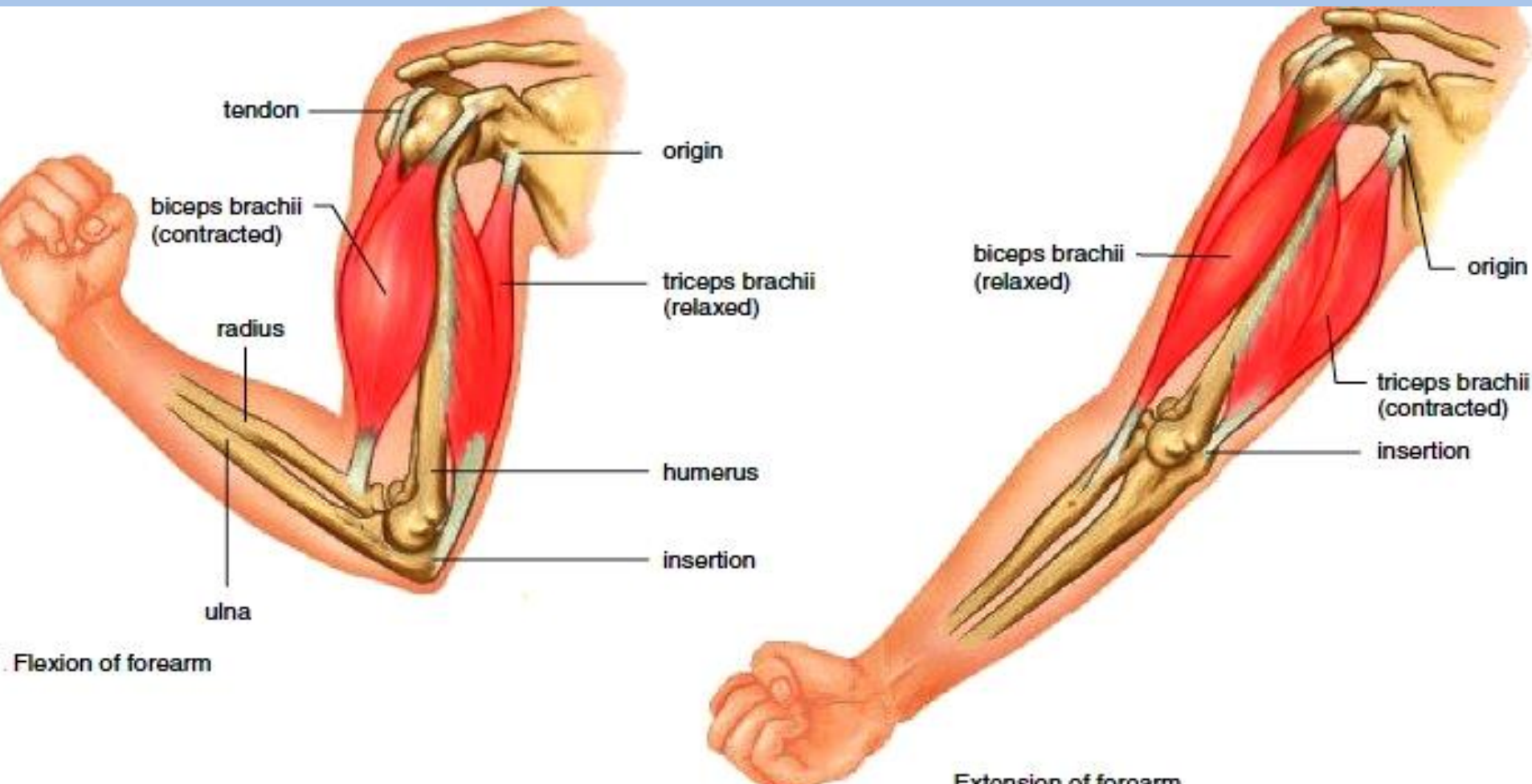
Its distal attachment covers the anterior part of the elbow joint.



Brachialis

Main flexor of the forearm

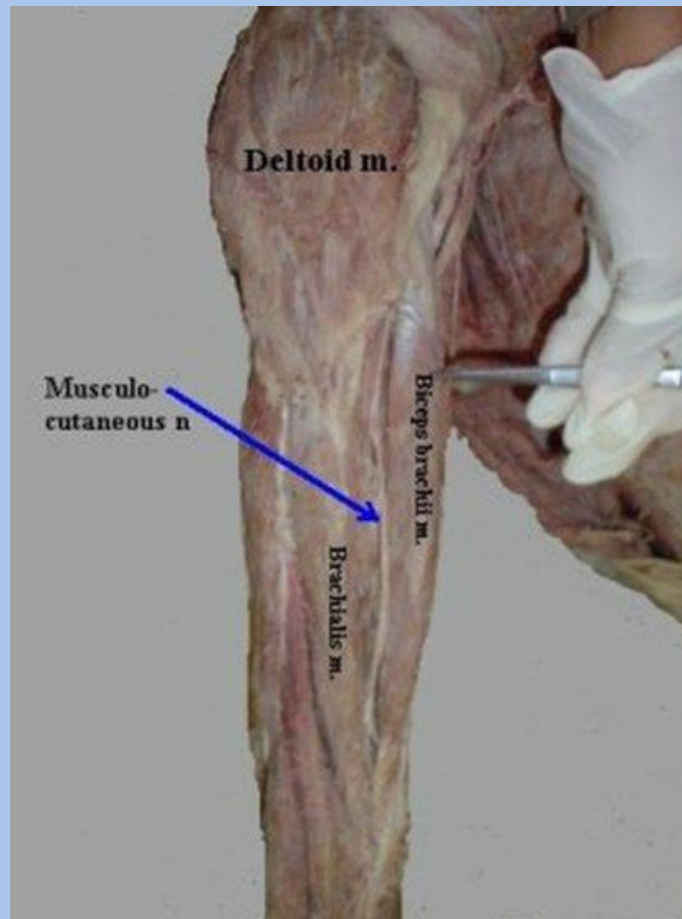
The only pure flexor, producing the greatest amount of flexion force
primarily responsible for sustaining the flexed position
workhorse of the elbow flexors



Brachialis

Innervation predominantly by **musculocutaneous nerve**.

A small component of the lateral part is innervated by the radial nerve.



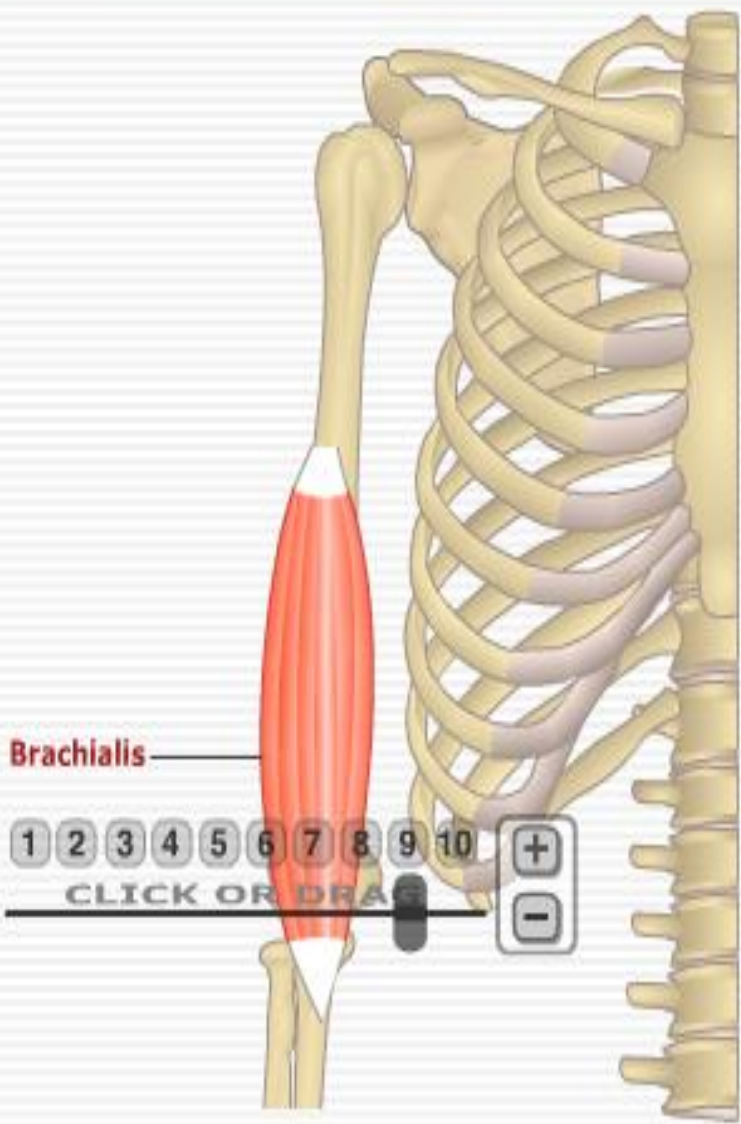
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Brachialis Muscle:

Origin (proximal) attachments:

Anterior, distal half of humerus.

Insertion (distal) attachments:

Coronoid process and tuberosity of ulna.

Actions on the forearm (radius/ulna):

Flexes forearm at elbow.

Nerve to muscle and its spinal segment:

Musculocutaneous nerve (C5, C6).

Posterior Compartment

Triceps brachii

The only muscle of the posterior compartment

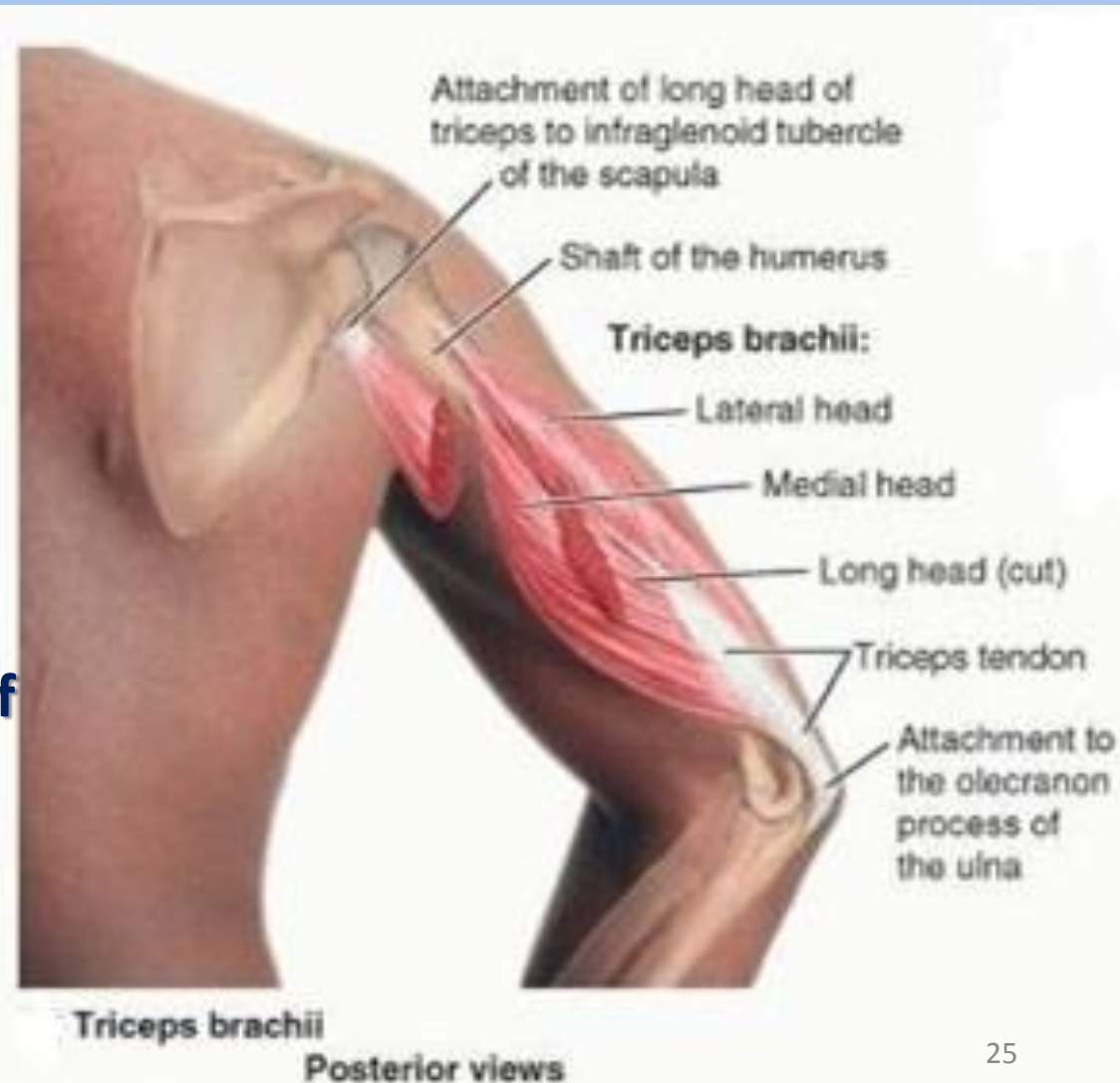
long head

infraglenoid tubercle of scapula

medial head & lateral heads

posterior surface of humerus, superior to radial groove

Proximal end of olecranon of ulna and fascia of forearm



Triceps brachii

Because its **long head** crosses the glenohumeral joint, the triceps helps stabilize the adducted glenohumeral joint by serving as a shunt muscle, resisting inferior displacement of the head of the humerus.

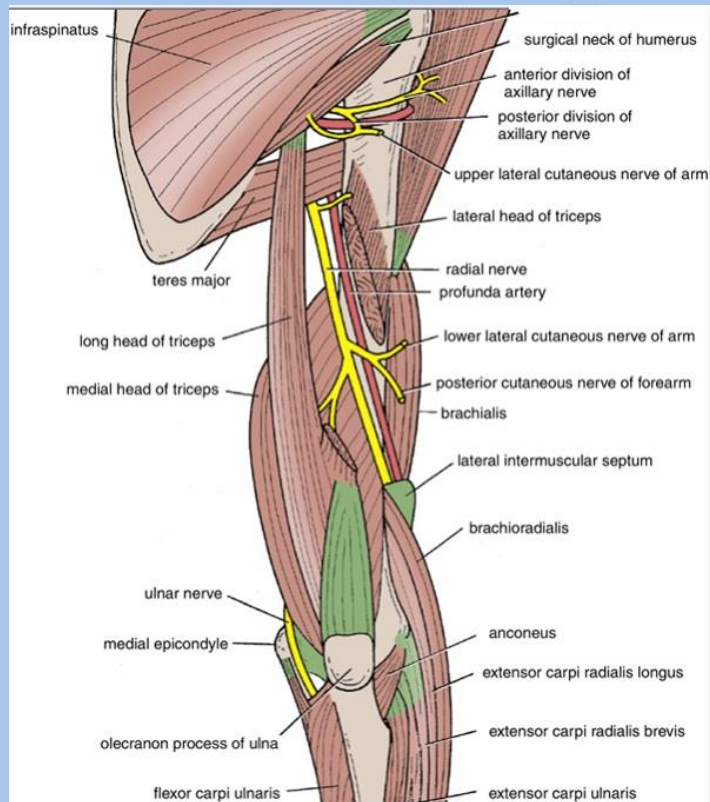
The long head also aids in extension and adduction of the arm, but it is actually the least active head.

Medial head : workhorse of forearm extension,

Lateral head : strongest but is recruited into activity primarily against resistance.

Triceps brachii

- Innervation of by branches of the **radial nerve**.



- A tap on the tendon of triceps brachii tests predominantly **spinal cord segment C7**.

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Triceps brachii: long head

1
2
3
4
5
6
7
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14
CLICK OR DRAG

Click Blue Links To View Actions And Attachments >>>

Triceps Brachii Muscle - Long Head:

Origin (proximal) attachments:
Infraglenoid tubercle of scapula

Insertion (distal) attachments:
Posterior olecranon process of ulna.

Actions on the forearm (radius/ulna):
Extends the forearm at elbow. (It also extends the arm at the shoulder).

Nerve to muscle and its spinal segment:
Radial nerve (C7, C8).

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Triceps brachii: lateral head

1
2
3
4
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6
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CLICK OR DRAG

Click Blue Links To View Actions And Attachments >>>

Triceps Brachii Muscle - Lateral Head:

Origin (proximal) attachments:
Proximal portion of posterior humerus, superior to radial groove.

Insertion (distal) attachments:
Posterior olecranon process of ulna.

Actions on the forearm (radius/ulna):
Extends the forearm at elbow.

Nerve to muscle and its spinal segment:
Radial nerve (C7, C8).

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Triceps brachii: medial head

1
2
3
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CLICK OR DRAG

Click Blue Links To View Actions And Attachments >>>

Triceps Brachii Muscle: Medial Head

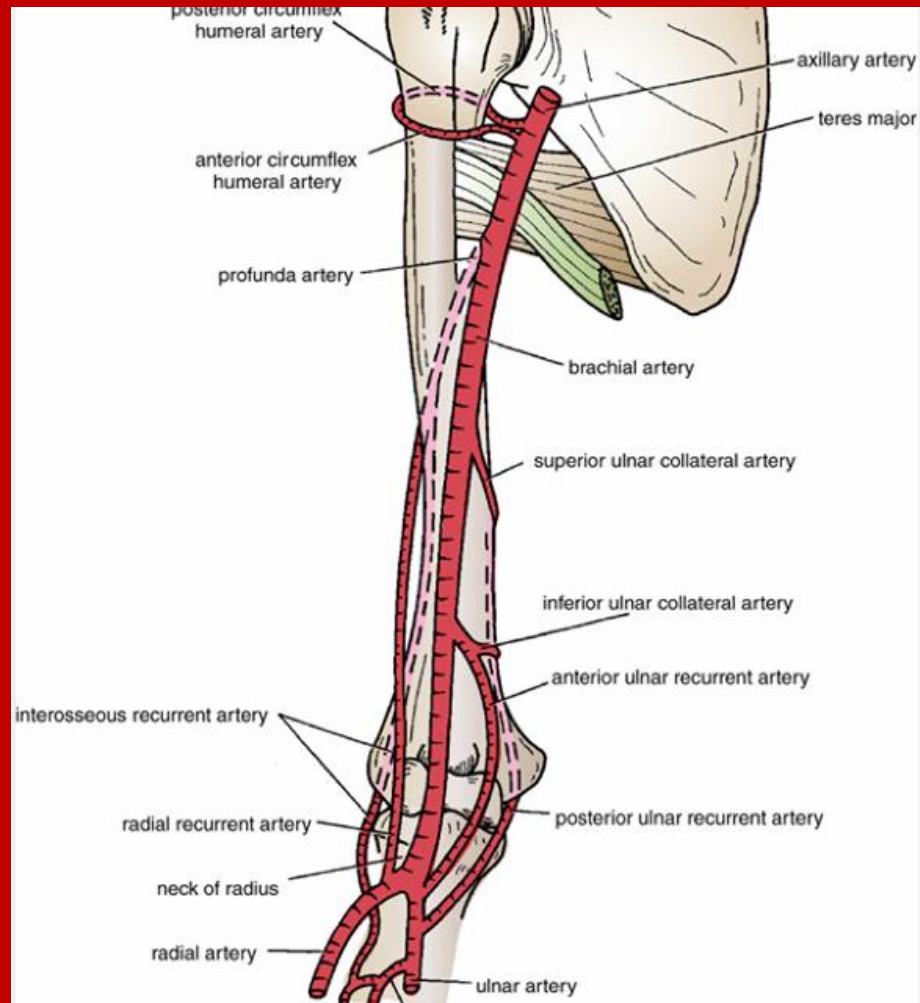
Origin (proximal) attachments:
Inferior 2/3 of posterior humerus.

Insertion (distal) attachments:
Posterior olecranon process of ulna.

Actions on the forearm (radius/ulna):
Extends the forearm at elbow.

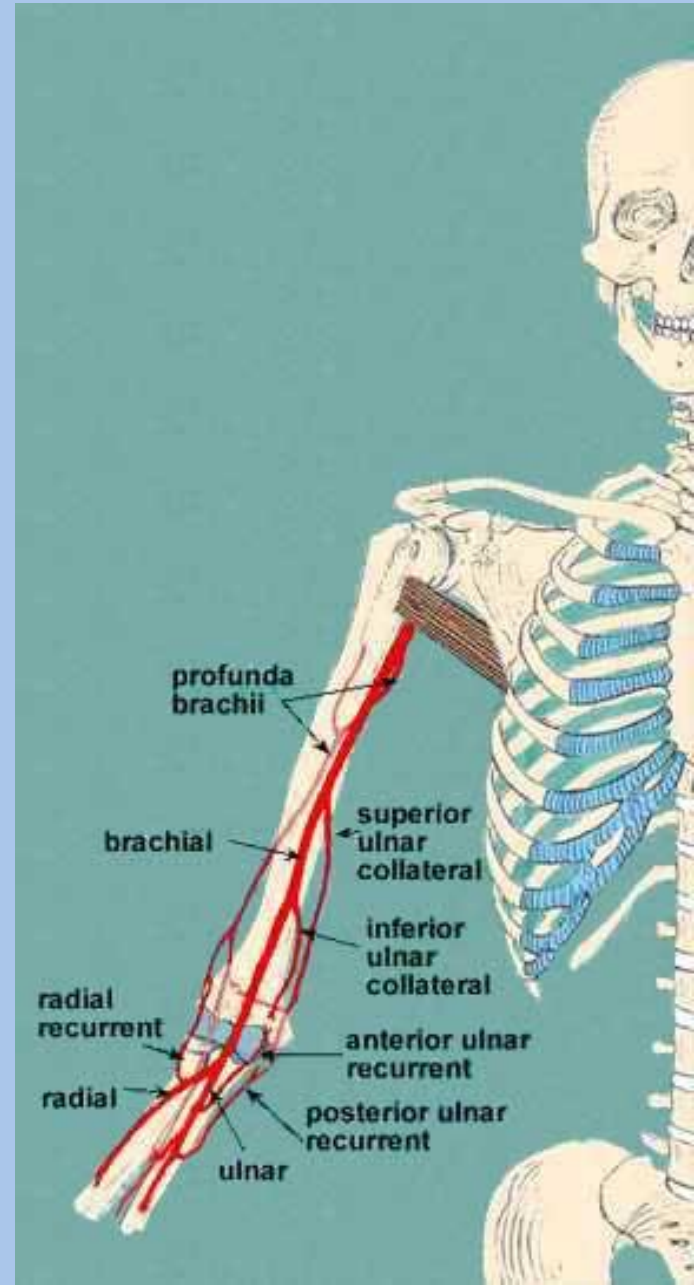
Nerve to muscle and its spinal segment:
Radial nerve (C7, C8).

ARTERIES IN THE ARM



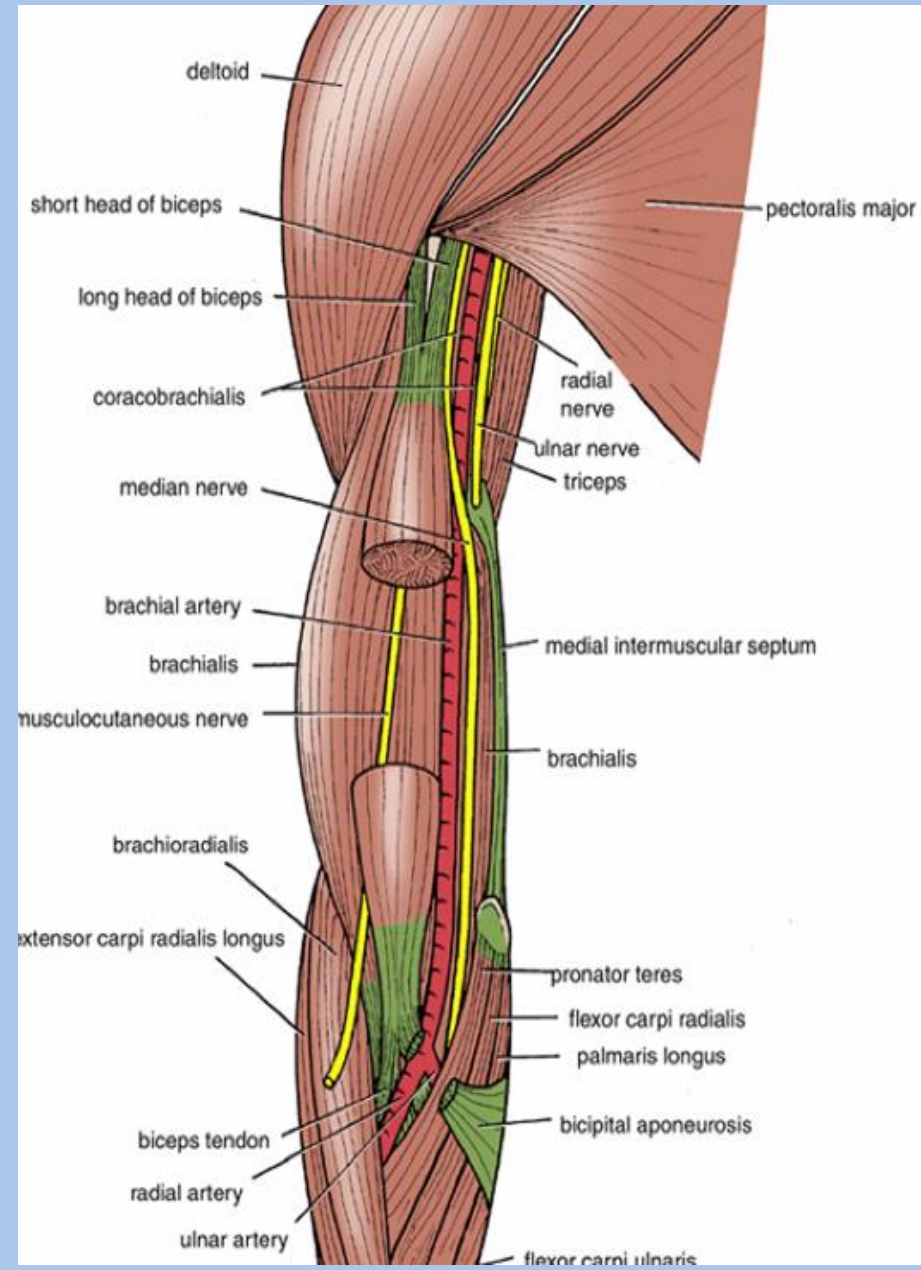
Brachial artery

- The major artery of the arm
- Found in the anterior compartment
- Continuation of axillary artery at the lower border of **teres major**
- Terminates distal to the elbow joint, opposite to neck of radius dividing into **radial & ulnar arteries.**



Brachial artery

- Relatively superficial and palpable throughout its course.
- Lies anterior to **triceps** & **brachialis**.
- As it passes inferolaterally, accompanies the **median nerve**.



Brachial artery

Proximal arm lies on the medial side.
Distal arm, it moves laterally.

Named Branches

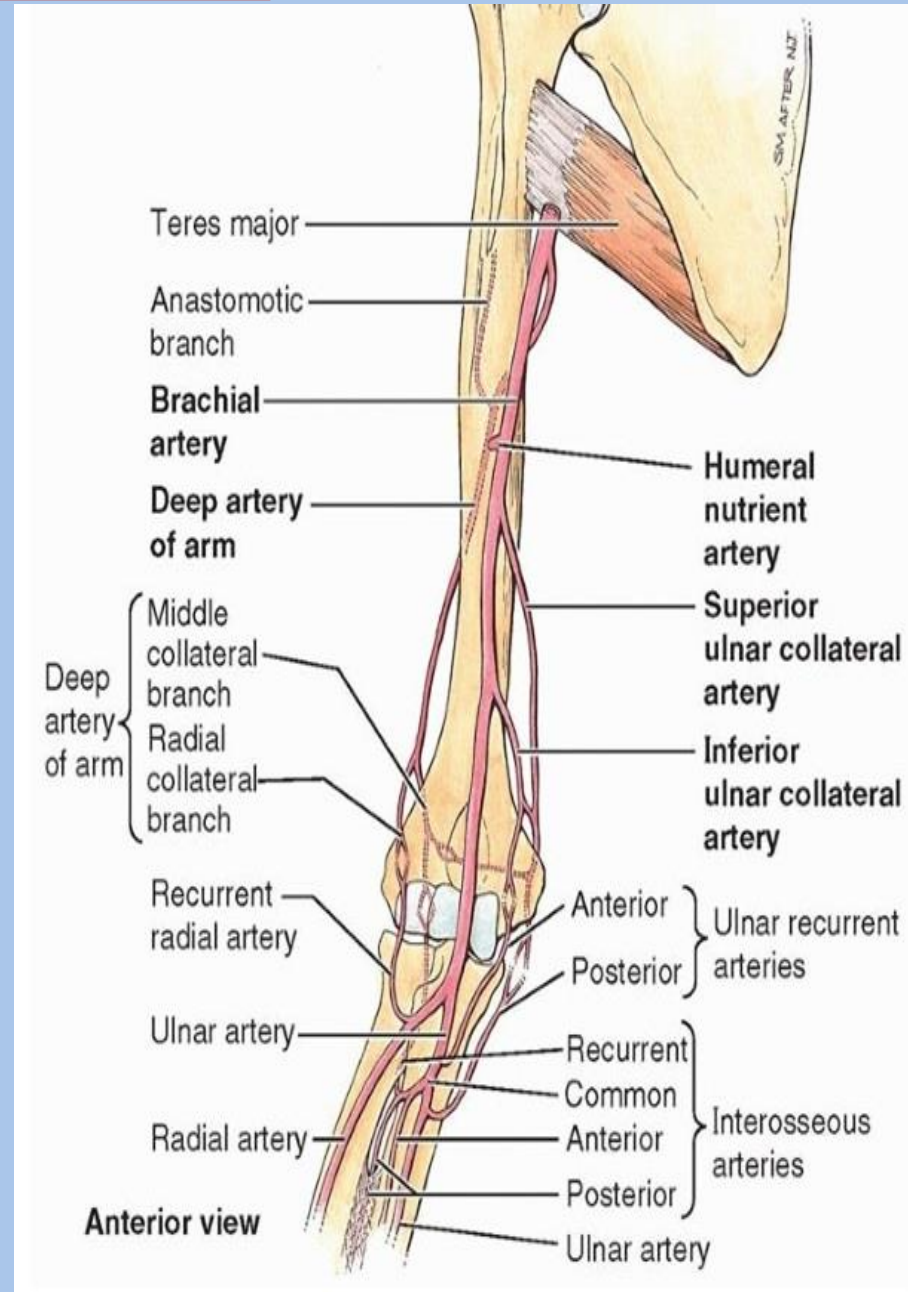
Superior ulnar collateral artery

Inferior ulnar collateral artery

contribute to a network of arteries around the elbow joint.

Profunda brachii artery

Nutrient arteries to the humerus

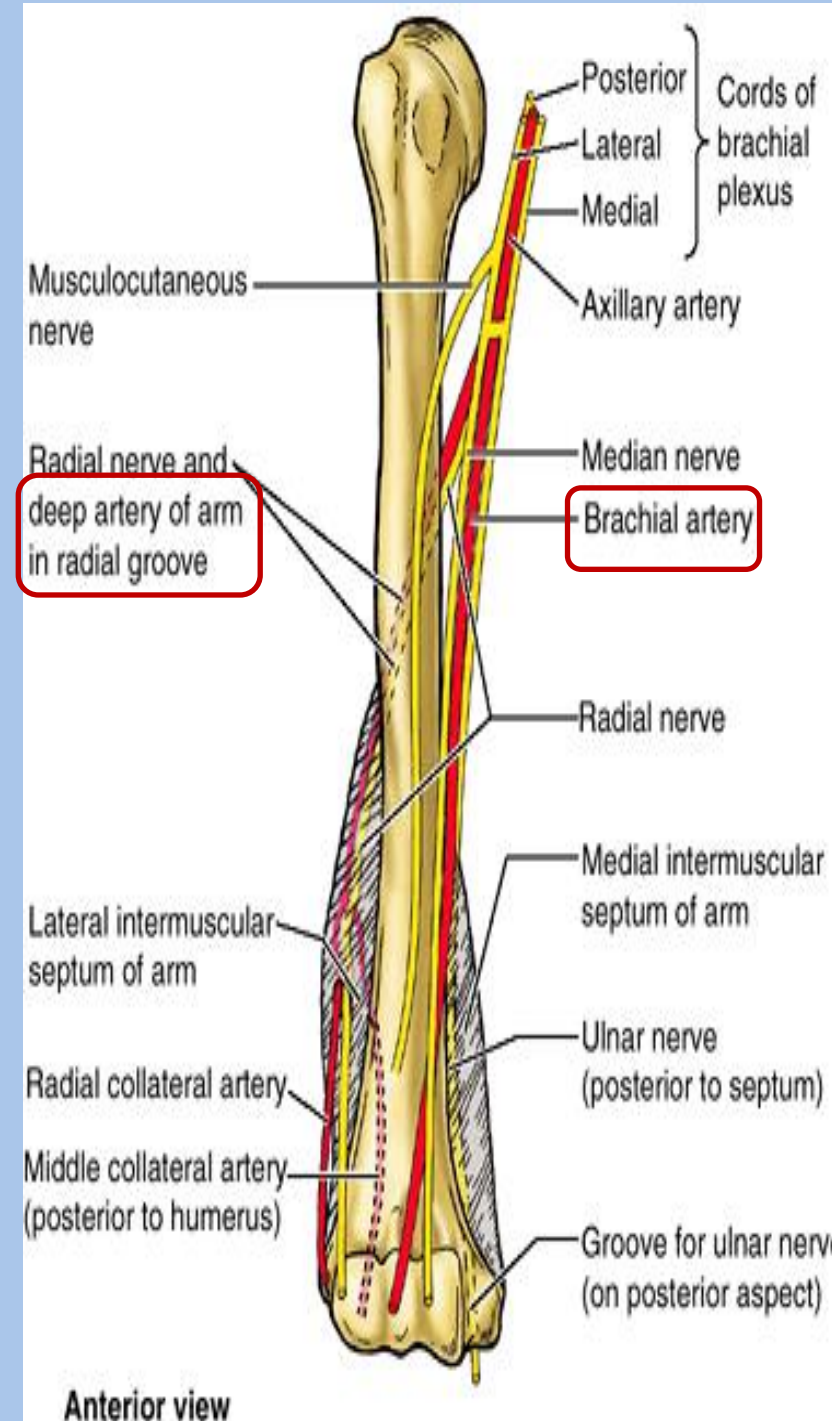


Brachial artery

Deep artery of the arm

(*L. arteria profunda brachii*)

- Largest branch & most superior origin
- Accompanies radial nerve along the radial groove
- Terminates by dividing into **middle** & **radial collateral arteries**



VEINS IN THE ARM

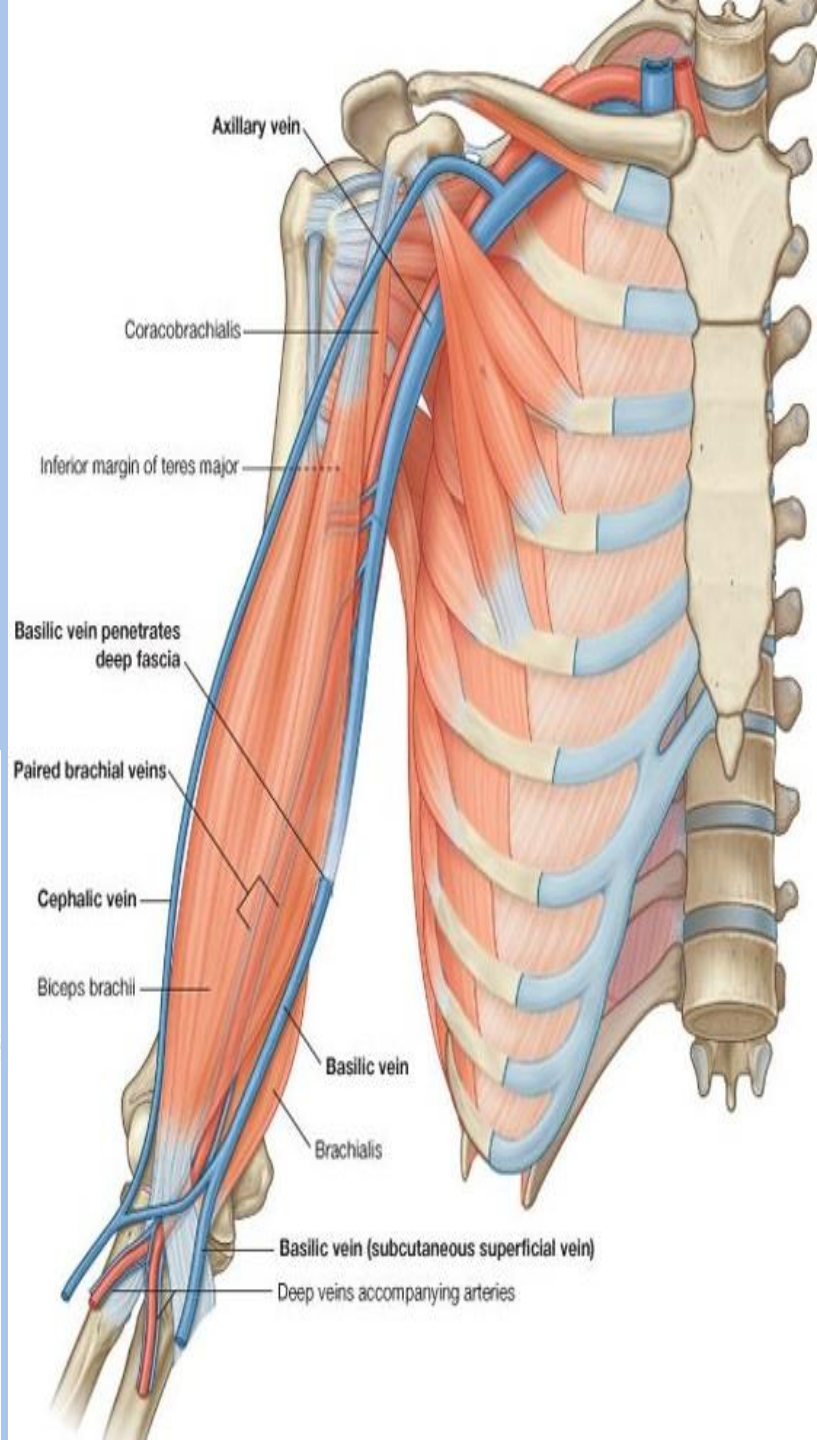
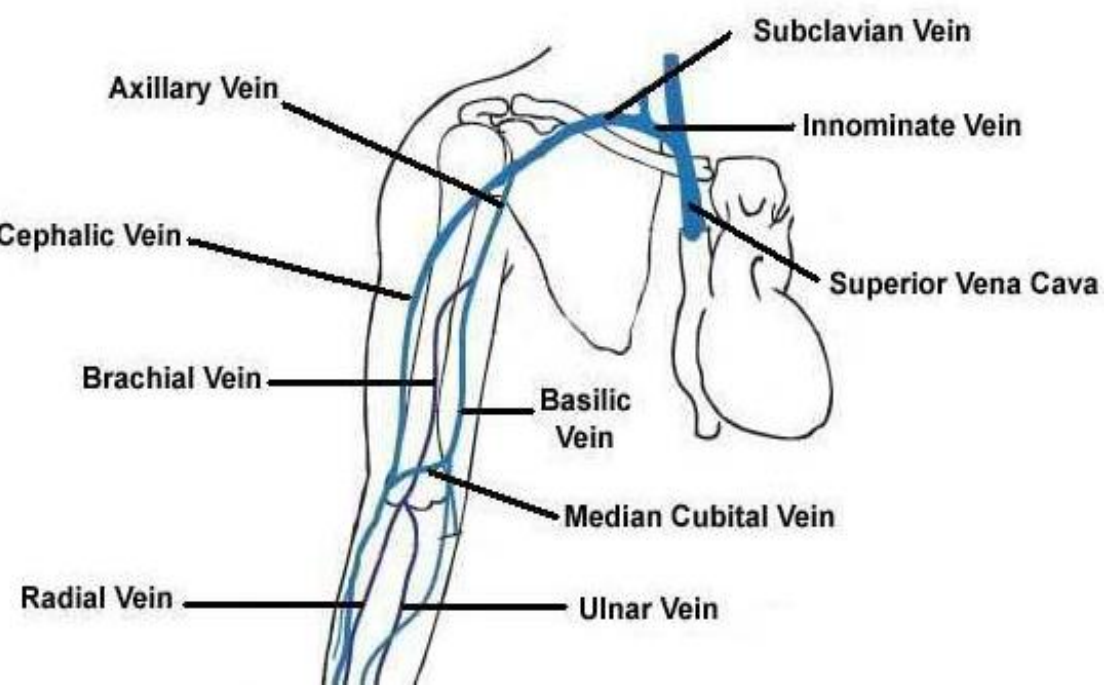


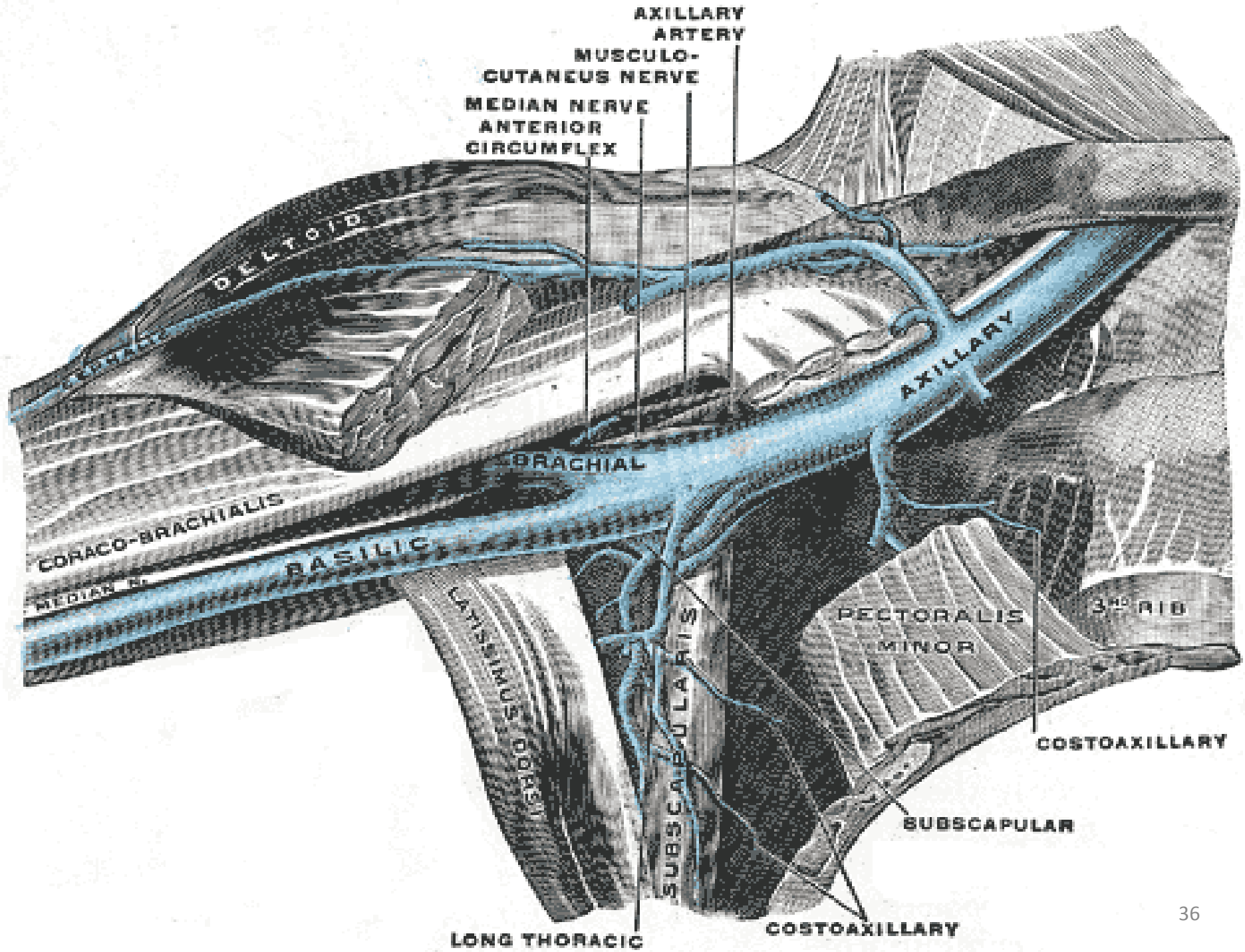
2 main superficial veins of the arm
cephalic and **basilic veins**.

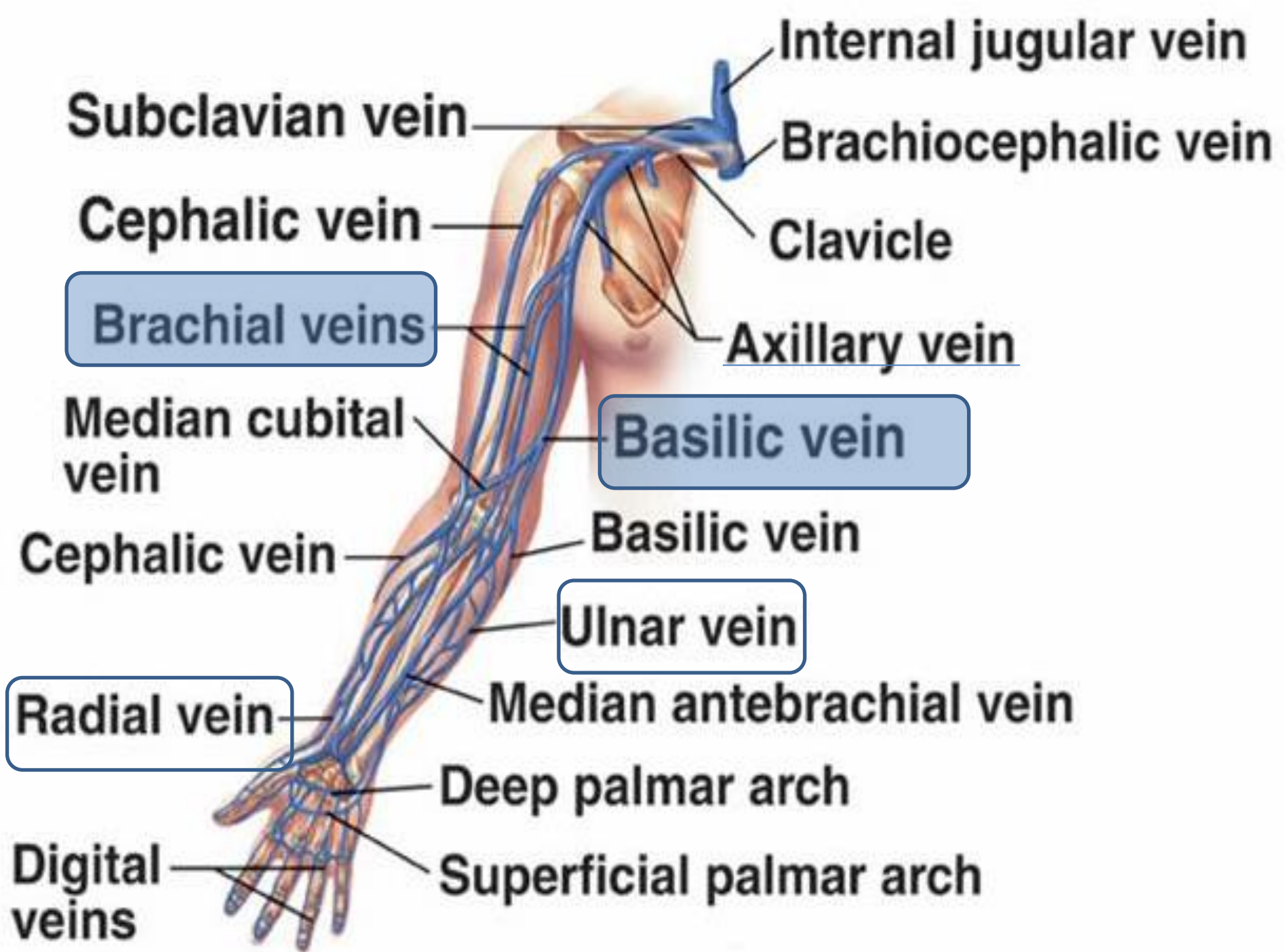
Cephalic vein – lateral side
into axillary vein

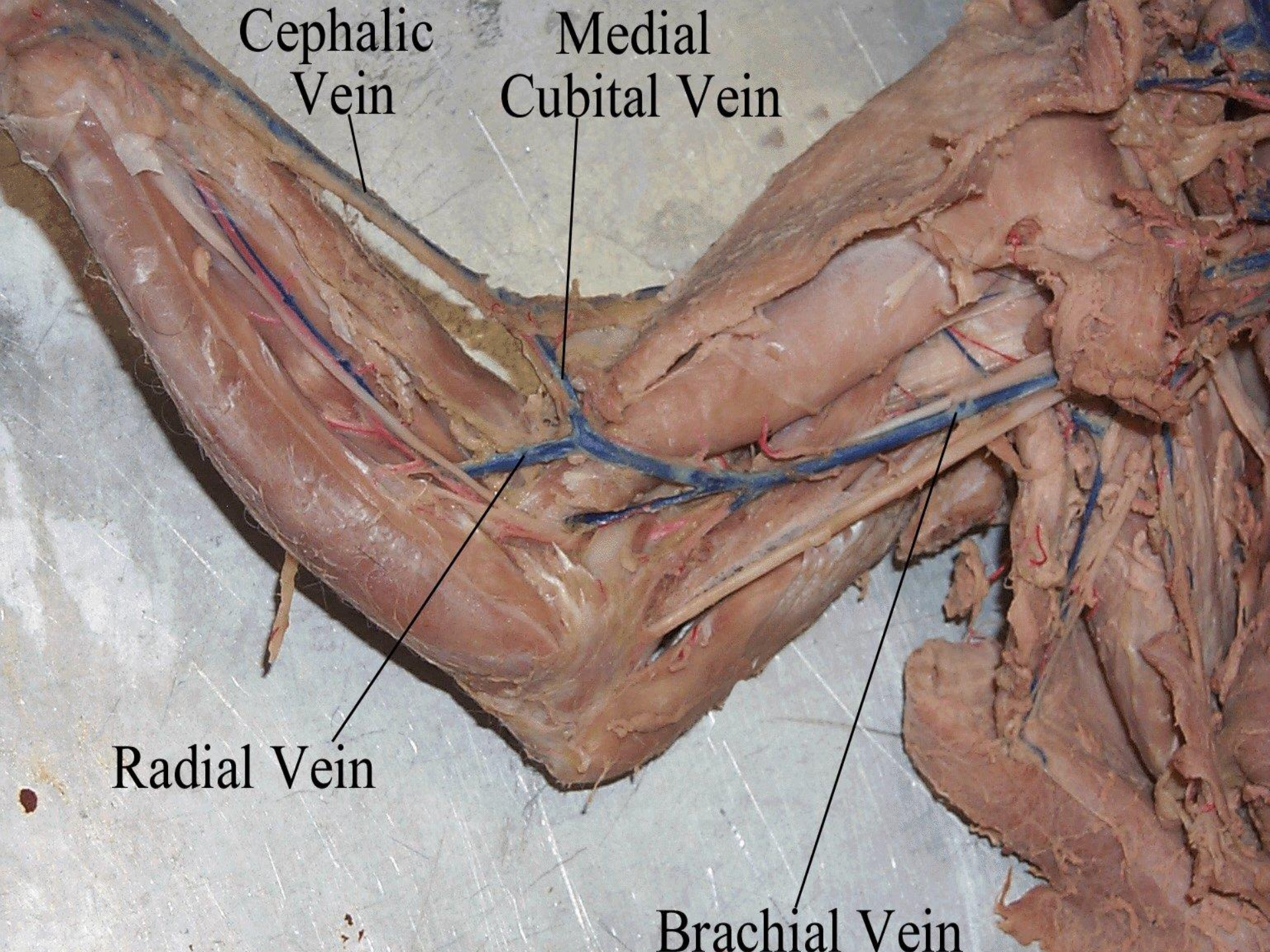
Basilic vein- medial side

Basilic vein+ Brachial veins
Axillary vein









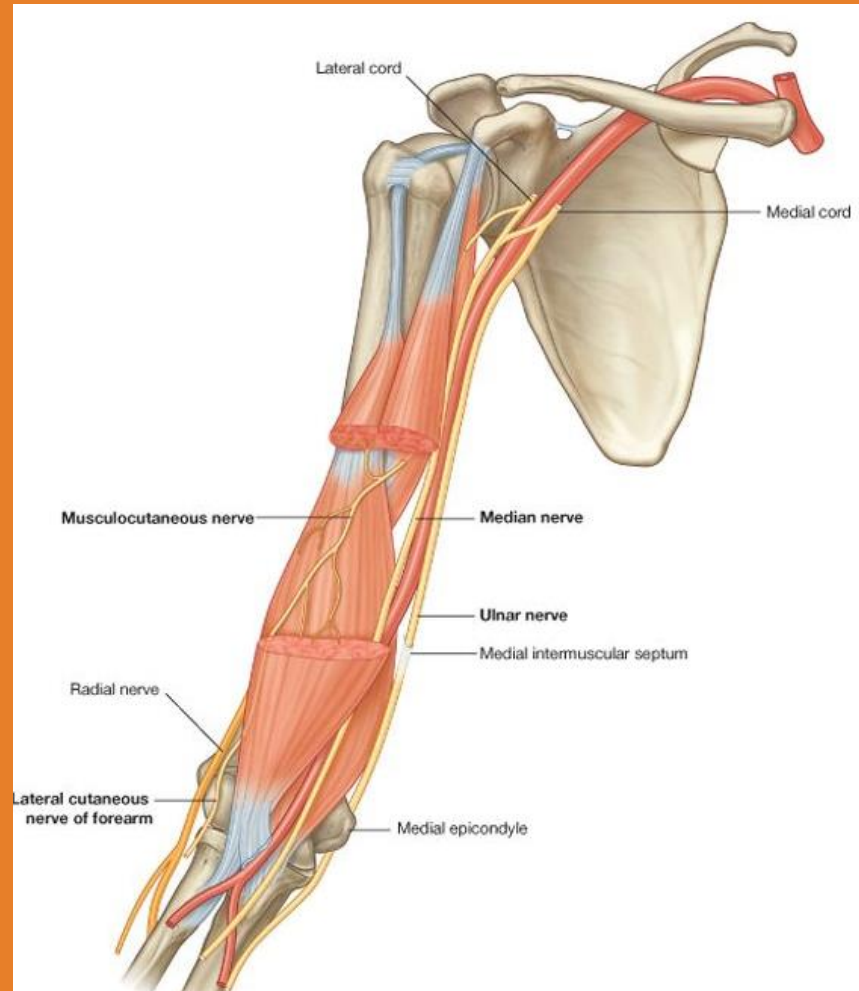
Cephalic Vein

Medial Cubital Vein

Radial Vein

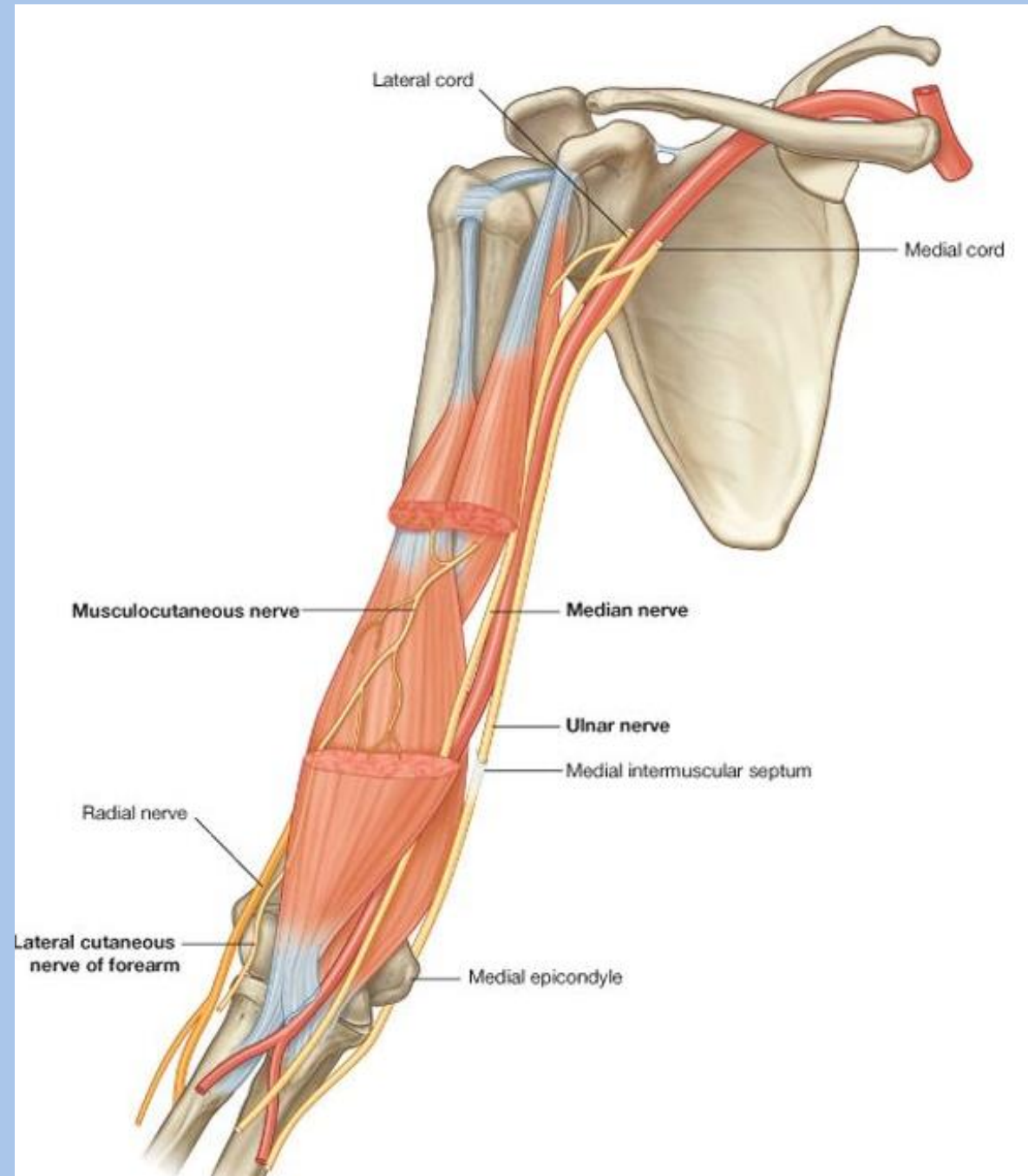
Brachial Vein

NERVES IN THE ARM



4 main nerves pass through the arm:

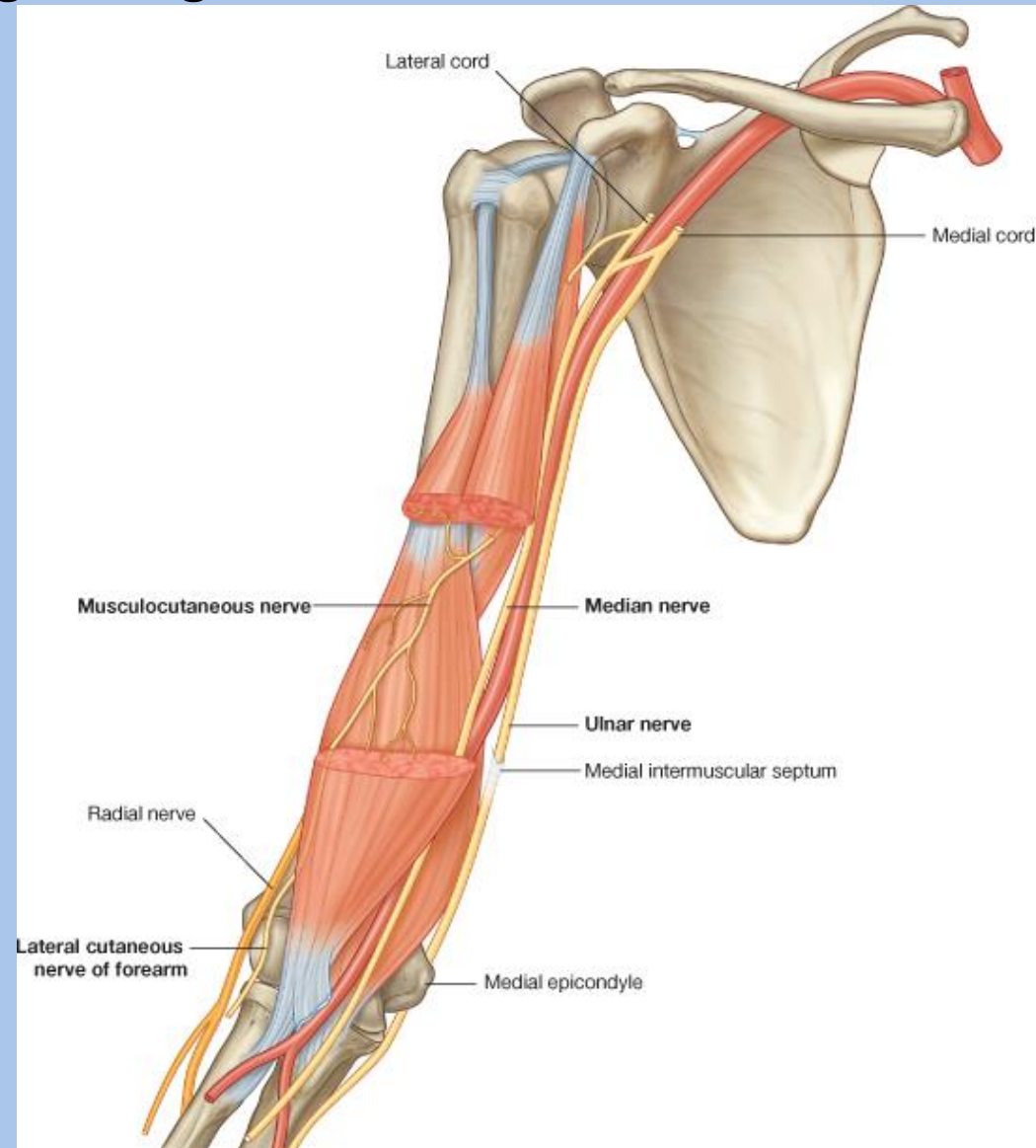
- ✓ Median
- ✓ Ulnar
- ✓ Musculocutaneous
- ✓ Radial



Musculocutaneous nerve

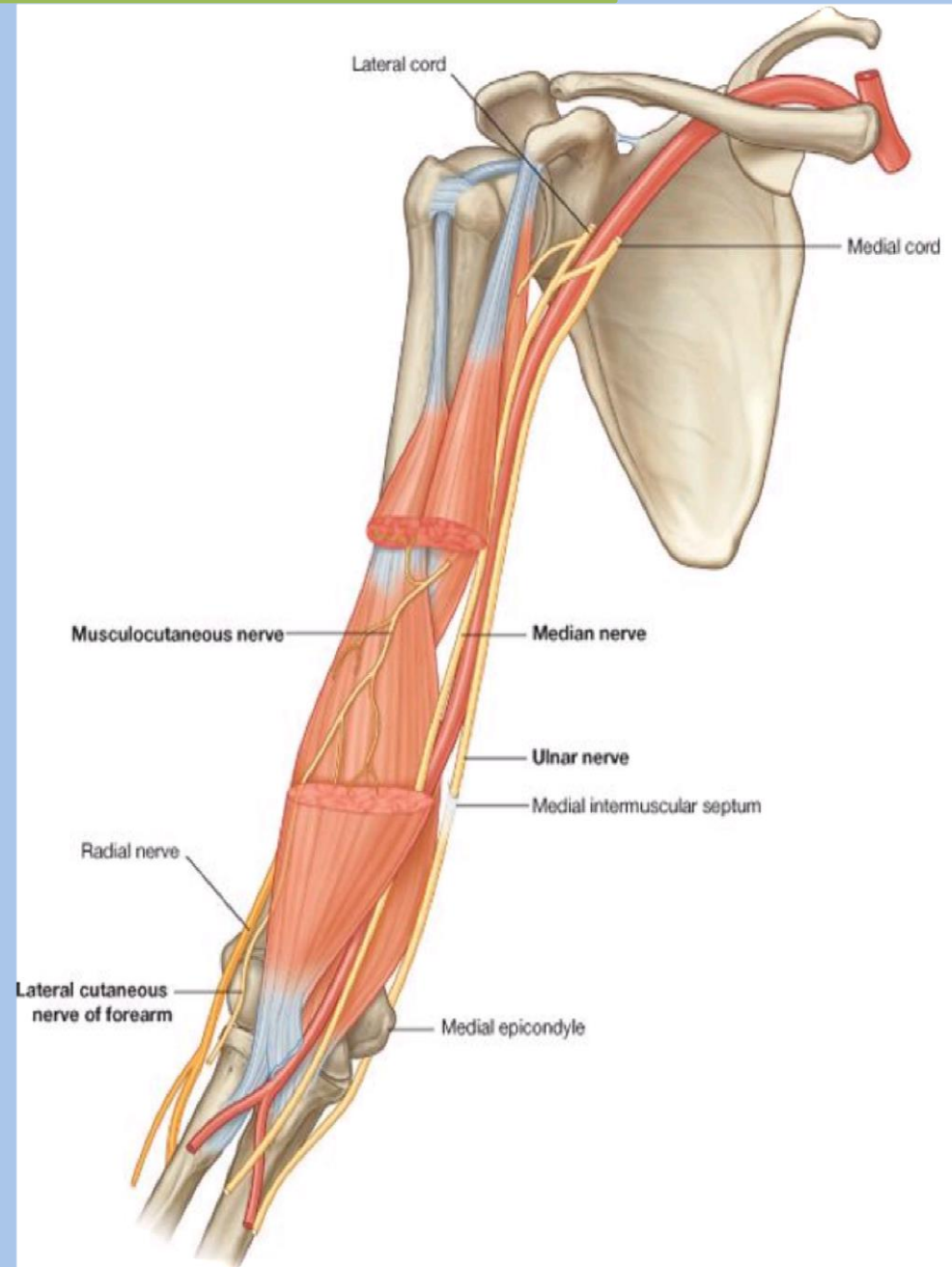
Leaves the axilla and enters the arm
by passing through the coracobrachialis muscle.

Passes diagonally down the arm
between biceps brachii &
brachialis.



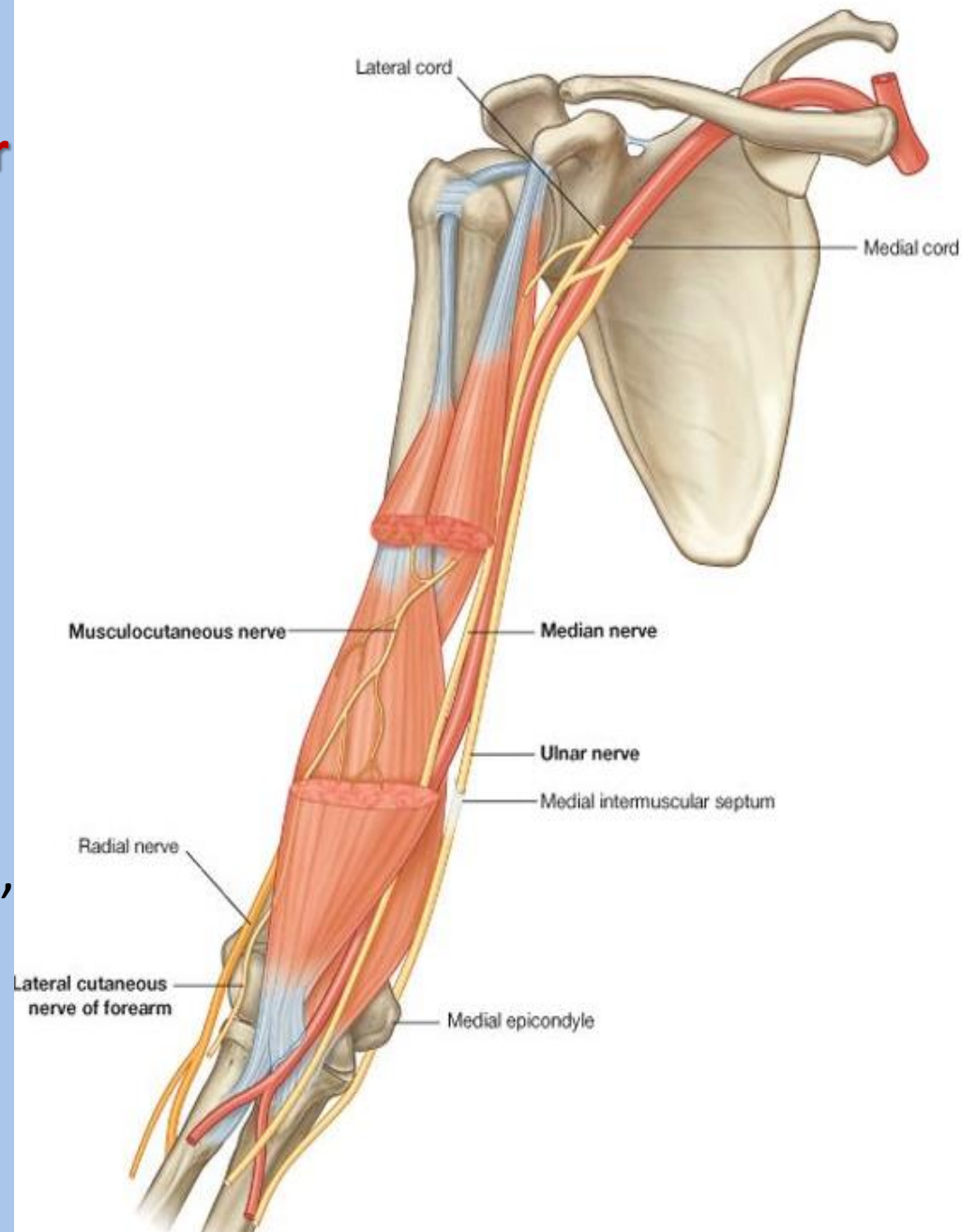
Musculocutaneous nerve

- Through **coracobrachialis**
 - Diagonally down the arm in the plane between **biceps brachii** & **brachialis**
 - Emerges laterally to tendon of biceps brachii @ the elbow
- lateral cutaneous nerve of forearm**
- motor innervation to all muscles @ anterior compartment of the arm;
 - sensory innervation to skin @ **lateral surface of the forearm**



Median nerve

- Enters the arm from axilla @ **inferior margin of teres major muscle**.
- Passes vertically down the medial side of arm in the anterior compartment
- Related to **brachial artery** throughout its course:
- No major branches in the arm, or in the axilla.



MUSCULOCUTANEOUS NERVE

INTERCOSTO-HUMERAL NERVES

ANTERIOR THORACIC NERVES

PECTORALIS MAJOR (REFLECTED)

CLAVICLE
SUBCLAVIUS

BICEPS (SHORT HEAD)

PECTOR MINOR

CORACO-BRACHIALIS

AXIL. ART.

MEDIAN NERVE

BRACHIAL ARTERY

ULNAR NERVE

TRICEPS

(LONG HEAD)

INTERNAL CUTANEOUS NERVE

LESSER INTERNAL CUTANEOUS NERVES

LONG SUBSCAPULAR NERVE

LATISSIMUS DORSI

TERES MAJOR

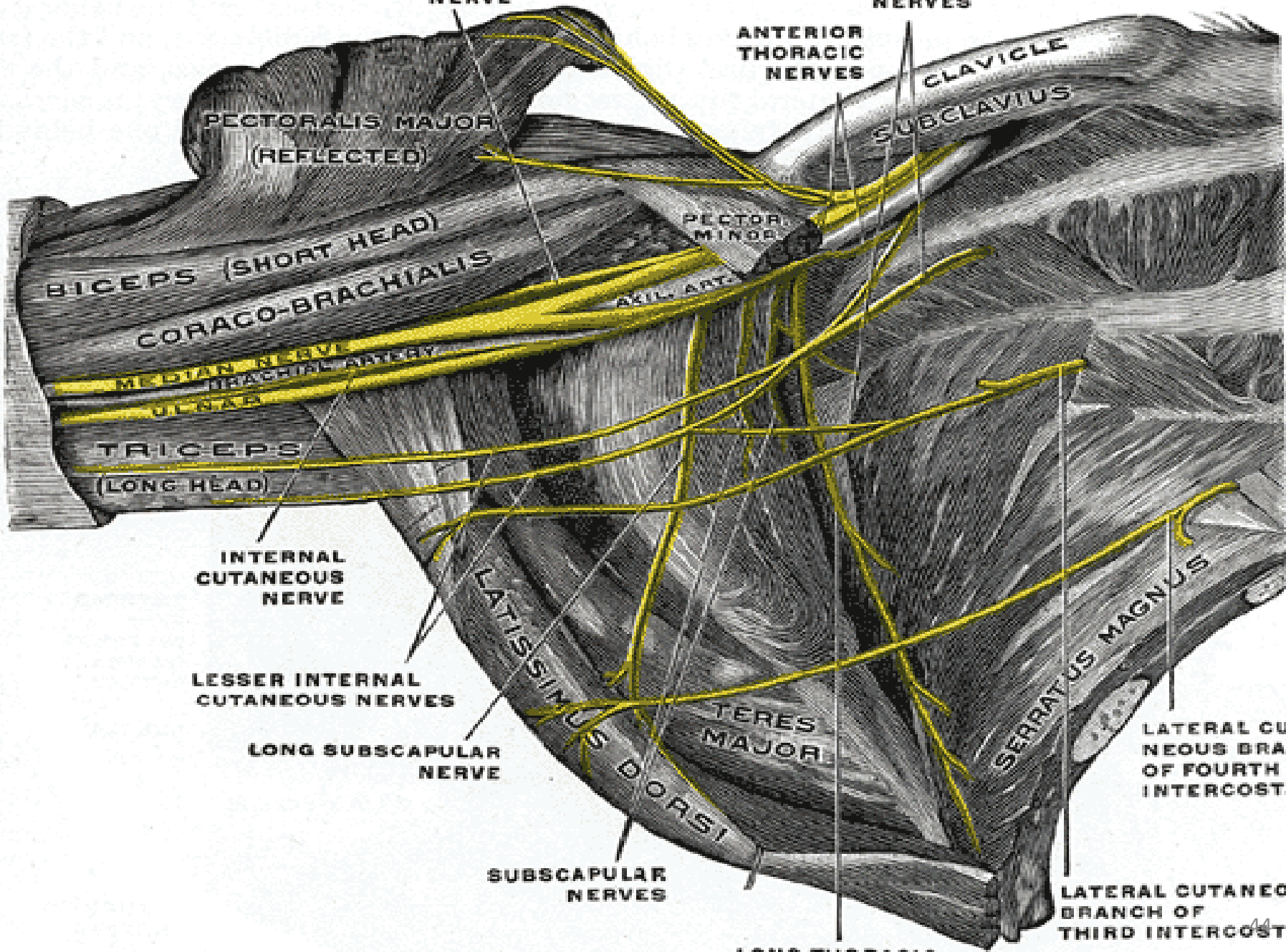
SERRATUS MAGNUS

LATERAL CUTANEOUS BRANCH OF FOURTH INTERCOSTAL

SUBSCAPULAR NERVES

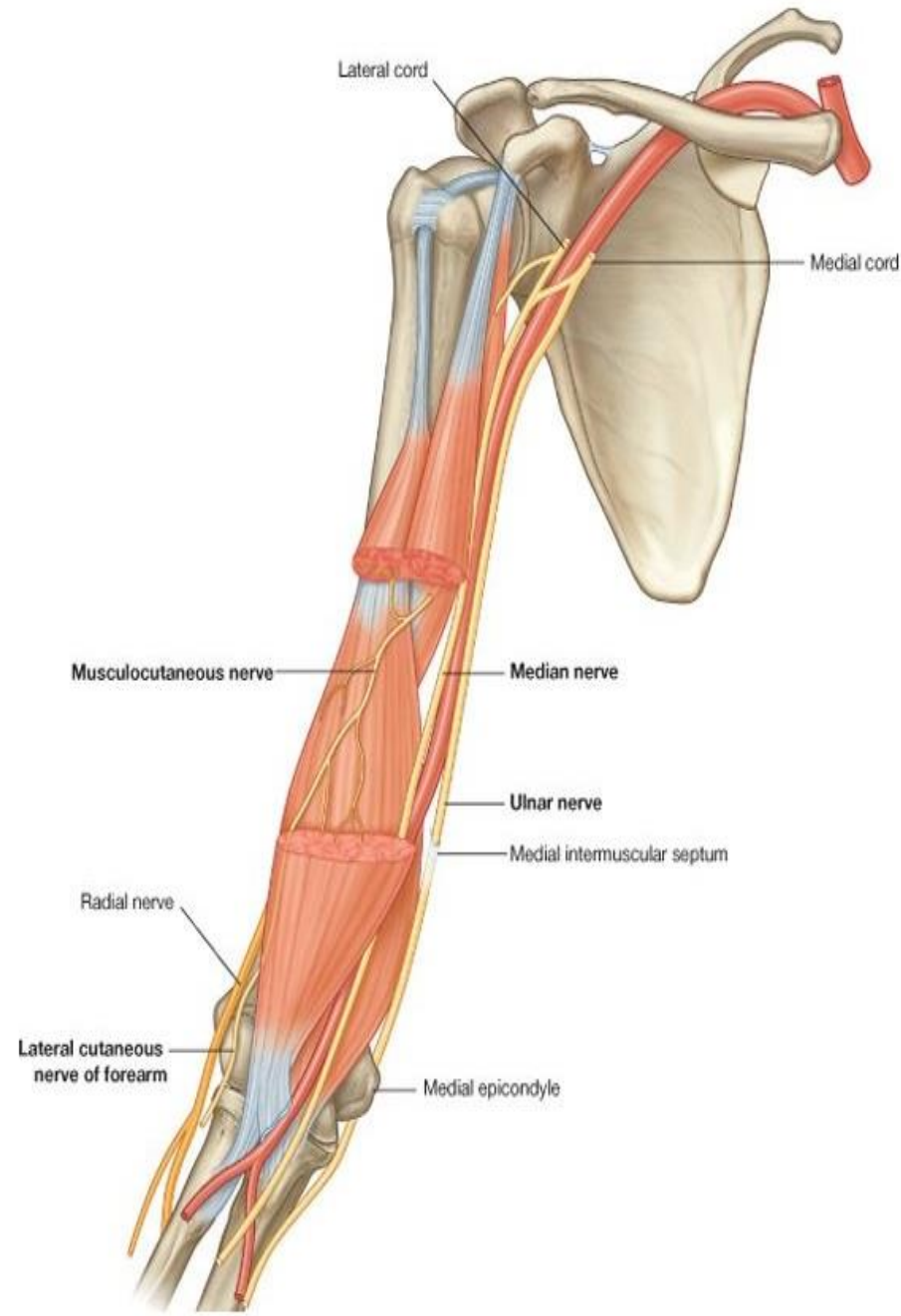
LATERAL CUTANEOUS BRANCH OF THIRD INTERCOSTAL

LONG THORACIC NERVE



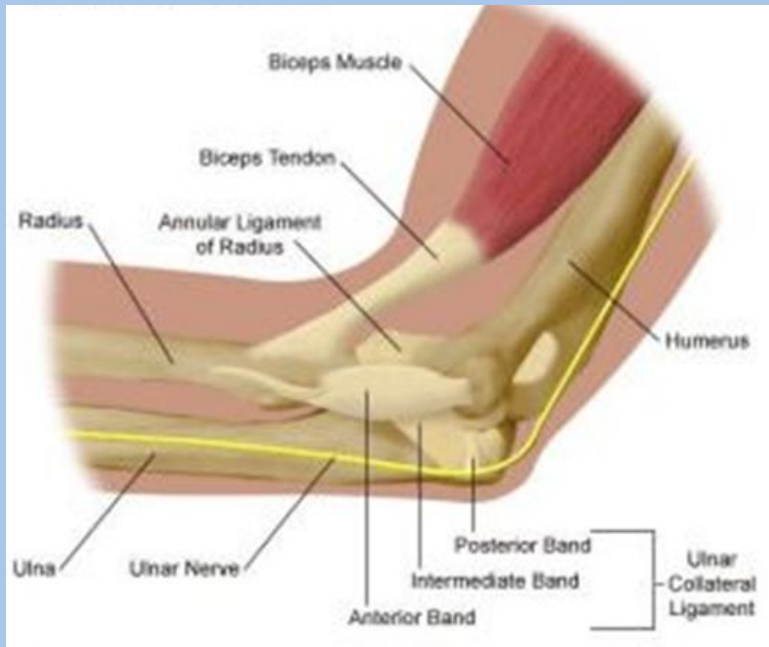
Ulnar nerve

- ❖ Enters the arm with the median nerve and axillary artery.
- ❖ Passes distally from the axilla anterior to the insertion of the teres major and to the long head of the triceps, on the medial side of the brachial artery.
- ❖ In the middle of the arm, penetrates the medial intermuscular septum and enters the posterior compartment.
- ❖ Passes into the anterior



Ulnar nerve

Posterior to the medial epicondyle, where the ulnar nerve is referred to in lay terms as the “funny bone,” it is superficial, easily palpable, and vulnerable to injury.



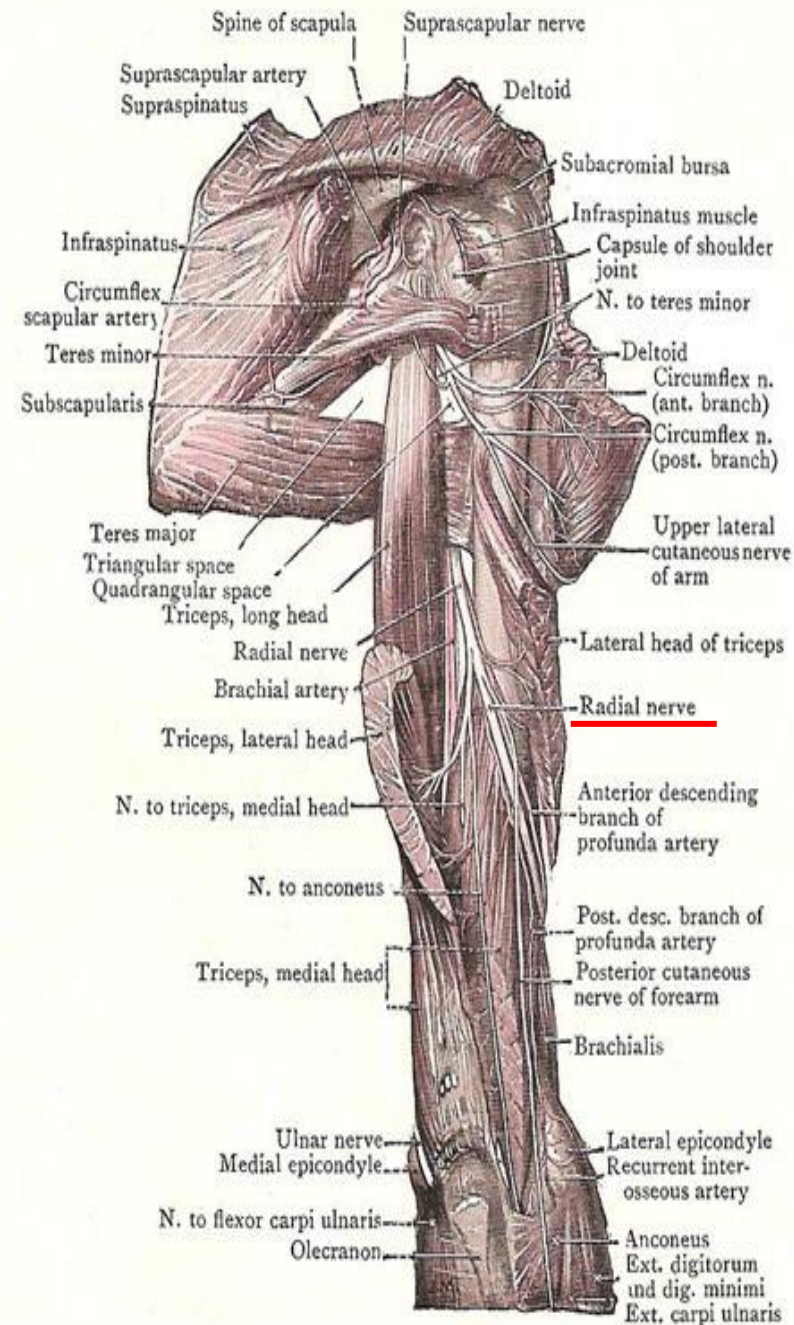
Radial nerve

Supplies all the muscles in the posterior compartment of the arm (and forearm).

Enters the arm by crossing the inferior margin of teres major muscle.

Enters the posterior compartment of the arm through **triangular interval**.

profunda brachii artery



Radial nerve

Muscular and cutaneous branches in the arm

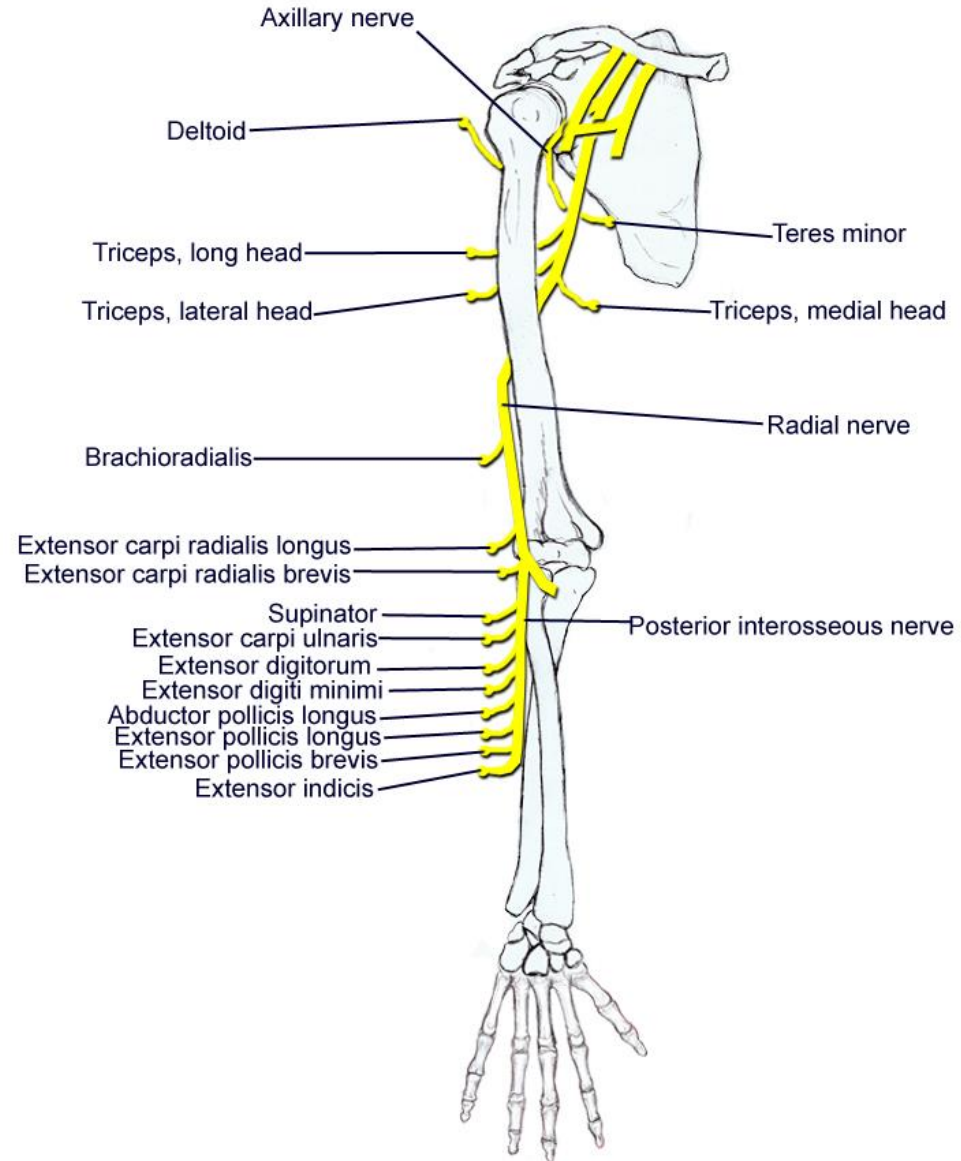
Muscular branches include those to

Triceps brachii

Brachioradialis

Extensor carpi radialis longus muscles.

Contributes to innervation of **lateral part of brachialis muscle.**



Radial nerve

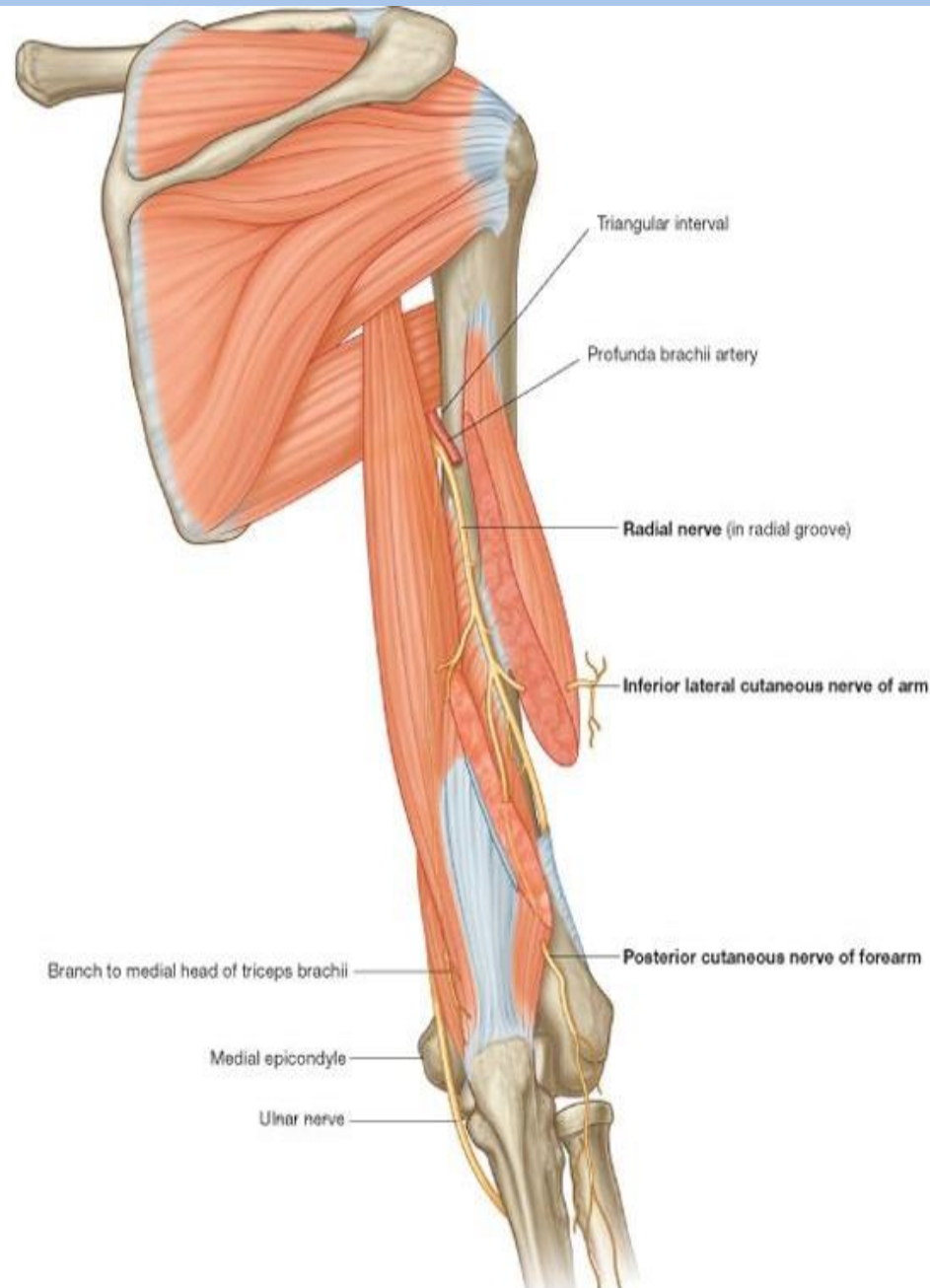
Cutaneous branches

Inferior lateral cutaneous nerve of arm

skin over lateral & anterior aspects of the lower part of the arm.

Posterior cutaneous nerve of forearm

penetrates through the lateral head of triceps brachii muscle & overlying deep fascia to become subcutaneous.



Radial nerve

Anterior to lateral epicondyle, divides into
Deep branch (muscular & articular)
Superficial branch (cutaneous- dorsum of
the hands & fingers)

