Upper limbs

L5

Objectives

At the end of this lecture student must know :

Sensory and motor innervation of the upper limbs.

Nerves supply of the upper limbs

They are all derived from the BP either directly or indirectly,this is true for all except few like trapezius msc.that innervated by 11^{th}.cranial accessory nerve.

Other example is levator scapulae muscle that is innervated by cervical plexus.

There are five mixed nerves :

1-anterior :MC,median ,ulnar.

2-posterior:Axillary ,radial

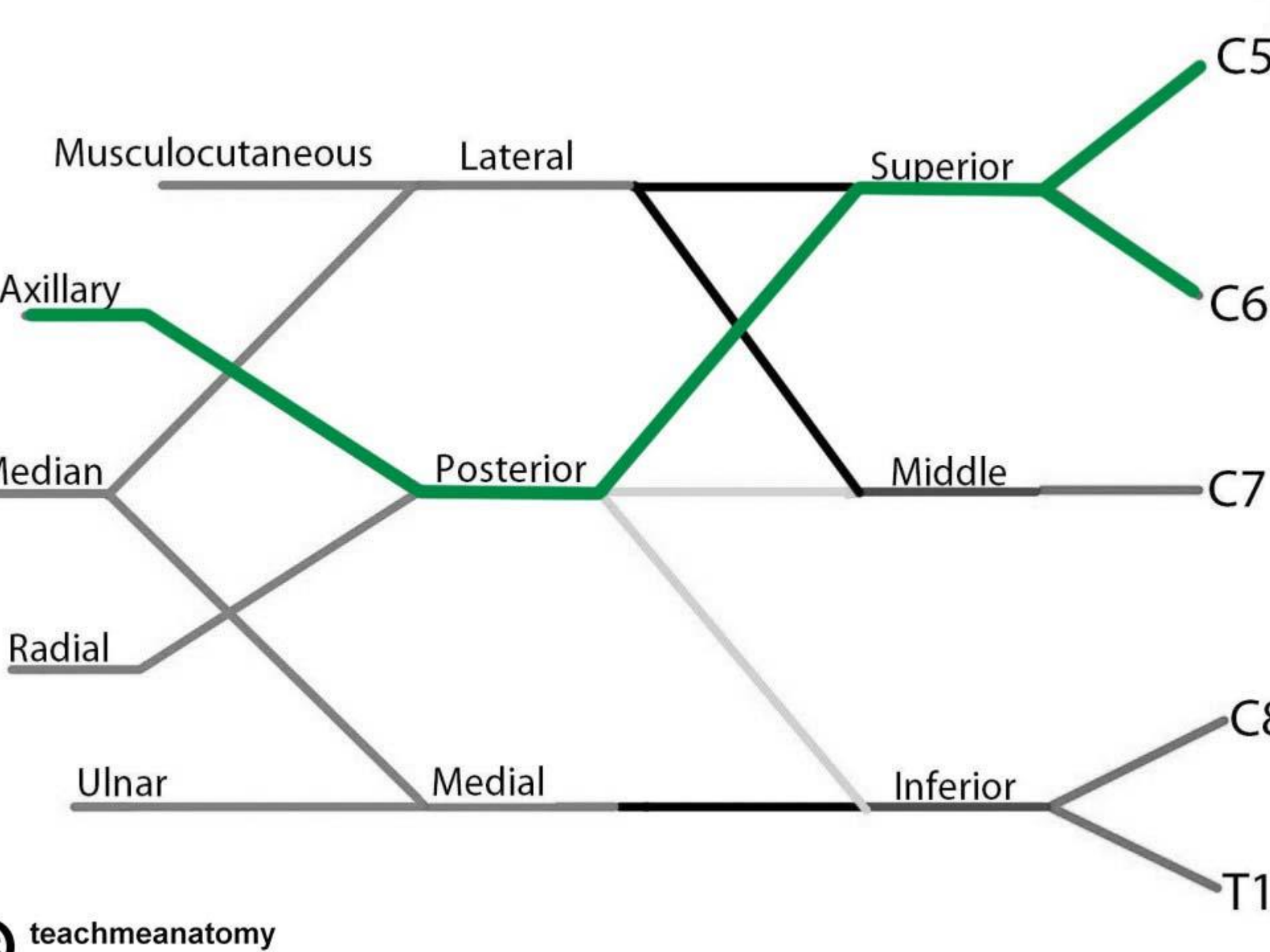
Both median and ulnar nerves run through the arm without supplying any muscle,they give their first branches to the muscles of the forearm.

Nerves of the arm

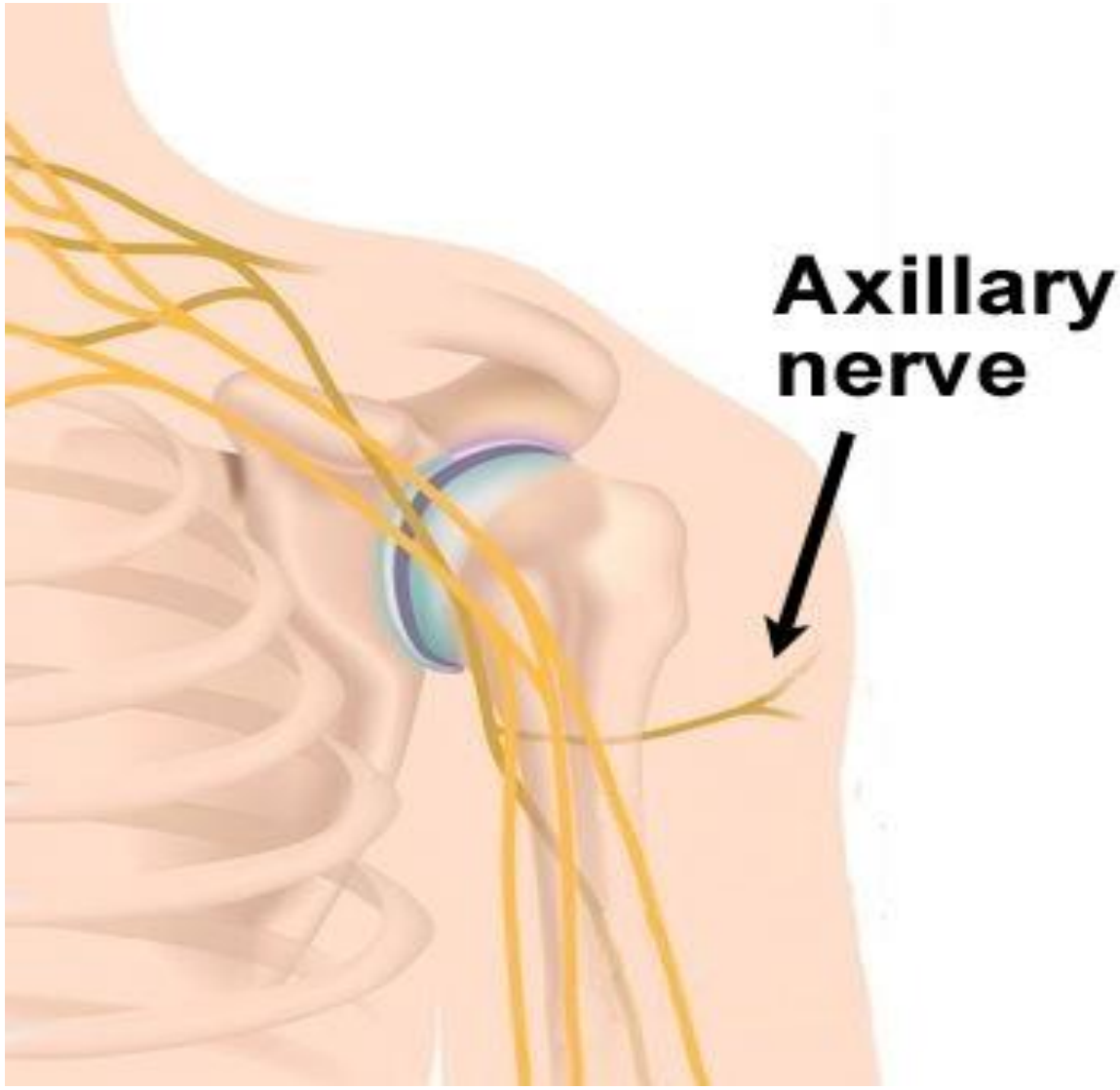
Four nerves pass through the arm? but only two of them innervate the arm.

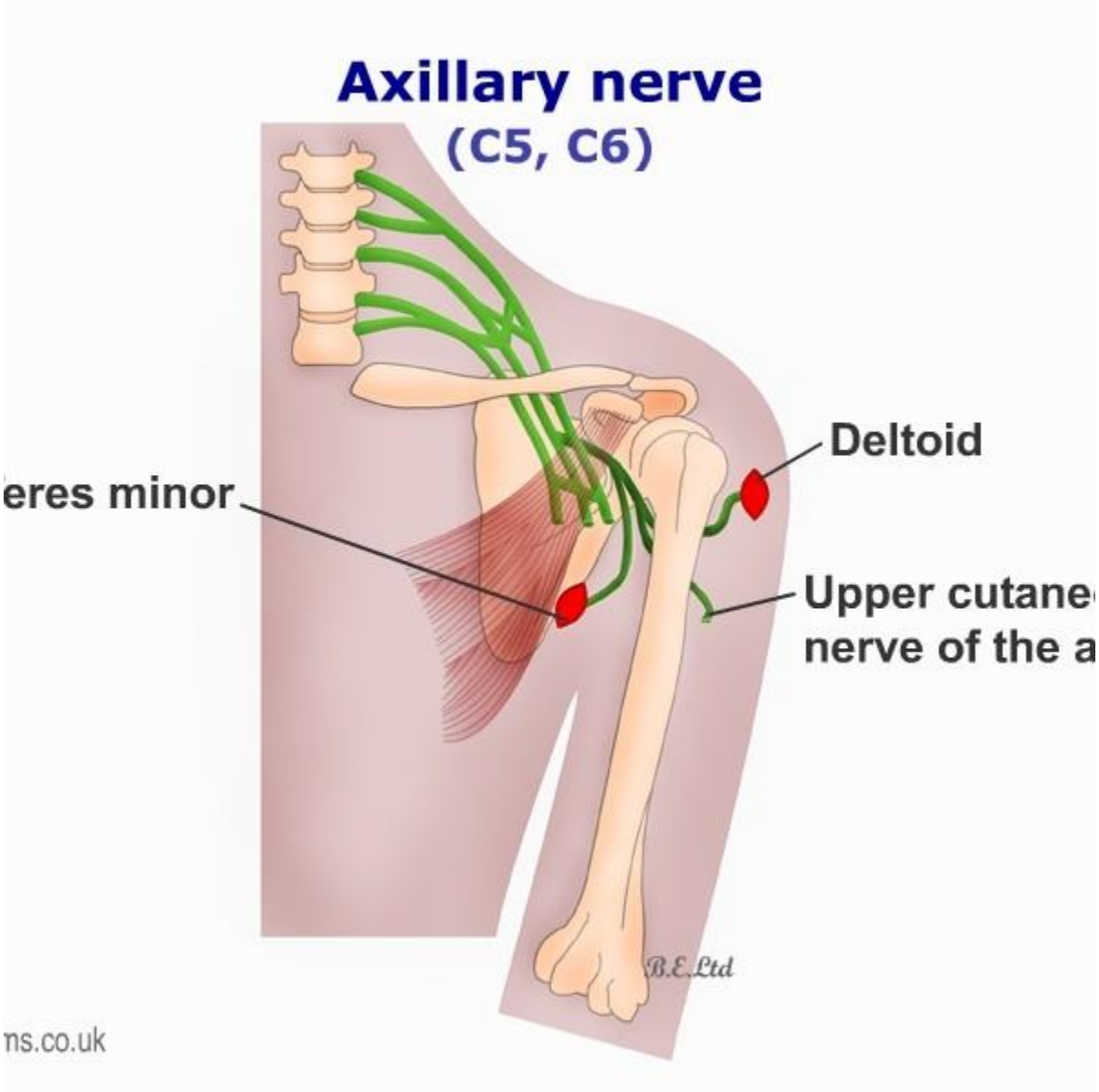
Axillary nerve

- **It is a terminal branch of the posterior cord of BP exits axilla posteriorly through quadrangular space with post. Circumflex humeral artery it give rise to one branch called sup. Lateral brachial cutaneous nerve and then winds arround surgical neck of humerous.**

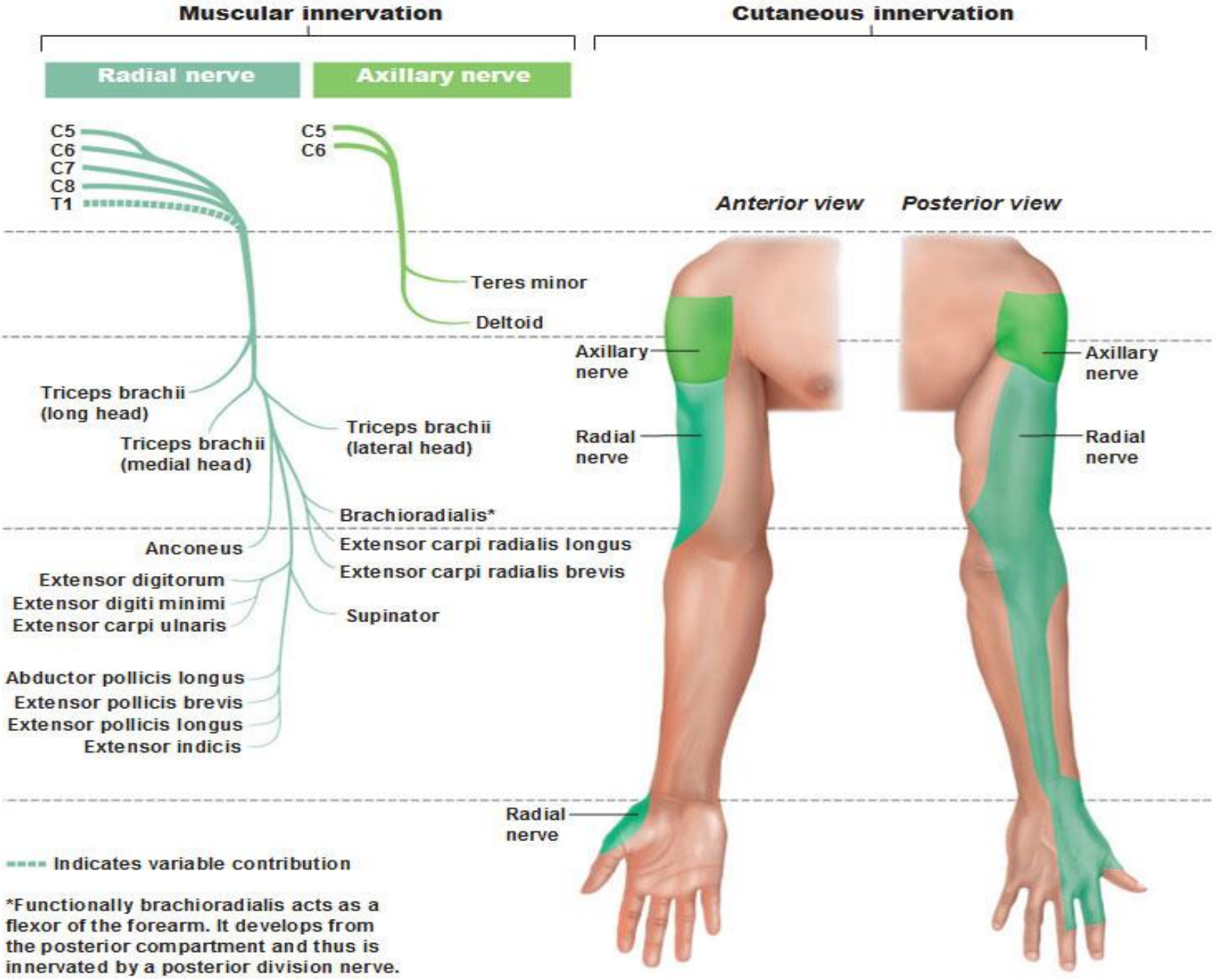


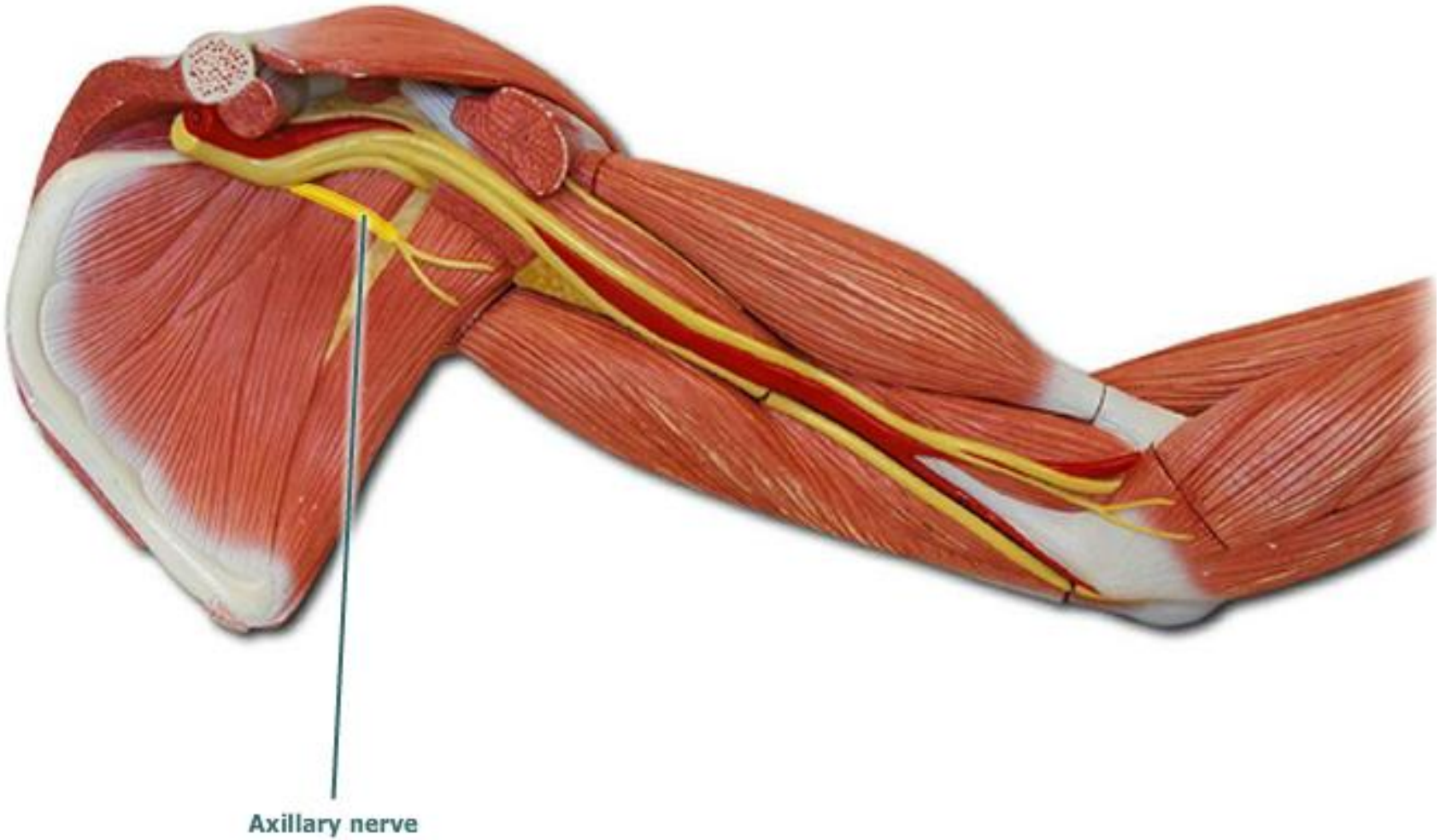
- So it is commonly injured in case of fractured surgical neck.

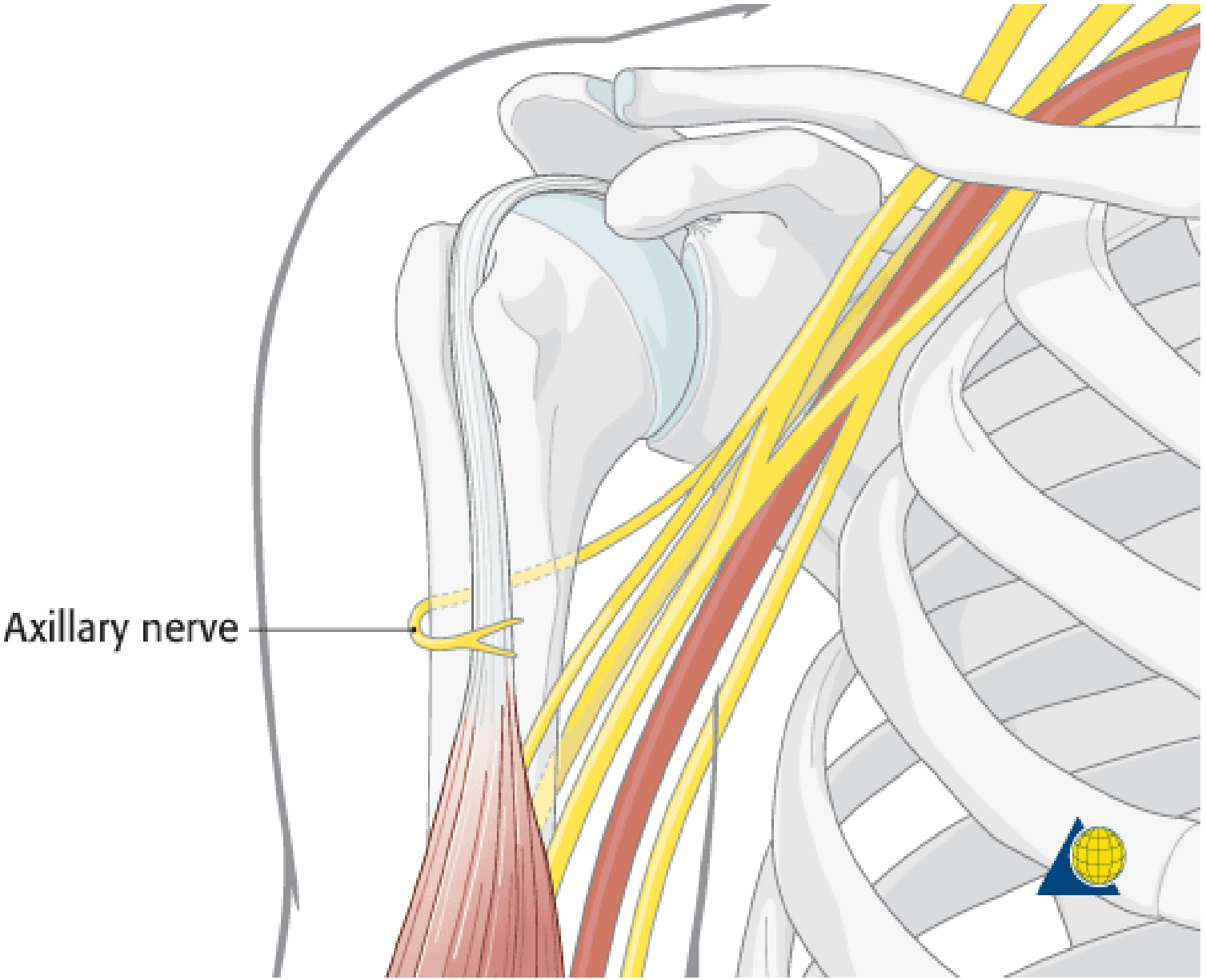

Axillary
nerve

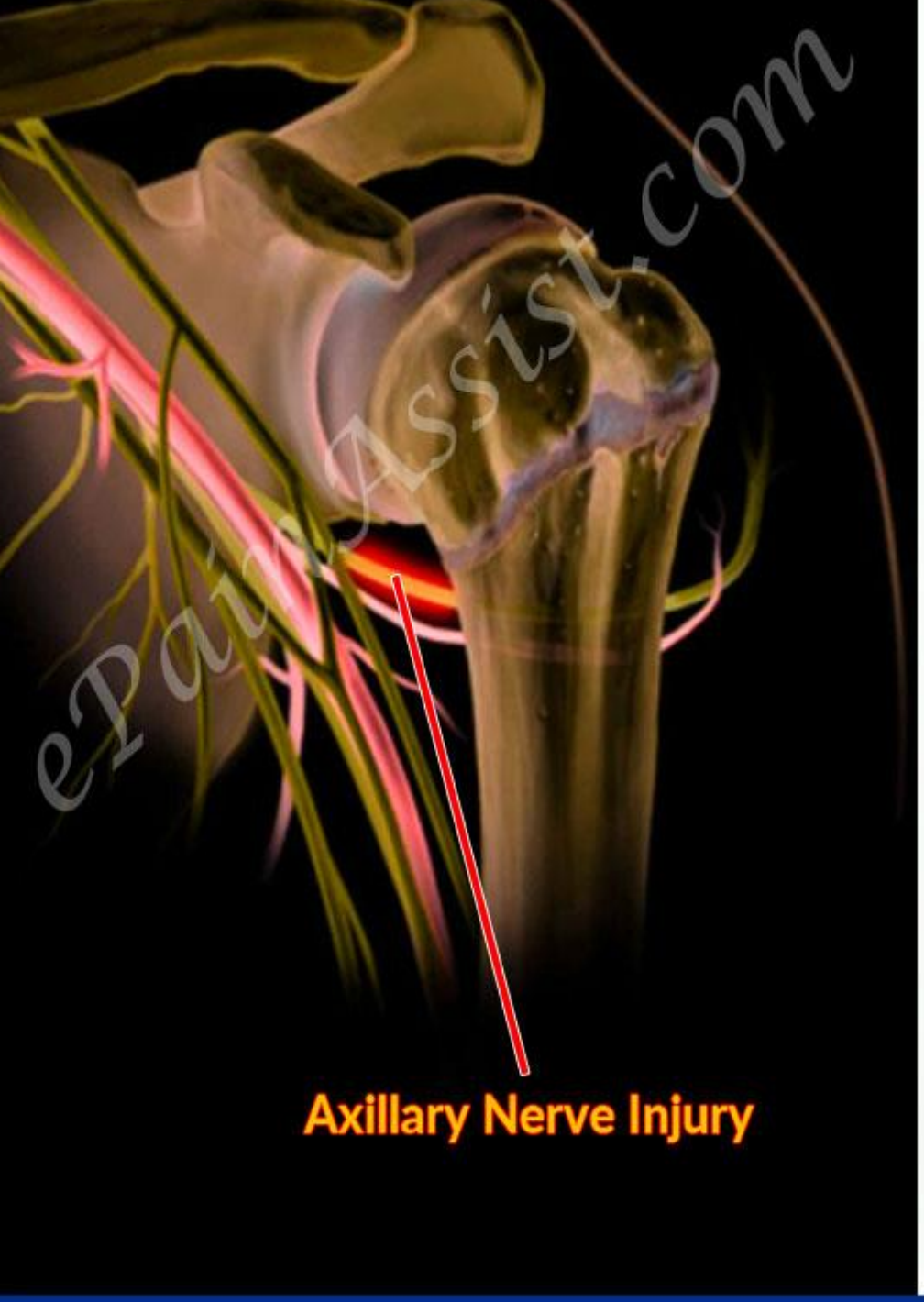

Axillary nerve
(C5, C6)
eres minor
Deltoid
Upper cutane
nerve of the a
B.E.Ltd
ns.co.uk

Radial and Axillary Nerves



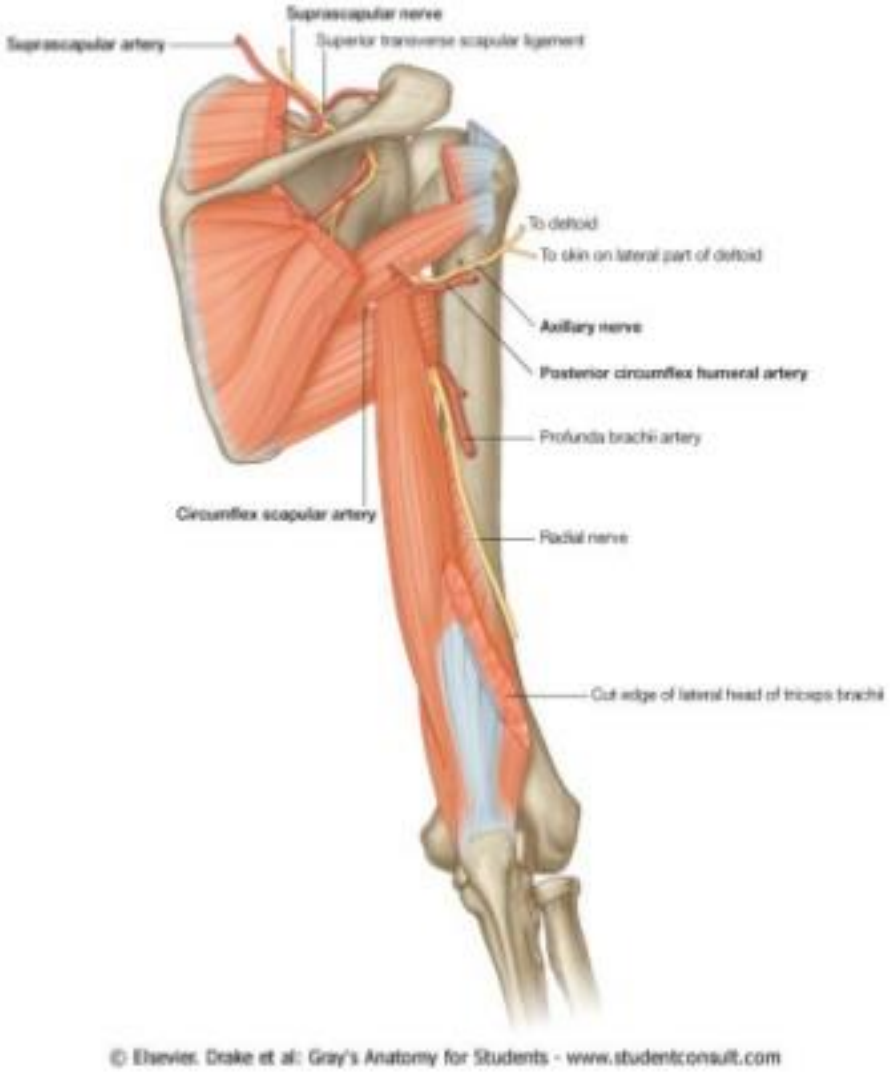

Axillary nerve

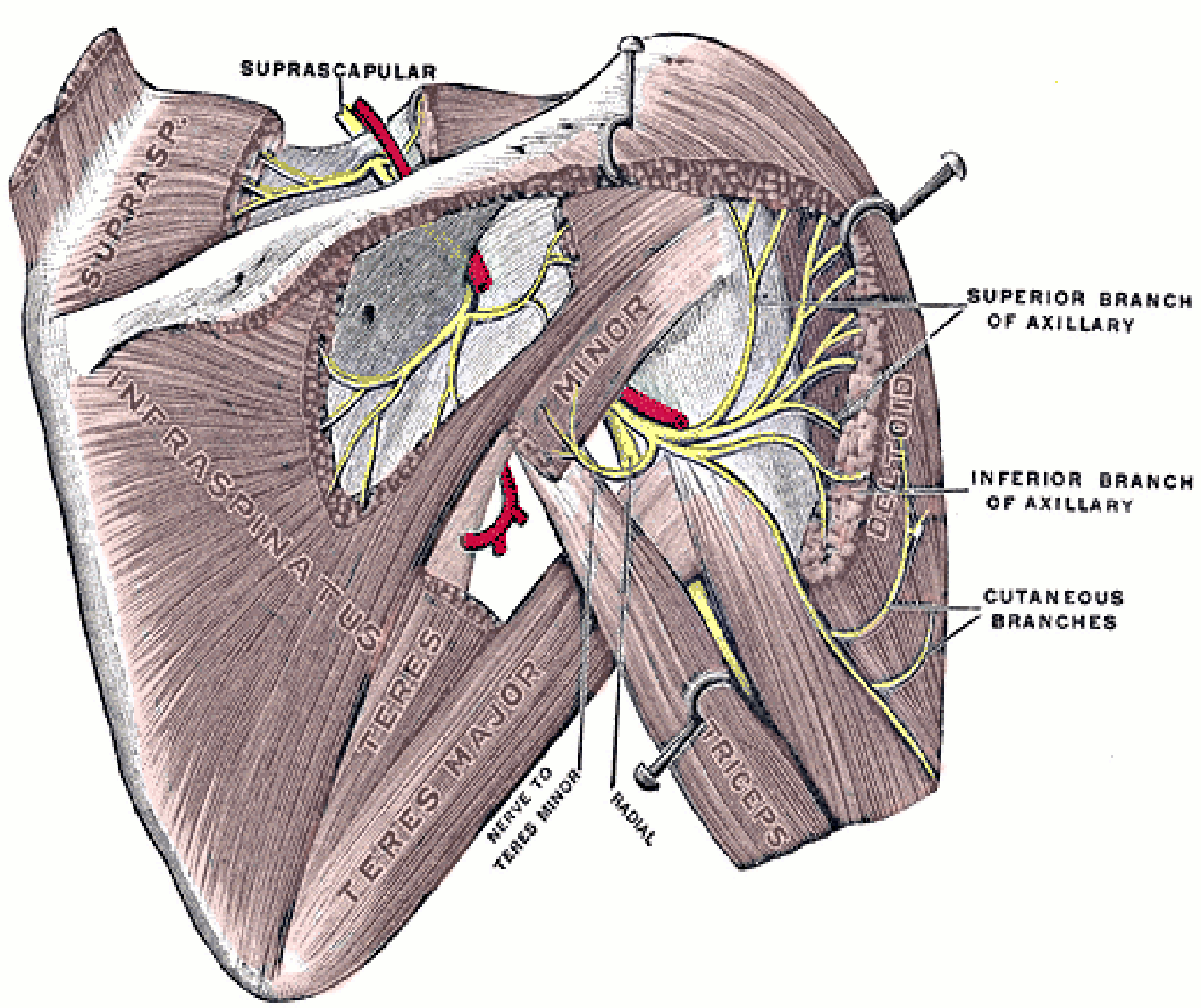

Axillary nerve


Axillary Nerve Injury

Axillary Nerve

- Arises from the **posterior cord of the brachial plexus** (C5 and 6) in the axilla
- Passes backward ,through **quadrangular space** with the posterior circumflex humeral artery
- In close association with **surgical neck of humerus** and capsule of shoulder joint
- It terminates by dividing into anterior and posterior branches

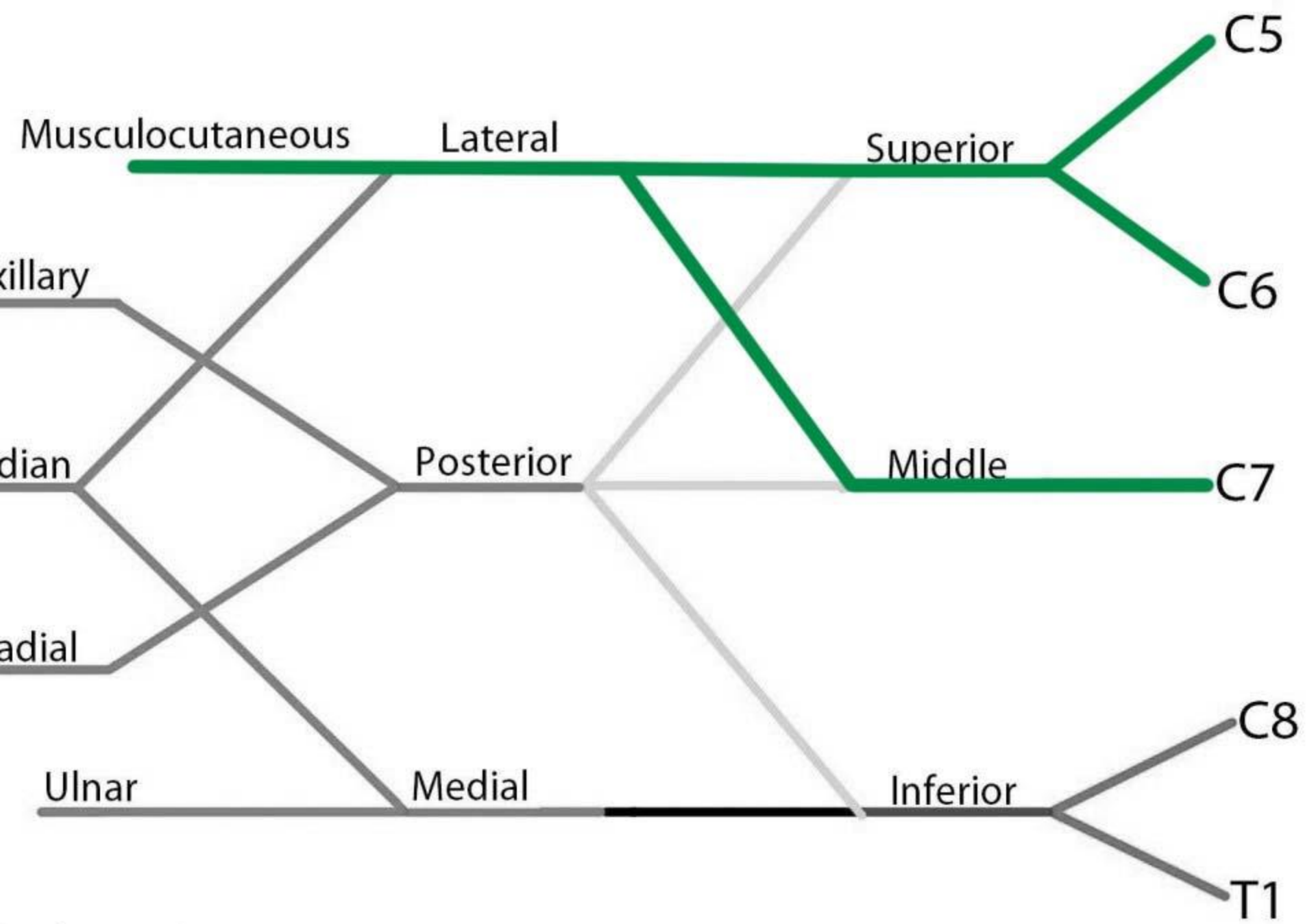



SUPRASCAPULAR
SUPRASP.
INFRASPINATUS
TERES MINOR
TERES MAJOR
NERVE TO TERES MINOR
RADIAL
TRICEPS
DELTOID
SUPERIOR BRANCH OF AXILLARY
INFERIOR BRANCH OF AXILLARY
CUTANEOUS BRANCHES

Musculocutaneous

Branch of the lateral cord

Pierces coracobrachialis msc. And continues distaly between biceps and brachialis ,it ends by giving lateral cutaneous nerve of the forearm lateral to biceps msc.



Branches of musculocutaneous n.

The Musculocutaneous Nerve

- Muscles innervated
  - BBC = Biceps, Brachialis, Coracobrachialis
- Motor functions
  - Flexion of the arm at the elbow, supination of the forearm
- Sensory
  - Lateral surface of forearm through lateral antebrachial cutaneous nerve

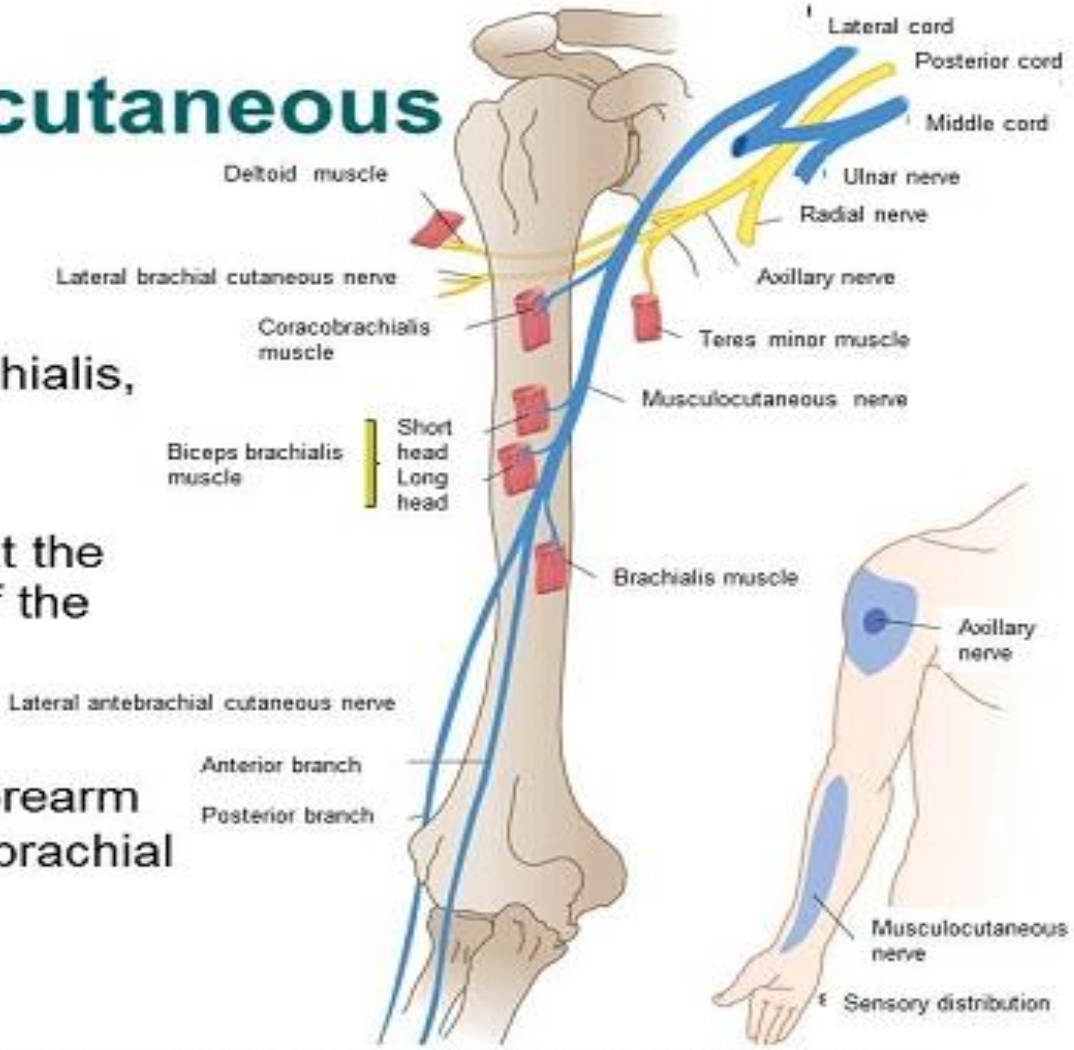
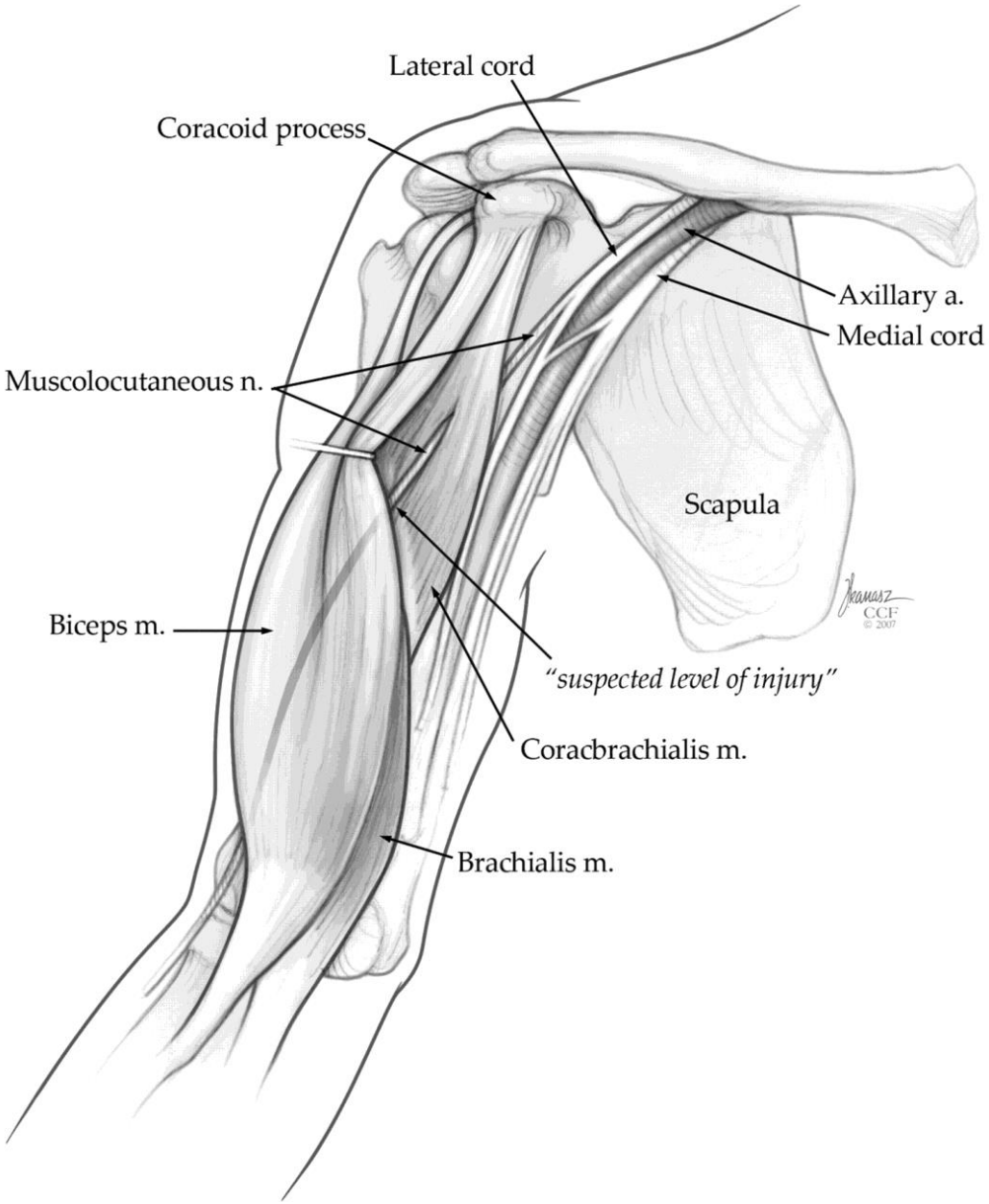
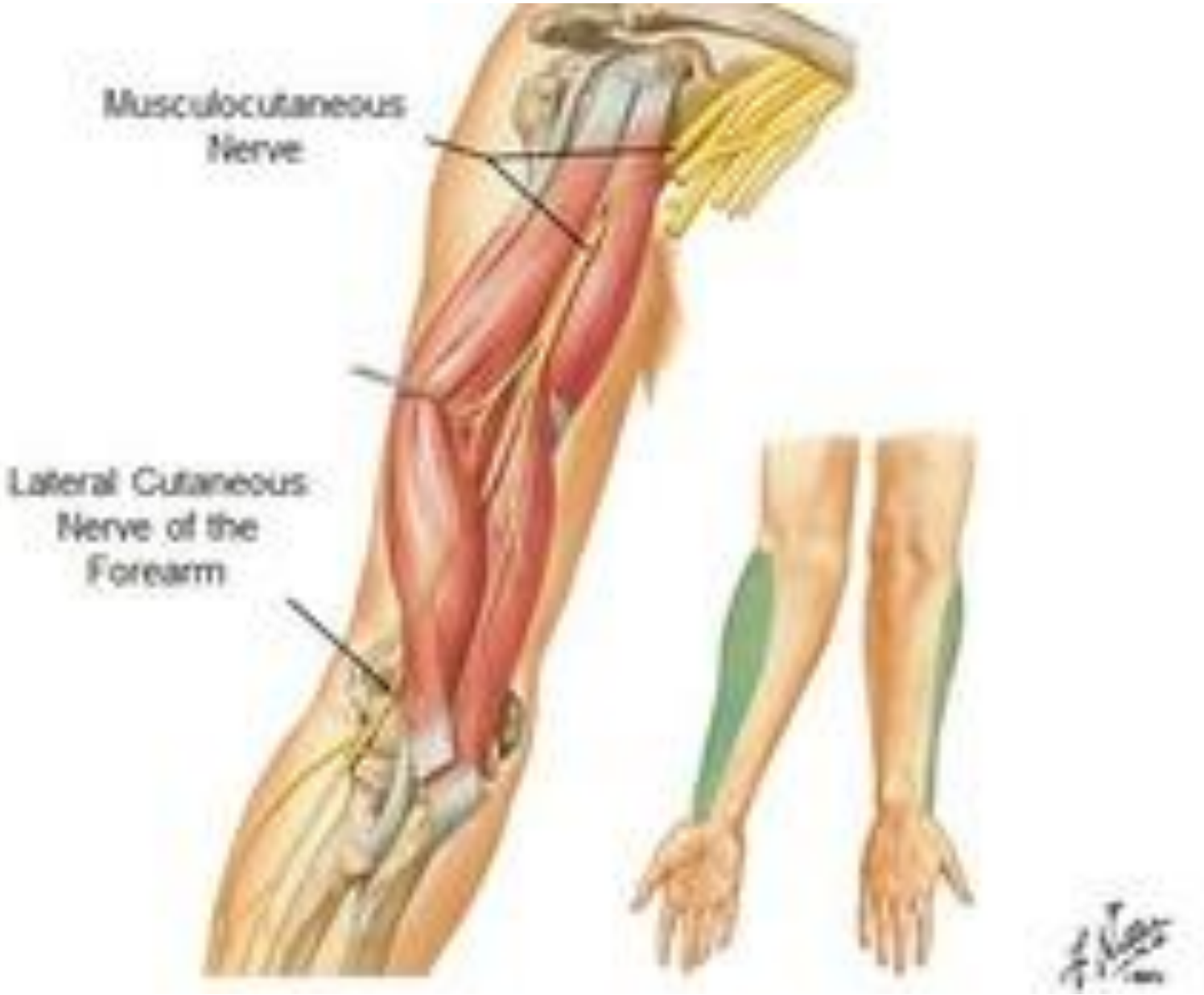
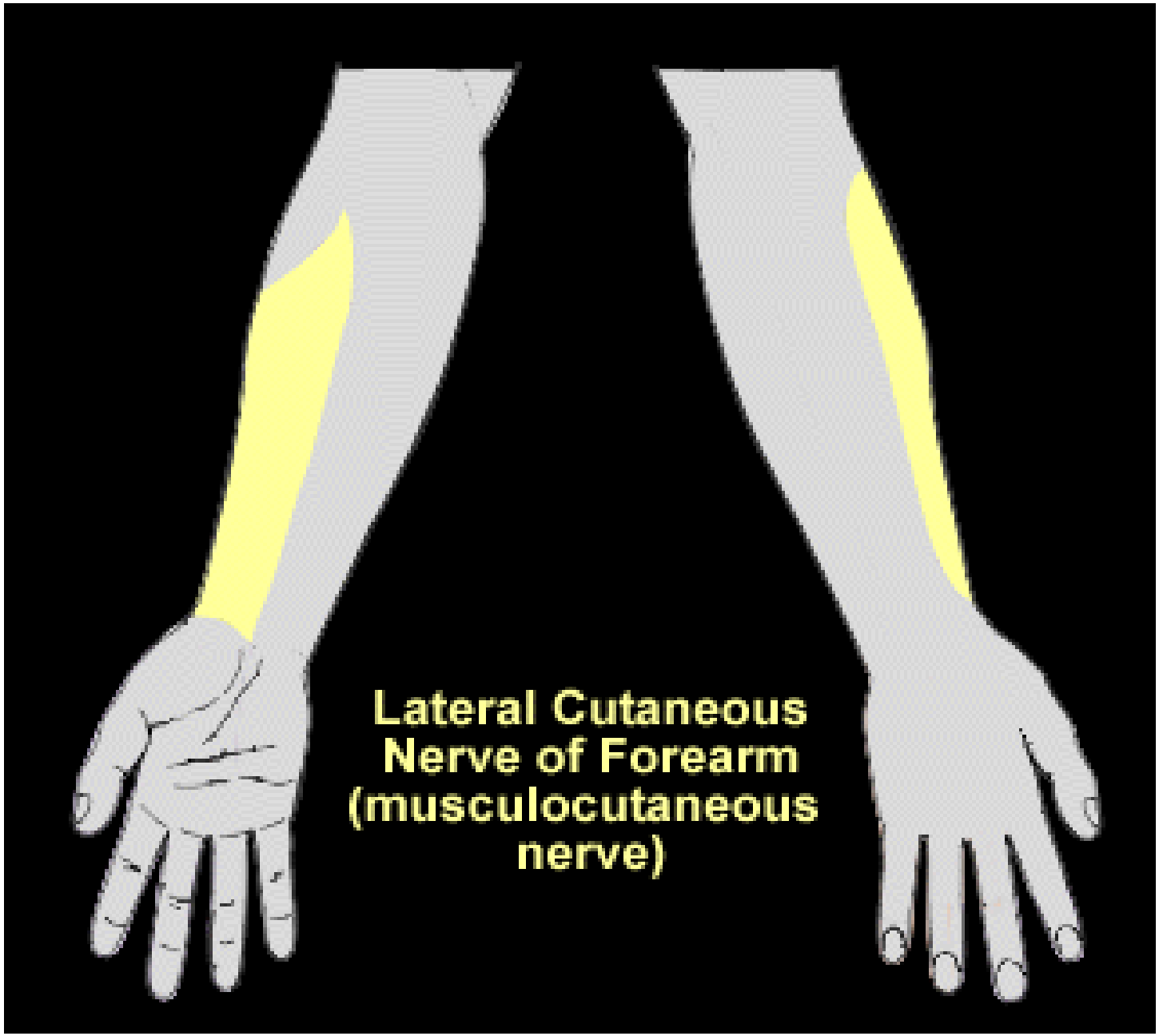


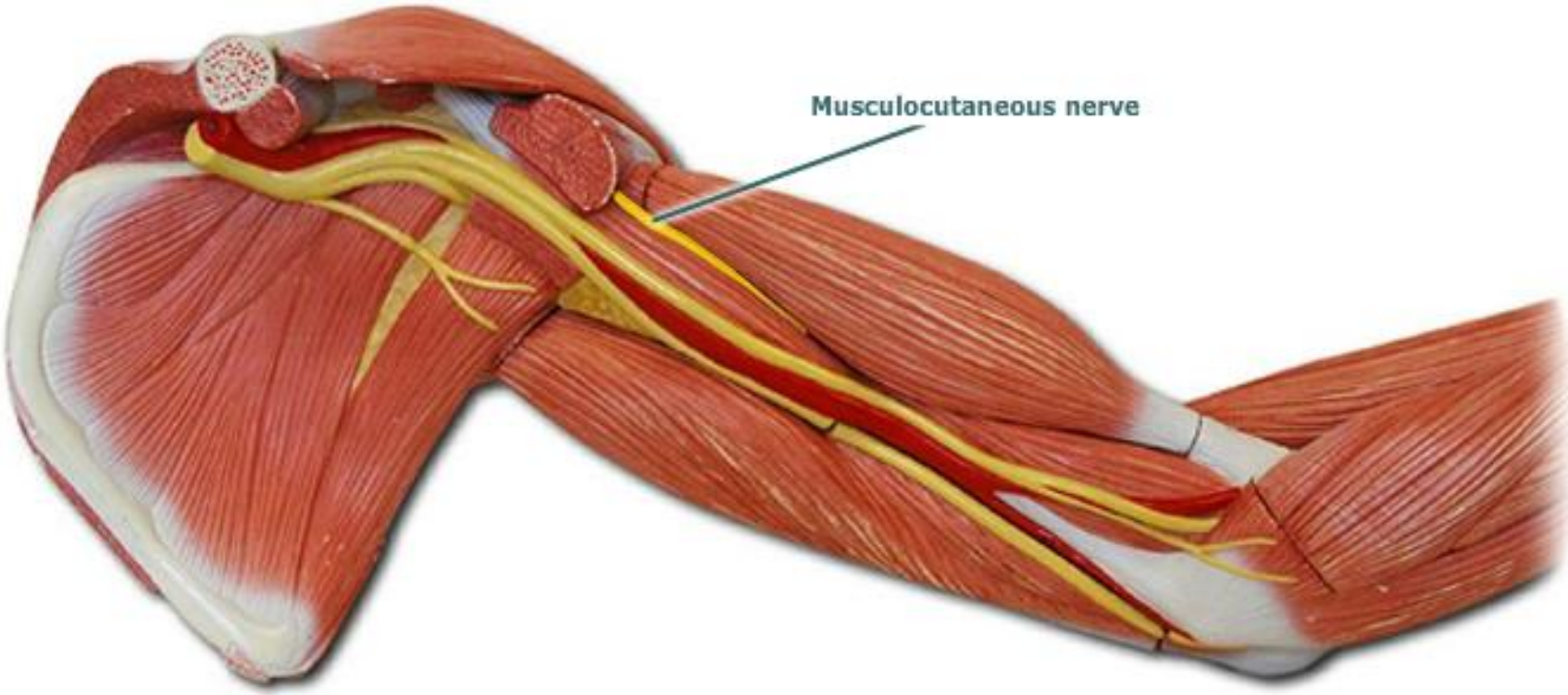
Figure 28-6 . Musculocutaneous (C5, 6) and axillary (C5, 6) nerves.. In: Waxman SG. Clinical Neuroanatomy, 26th ed. http://www.accessphysiotherapy.com. Accessed May 10, 2011.

Musculocutaneous n.




Musculocutaneous Nerve
Lateral Cutaneous Nerve of the Forearm

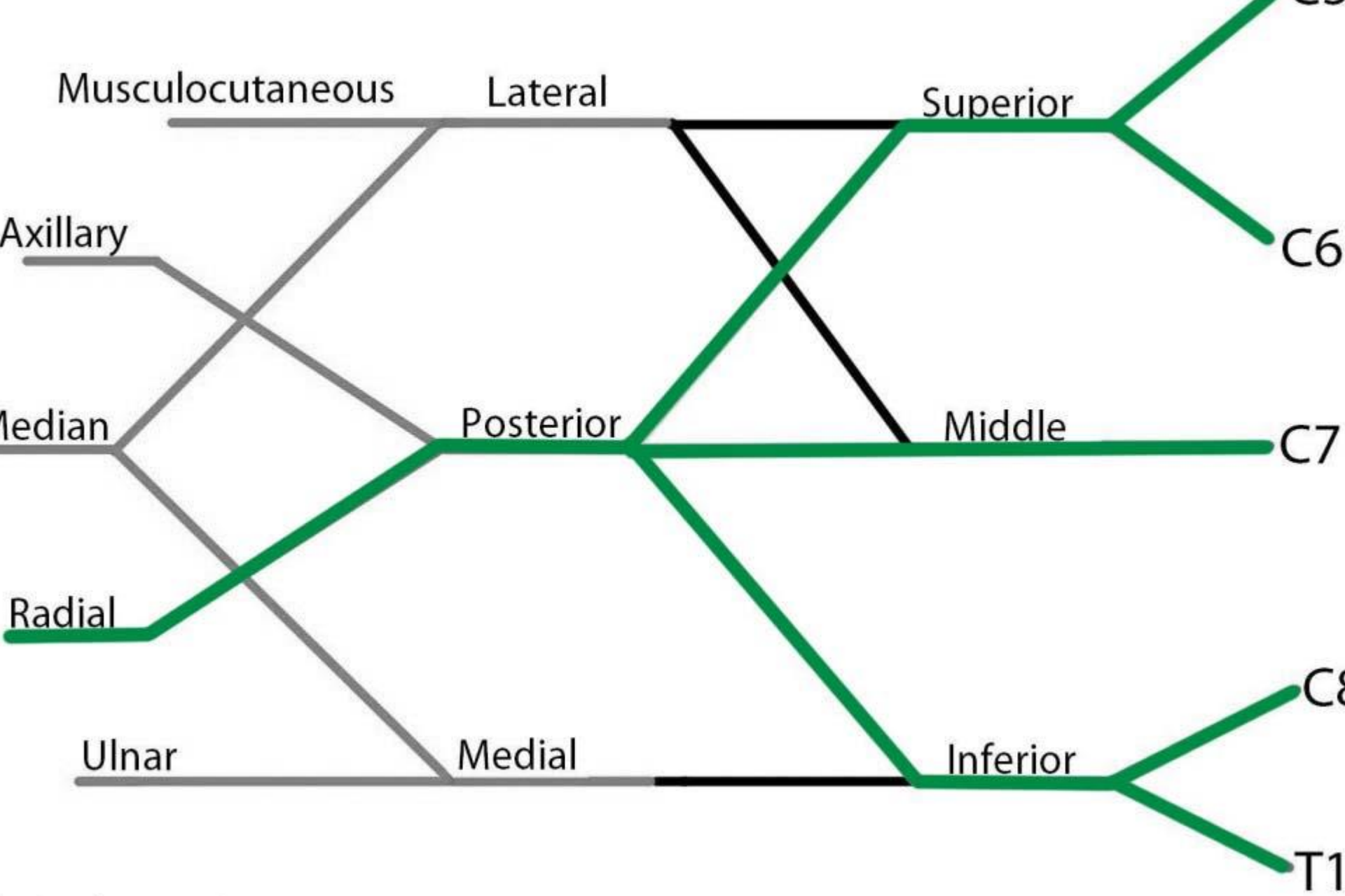

Lateral Cutaneous
Nerve of Forearm
(musculocutaneous
nerve)

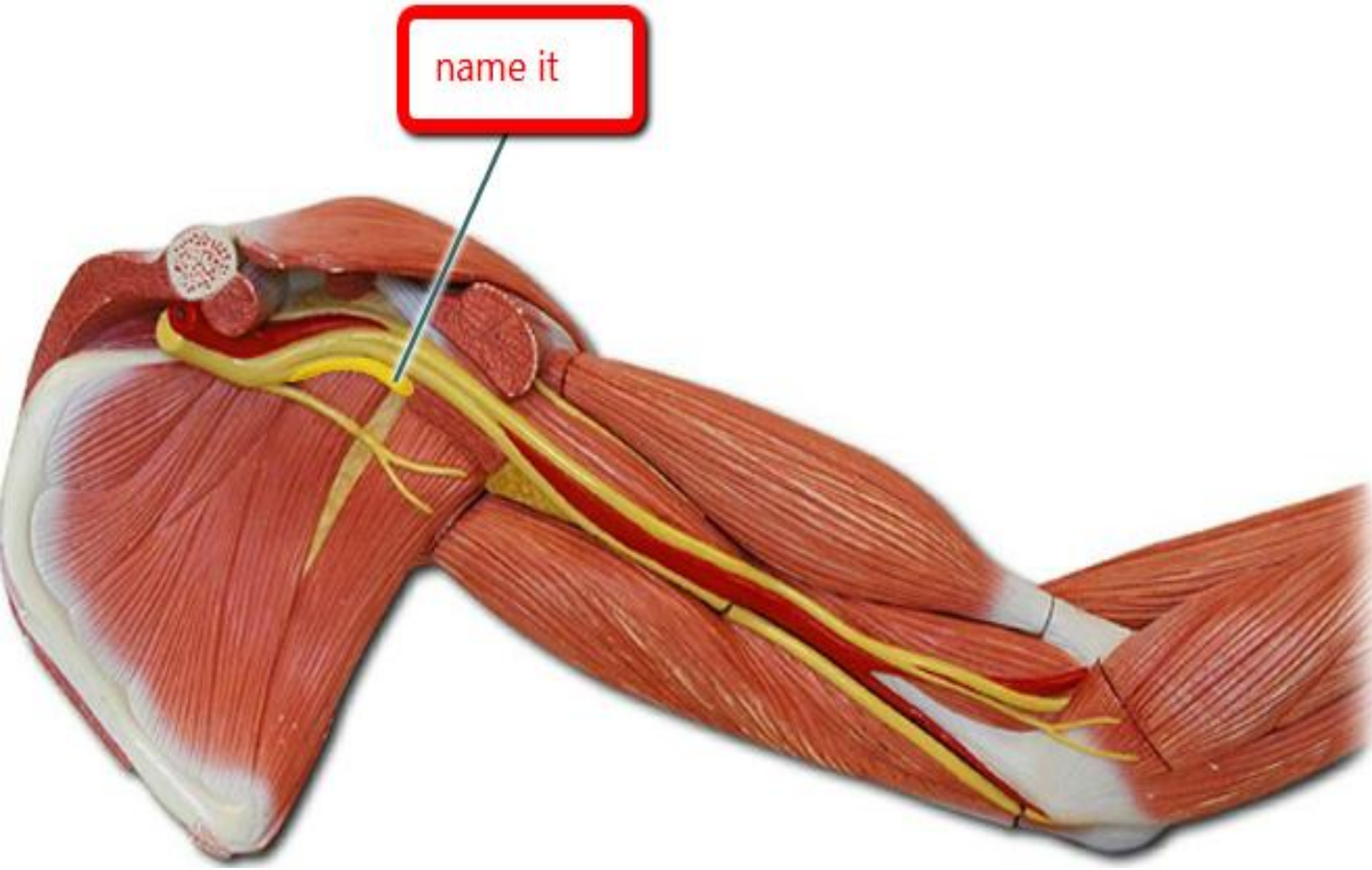

Musculocutaneous nerve

Radial nerve

Passes obliquely across back of humerus to innervate triceps msc.

At the level of lateral epicondyle it devided into superficial and deep branches.




name it

Branches of radial n.

- Branches in the axilla:
- Muscular branches.
- Posterior cutaneous n. of arm.

- Branches in the spiral groove:
- Muscular branches.
- Lower lateral cutaneous n. of arm.
- Posterior cutaneous n. of forearm.

- Branches in the anterior compartment of arm:
- Muscular branches.
- Articular branches.

Path of radial nerve

Nerves of the forearm

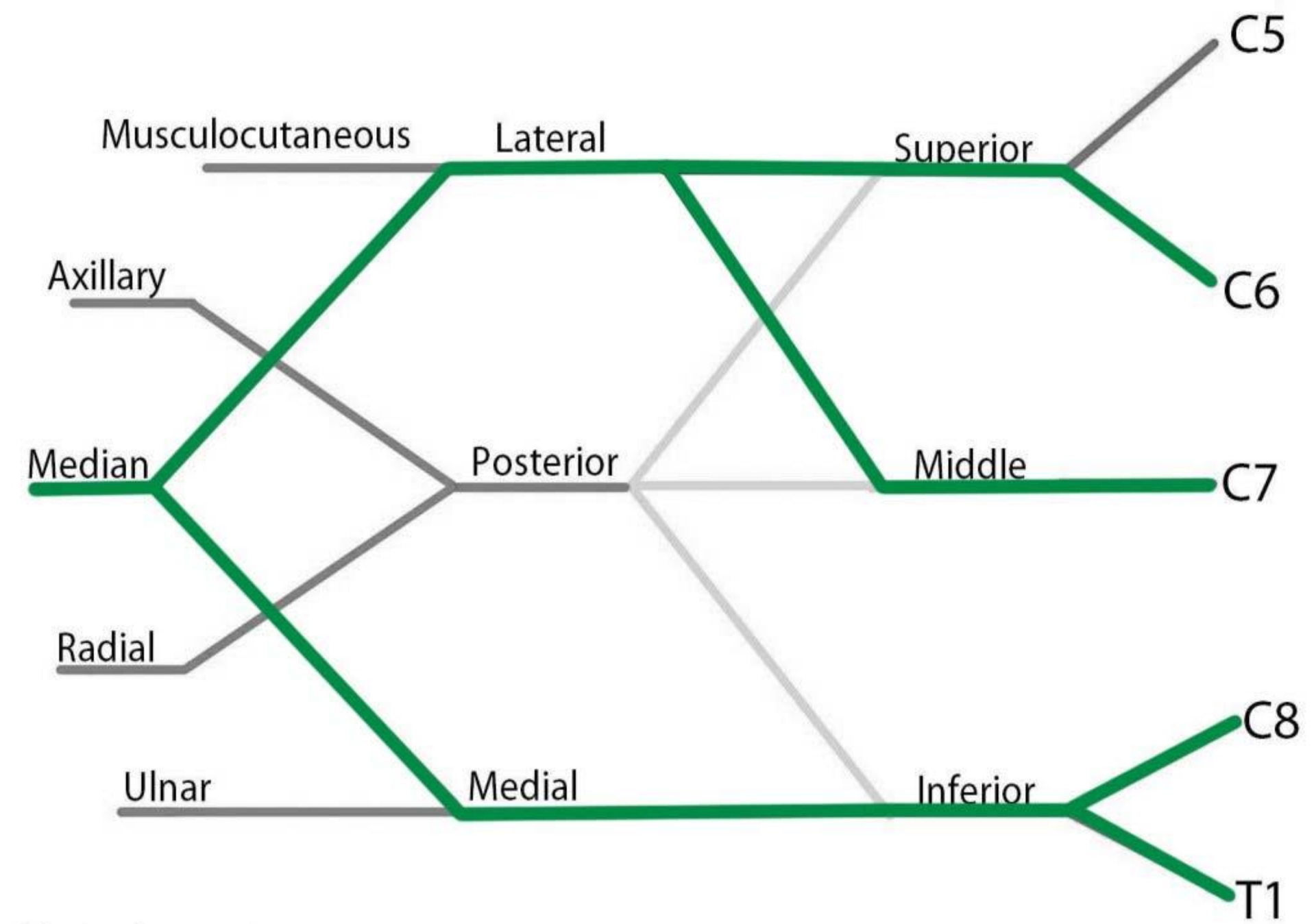
Three nerves ⇨ median which is the main nerve,ulnar and radial nerves.

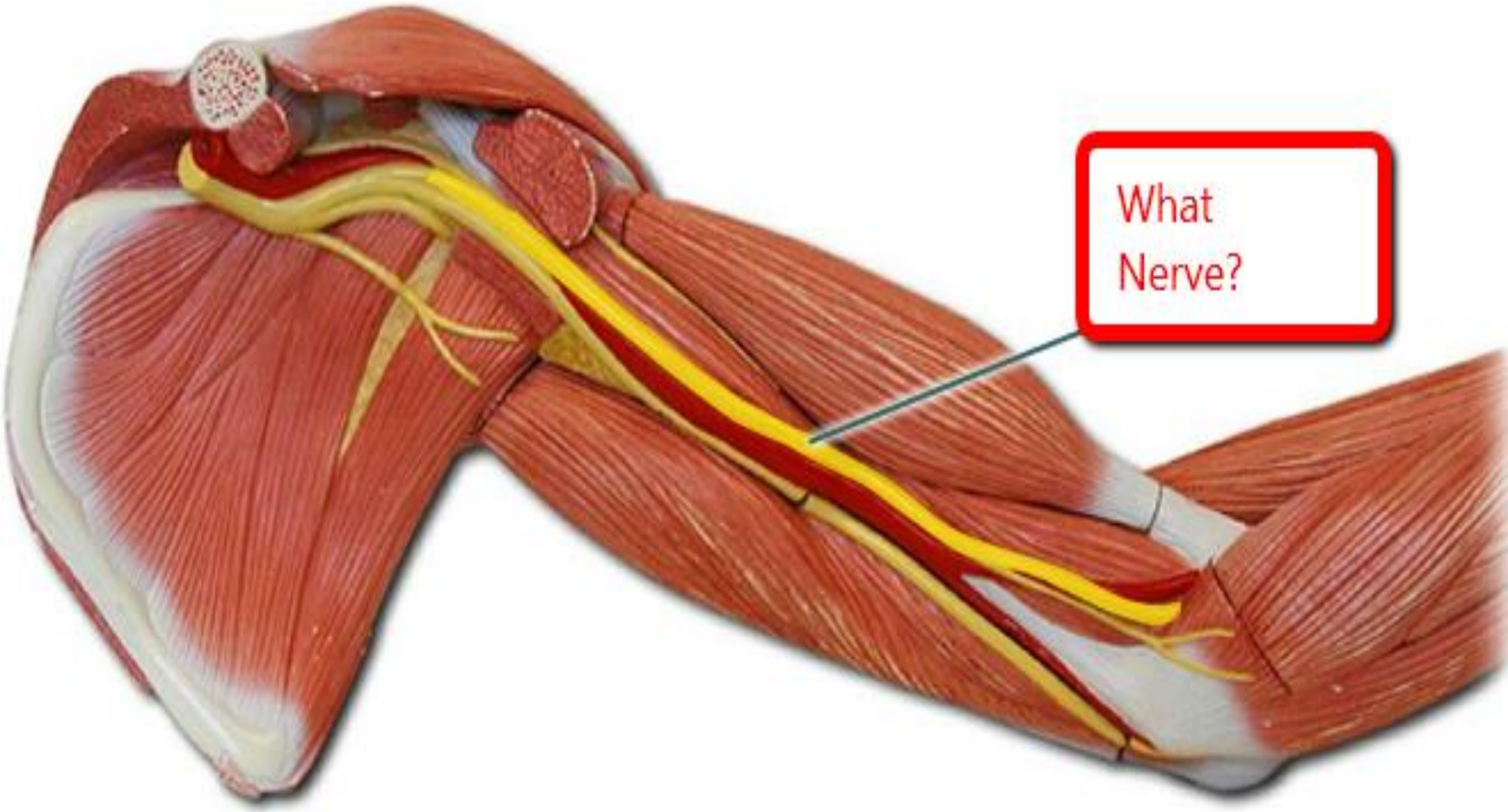
The radial n.appears in the cubital region but it soon enters the posterior compartment to supply the extensor msc.s .

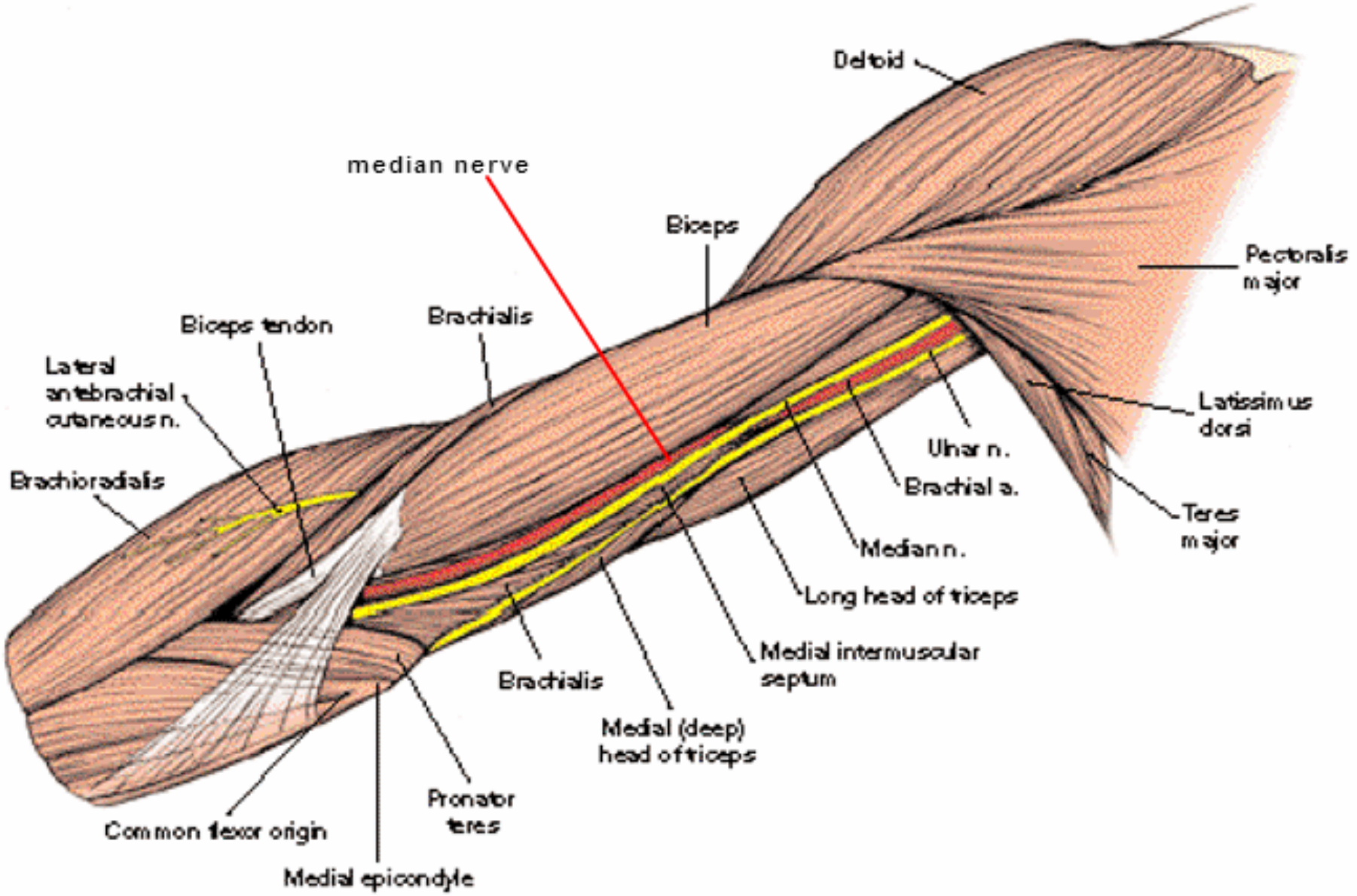
So anterior aspect of the forearm only two nerves (median and ulnar).

Median n.

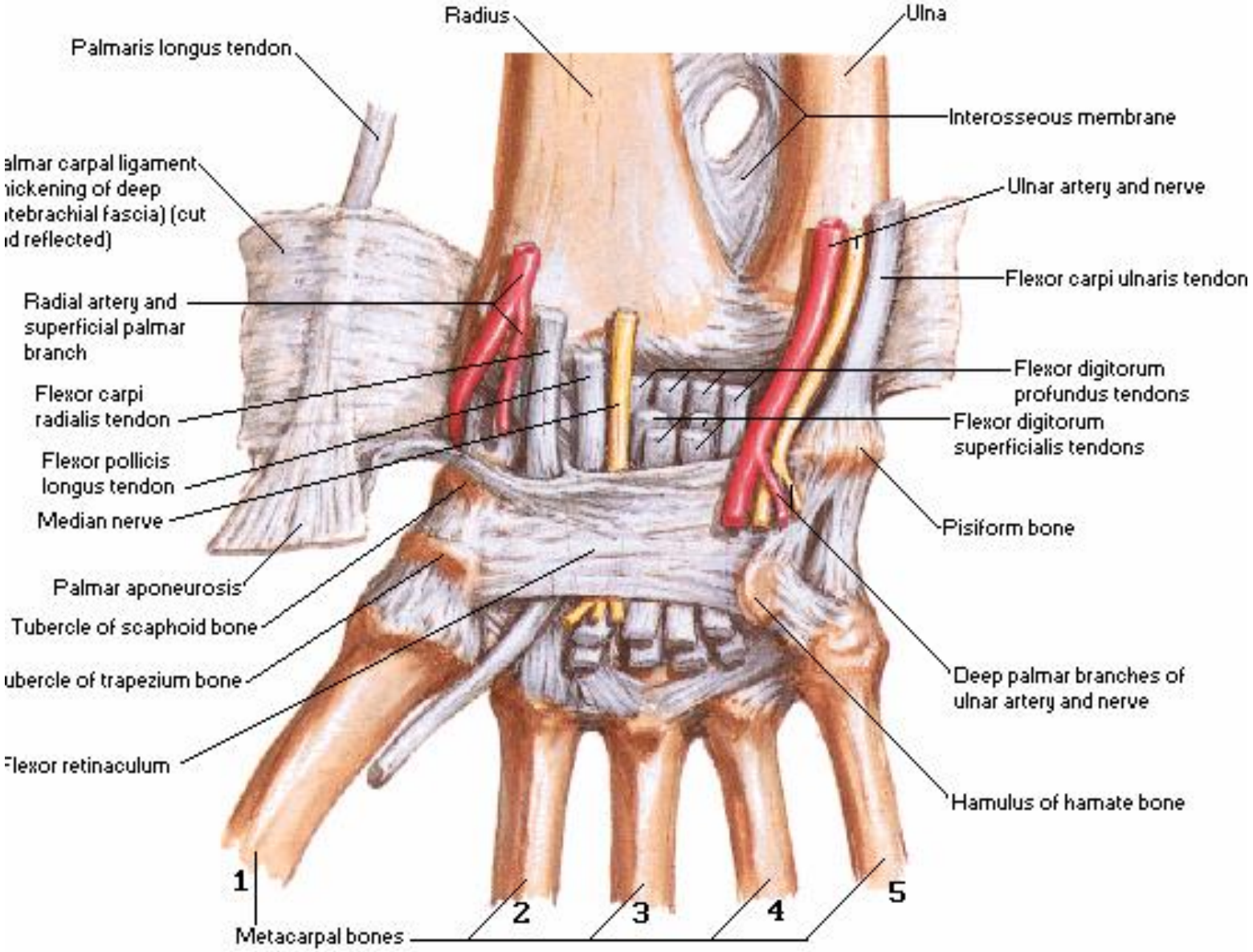
Enters cubital fossa medial to the brachial artery and pass between heads of pronator teres deep to palmaris longus tendon msc.and pass to the hand deep to the flexor retinaculum together with nine tendons through carpal tunnel.




What
Nerve?


Deltoid
median nerve
Biceps
Pectoralis major
Biceps tendon
Brachialis
Lateral antebrachial cutaneous n.
Latissimus dorsi
Ulnar n.
Brachioradialis
Brachial a.
Teres major
Median n.
Long head of triceps
Medial intermuscular septum
Brachialis
Medial (deep) head of triceps
Pronator teres
Common flexor origin
Medial epicondyle

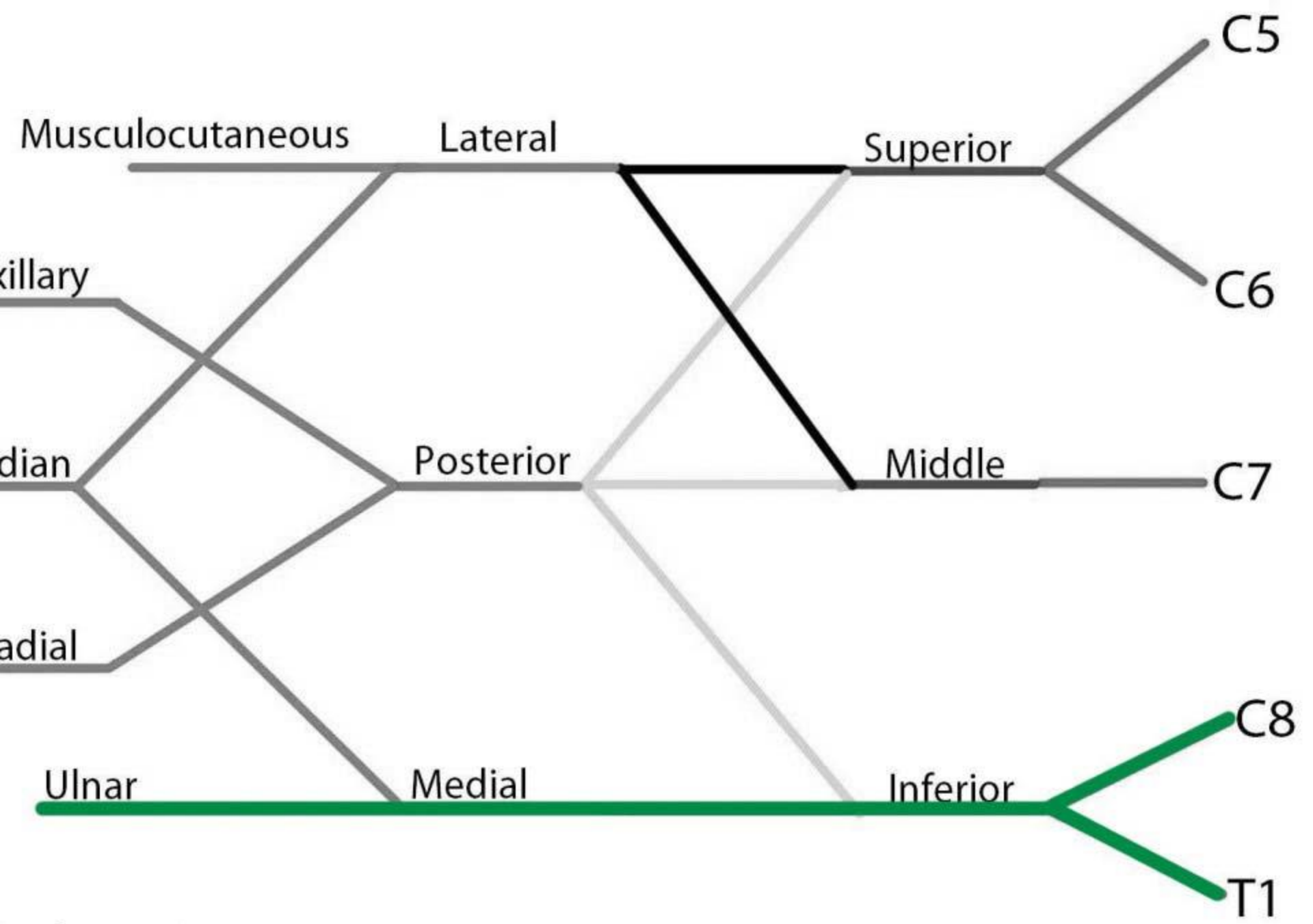
Carpal Tunnel - Palmar View

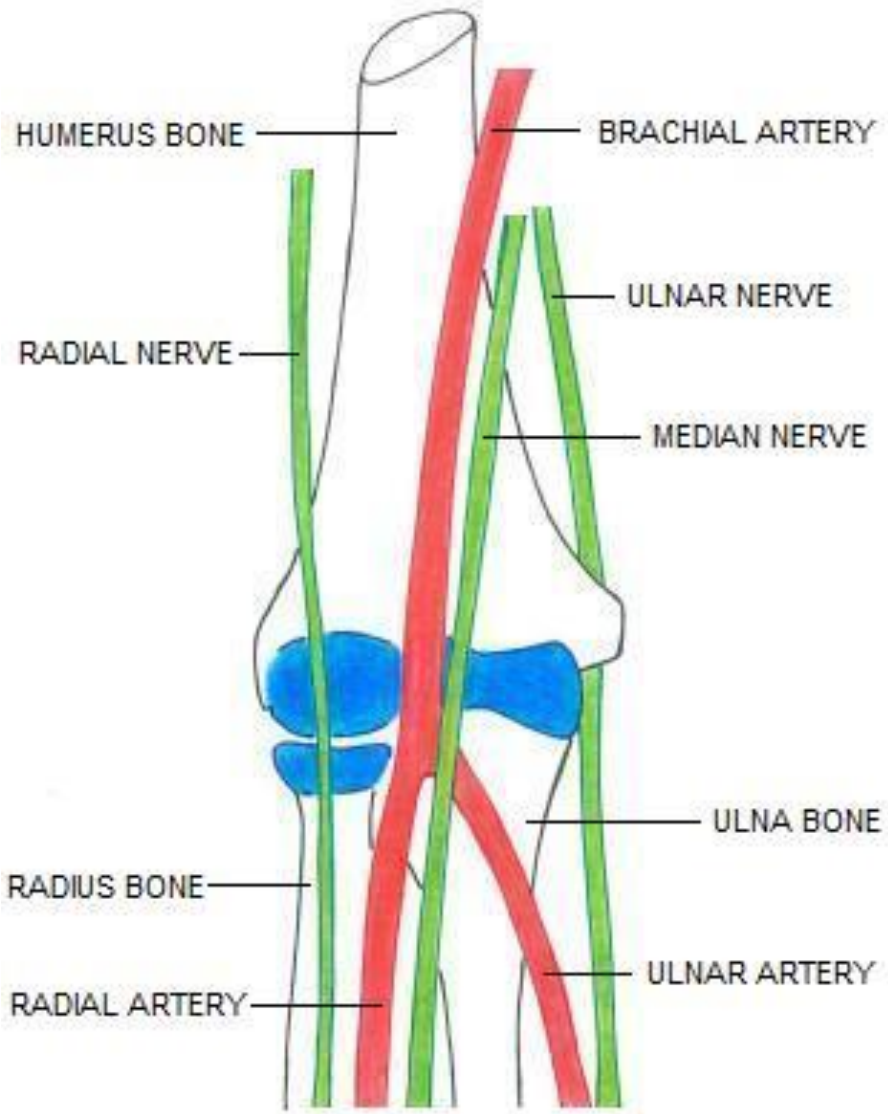



Median nerve is compressed at the wrist, resulting in numbness or pain
A.D.A.M.

Ulnar nerve

From behind the medial epicondyle of humerus it enters the forearm between heads of FCU and FDP muscles and superficial to the wrist pass superficial to flexor retinaculum and enters the hand between pisiform and hook of hamate.





NERVES & ARTERIES AROUND ELBOW JOINT


Humerus
Ulnar nerve
Radius
Olecranon bursa
Ulna
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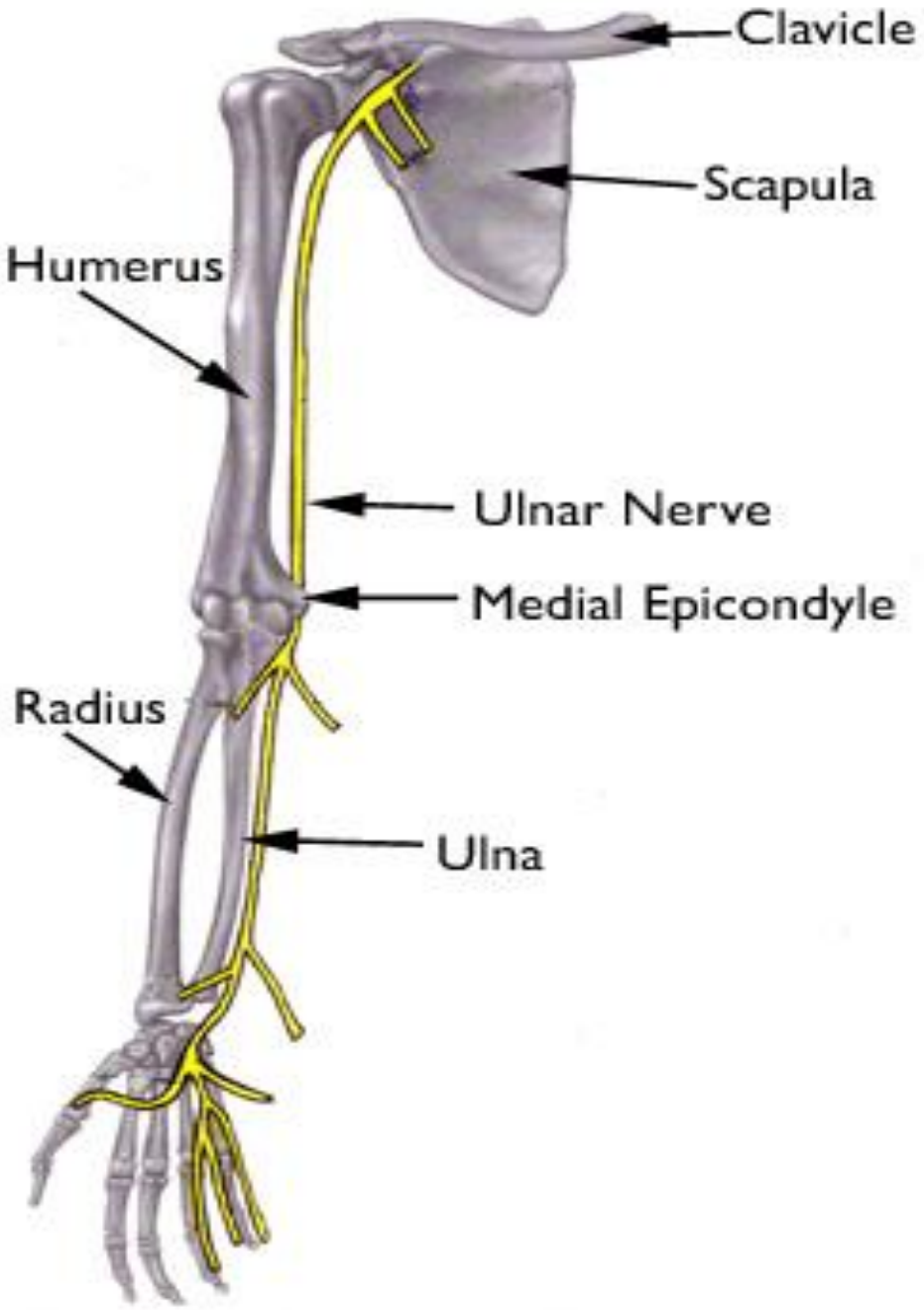
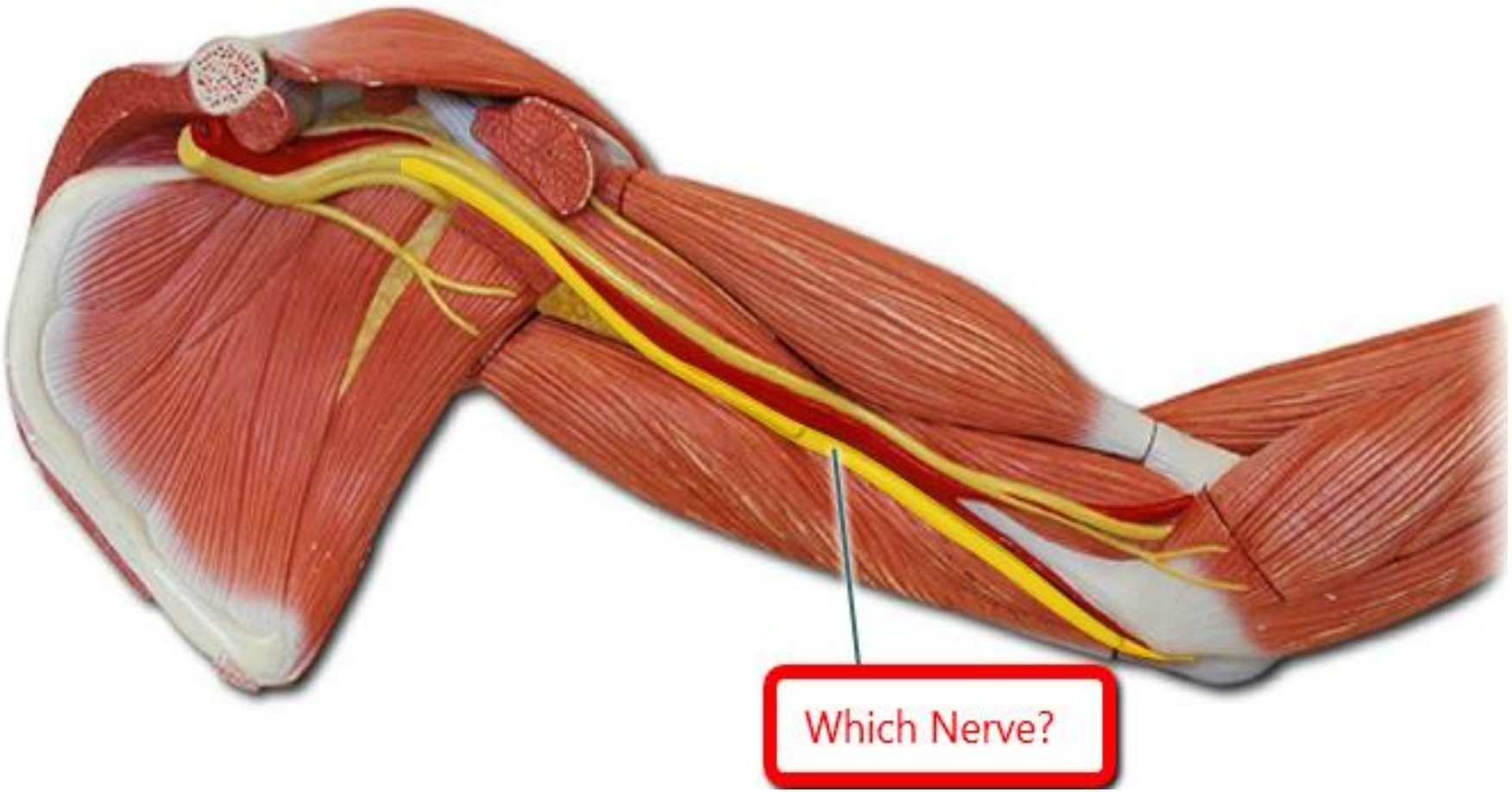

Clavicle
Scapula
Humerus
Ulnar Nerve
Medial Epicondyle
Radius
Ulna


Which Nerve?

Cutaneous innervation of the forearm

1* Lateral cut.n. of the forearm from

Musculocutaneous n.

2* Medial cut.n. of the forearm from

The medial cord of brachial plexus

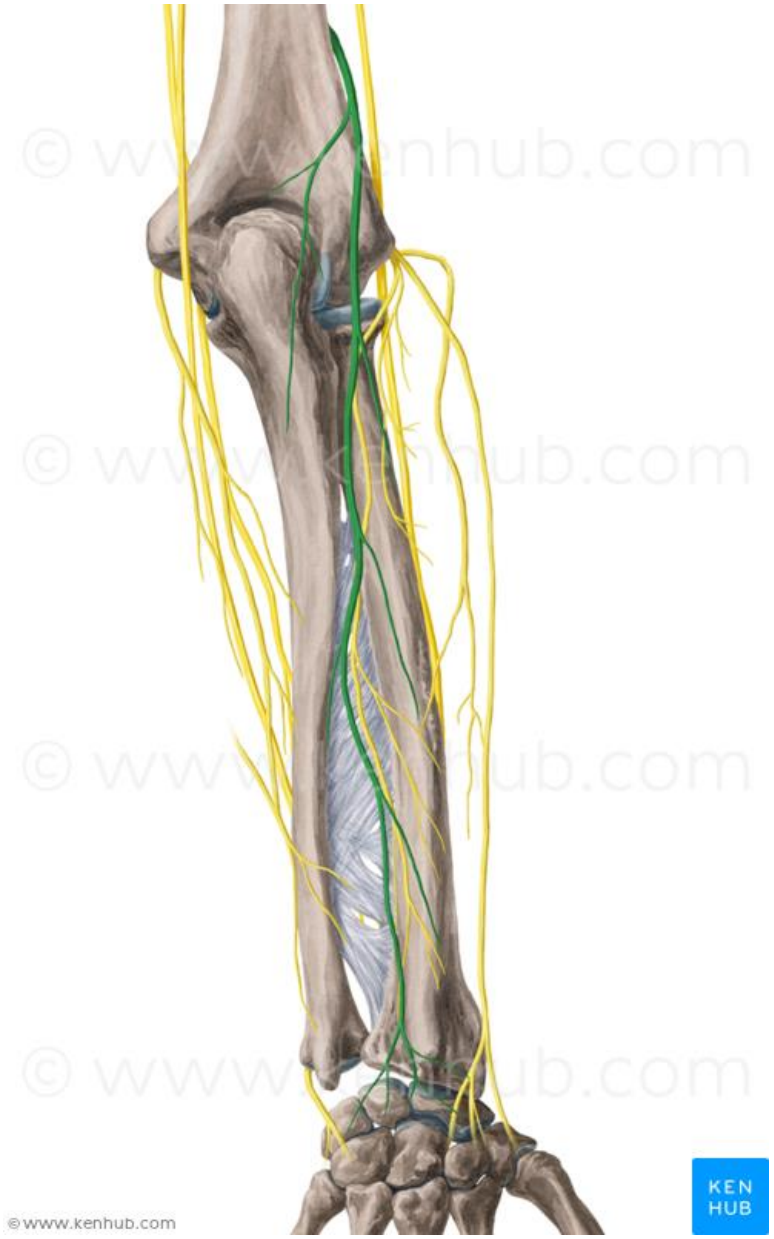
(independent)

3*Posterior cut.n. of the forearm from

From the radial nerve .

(memory device++like BP)

Posterior cutaneous n. of the forearm.



Cutaneous innervation of the arm

1*Posterior cut.n. of the arm :

Branch of radial nerve .

2*Superior lateral cut.n. of the arm:

Branch of axillary nerve.

3*Inferior lateral cut.n.of the arm:

Branch of radial nerve.

4*Medial cut.n.of the arm:

Branch of medial cord of BP.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