Nerves of the Upper Extremity: The Brachial Plexus, Part 2 of 3

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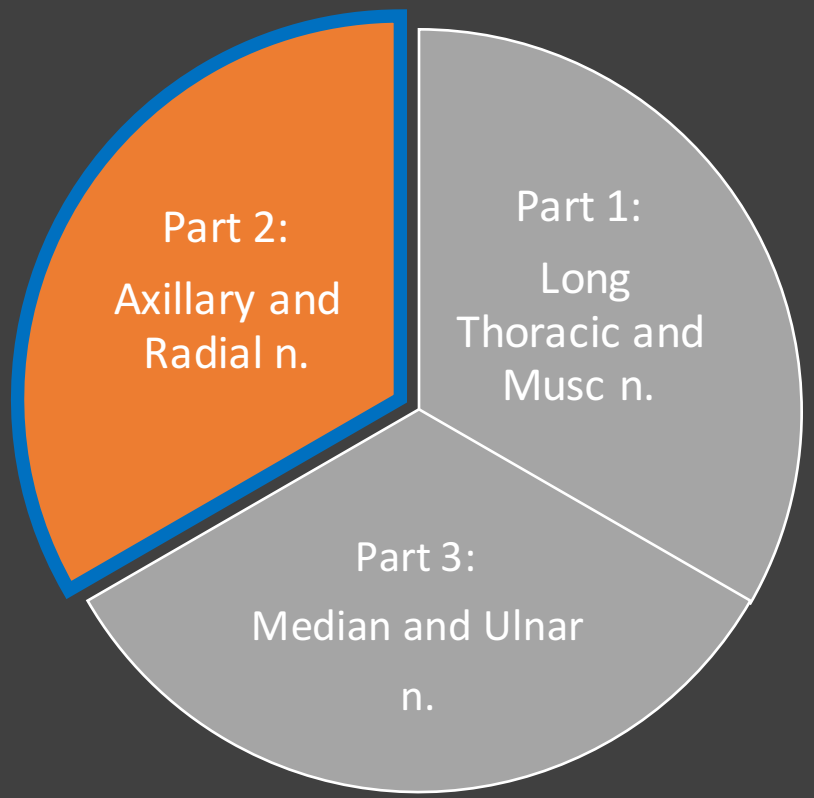
University of Massachusetts Medical School, Class of 2019

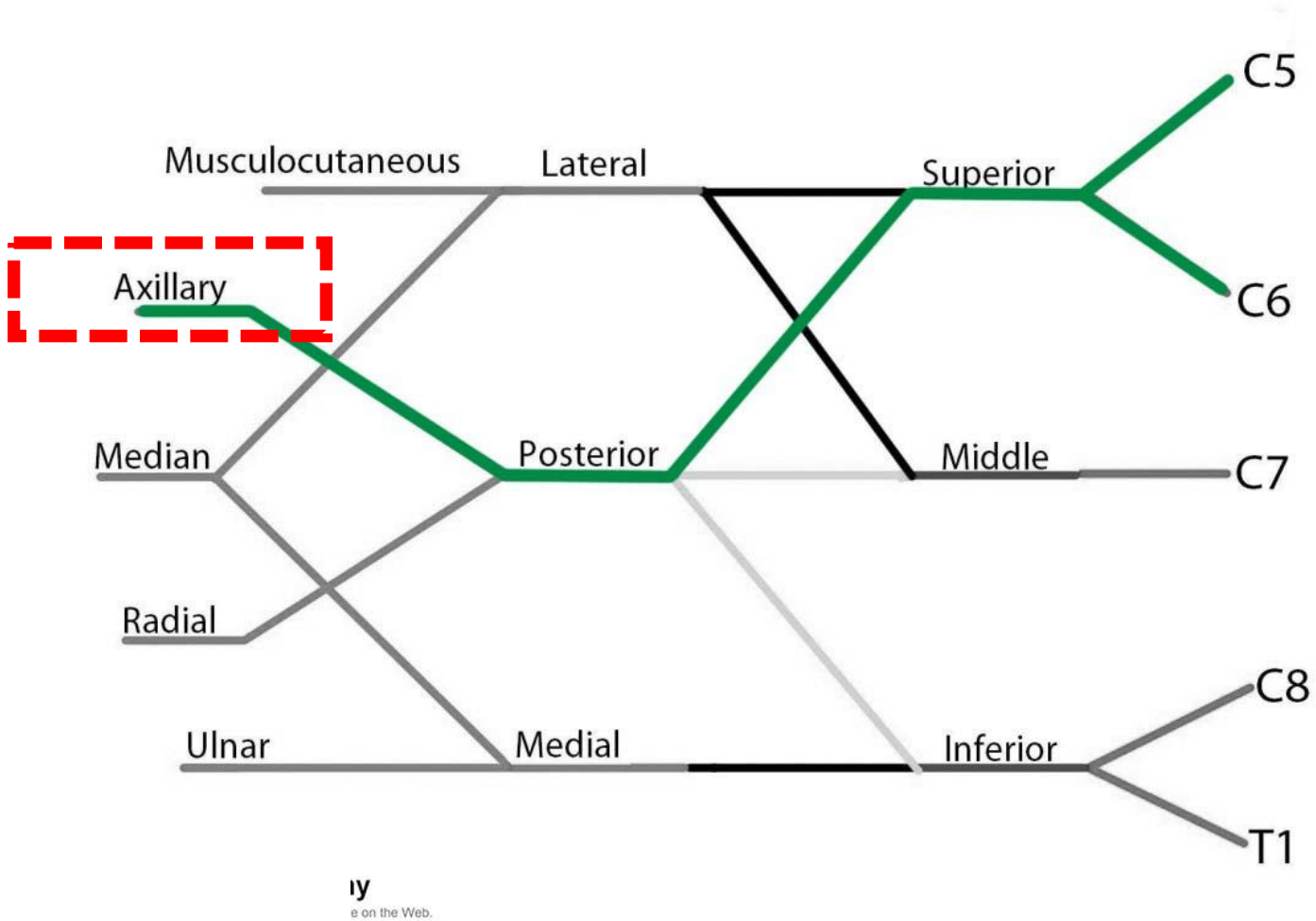
12DaysinMarch.com

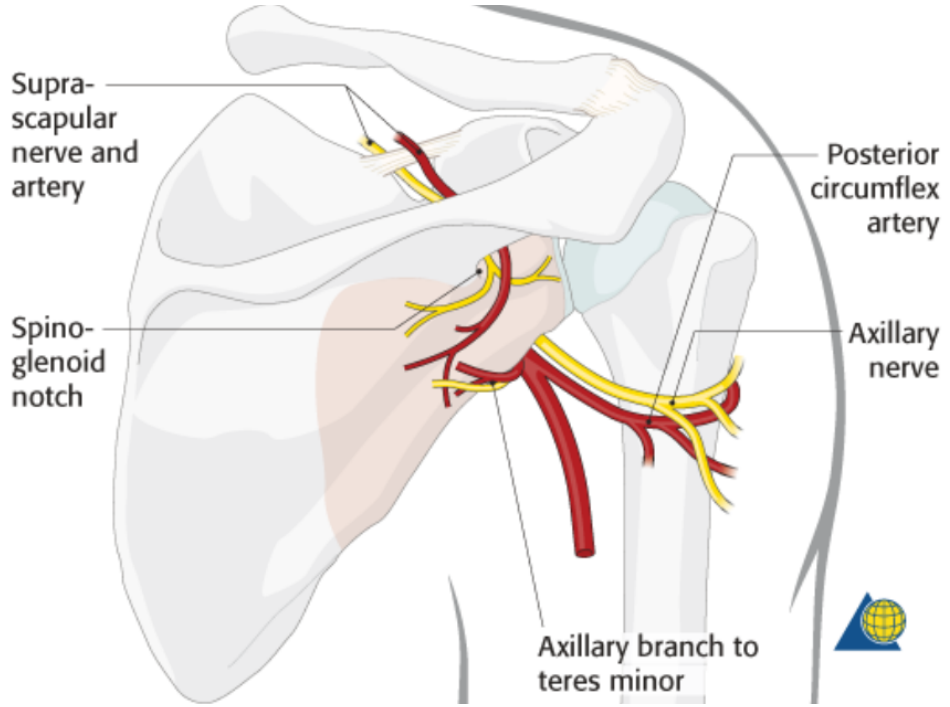
Today's Focus

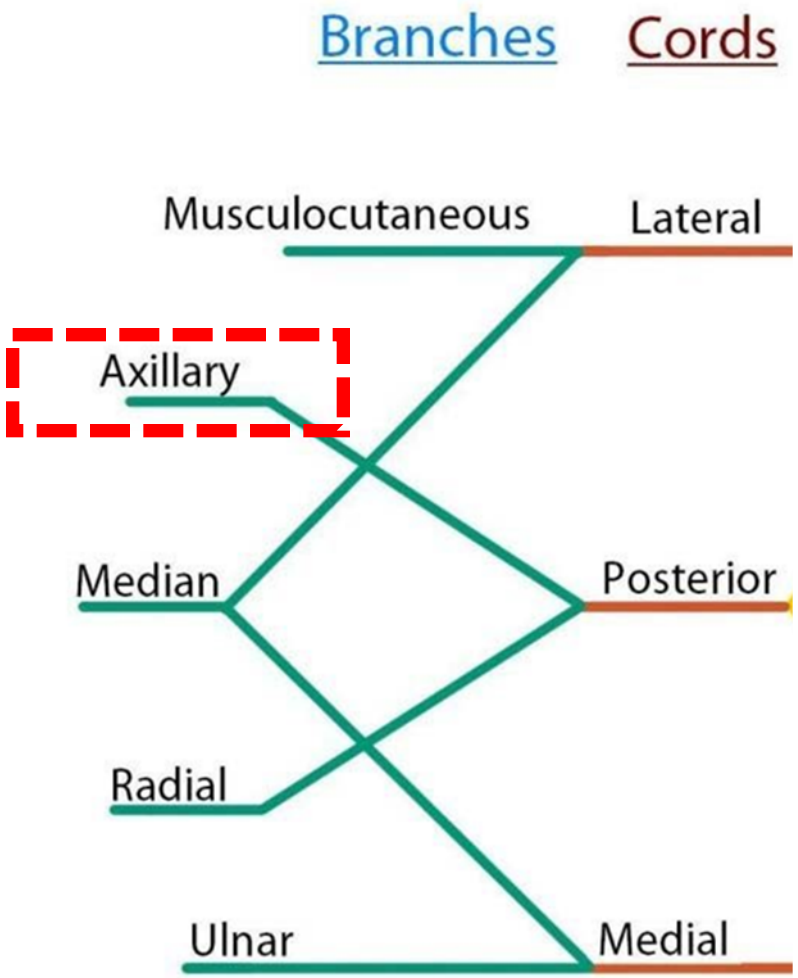


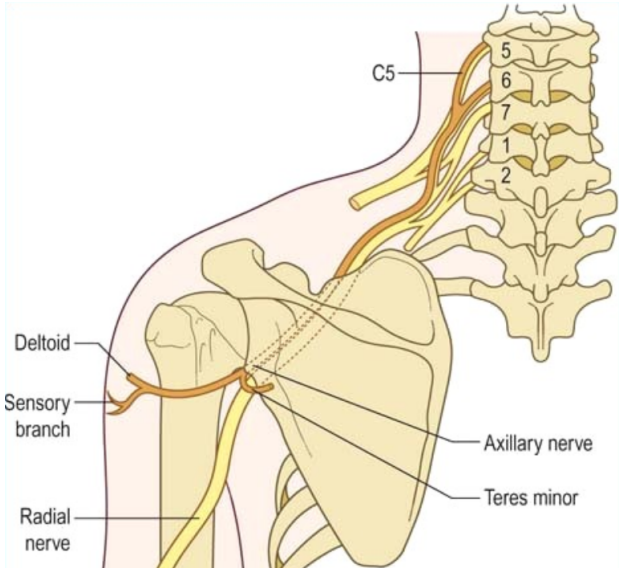
1. Long Thoracic (*Winged scapula*)
   Musculocutaneous (↓ *Arm flexion*)
2. **Axillary and Radial n.**
3. Median and Ulnar n.

Axillary Nerve C5-C6

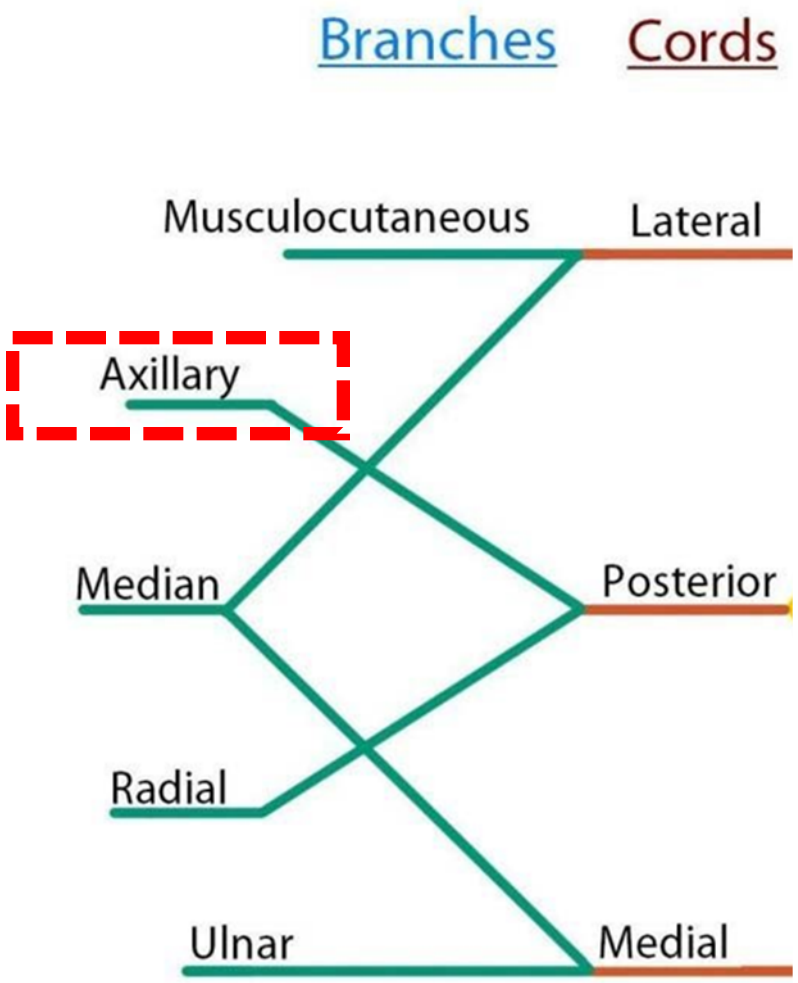


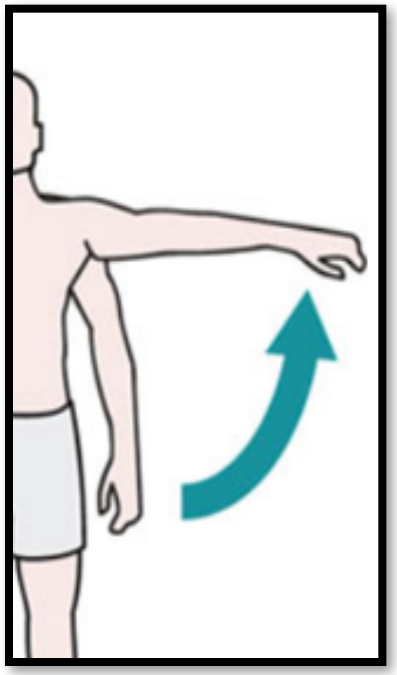

Supra-
scapular
nerve and
artery
Spino-
glenoid
notch
Posterior
circumflex
artery
Axillary
nerve
Axillary branch to
teres minor


Branches
Cords
Musculocutaneous
Lateral
Axillary
Median
Posterior
Radial
Ulnar
Medial

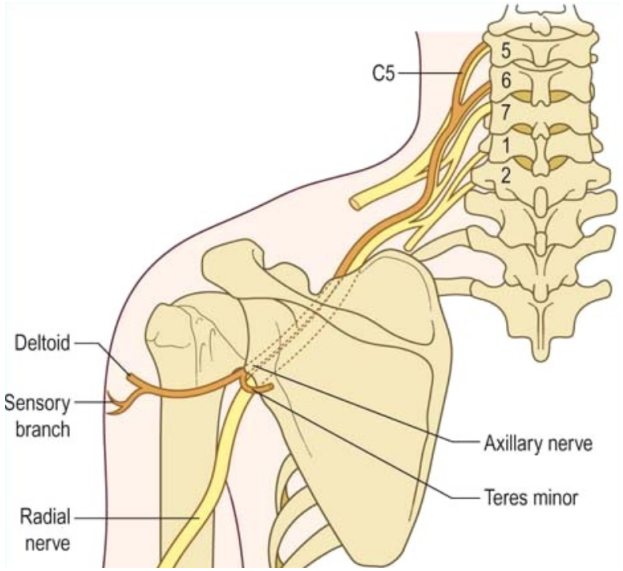


Motor innervation to
deltoid and
teres minor *(ext rot)*





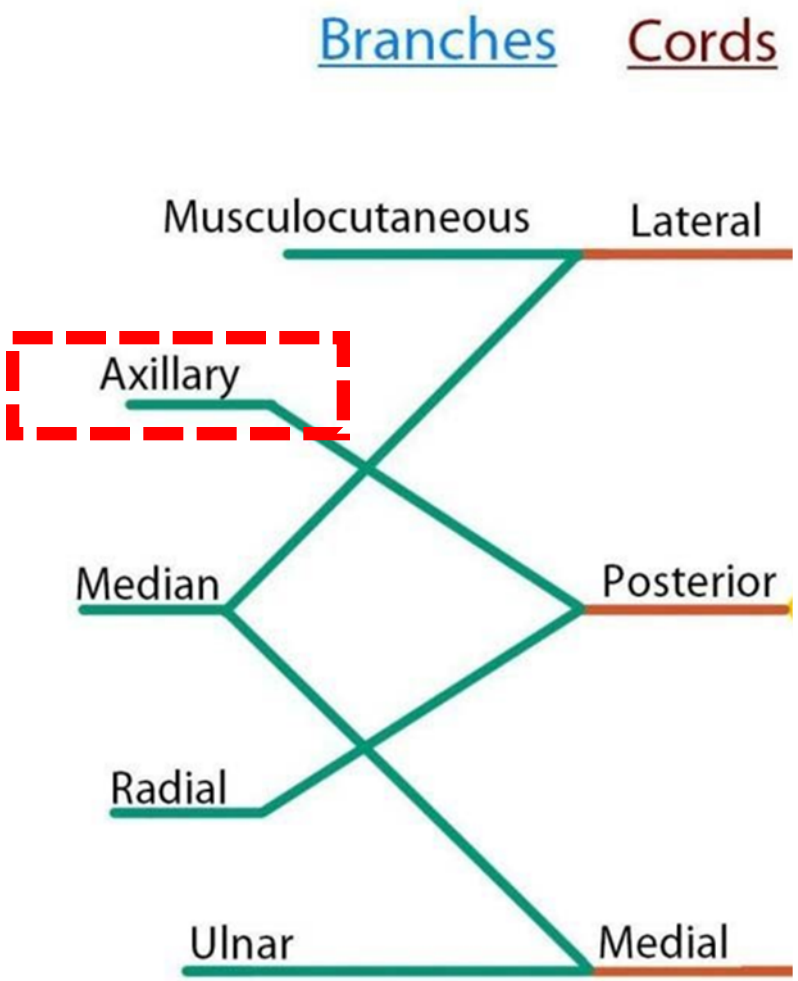
Abduction: 'away from body'
Deltoid: 15-90 degrees

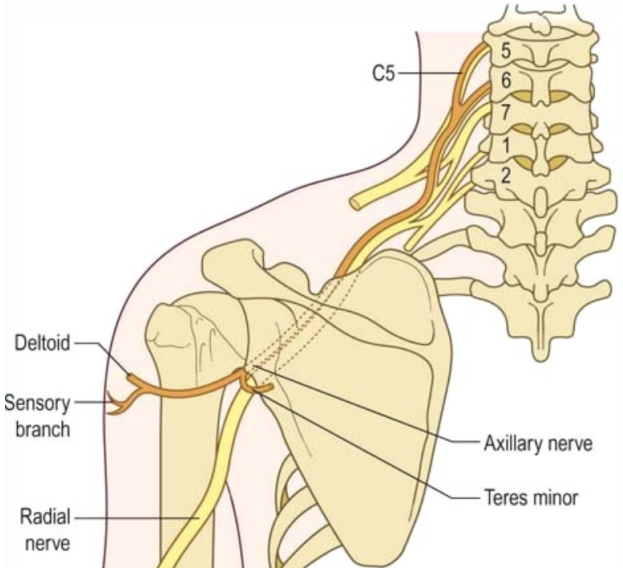


Motor innervation to deltoid and teres minor

Posterior

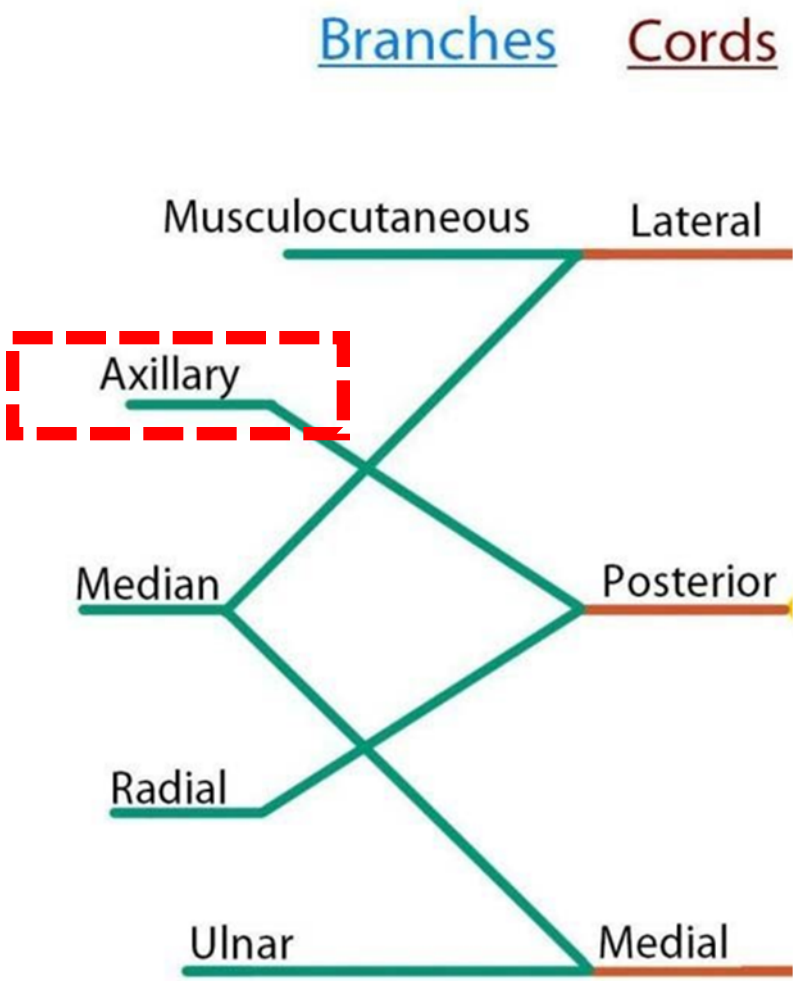
Sensory innervation to posterolateral shoulder



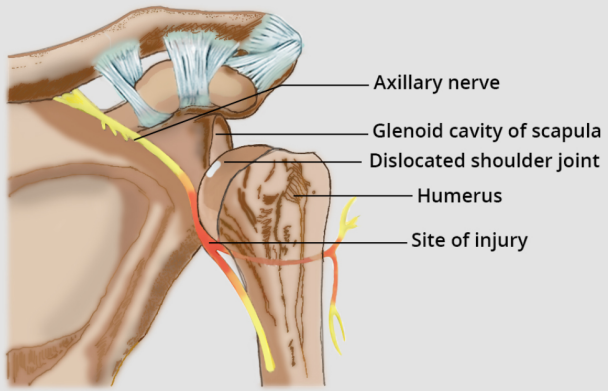


Motor innervation to deltoid and teres minor

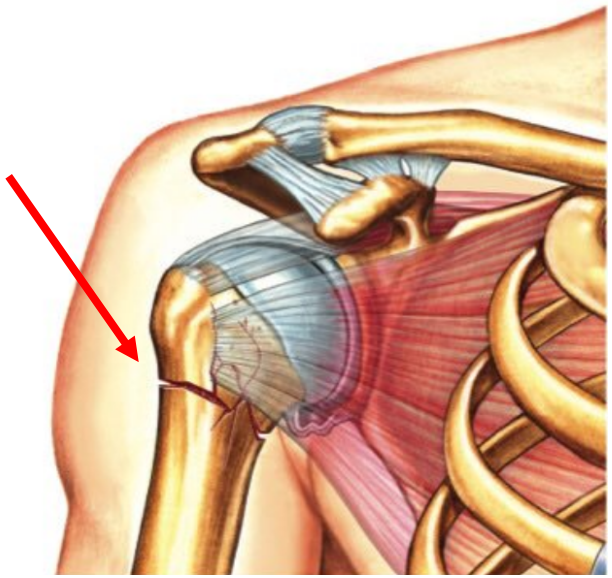
Sensory innervation to posterolateral shoulder

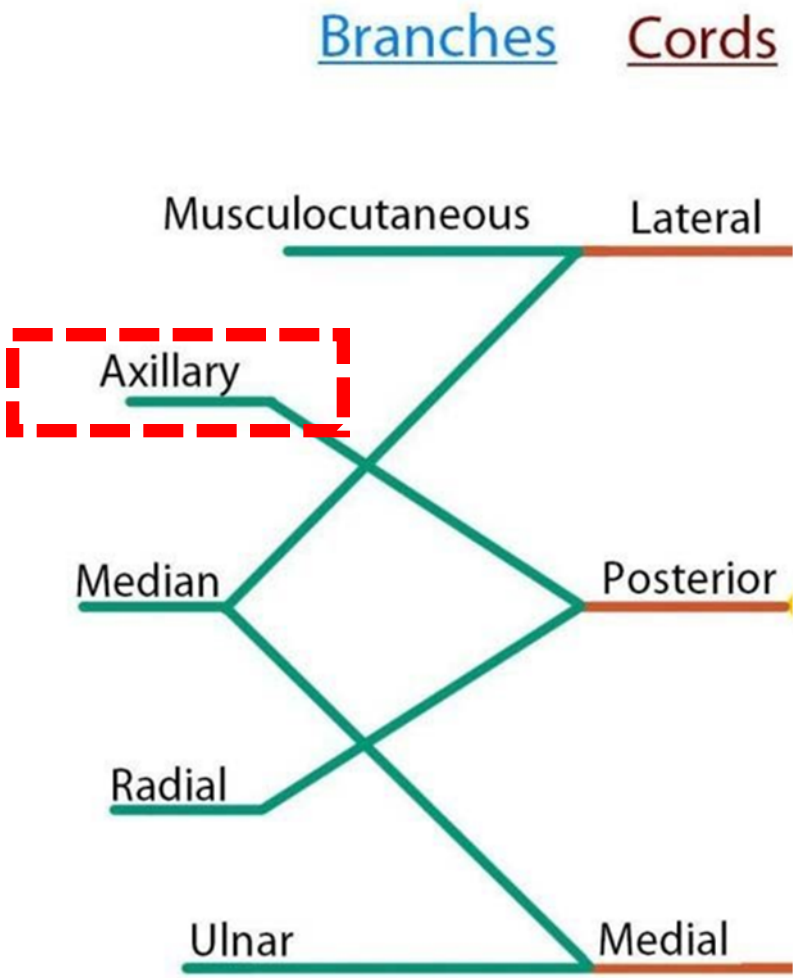


ANTERIOR INFERIOR DISLOCATION OF HUMERUS

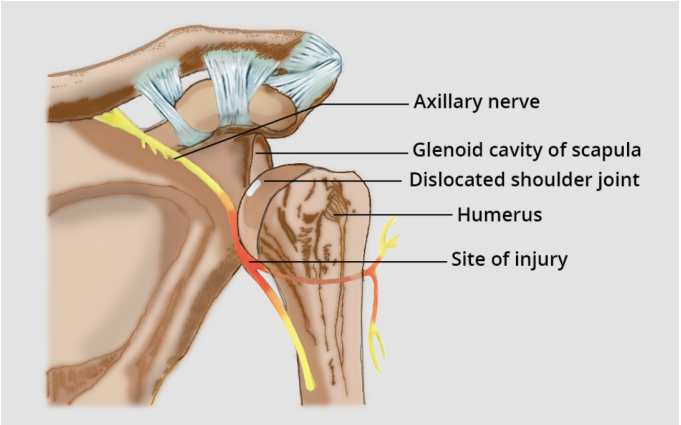


SURGICAL NECK FRACTURE OF HUMERUS

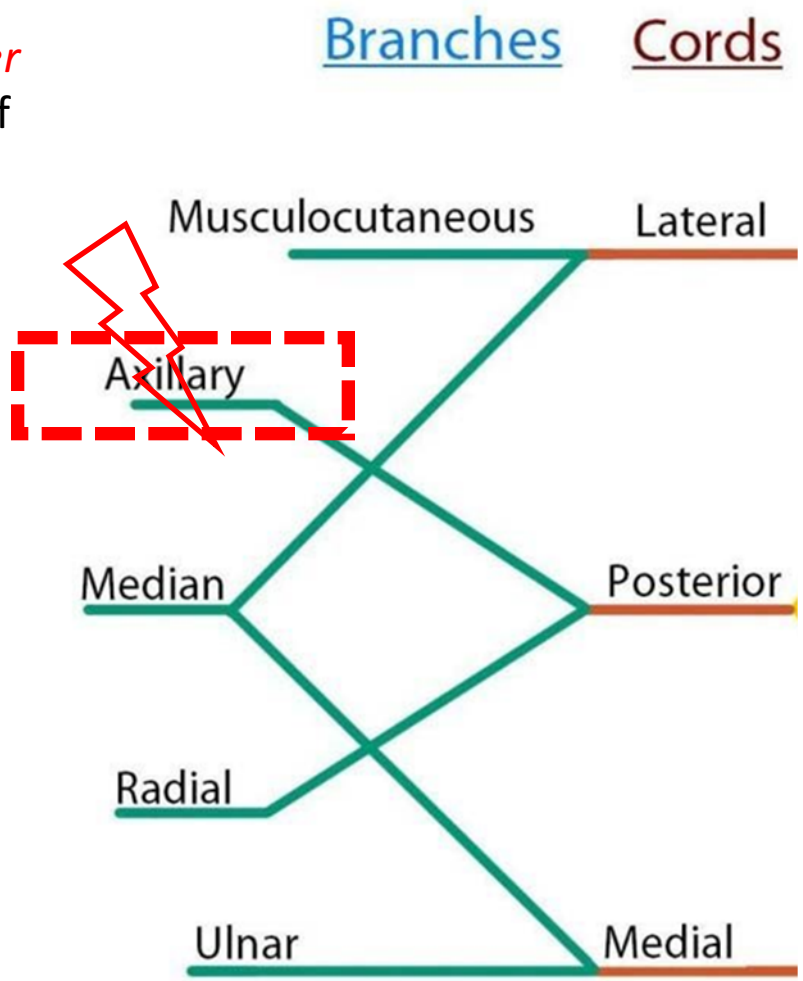




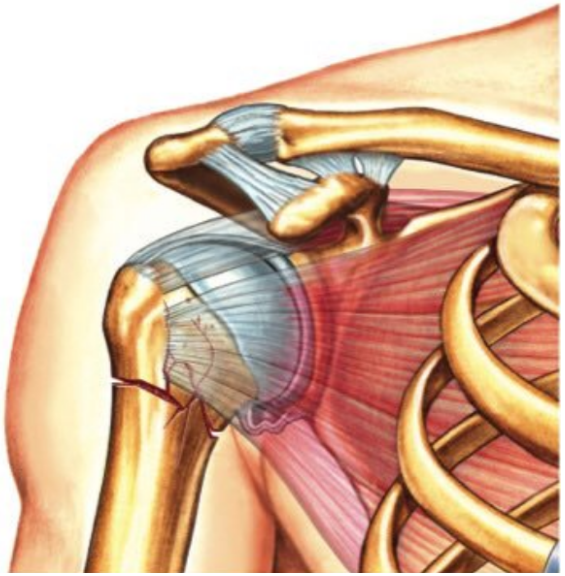
ANTERIOR INFERIOR DISLOCATION OF HUMERUS

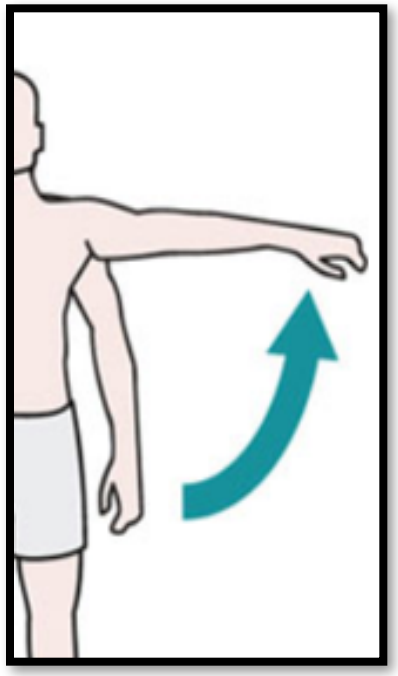


Injury: *Loss of abduction after 15°, weakened ER* and loss of posterolateral upper arm sensation, flattened deltoid

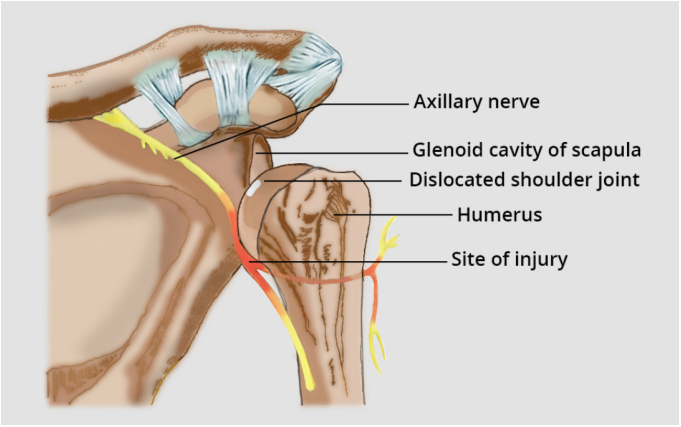


SURGICAL NECK FRACTURE OF HUMERUS

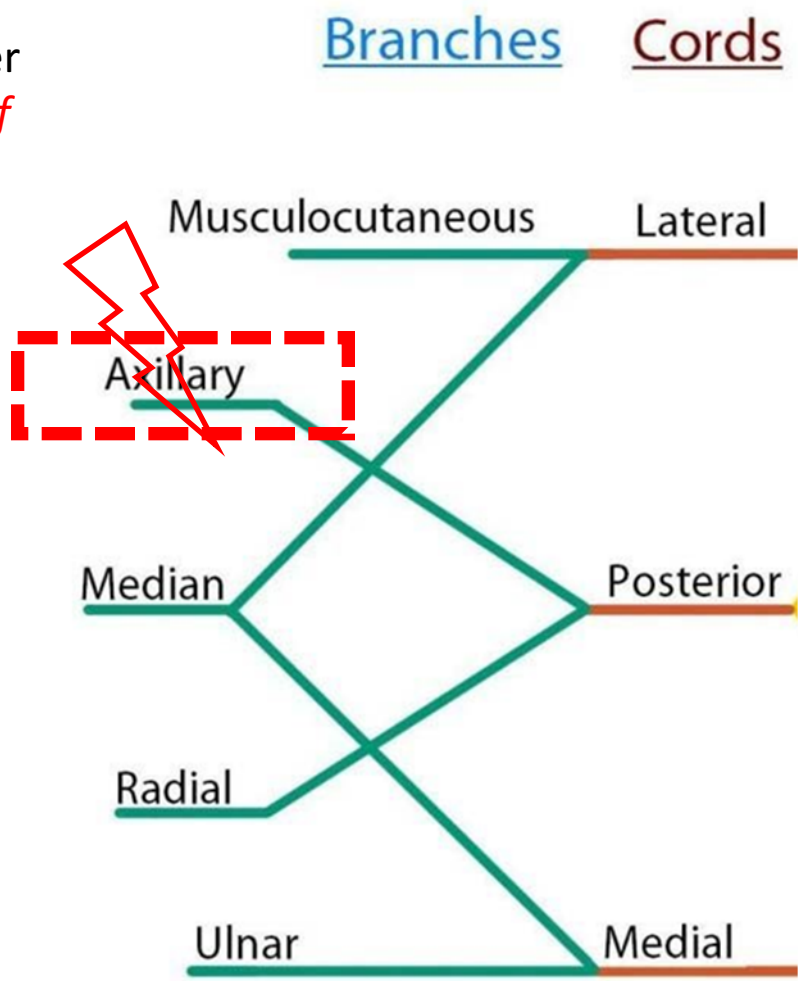




ANTERIOR INFERIOR DISLOCATION OF HUMERUS



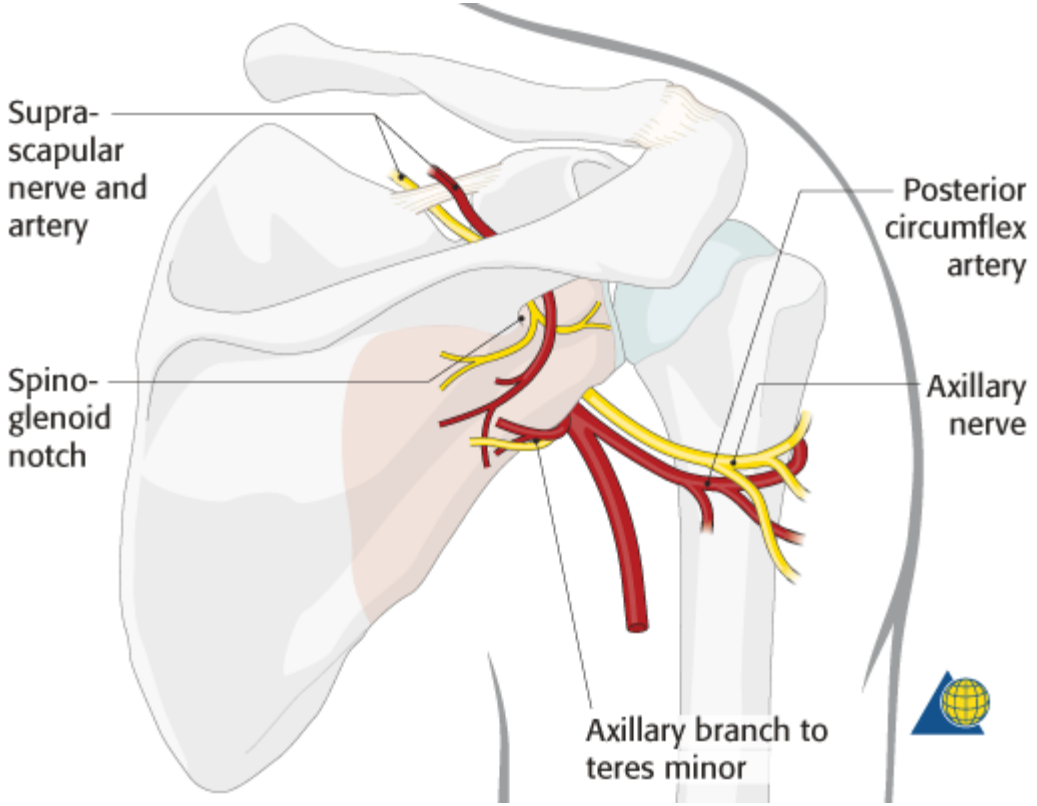
Injury: Loss of abduction after 15°, weakened ER and *loss of posterolateral upper arm sensation, flattened deltoid*



SUMMARY

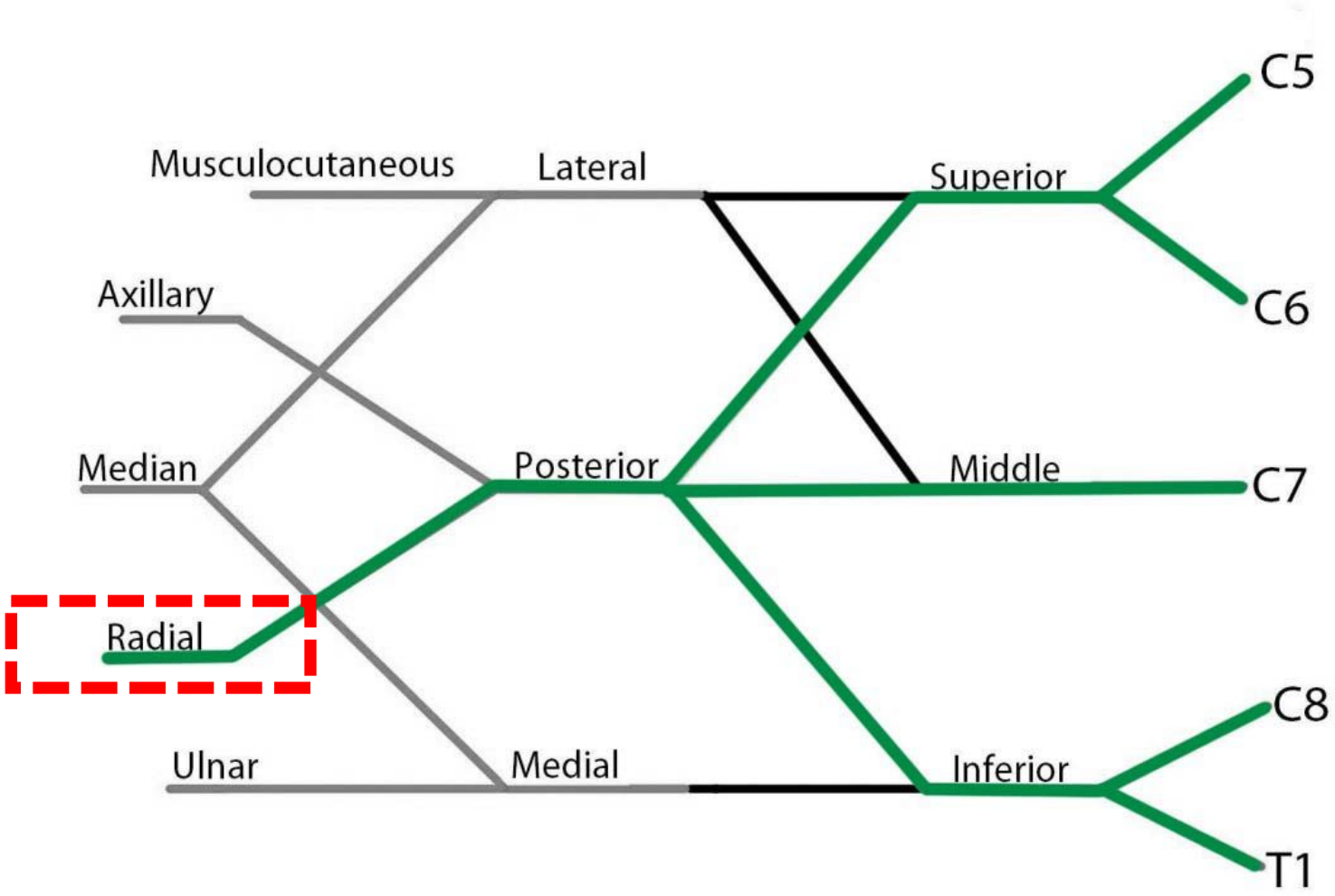
Axillary Nerve C5-C6

- Course: Posterior Cord around surgical neck
- Motor Innervation: Deltoid and Teres Minor
- Sensory Innervation: Posterolateral Shoulder
- Injury: Loss of Abduction of arm, weakened ER, posterolateral sensory loss upper arm, flat deltoid



Radial Nerve C5-T1

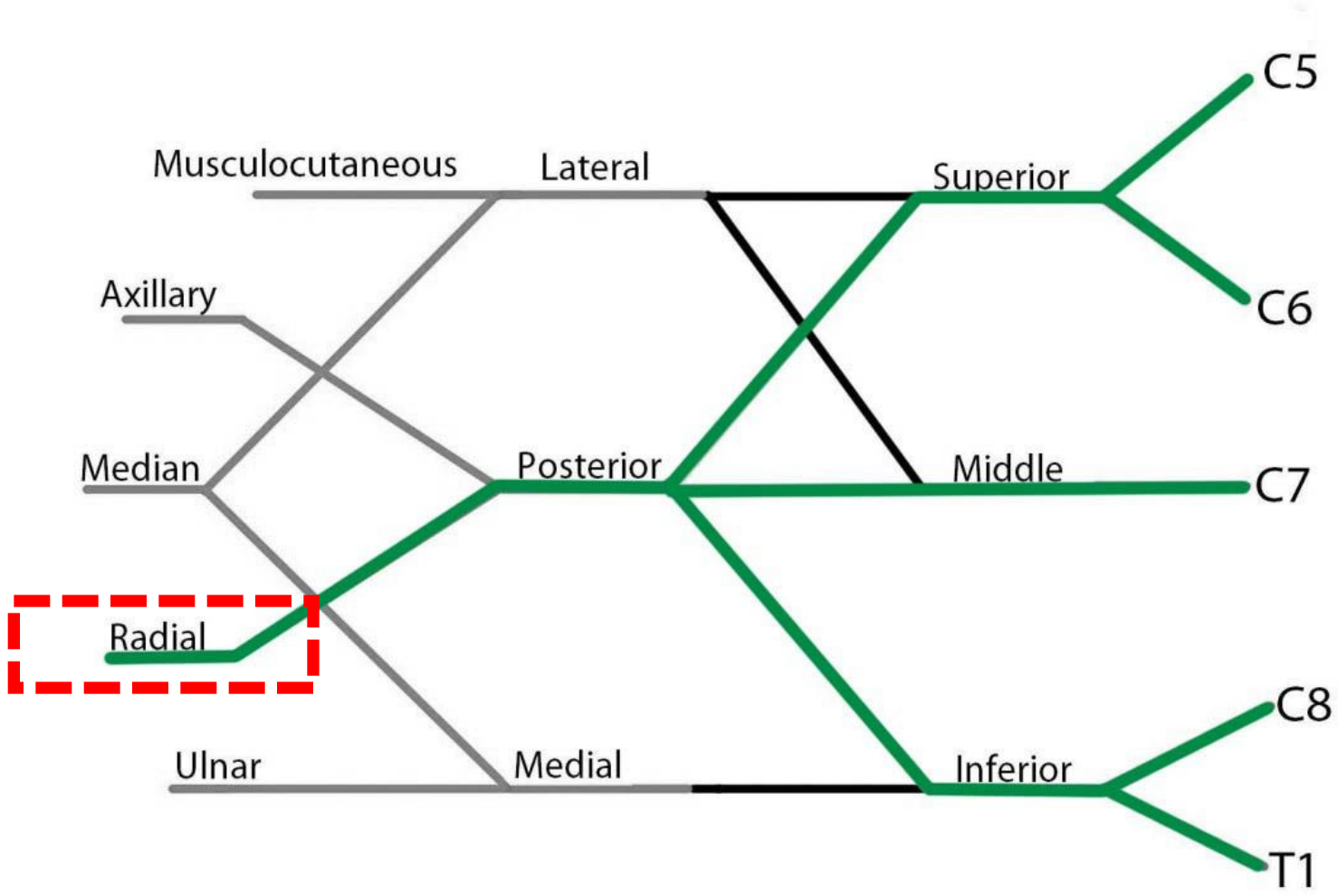
C5-T1 roots

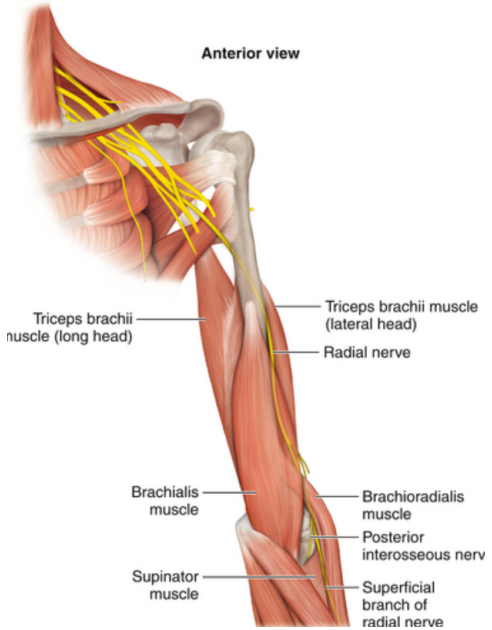


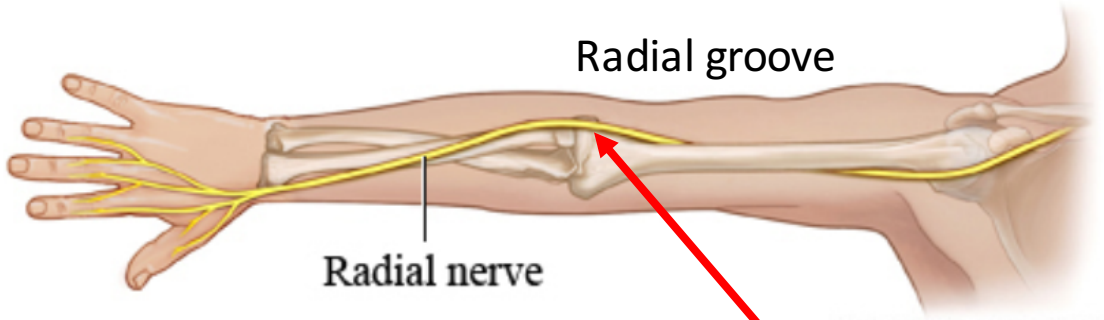
Radial Nerve C5-T1

C5, C6 roots

C5-T1 roots

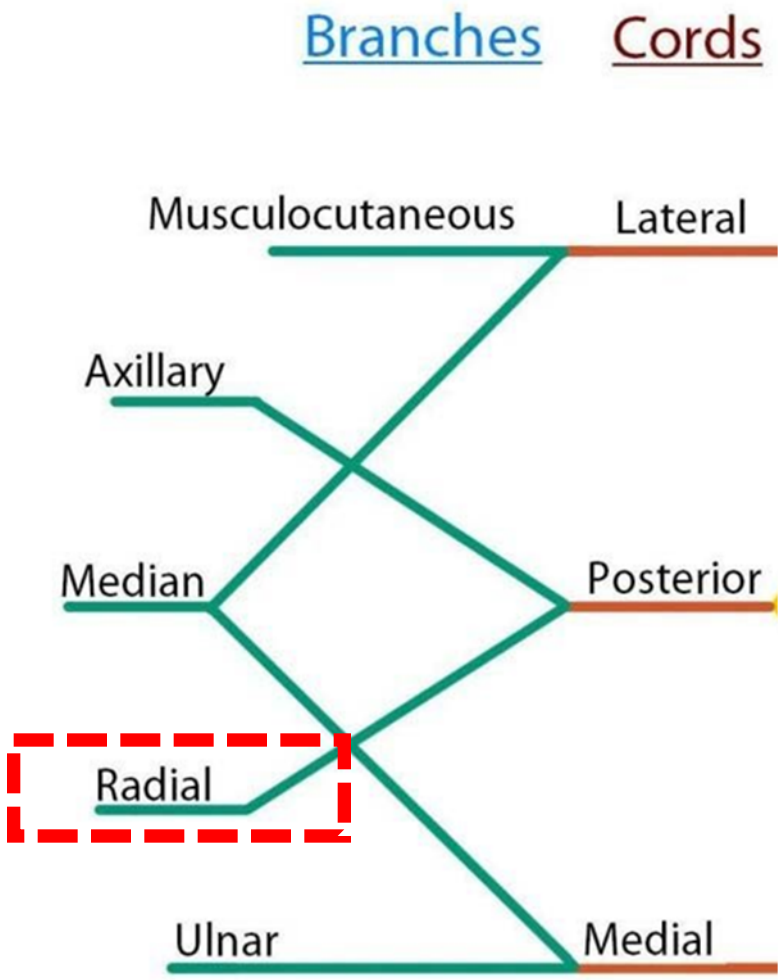


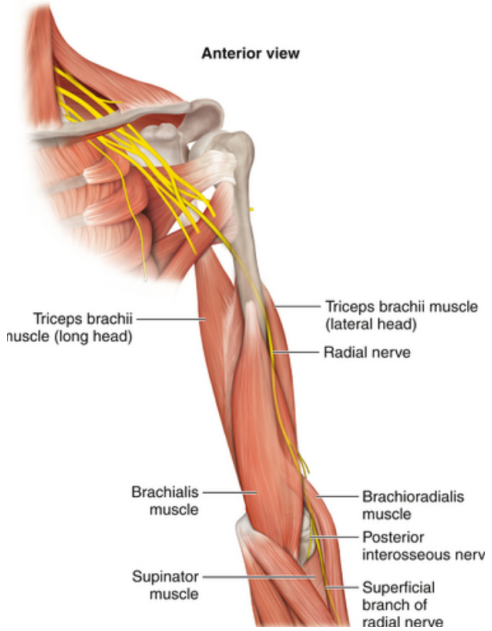




Arm Extension

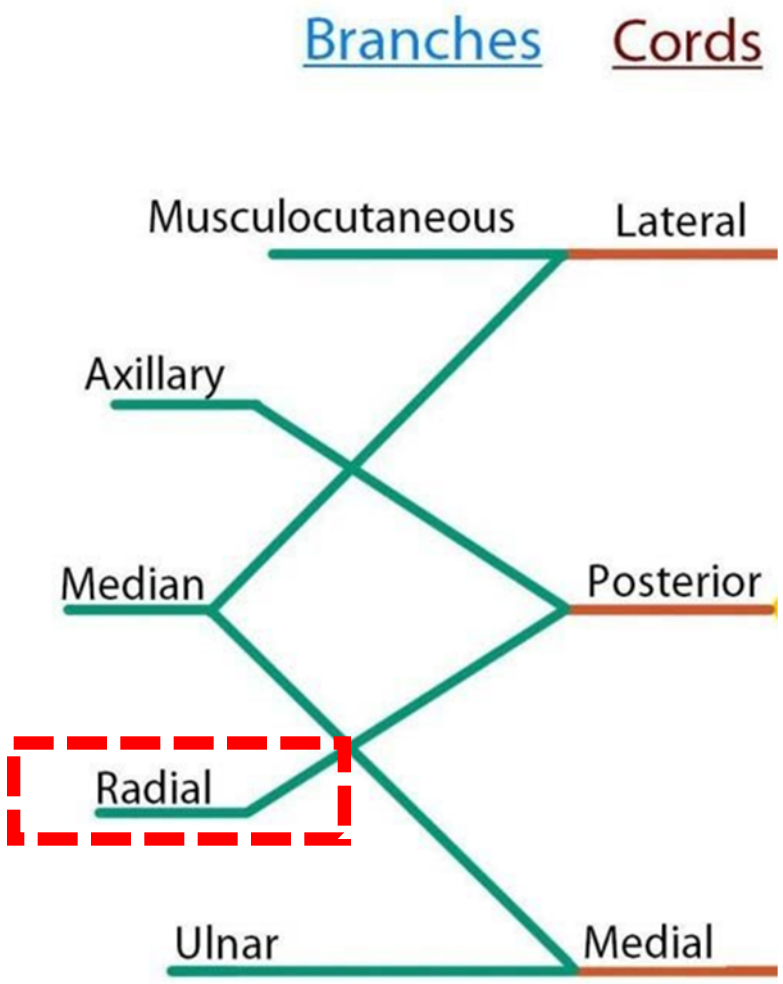
Lateral epicondyle



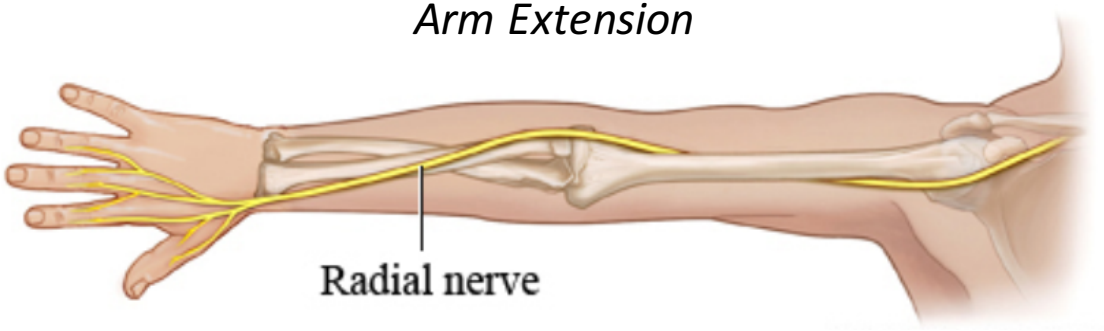


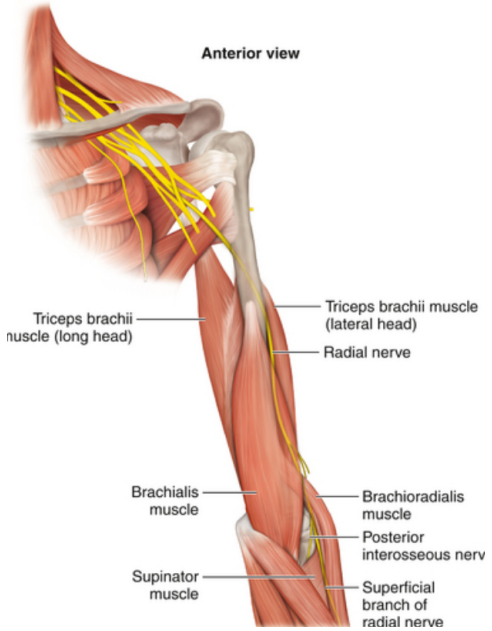
Motor innervation:

- Extensors of the forearm
  - ➢ brachioradialis
  - ➢ supinator



Arm Extension





Motor innervation:

- Extensors of the forearm
  - ➢ brachioradialis
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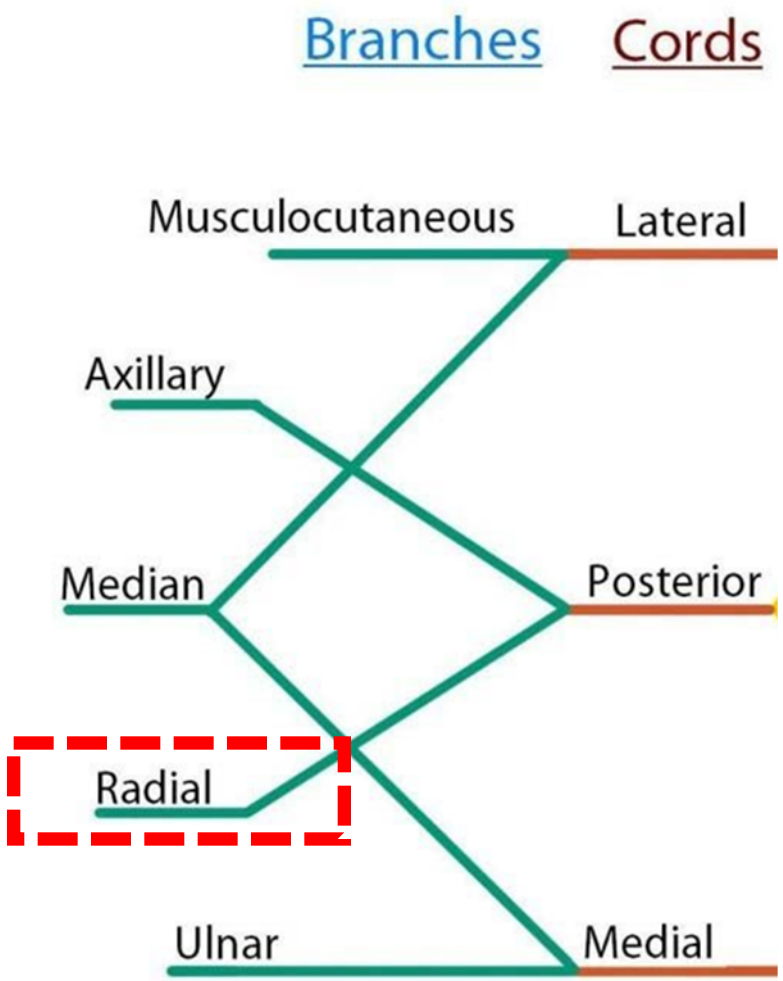
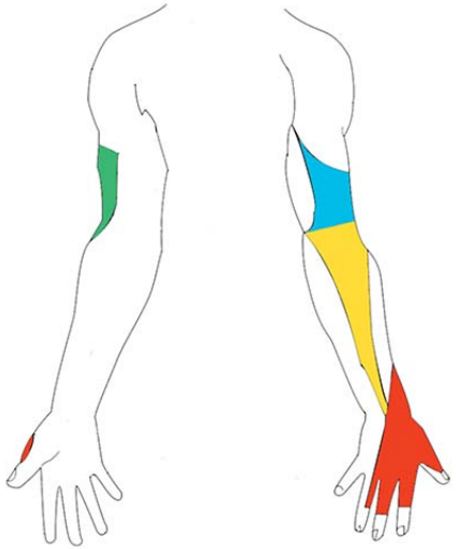
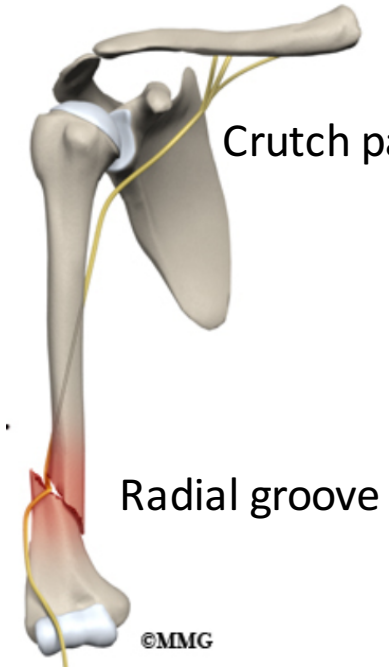




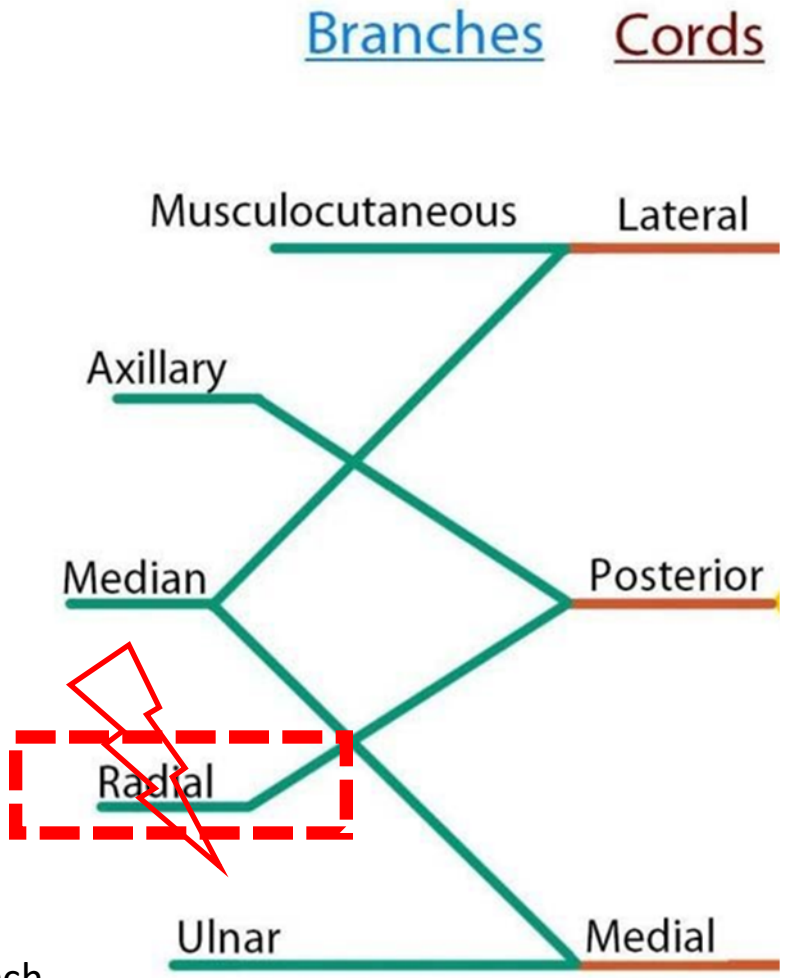
Sensory innervation:

- Posterior arm and forearm
- Dorsal lateral 3½ digits



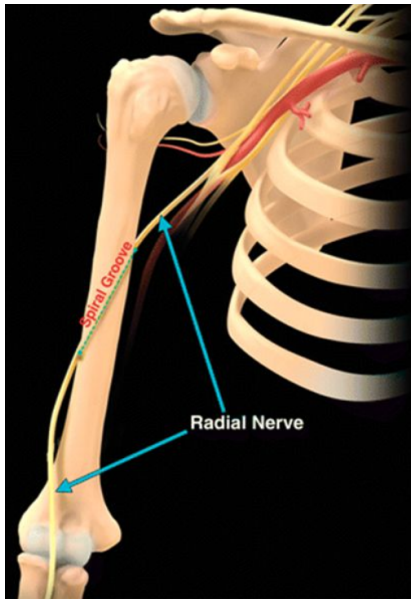
Injury: Wrist drop.
Sensory loss posterior arm and forearm + dorsal lateral 3½ digits

Superficial branch of radial nerve

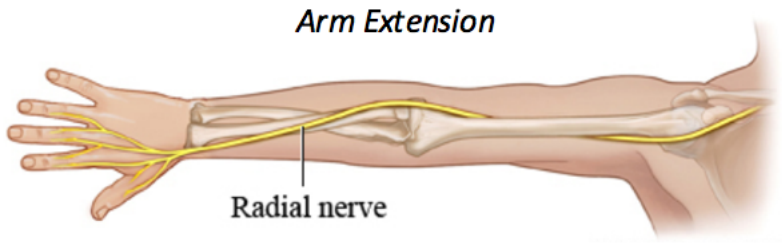


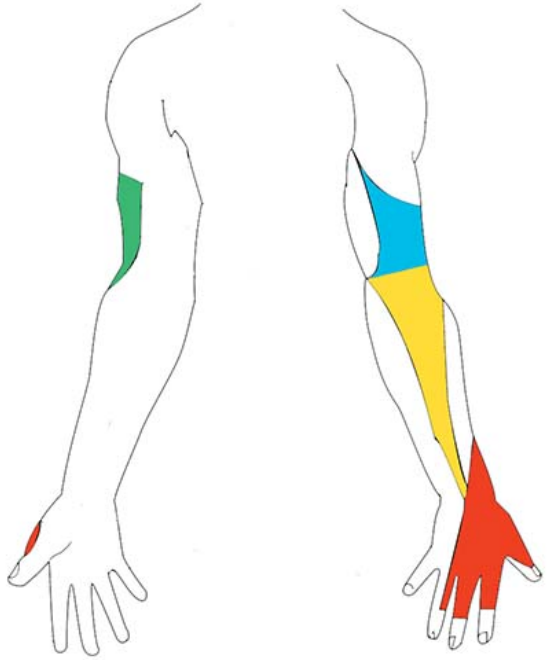
SUMMARY

Radial Nerve C5-T1



- Course: Posterior Cord. Along **radial groove** and anterior to lateral epicondyle
- Motor Innervation: Triceps, **extensor** compartment of the arm, finger **extension**
- Sensory Innervation: Posterior arm, posterior forearm, dorsal surface of the lateral three and half digits
- Injury: **Wrist drop,** loss of elbow extension (triceps). Sensory loss over posterior arm, forearm, and posterolateral hand





Question Time!

Following a bull riding accident, a 31 y.o. lad is found to have weakness with shoulder abduction as well as weakness with wrist and arm extension. Which nervous structure was most likely damaged to account for these deficits?

A) Axillary Nerve
B) Posterior Cord
C) Radial Nerve
D) Lateral Cord
E) Median Nerve

THANK YOU FOR WATCHING

Don’t forget to tune in for the Grande Finale in Part 3