

Radial Nerve Anatomy Diagram

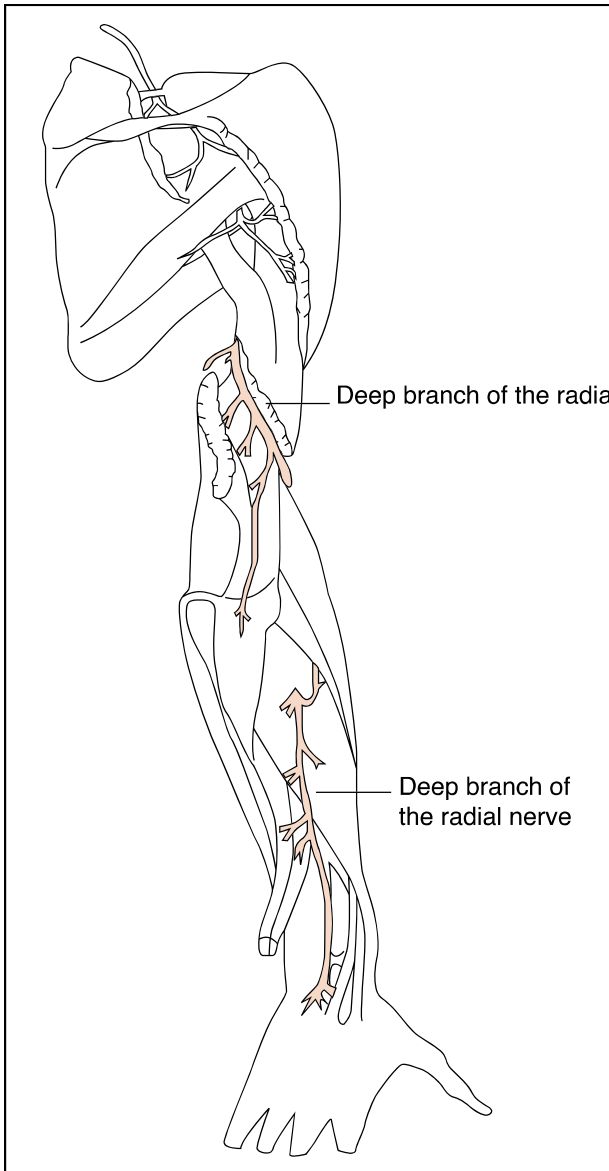
The radial nerve is a major peripheral nerve in the upper limb, vital for various motor and sensory functions.

Spinal roots: C5-T1

Motor functions

- **Arm:** Controls the triceps brachii.
- **Forearm:** Influences the brachioradialis, extensor carpi radialis longus, and muscles of the posterior forearm (deep branch of the radial nerve).

Sensory functions: Provides sensation to the posterior forearm, lateral aspect of the dorsum of the hand, and dorsal surface of the lateral three and a half digits.

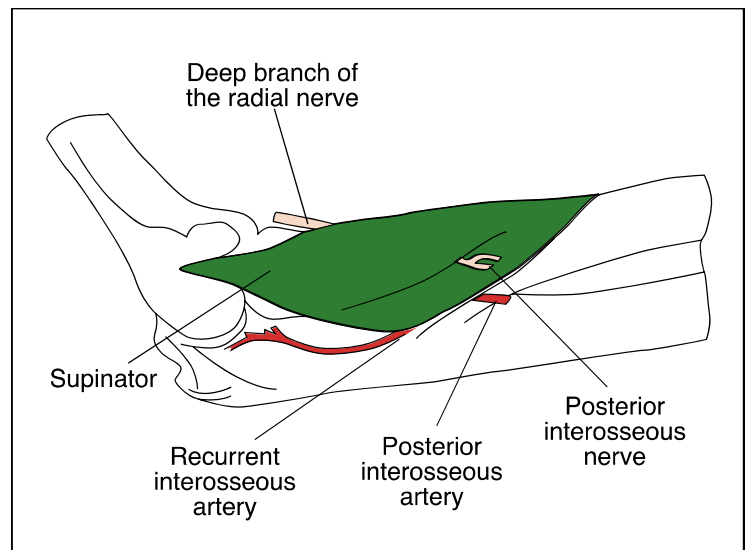


Anatomical pathway

The radial nerve originates from the posterior cord of the brachial plexus. It continues from fibers of the C5-T1 spinal roots. In the axilla, it is located posterior to the axillary artery and exits inferiorly through the triangular interval, supplying branches to the triceps brachii. The nerve then descends down the arm in the radial groove of the humerus. It wraps around the humerus laterally and supplies a branch to the medial head of the triceps brachii.

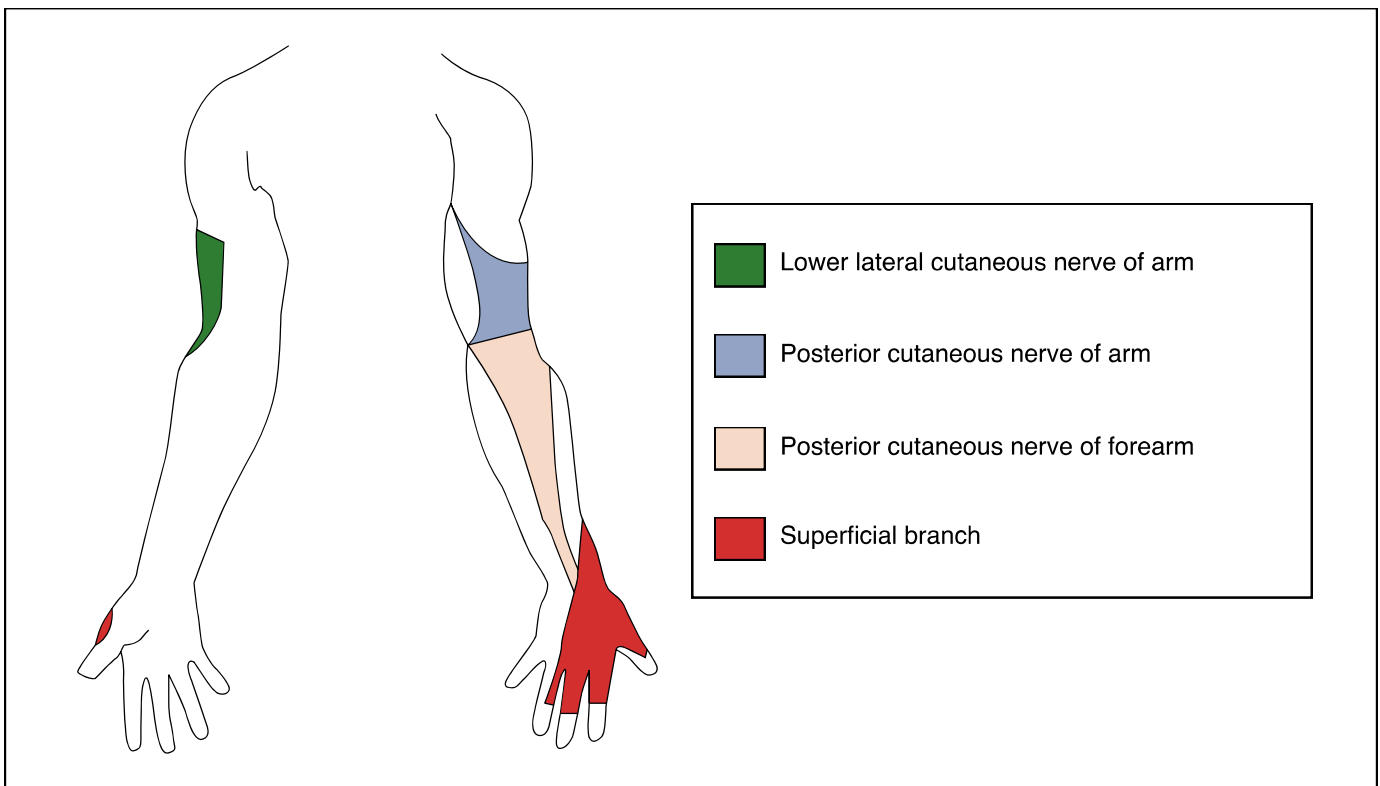
To enter the forearm, the radial nerve travels anterior to the lateral epicondyle of the humerus, through the cubital fossa, and terminates by dividing into two branches:

- **Deep branch (motor):** Innervates the muscles in the posterior compartment of the forearm.
- **Superficial branch (sensory):** Contributes to the cutaneous innervation of the dorsal hand and fingers.



Motor functions

- **Arm:** Innervates the three heads of the triceps brachii, which extend the arm at the elbow. It also supplies the brachioradialis and extensor carpi radialis longus in the posterior forearm.
- **Forearm:** The deep branch innervates the remaining muscles of the posterior forearm, which extend the wrist and finger joints and supinate the forearm. When the deep branch penetrates the supinator muscle, it is termed the posterior interosseous nerve. This nerve continues to innervate the posterior forearm muscles. The recurrent interosseous artery and posterior interosseous artery accompany this nerve, providing vascular support.



Sensory functions

The radial nerve's sensory branches include:

- **Lower lateral cutaneous nerve of arm:** Innervates the lateral aspect of the arm, inferior to the insertion of the deltoid muscle.
- **Posterior cutaneous nerve of arm:** Innervates the posterior surface of the arm.
- **Posterior cutaneous nerve of forearm:** Innervates a strip of skin down the middle of the posterior forearm.
- **Superficial branch:** Innervates the dorsal surface of the lateral three and a half digits and the associated area on the dorsum of the hand.

Additional notes

Common Injury Sites:

Mid-shaft Humeral Fracture: Radial nerve runs along the radial groove - prone to injury.

Saturday Night Palsy: Compression of the nerve in the axilla.

Wrist Drop: Inability to extend the wrist due to radial nerve damage.

Clinical Signs: Check for weakness in triceps, wrist drop, and loss of sensation in the dorsal hand.

Testing: Sensation on the dorsum of the hand, motor function of wrist extensors.

Gray, H., & Vandyke Carter, H. (2012). *Anatomy of the human body*. Bounty.

Jones, O. (2023, October 14). *The radial nerve - course - motor - sensory*. TeachMeAnatomy. <https://teachmeanatomy.info/upper-limb/nerves/radial-nerve/>