


Posterior Compartment of the Arm

Overview

The posterior compartment of the arm is primarily an extensor compartment , separated from the anterior compartment by:

- Humerus
- Medial & lateral intermuscular septa

★ Exam Pearl: Compartments are important clinically because infection/bleeding is confined within them → may cause compartment syndrome.

Contents of Posterior Compartment

Structure	Details
Muscle	Triceps brachii
Nerve supply	Radial nerve
Blood supply	Profunda brachii artery + ulnar collateral arteries
Structures passing through	Radial nerve, Ulnar nerve

Triceps Brachii (Chief Muscle)

Structure

Has 3 heads:

Head	Origin
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Long head	Infraglenoid tubercle of scapula
Lateral head	Posterior humerus above radial groove
Medial head	Posterior humerus below radial groove

👉 Insertion: Olecranon process of ulna

⚙️ Action

- Primary: Extension of forearm at elbow
- Additional: Long head helps in extension & adduction of arm at shoulder

★ Exam Pearl:

- Medial head = "workhorse" (active in all types of extension)
- Lateral head = powerful extension against resistance

Radial Nerve (C5-T1)

Origin

- From posterior cord of brachial plexus

Course of Radial Nerve (Very Important!)

Posterior cord → Lies behind axillary artery → Enters posterior compartment → Passes through triangular interval → Runs in radial (spiral) groove of humerus → Pierces lateral intermuscular septum → Enters anterior compartment → Travels between brachialis & brachioradialis → Reaches cubital fossa → Divides into terminal branches

Branches of Radial Nerve

In Axilla

- Muscular: Long & medial heads of triceps
 - Cutaneous: Posterior cutaneous nerve of arm
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In Radial Groove

- Muscular: Lateral & medial heads of triceps + nerve to anconeus
 - Cutaneous:
 - Lower lateral cutaneous nerve of arm
 - Posterior cutaneous nerve of forearm
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In Anterior Compartment (near elbow)

- Muscular:
 - Brachioradialis
 - Extensor carpi radialis longus
 - Articular: Elbow joint
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Termination

At lateral epicondyle:

- Superficial branch (sensory)
 - Deep branch (posterior interosseous nerve - motor)
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Muscles Supplied by Radial Nerve

In Arm

- Triceps brachii
- Anconeus

In Forearm (Extensors)

- Brachioradialis
- Extensor carpi radialis longus & brevis
- Supinator
- Extensor digitorum
- Extensor digiti minimi
- Extensor carpi ulnaris
- Abductor pollicis longus
- Extensor pollicis longus & brevis
- Extensor indicis

Cutaneous Innervation

Radial nerve supplies:

- Posterior arm

- Posterior forearm
 - Dorsum of lateral hand (via superficial branch)
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Clinical Correlation

Radial Nerve Injury in Spiral Groove

Cause: Fracture of shaft of humerus

Effects:

- Wrist drop !
 - Loss of finger extension
 - Sensory loss over dorsum of hand
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Flowchart: Radial Nerve Injury Effects

Radial nerve injury → Loss of extensor muscles →
Unopposed flexors → Wrist flexion position → Wrist
drop

Ulnar Nerve in Posterior Compartment

- Passes posteriorly but does NOT supply triceps
 - Injury at medial epicondyle → claw hand
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Summary

- Posterior compartment = extensor compartment
- Main muscle = Triceps
- Main nerve = Radial nerve
- Radial nerve travels in spiral groove
- Wrist drop = classic sign of radial nerve injury

Ulnar Nerve

Overview

- Root value: C8-T1 (sometimes C7 contribution)
- Terminal branch of medial cord of brachial plexus
- Known as the “funny bone nerve” 😊 (due to its superficial position at elbow)


★ Exam Pearl: Ulnar nerve gives NO branches in the arm!

Course of Ulnar Nerve (Stepwise)

Medial cord of brachial plexus → Descends in anterior compartment of arm (medial side) → Pierces medial intermuscular septum (mid-arm) → Enters posterior

compartment → Runs behind septum, covered by medial
 head of triceps → Accompanied by superior ulnar
 collateral artery → Passes behind medial epicondyle
 (subcutaneous) → Enters forearm between two heads of
 flexor carpi ulnaris (FCU)

 Key Relations

Region	Relation
Arm (anterior)	Medial to brachial artery
Mid-arm	Pierces medial intermuscular septum
Posterior arm	Covered by medial head of triceps
Elbow	Behind medial epicondyle (superficial) 

Forearm	Between heads of FCU
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 Branches in the Arm

 NONE

 Exam Trick:

If asked: "Which nerve passes through arm without giving branches?" → Ulnar nerve

 Muscles Supplied by Ulnar Nerve

In Forearm

- Flexor carpi ulnaris (FCU)
- Medial half of flexor digitorum profundus (digits 4 & 5)

In Hand (Intrinsic Muscles)

- Interossei (palmar + dorsal)
- Lumbricals (4th & 5th)
- Adductor pollicis
- Deep head of FPB
- Hypothenar muscles
- Palmaris brevis

Flowchart: Ulnar Nerve Functional Supply

Ulnar nerve

→ Forearm muscles

→ FCU (wrist flexion + adduction)

→ FDP (digits 4 & 5 flexion)

→ Hand muscles

→ Interossei → finger abduction/adduction

→ Lumbricals (4,5) → MCP flexion + IP extension

→ Adductor pollicis → thumb adduction

Clinical Correlations

Injury at Medial Epicondyle ("Funny Bone")

Cause: Trauma / compression

Effects → Tingling sensation ("electric shock")  →

Weak grip → Loss of finger abduction/adduction

Claw Hand Deformity

Mechanism:

Ulnar nerve injury → Loss of interossei & lumbricals (4,5)
→ Unopposed extensors at MCP → Unopposed flexors at
IP joints → Clawing of 4th & 5th digits

 Reinforcement:

Ulnar nerve injury → Interossei paralysis → Loss of MCP
flexion + IP extension → Hyperextension at MCP →
Flexion at IP joints → Claw hand (digits 4 & 5)

Comparison: Radial vs Ulnar Nerve Injury

Feature	Radial Nerve Injury	Ulnar Nerve Injury
Common site	Spiral groove	Medial epicondyle

Motor deficit	Wrist drop !	Claw hand !
Muscle group	Extensors	Intrinsic hand muscles
Sensory loss	Dorsum of hand	Medial 1.5 fingers

★ Summary

- Ulnar nerve passes through posterior compartment of arm
 - No branches in arm 🚫
 - Vulnerable at medial epicondyle
 - Injury → Claw hand (digits 4 & 5)
 - Key function → Fine motor control of hand 🖱️
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-> The End <-