💪 ANTERIOR COMPARTMENT OF ARM

🔹 Overview

- Also called flexor compartment of arm
- Enclosed by deep fascia (brachial fascia)
- Separated from posterior compartment by intermuscular septa

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🔹 Boundaries

Boundary	Structure
Anterior & lateral	Deep fascia

Posterior	Humerus
Medial & lateral	Intermuscular septa

🔹 Contents

📌 Muscles

- Biceps brachii
- Coracobrachialis
- Brachialis

📌 Nerve supply

- Musculocutaneous nerve

📌 Blood supply

- Brachial artery

🟢 MUSCLES OF ANTERIOR COMPARTMENT

🔸 1. BICEPS BRACHII 💪

🔹 Heads & Origins

Head	Origin
Long head	Supraglenoid tubercle of scapula
Short head	Coracoid process

🔹 Course

- Long head tendon passes through intertubercular sulcus

🔹 Insertion

- Radial tuberosity
- Via bicipital aponeurosis → forearm fascia

🔹 Actions

Action	Mechanism
Flexion of elbow	Strong flexor
Supination	Most powerful supinator ⭐
Weak shoulder flexion	Assists at shoulder

🔹 Nerve Supply

- Musculocutaneous nerve (C5–C6)

💡 Clinical Insight:

👉 Tested by asking patient to flex elbow against resistance

🔸 2. CORACOBRACHIALIS

🔹 Origin

- Coracoid process

🔹 Insertion

- Middle part of medial surface of humerus

🔹 Action

- Flexes and adducts arm

🔹 Nerve Supply

- Musculocutaneous nerve (pierces it) ⚠️

💡 Important Concept:

👉 Musculocutaneous nerve pierces this muscle → landmark

🔸 3. BRACHIALIS ⭐ (MOST IMPORTANT FLEXOR)

- 🔹 Origin
  - Distal half of anterior humerus
- 🔹 Insertion
  - Coronoid process & tuberosity of ulna

- 🔹 Action
  - Primary flexor of forearm (independent of position)

- 🔹 Nerve Supply
  - Musculocutaneous nerve (main)

- Small contribution from radial nerve

💡 Key Concept:

👉 Works in all positions (supinated, pronated, neutral)

🔄 FUNCTIONAL SUMMARY FLOWCHART

Brachialis → Main elbow flexion

Biceps → Flexion + Supination

Coracobrachialis → Shoulder flexion + Adduction

🟢 MUSCULOCUTANEOUS NERVE ⚡

- Origin
  - Terminal branch of lateral cord of brachial plexus (C5–C7)

- Course (VERY IMPORTANT ⭐)

Lateral cord

↓

Pierces coracobrachialis

↓

Between biceps & brachialis

↓

Gives muscular branches

↓

Continues as:

Lateral cutaneous nerve of forearm

- Branches

Type	Supply
Muscular	Biceps, brachialis, coracobrachialis
Cutaneous	Lateral forearm

- Function

Type	Role
Motor	Flexion of arm & forearm

Sensory	Lateral forearm

🟢 BLOOD SUPPLY 🩸

- 🔹 Brachial Artery
  - Continuation of axillary artery
  - Begins at lower border of teres major

- 🔹 Course

Axillary artery

↓ (teres major)

Brachial artery

↓

Runs in arm

↓

Cubital fossa

↓

Divides into:

→ Radial artery

→ Ulnar artery

- Branches

Branch	Function
Profunda brachii	Posterior compartment

Muscular branches	Supply anterior muscles
Nutrient artery	To humerus

🟢 VENOUS DRAINAGE 💉

🔹 Superficial Veins

Vein	Location
Cephalic vein	Lateral side
Basilic vein	Medial side
Median cubital vein	Connects both (venipuncture site) ⭐

🔹 Deep Veins

- Brachial veins (venae comitantes)

🟢 APPLIED ANATOMY 🩺

🔸 1. Musculocutaneous Nerve Injury

📌 Causes:

- Trauma
- Surgical injury

📌 Effects:

Feature	Explanation
Weak elbow flexion	Biceps + brachialis affected
Weak supination	Loss of biceps
Sensory loss	Lateral forearm

🔸 2. Biceps Tendon Reflex

- Root value: C5–C6
- Tests musculocutaneous nerve

🔸 3. Biceps Tendon Rupture

Signs:

- "Popeye deformity" 💪
- Bulging of muscle belly

🔸 4. Venipuncture (VERY COMMON)

- Done at median cubital vein
- Advantage:
  - Superficial
  - Less mobile

💡 Mnemonic:

👉 "BBC" = Anterior Compartment Muscles

- Biceps
- Brachialis
- Coracobrachialis

🟢 CONTENTS OF ANTERIOR COMPARTMENT OF ARM

🔹 Overview

The anterior compartment contains:

Component	Details
Muscles	Biceps brachii, Brachialis, Coracobrachialis
Artery	Brachial artery
Veins	Superficial + deep (venae comitantes)
Nerves	Musculocutaneous, Median, Ulnar

Lymphatics	Lymph vessels + nodes

🟢 BRACHIAL ARTERY 🩸

🔹 Definition

- Continuation of axillary artery
- Begins at lower border of teres major
- Main arterial supply of arm

🔹 Course

Axillary artery

↓ (teres major)

Brachial artery

↓ (anterior compartment of arm)

↓

Cubital fossa

↓

Divides into:

→ Radial artery

→ Ulnar artery

🔹 Relations of Brachial Artery ⭐

📌 Anterior Relations

Structure
Skin & fascia
Biceps brachii
Coracobrachialis
Median nerve
Medial cutaneous nerve of forearm
Bicipital aponeurosis (distally)

📌 Posterior Relations

Structure

Triceps (upper part)
Coracobrachialis
Brachialis (lower part)

📌 Medial Relations

Structure
Ulnar nerve (upper part)
Basilic vein
Median nerve (lower part)

📌 Lateral Relations

Structure
Median nerve (upper part)
Coracobrachialis
Biceps brachii
Tendon of biceps (lower part)

💡 KEY CONCEPT:

👉 Median nerve crosses artery (lateral → medial) in arm ⭐

🟢 BRANCHES OF BRACHIAL ARTERY

Branch	Function
Muscular branches	Supply anterior muscles
Nutrient artery	Supplies humerus
Profunda brachii artery	Supplies posterior compartment
Superior ulnar collateral	Elbow anastomosis
Inferior ulnar collateral	Elbow anastomosis

🟢 VEINS OF ANTERIOR COMPARTMENT 💉

🔹 Superficial Veins

Vein	Location
Cephalic vein	Lateral side
Basilic vein	Medial side
Median cubital vein	Connects both (venipuncture site ⭐)

🔹 Deep Veins

- Brachial veins (venae comitantes)

  👉 Accompany brachial artery

💡 Clinical Insight:

👉 Median cubital vein is preferred for IV injections & blood sampling

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🟢 NERVES OF ANTERIOR COMPARTMENT ⚡

🔸 1. MUSCULOCUTANEOUS NERVE

- 🔹 Type
  - Motor + sensory

- 🔹 Supply

Type	Supply
Motor	All anterior arm muscles
Sensory	Lateral forearm

🔹 Special Feature ⭐

👉 Pierces coracobrachialis

🔸 2. MEDIAN NERVE

🔹 Origin

- From lateral + medial cords

🔹 Course in Arm

Starts lateral to brachial artery

↓

Crosses anteriorly

↓

Becomes medial to artery

↓

Enters cubital fossa

🔹 Key Points

- No major muscular branches in arm ❗
- Mainly passes through arm to forearm

🔸 3. ULNAR NERVE

- 🔹 Origin
  - From medial cord (C8–T1)

- 🔹 Course in Arm

Runs medial to brachial artery

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Pierces medial intermuscular septum

↓

Enters posterior compartment

↓

Passes behind medial epicondyle

- Key Points
  - No branches in arm ❗
  - Vulnerable at medial epicondyle ("funny bone")

🟢 LYMPHATICS 🧬

- Lymph Nodes

Group	Location
Supratrochlear (epitrochlear)	Near medial epicondyle

Axillary nodes	Drain entire upper limb

🔹 Drainage

Superficial lymphatics

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Supratrochlear nodes

↓

Axillary lymph nodes

🟢 APPLIED ANATOMY 🩺

🔸 1. Brachial Artery Injury

- Can occur in:
    - Fractures of humerus
- Leads to:
    - Ischemia of forearm & hand

🔸 2. Median Nerve Injury (Arm)

- Rare but may occur with trauma
- Leads to:
    - Loss of forearm flexion
    - Thenar muscle paralysis

🔸 3. Ulnar Nerve Injury

- At medial epicondyle
- Causes:

- Claw hand deformity

🔸 4. Venipuncture

- Done at:
  - Median cubital vein
- Safe due to:
  - Bicipital aponeurosis protecting artery & nerve

Mnemonic:

👉 "MUR" (Medial side structures near artery):

- Median nerve
- Ulnar nerve
- Related vein (basilic)

-> The End <-