

A 23-year-old man comes to the emergency department after injuring his right shoulder during a basketball game. He was trying to block a shot when his abducted arm was forced backward by an opposing player. The patient immediately felt excruciating pain and is not able to move the shoulder. He has no other medical problems and has never had a similar injury. On examination, there is gross asymmetry of the right shoulder compared to the left, with the right arm held in slight abduction and external rotation. Distal pulses are full. Plain film x-ray of the right shoulder is shown below.



Which of the following is the most likely complication of this patient's injury?

- ☐ A. Inability to extend fingers
- ☐ B. Loss of the biceps reflex

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Which of the following is the most likely complication of this patient's injury?

- ☐ A. Inability to extend fingers
- ☐ B. Loss of the biceps reflex
- ☐ C. Numbness of the medial 2 fingers
- ☐ D. Shoulder abduction weakness
- ☐ E. Winging of the scapula

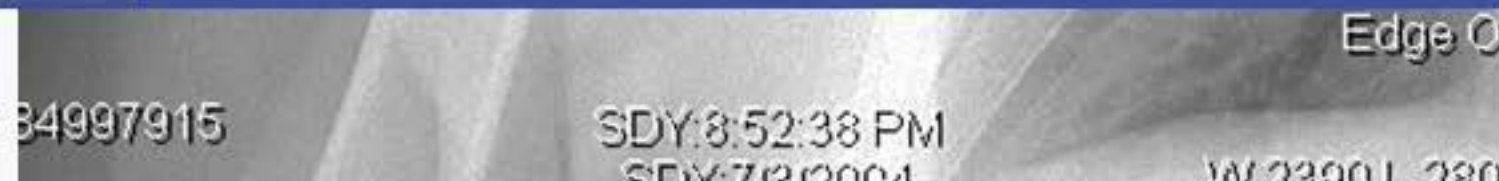
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Which of the following is the most likely complication of this patient's injury?

- ☐ A. Inability to extend fingers [11%]
- ☐ B. Loss of the biceps reflex [10%]
- ☐ C. Numbness of the medial 5 fingers [70%]



Which of the following is the most likely complication of this patient's injury?

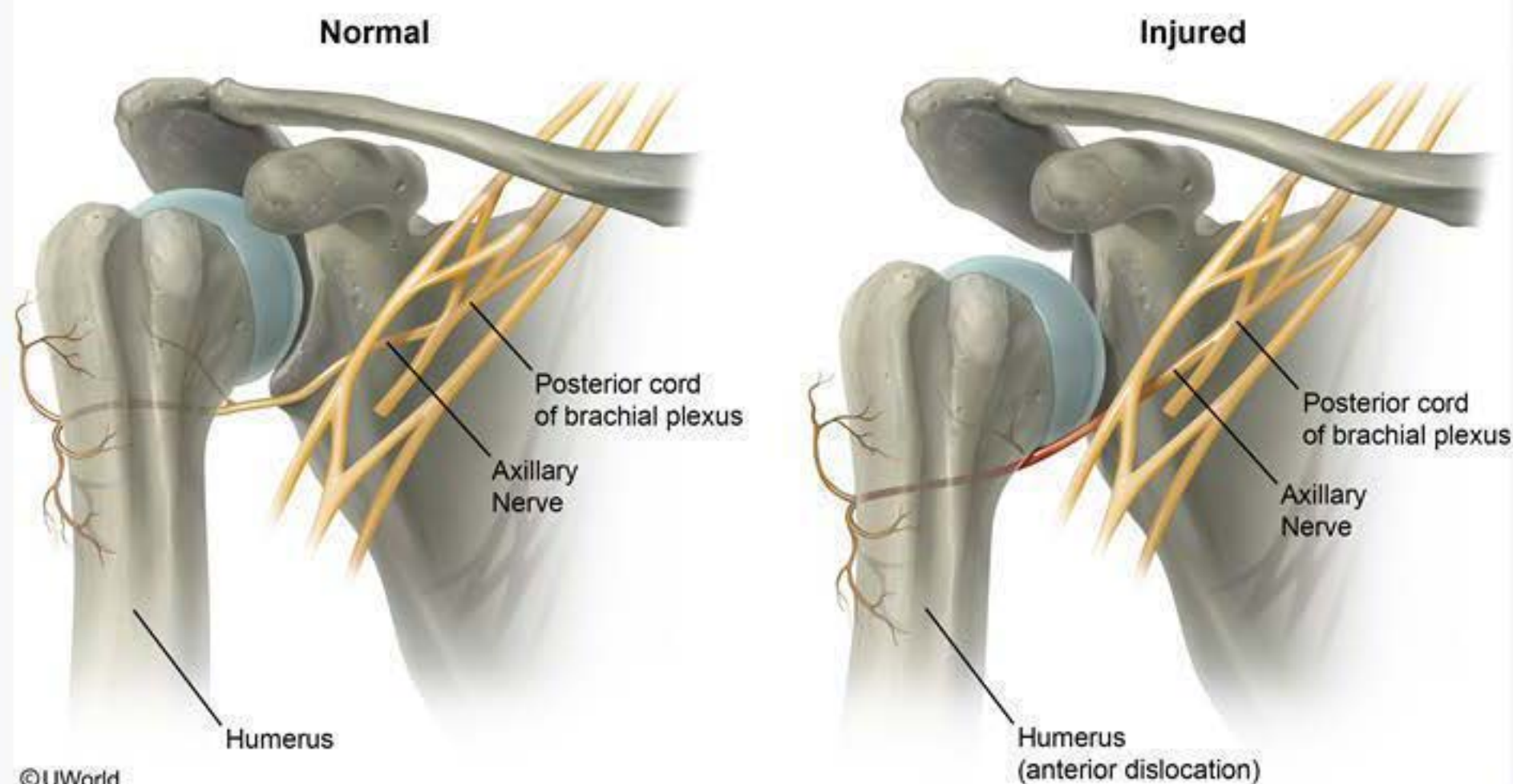
- ☐ A. Inability to extend fingers [11%]
- ☐ B. Loss of the biceps reflex [10%]
- ☐ C. Numbness of the medial 2 fingers [7%]
- ☒ D. **Shoulder abduction weakness** [65%]
- ☐ E. Winging of the scapula [8%]

Proceed to Next Item

Explanation:

User Id: [REDACTED]

Axillary nerve injury



This patient has an anterior dislocation of the humeral head. The glenohumeral joint is the most commonly dislocated joint in the body due to the shallow articulation between the humeral head and the glenoid fossa of the scapula. The shoulder may dislocate anteriorly, inferiorly, or posteriorly, but anterior dislocations are by far the most common.



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When the head of the humerus is displaced anteriorly, there is **flattening of the deltoid** prominence, protrusion of the acromion, and anterior axillary fullness (due to the humeral head's displacement into this location). The **axillary nerve** is the nerve most commonly injured by anterior shoulder dislocations. It innervates the teres minor and **deltoid** (weakened shoulder abduction) muscles. It also provides sensory innervation to the skin overlying the **lateral shoulder**.

(Choice A) The extensor muscles of the wrist and digits are primarily innervated by branches of the **radial nerve**, which also provides sensory innervation to the posterior arm, forearm, and dorsolateral hand. The radial nerve is frequently injured in humeral mid-shaft fractures and use of improperly fitted crutches.

(Choice B) The biceps reflex is mediated by C5 and C6 spinal nerves, with muscular innervation via the **musculocutaneous nerve** (lateral cord of the brachial plexus). Traumatic injuries to this system are uncommon but can occasionally be seen in high-velocity motor vehicle collisions.

(Choice C) The **ulnar nerve** may be injured by fracture of the medial epicondyle of the humerus or more distally by deep lacerations of the anterior wrist. Symptoms include "claw hand" resulting from paralysis of the intrinsic muscles of the hand as well as sensory loss involving the medial hand.

(Choice E) The long thoracic nerve innervates the serratus anterior muscle. Deep lacerations to the axillary region and axillary lymphadenectomy are common causes of long thoracic nerve injury. Damage causes **scapular winging**.

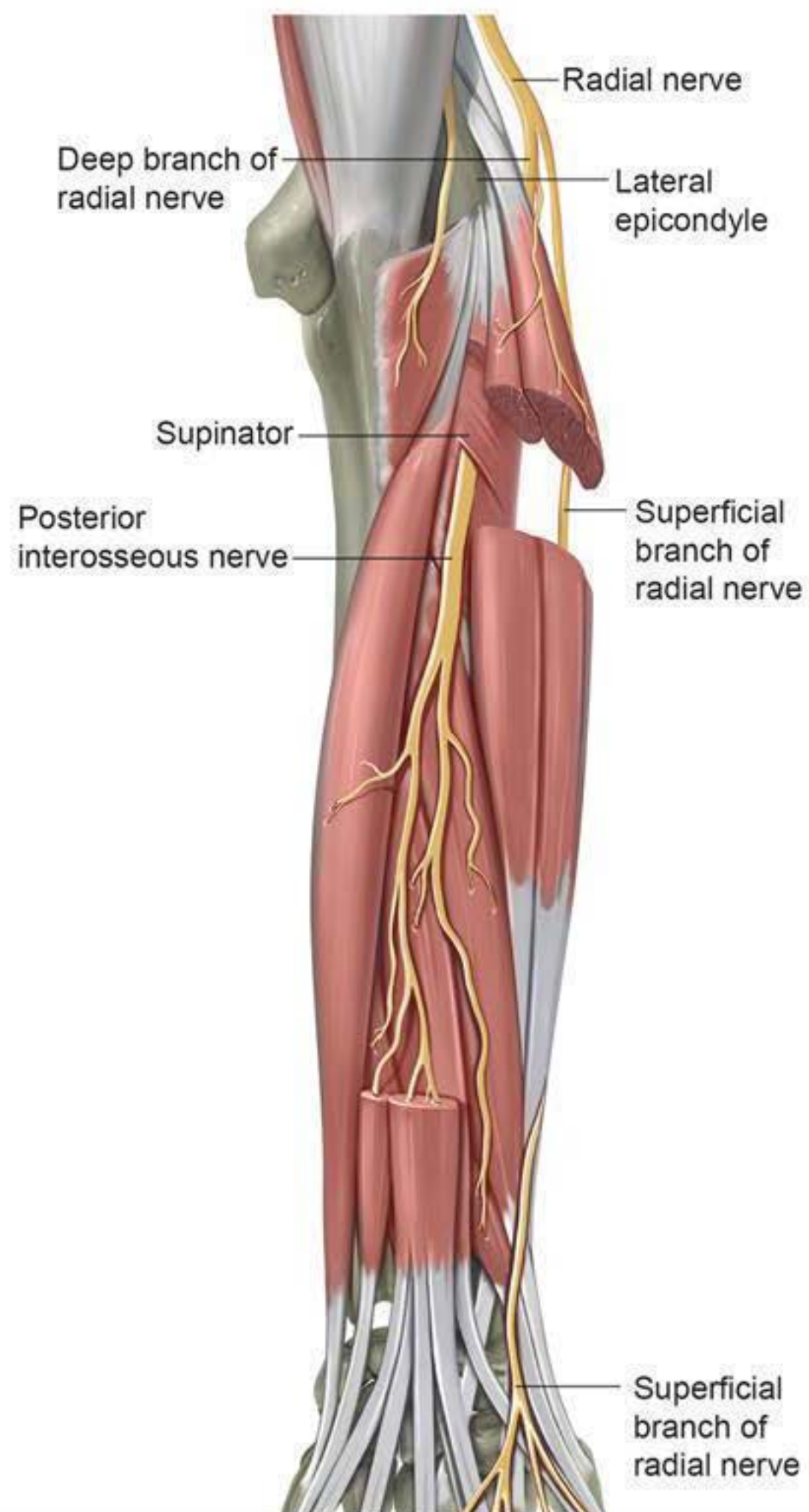
Educational objective:

Acute shoulder pain after forceful abduction and external rotation at the glenohumeral joint suggests an anterior shoulder dislocation, which may cause injury to the axillary nerve.

Media Exhibit

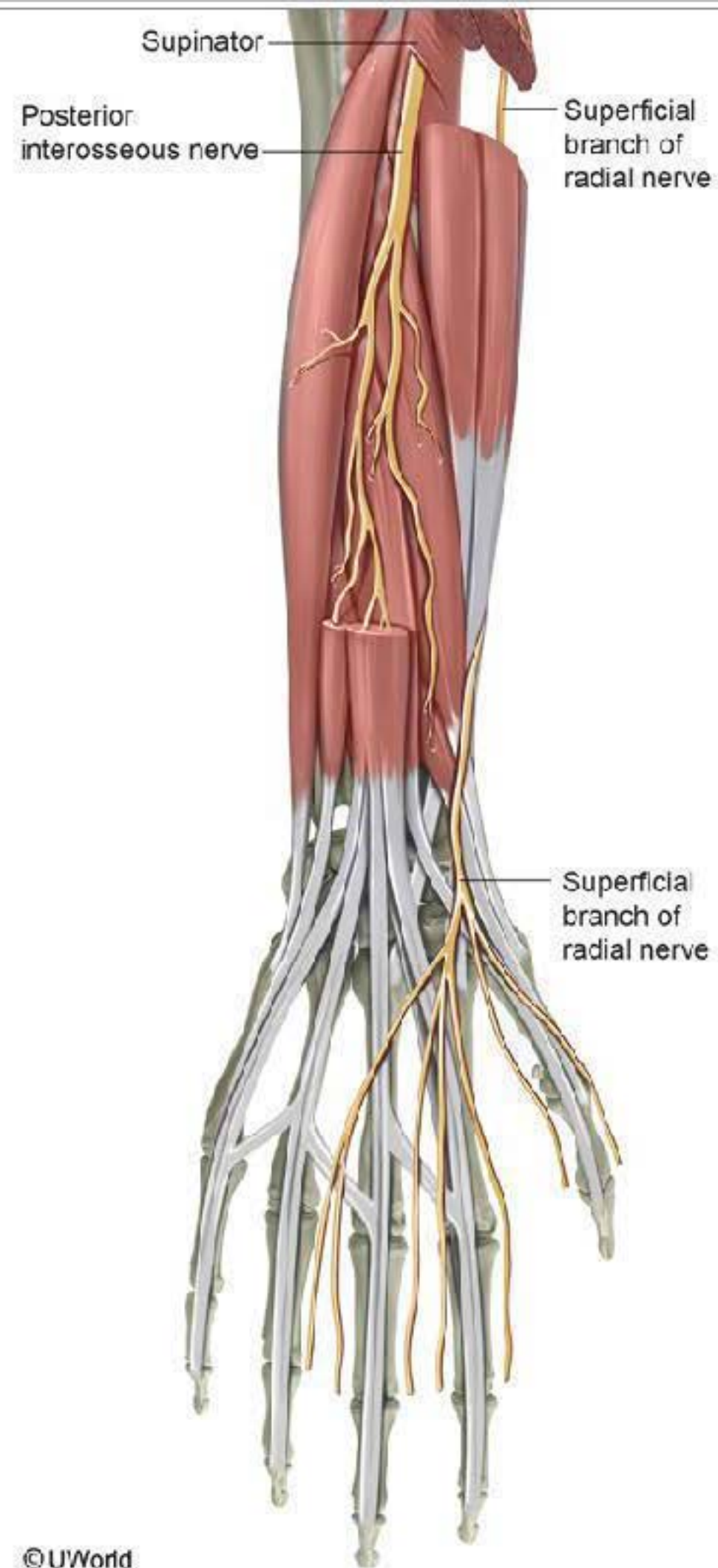
of the upper limb

Radial nerve



Media Exhibit

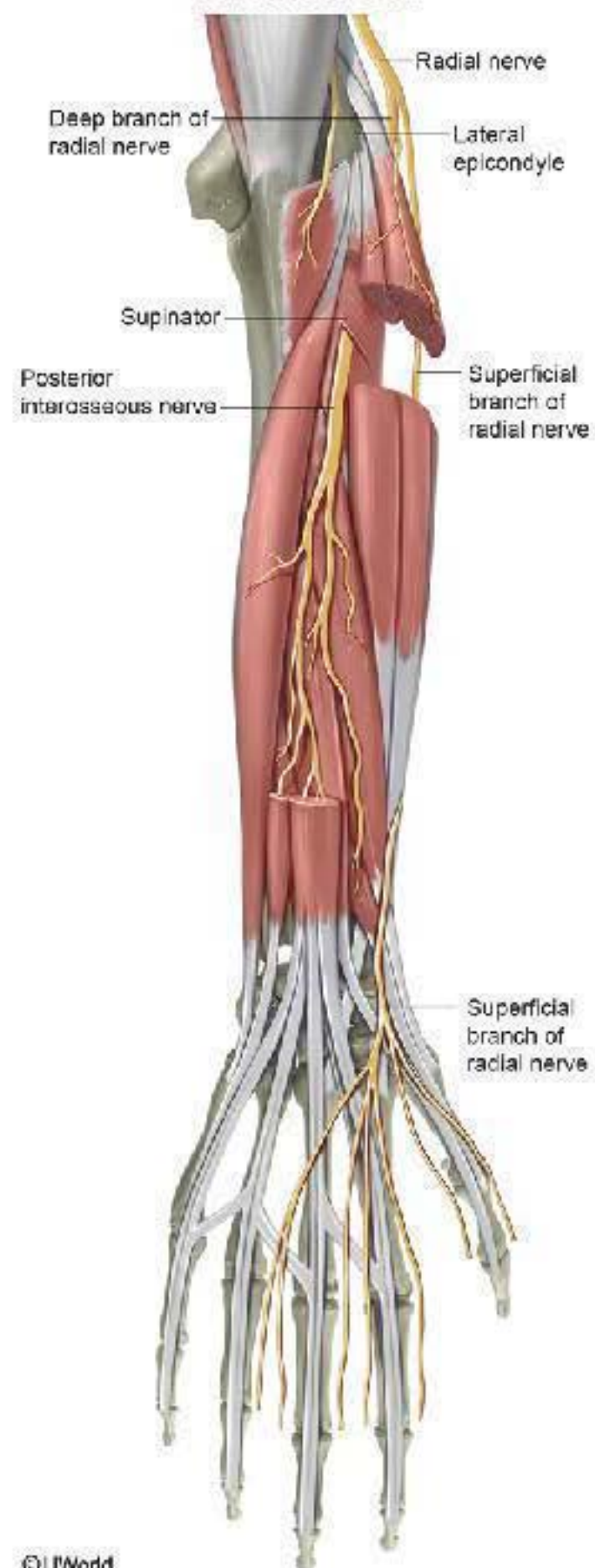
of the upper limb



Media Exhibit

of the upper limb

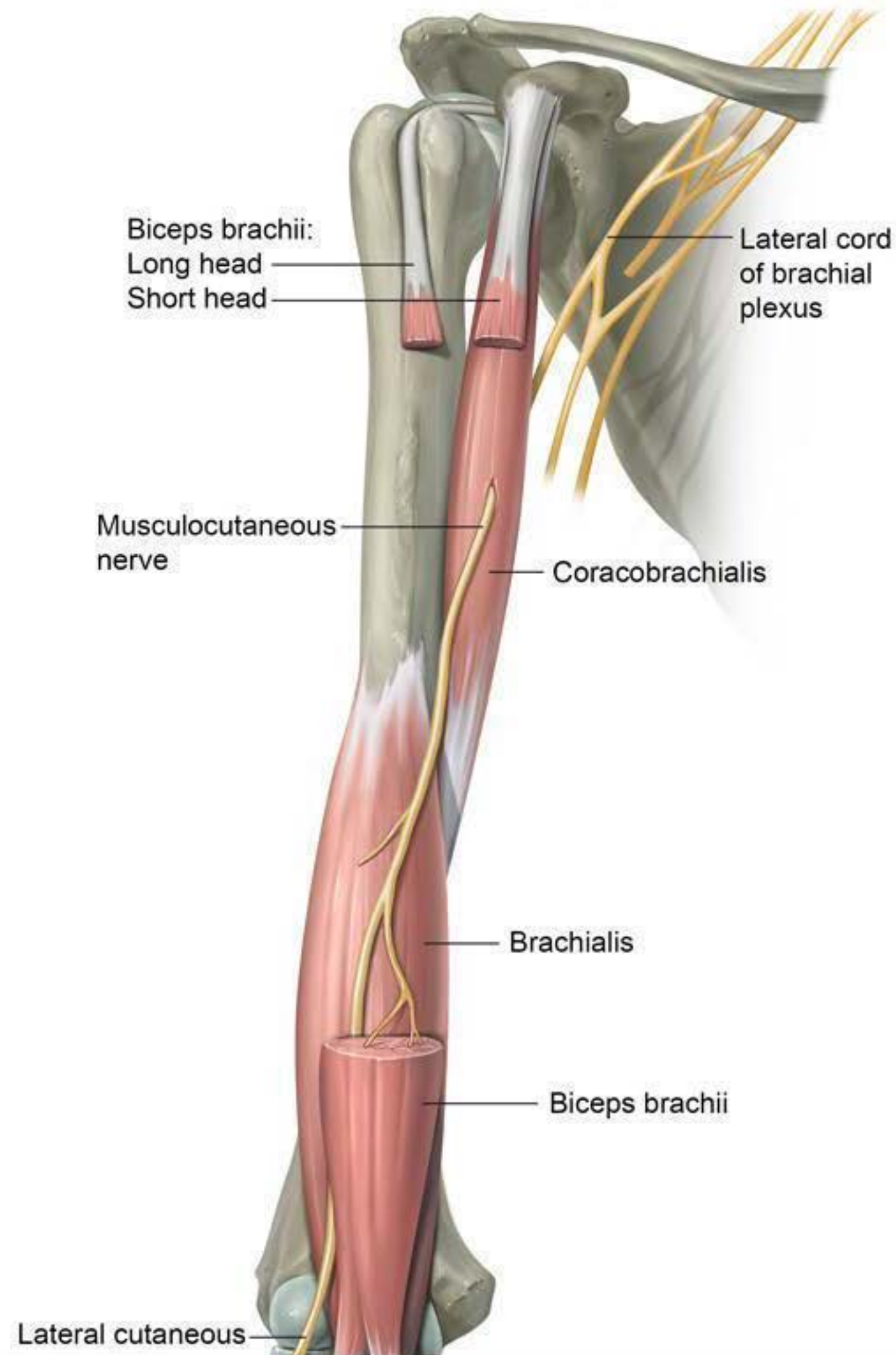
Radial nerve



Media Exhibit

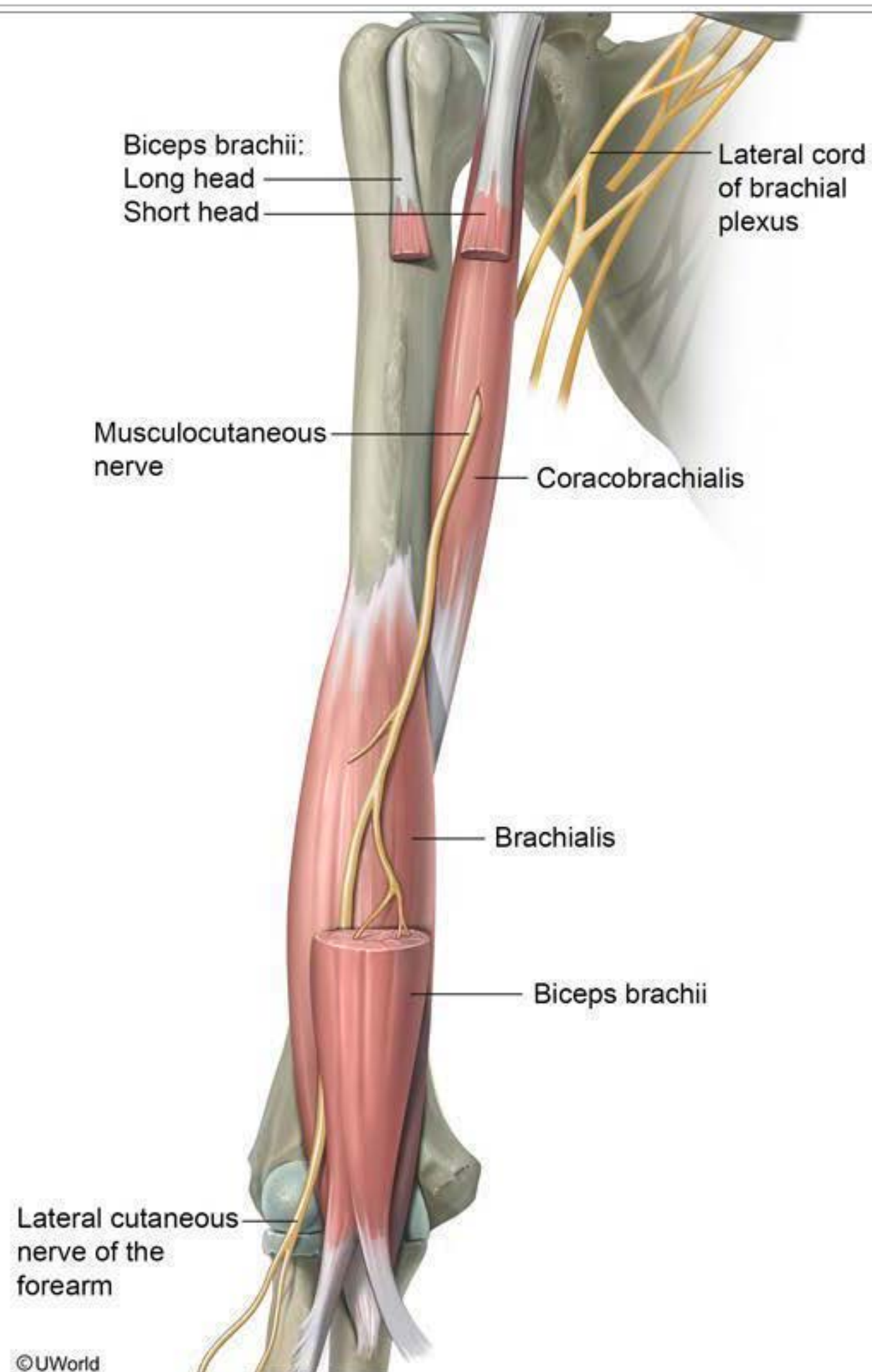
of the upper limb

Musculocutaneous nerve



Media Exhibit

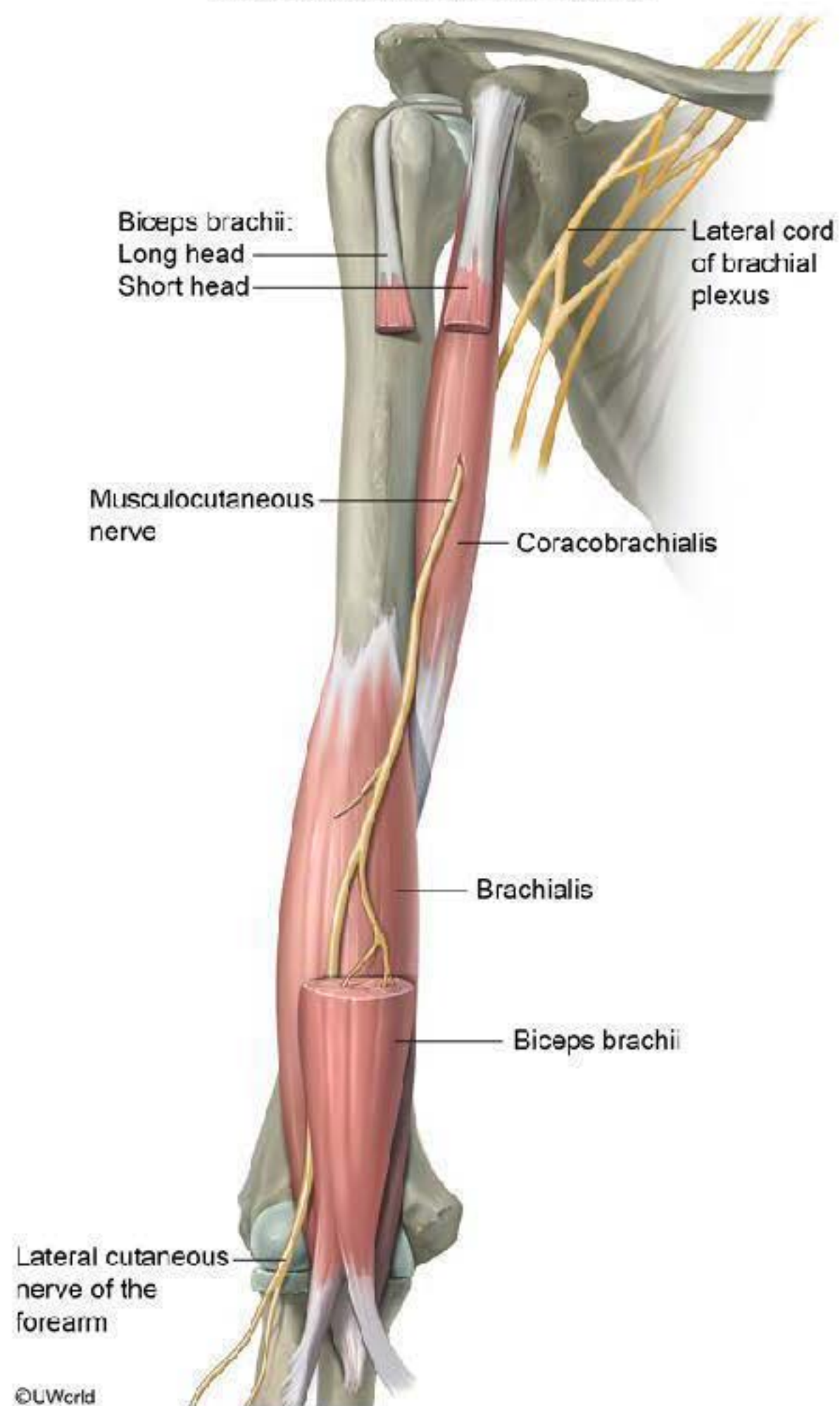
of the upper limb



Media Exhibit

of the upper limb

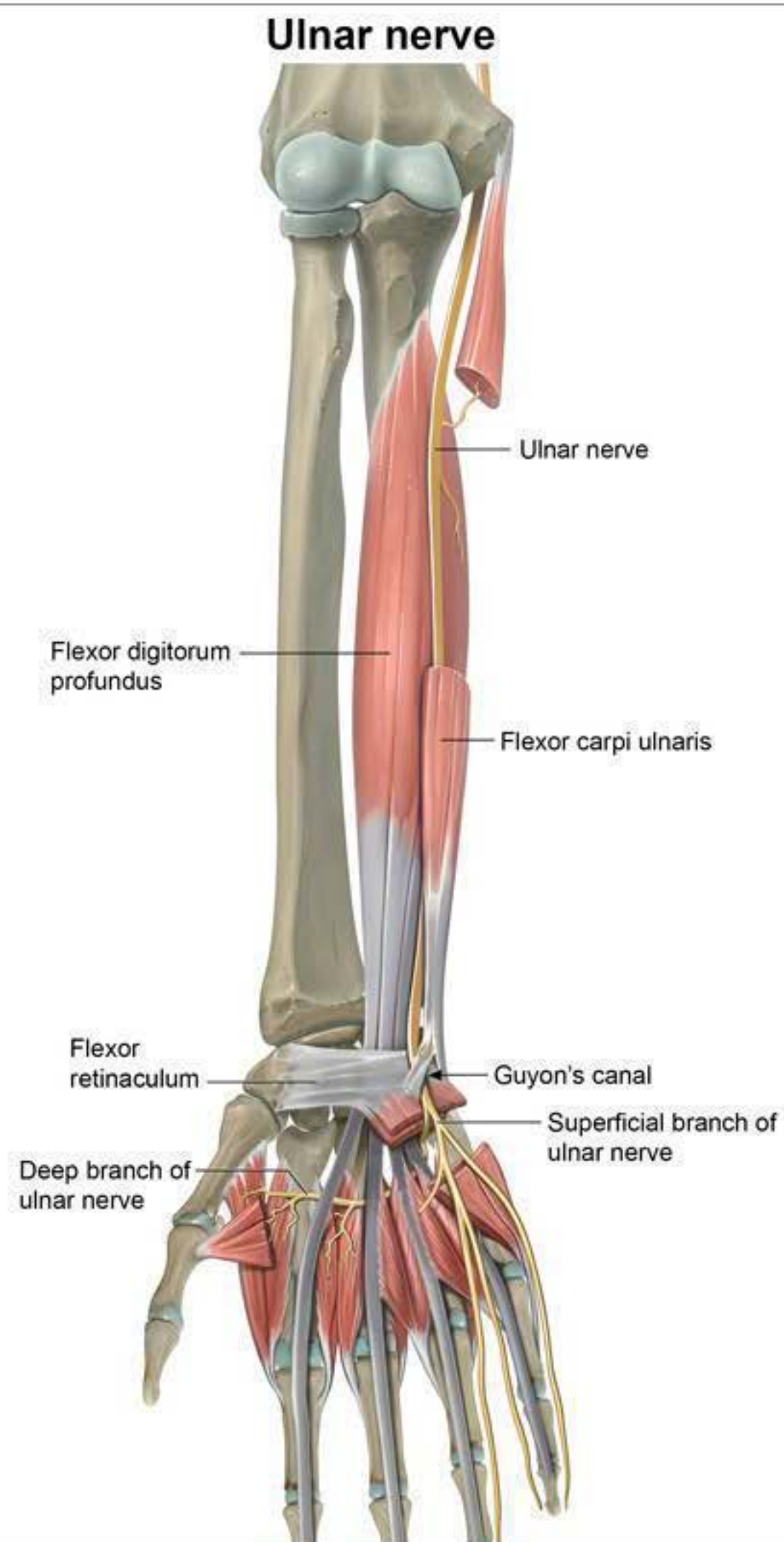
Musculocutaneous nerve



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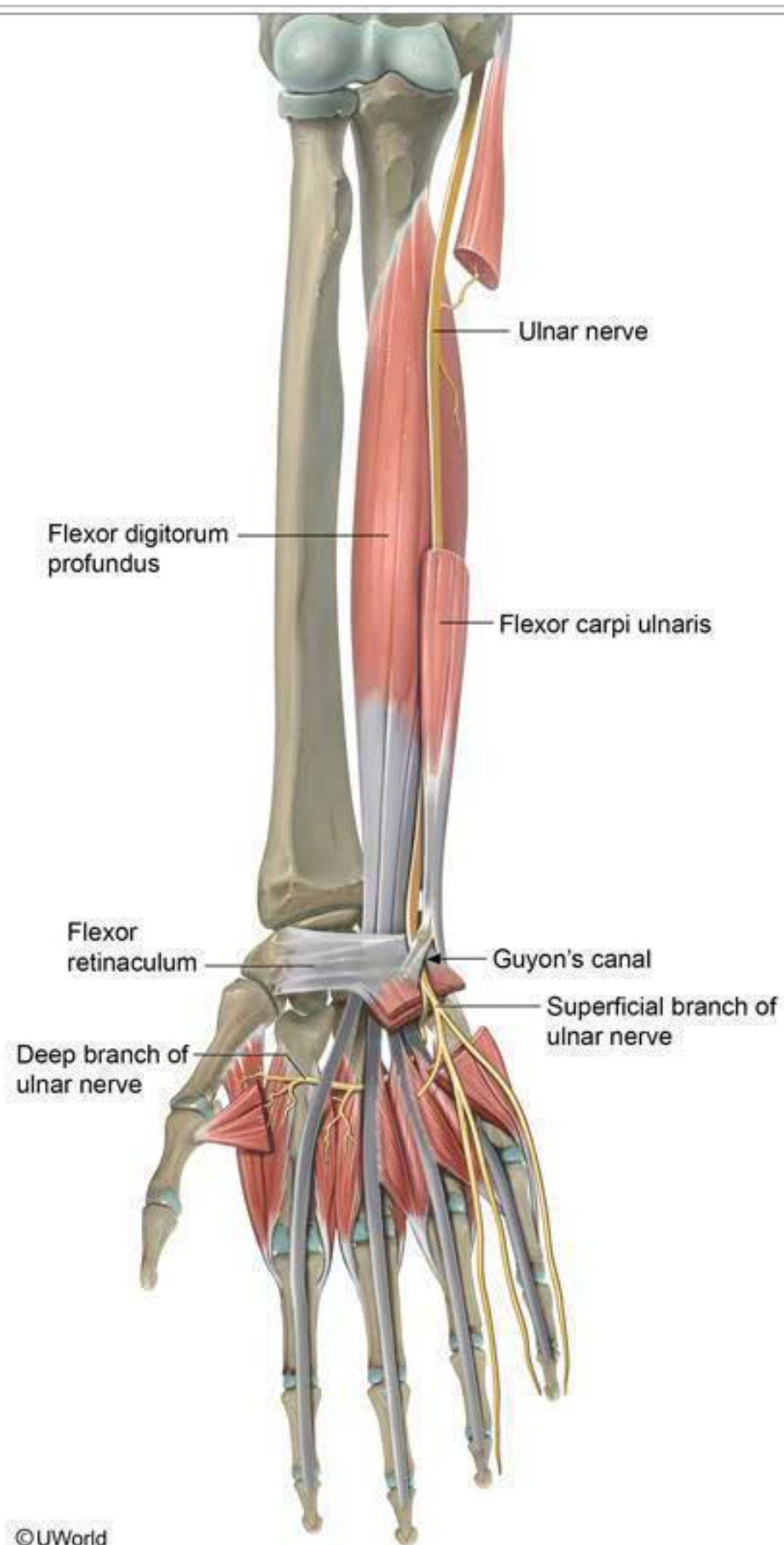
Media Exhibit

of the upper limb



Media Exhibit

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g of the scapula

Winging of scapula



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