OSTEOLOGY OF RADIUS

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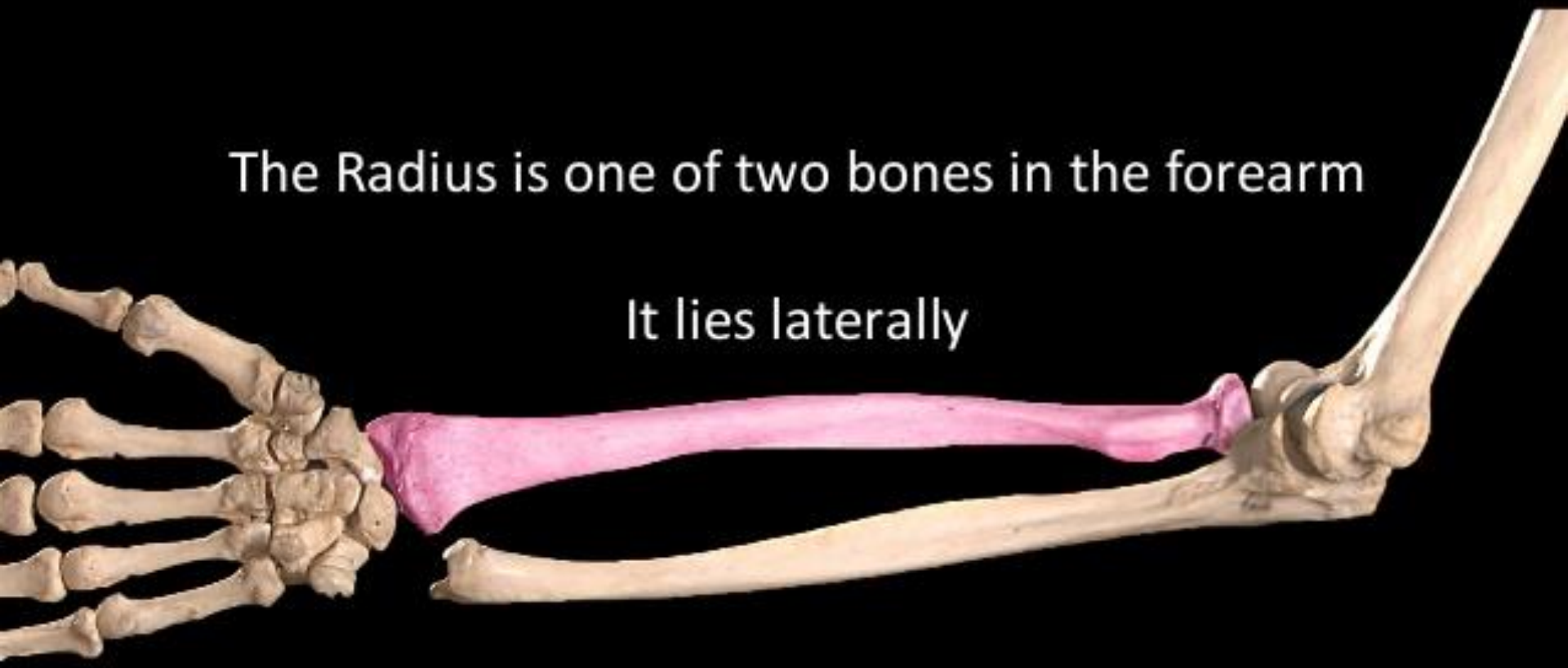
LECTURER KGMC

The Radius


The Radius is one of two bones in the forearm
It lies laterally

The Radius

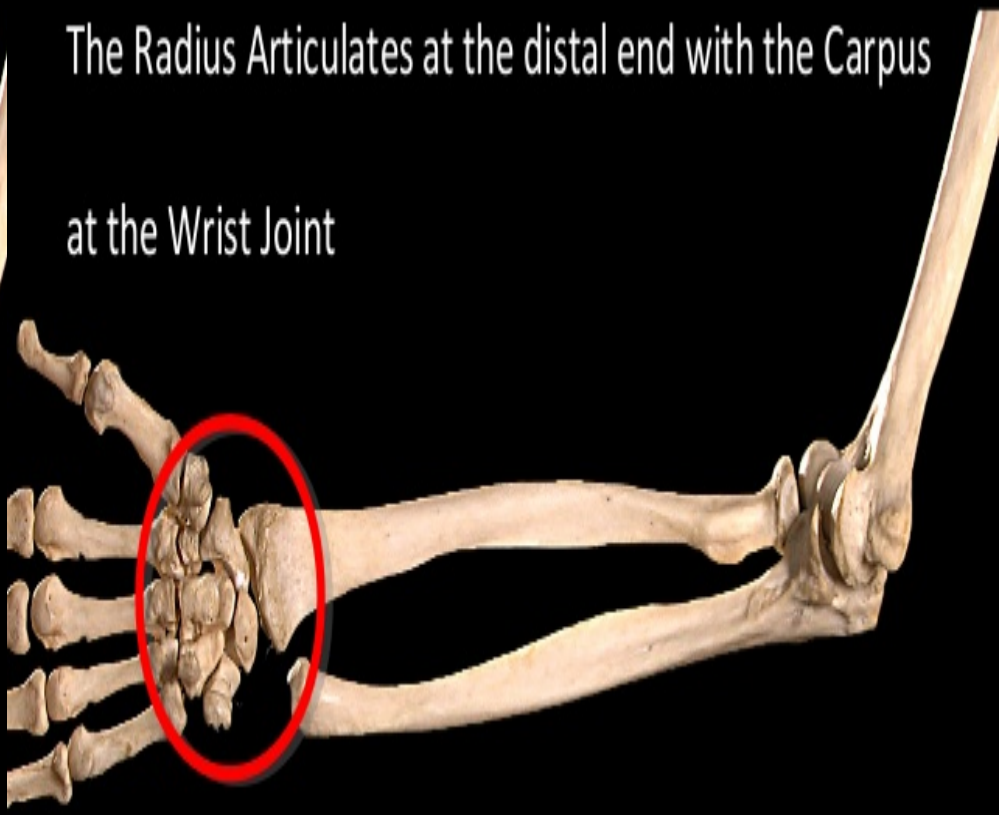
The Radius Articulates at the proximal end with the

Humerus at the Elbow Joint

The Radius

The Radius Articulates at the distal end with the Carpus

at the Wrist Joint



Side determination

- Upper end-disc shaped head
- Lower end-expanded, styloid process
- Medial border is sharpest.
- Lower end- tubercle of lister on posterior surface.

The Radius

Head of Radius articulates with
Capitulum of the Distal Humerus

Oblique View

Anterior View
(Supination)

Right side

The Radius

Capitulum of
Distal Humerus
articulates with
Head of Proximal Radius

Right side

The Radius

Neck of Radius surrounded by the Annular Ligament
This allows the Radius to rotate around the Ulna in Pronation and Supination

Oblique View

Anterior View
(Supination)

Right side

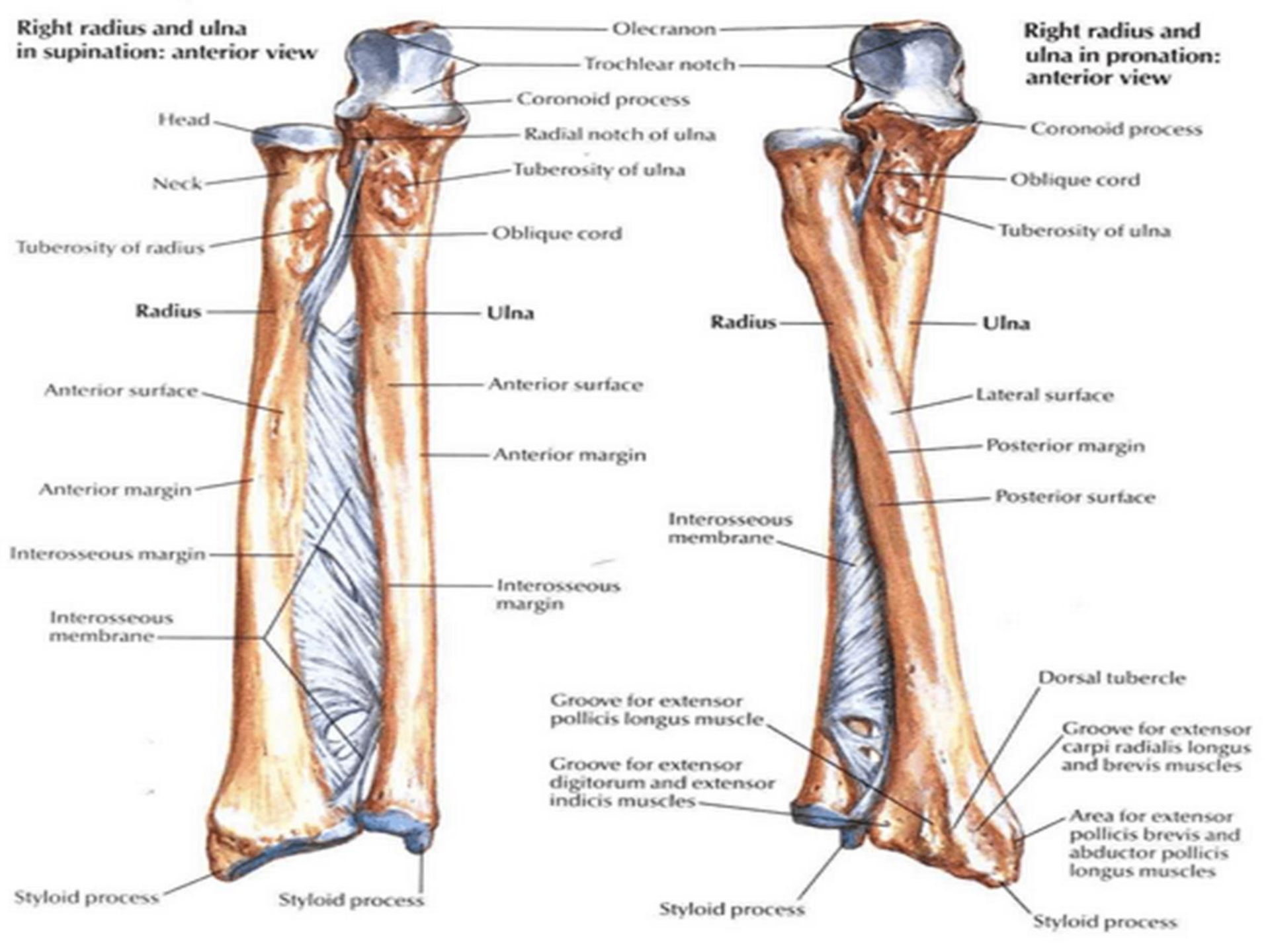
The Radius

Radial Tuberosity

Oblique View

Anterior View
(Supination)

Right side


Right radius and ulna in supination: anterior view
Olecranon
Trochlear notch
Coronoid process
Head
Radial notch of ulna
Neck
Tuberosity of ulna
Tuberosity of radius
Oblique cord
Radius
Ulna
Anterior surface
Anterior surface
Anterior margin
Anterior margin
Interosseous margin
Interosseous margin
Interosseous membrane
Styloid process
Styloid process
Right radius and ulna in pronation: anterior view
Coronoid process
Oblique cord
Tuberosity of ulna
Radius
Ulna
Lateral surface
Posterior margin
Posterior surface
Interosseous membrane
Dorsal tubercle
Groove for extensor pollicis longus muscle
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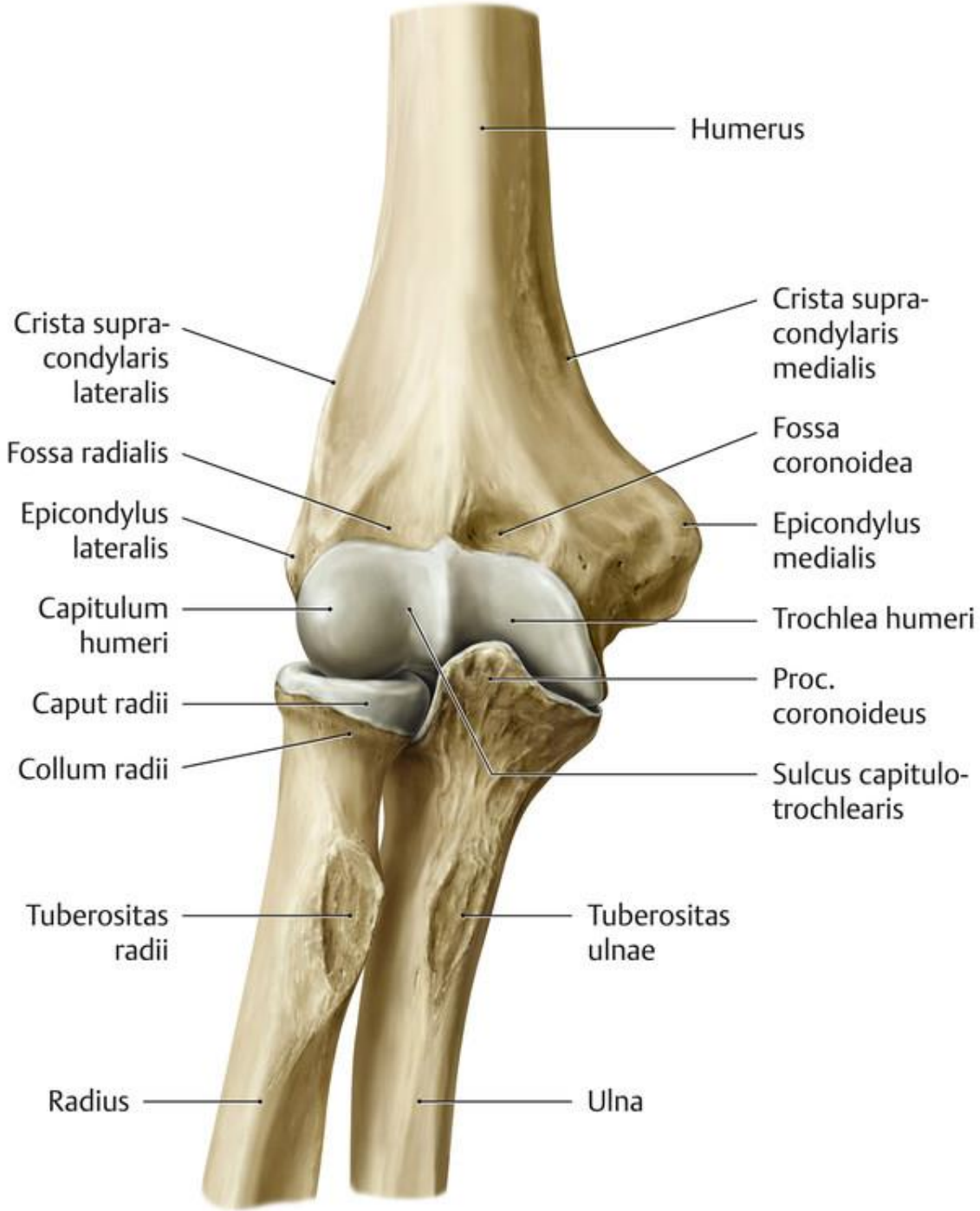
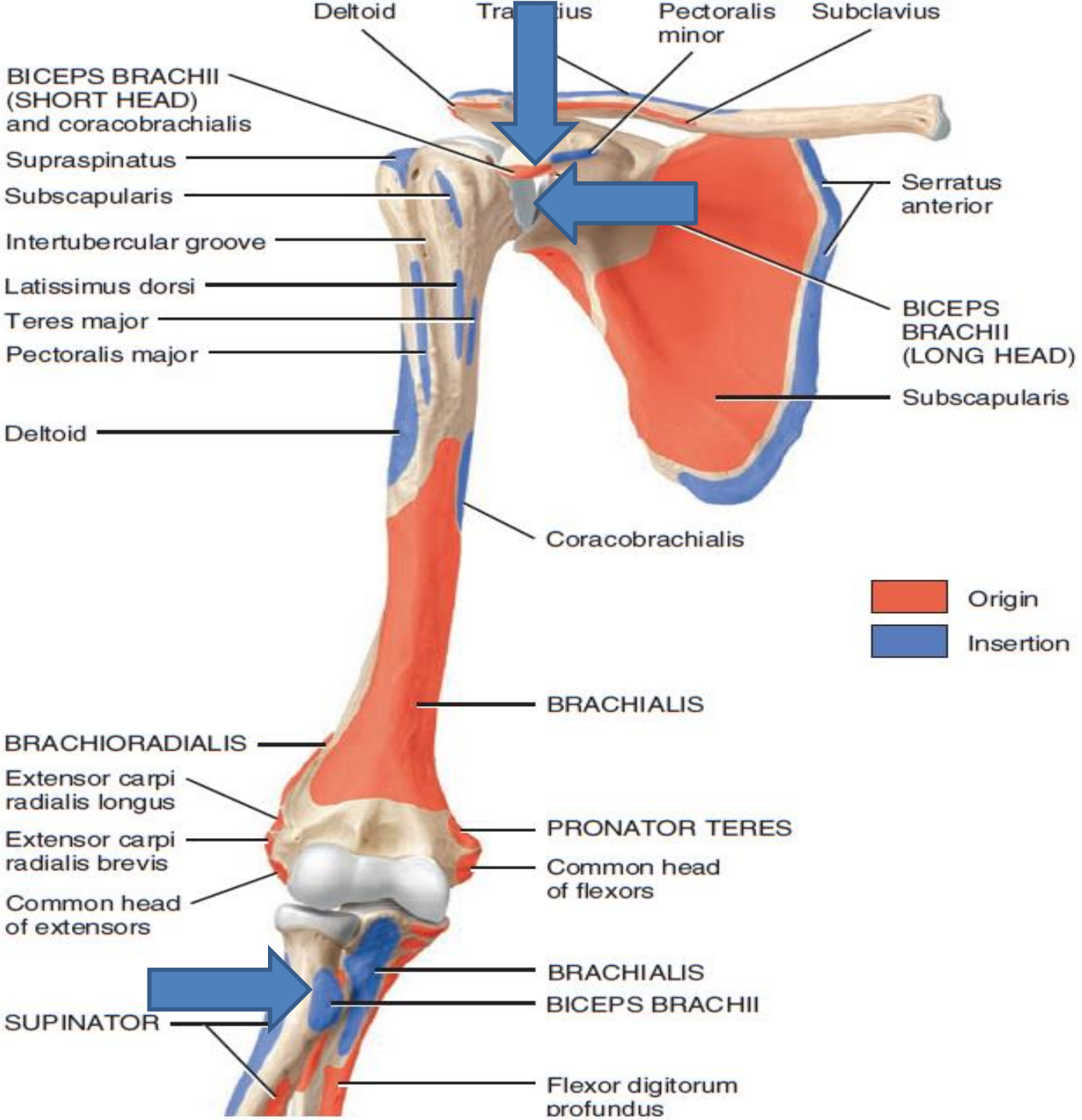

Humerus
Crista supra-
condylaris
lateralis
Crista supra-
condylaris
medialis
Fossa radialis
Fossa
coronoidea
Epicondylus
lateralis
Epicondylus
medialis
Capitulum
humeri
Trochlea humeri
Caput radii
Proc.
coronoideus
Collum radii
Sulcus capitulo-
trochlearis
Tuberositas
radii
Tuberositas
ulnae
Radius
Ulna

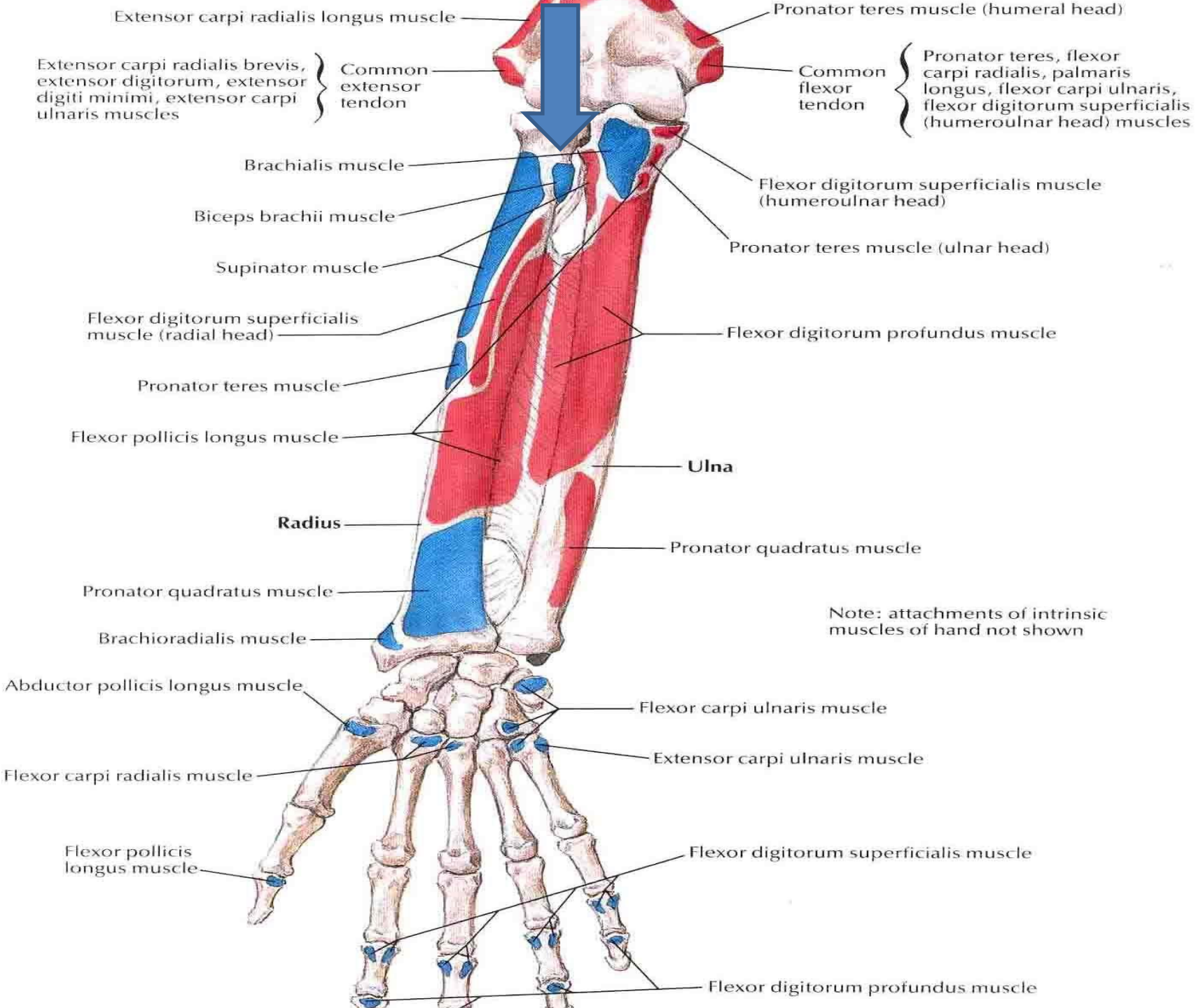
The Radius

Radial Tuberosity

The Biceps muscles attaches distally to the radius

It flexes the elbow joint and supinates the forearm


Deltoid
Pectoralis minor
Subclavius
BICEPS BRACHII (SHORT HEAD) and coracobrachialis
Supraspinatus
Subscapularis
Intertubercular groove
Latissimus dorsi
Teres major
Pectoralis major
Deltoid
Serratus anterior
BICEPS BRACHII (LONG HEAD)
Subscapularis
Coracobrachialis
Origin
Insertion
BRACHIALIS
BRACHIORADIALIS
Extensor carpi radialis longus
Extensor carpi radialis brevis
Common head of extensors
PRONATOR TERES
Common head of flexors
BRACHIALIS
BICEPS BRACHII
SUPINATOR
Flexor digitorum profundus


Extensor carpi radialis longus muscle
Pronator teres muscle (humeral head)
Extensor carpi radialis brevis, extensor digitorum, extensor digiti minimi, extensor carpi ulnaris muscles
Common extensor tendon
Common flexor tendon
Pronator teres, flexor carpi radialis, palmaris longus, flexor carpi ulnaris, flexor digitorum superficialis (humeroulnar head) muscles
Brachialis muscle
Flexor digitorum superficialis muscle (humeroulnar head)
Biceps brachii muscle
Pronator teres muscle (ulnar head)
Supinator muscle
Flexor digitorum superficialis muscle (radial head)
Flexor digitorum profundus muscle
Pronator teres muscle
Flexor pollicis longus muscle
Ulna
Radius
Pronator quadratus muscle
Pronator quadratus muscle
Note: attachments of intrinsic muscles of hand not shown
Brachioradialis muscle
Abductor pollicis longus muscle
Flexor carpi ulnaris muscle
Extensor carpi ulnaris muscle
Flexor carpi radialis muscle
Flexor pollicis longus muscle
Flexor digitorum superficialis muscle
Flexor digitorum profundus muscle

The Radius

Right side

The Radius

This is the lateral side because the

Radial Styloid

is prominent distally

Right side

The Radius

Lister's Tubercle

Tendon of Extensor Pollicis Longus courses just medial to the Tubercle

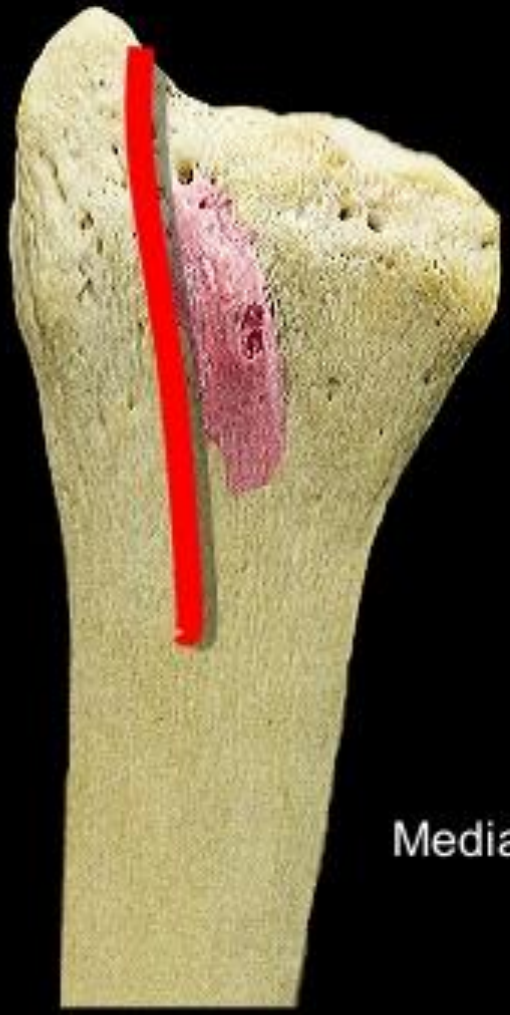
Lateral

Medial

Dorsal View

The Radius

Lister's Tubercle



The groove for tendon of

Extensor Carpi Radialis Brevis

lies just lateral to Lister's Tubercle

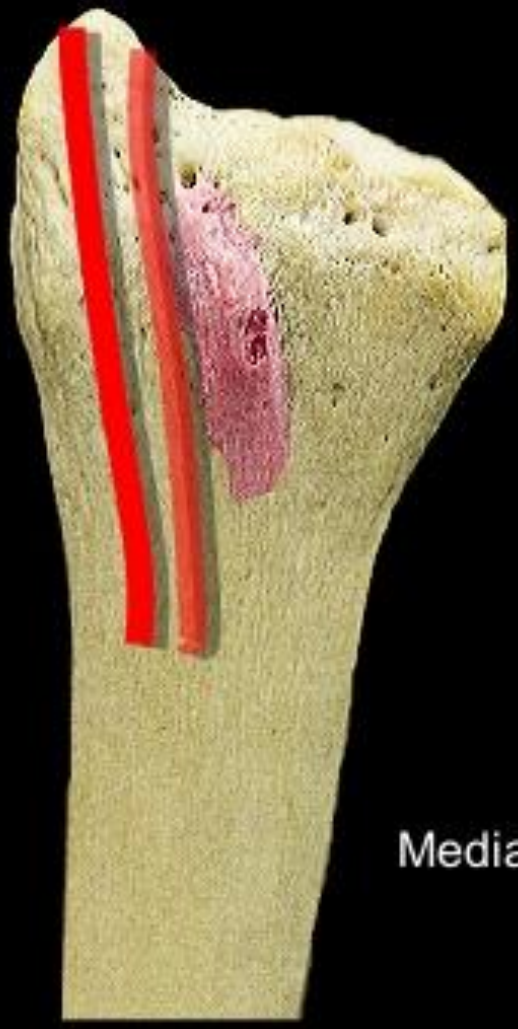
Lateral

Medial

Dorsal aspect

The Radius

Lister's Tubercle



The groove for tendon of

Extensor Carpi Radialis Longus

lies just lateral to the groove for Extensor Carpi Radialis Brevis

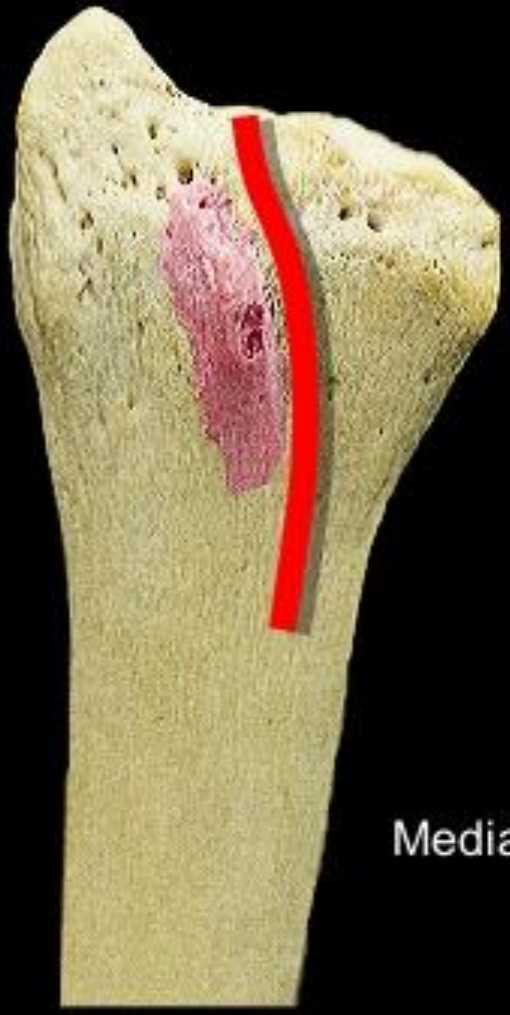
Lateral

Medial

Dorsal aspect

The Radius

Lister's Tubercle



The groove for tendon of

Extensor Pollicis Longus

lies just medial to
Lister's Tubercle

Lateral

Medial

Dorsal aspect

The Radius

Lister's Tubercle

The groove for tendons of

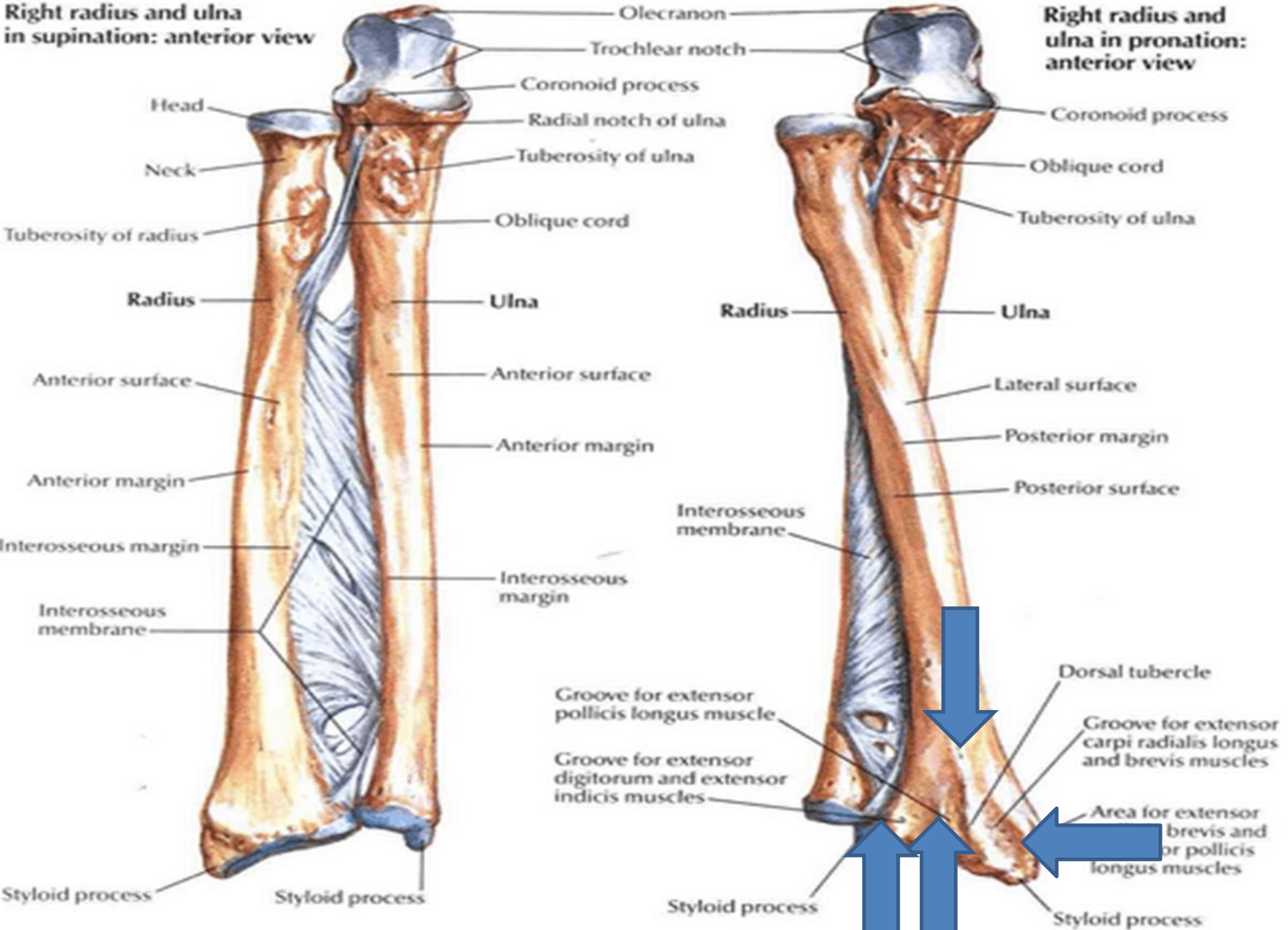
Extensor Digitorum
Extensor Indicis

lies just medial to
Extensor Pollicis Longus

Lateral

Medial

Dorsal aspect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Groove for extensor pollicis longus muscle
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Groove for extensor digitorum and extensor indicis muscles
Area for extensor brevis and or pollicis longus muscles
Styloid process
Styloid process

The Radius

Distal Radius Articular Surface

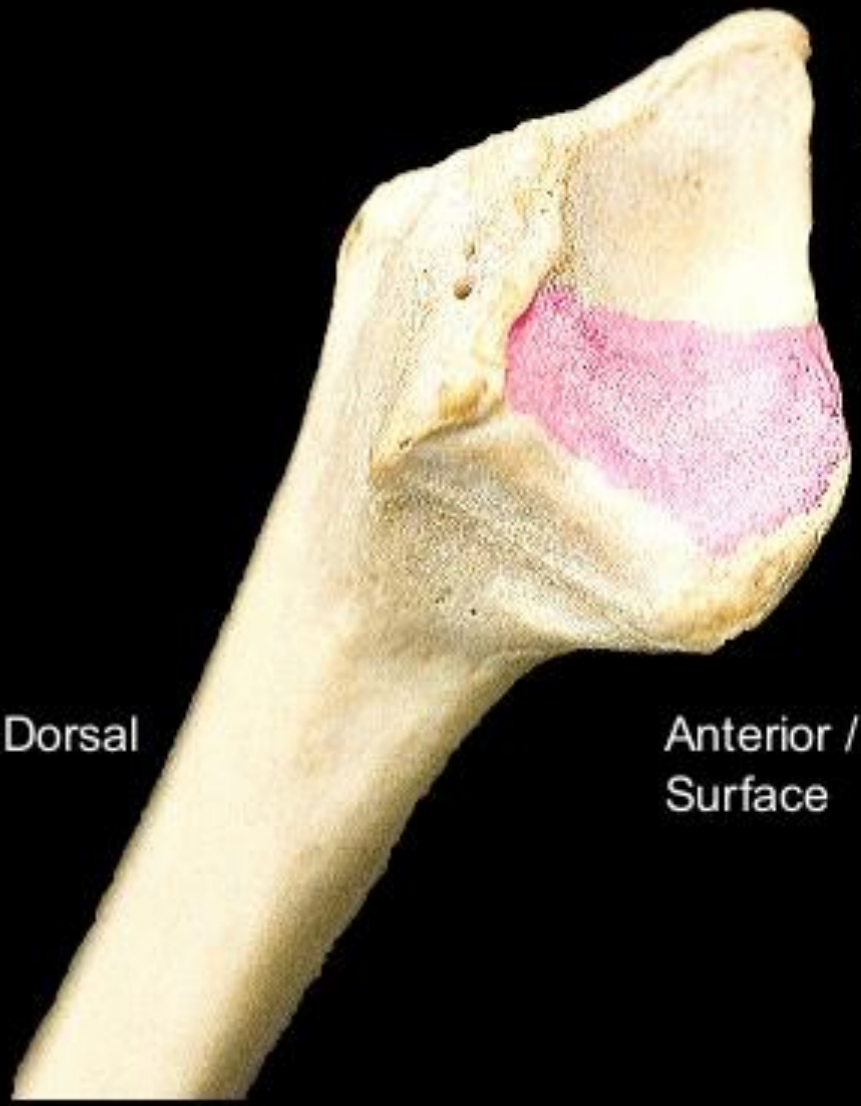
Lateral Fossa articulates with the Scaphoid

Posterior / Dorsal Surface

Anterior / Volar Surface

The Radius

Distal Radius Articular Surface



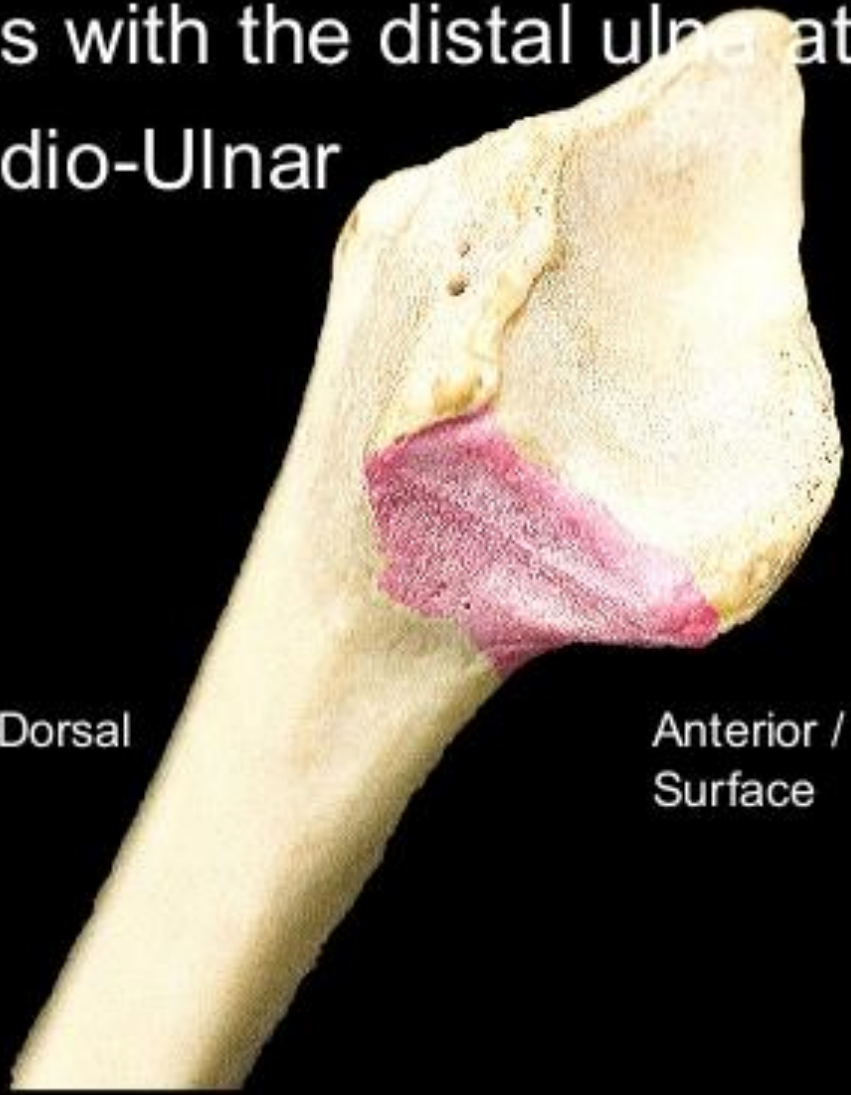
Medial Fossa articulates with the Lunate

Posterior / Dorsal Surface

Anterior / Volar Surface

The Radius

This region – the Ulnar Notch articulates with the distal ul[illegible]at the Distal Radio-Ulnar Joint



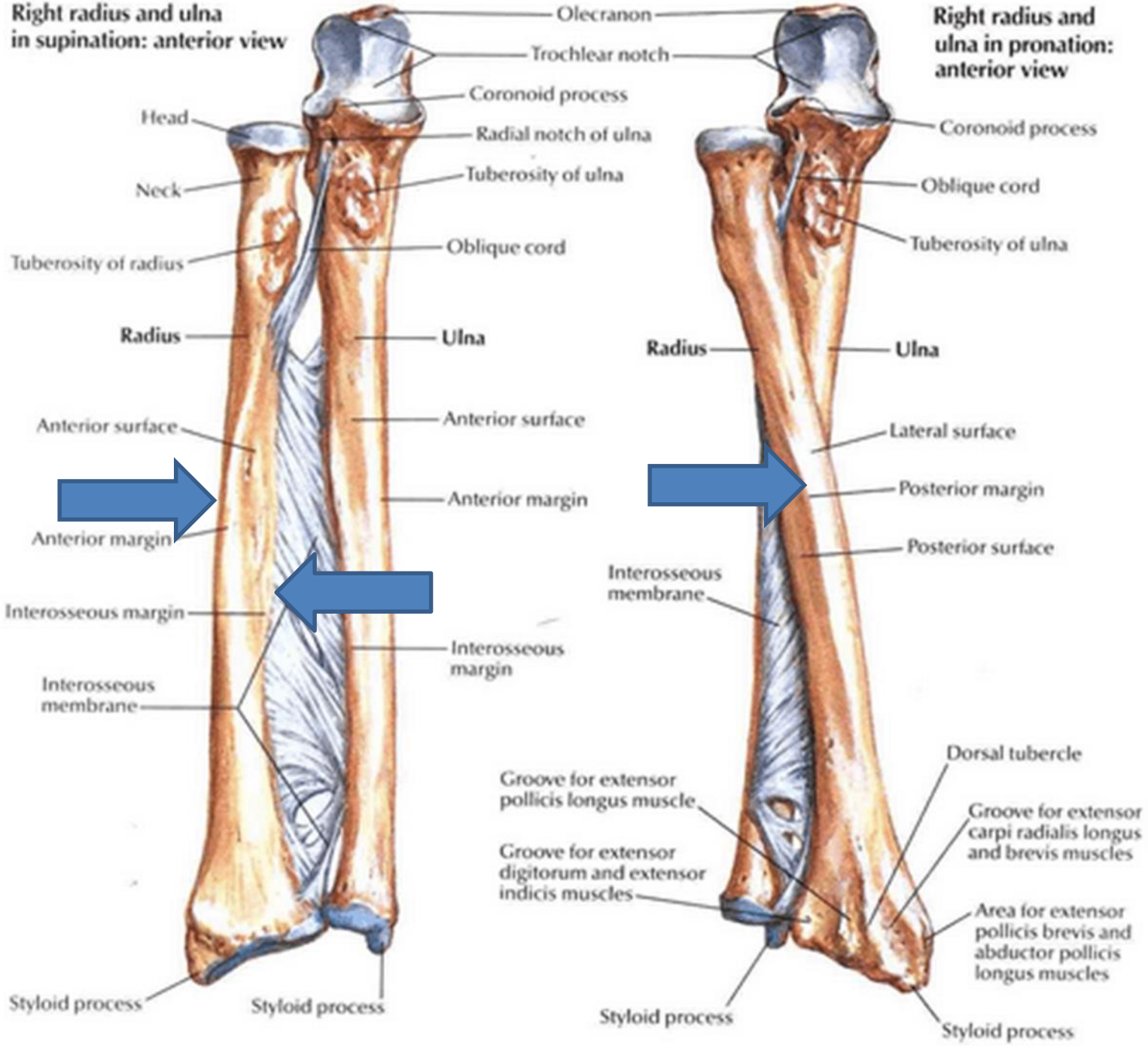
Posterior / Dorsal Surface

Anterior / Volar Surface

Shaft

Borders
- anterior border
- posterior border
- medial/ interosseous border

Surfaces
- anterior surface
- posterior surface
- lateral surface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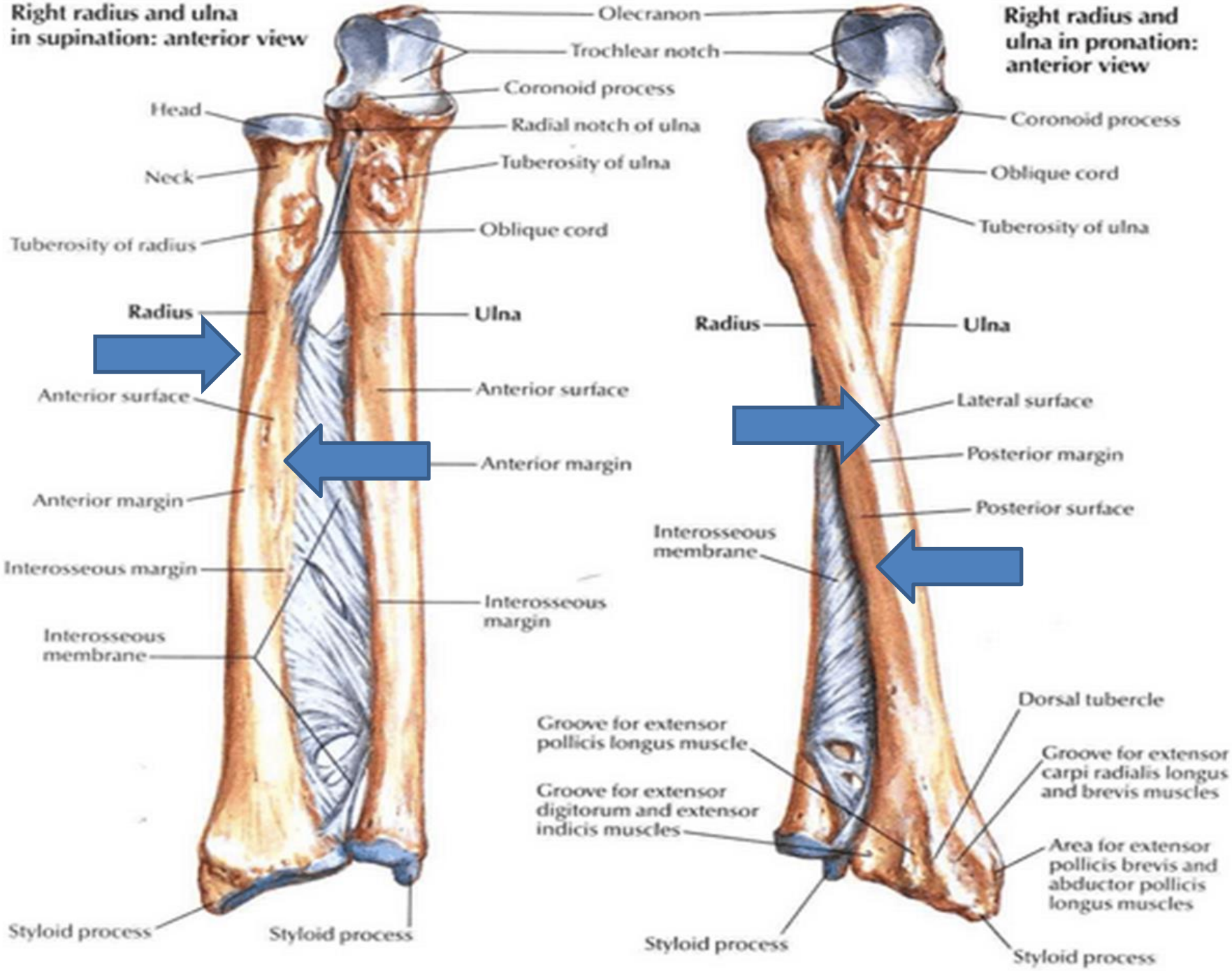
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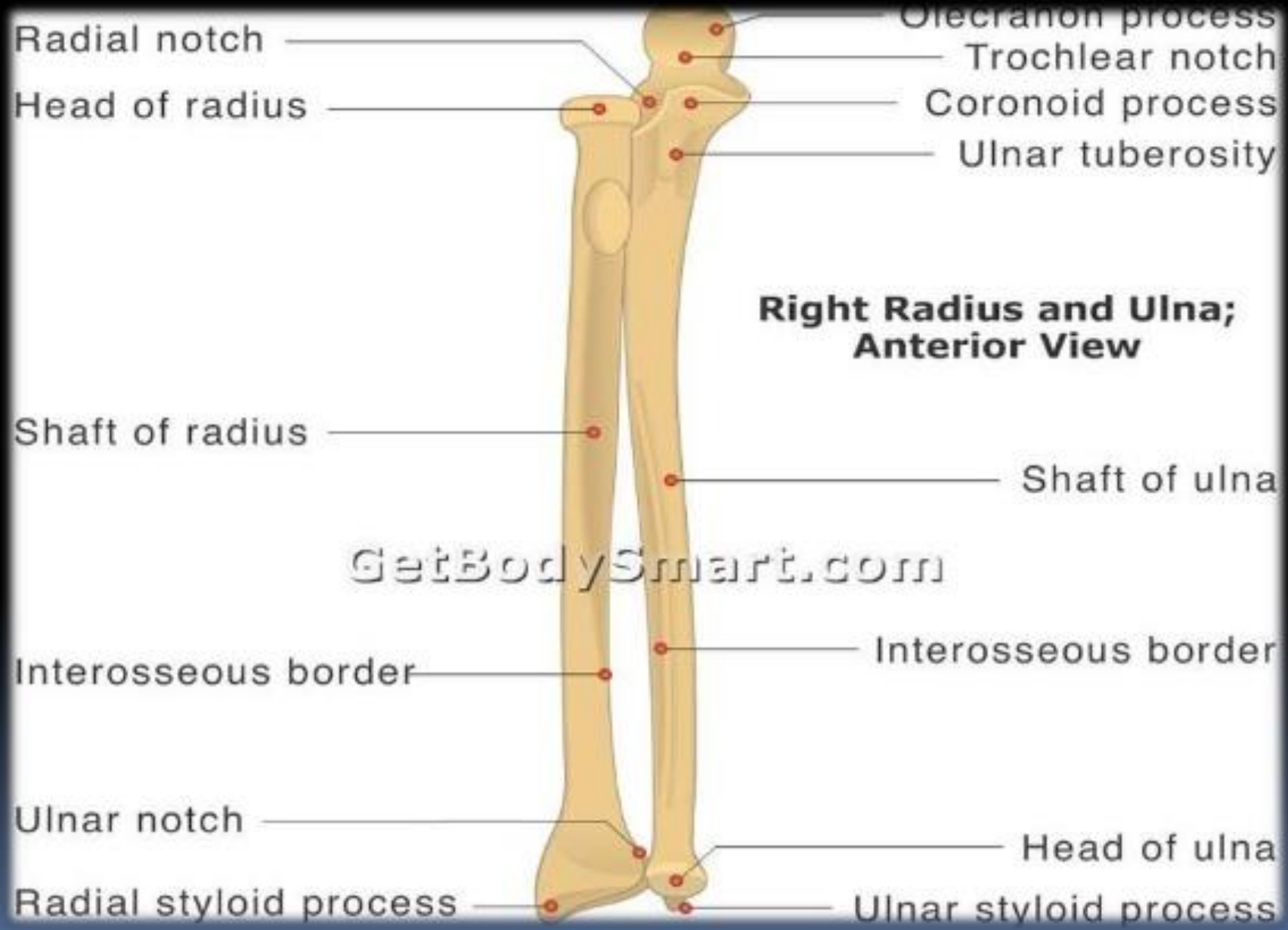
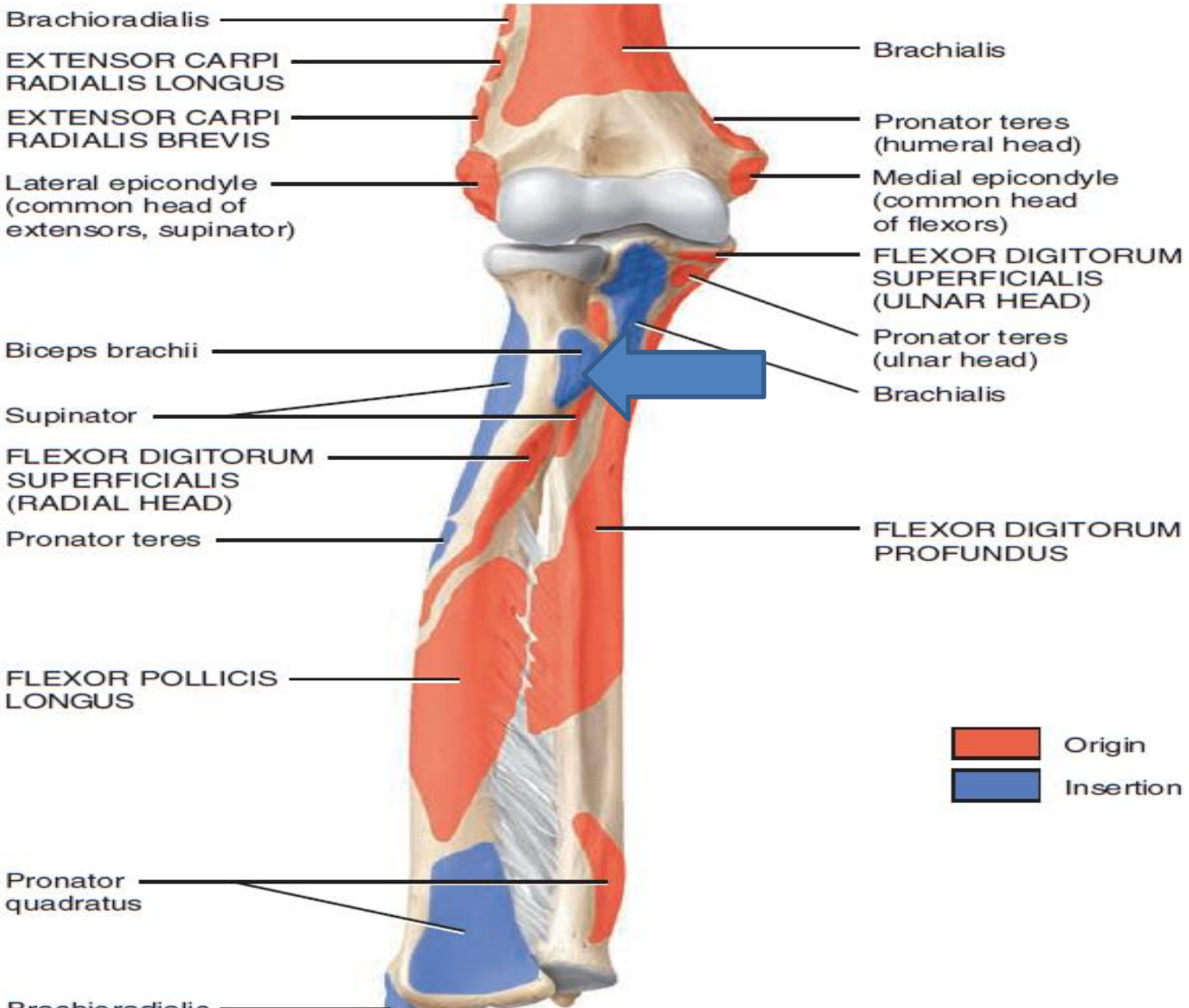

Olecranon process
Radial notch
Trochlear notch
Head of radius
Coronoid process
Ulnar tuberosity
Right Radius and Ulna;
Anterior View
Shaft of radius
Shaft of ulna
GetBodySmart.com
Interosseous border
Interosseous border
Ulnar notch
Head of ulna
Radial styloid process
Ulnar styloid process

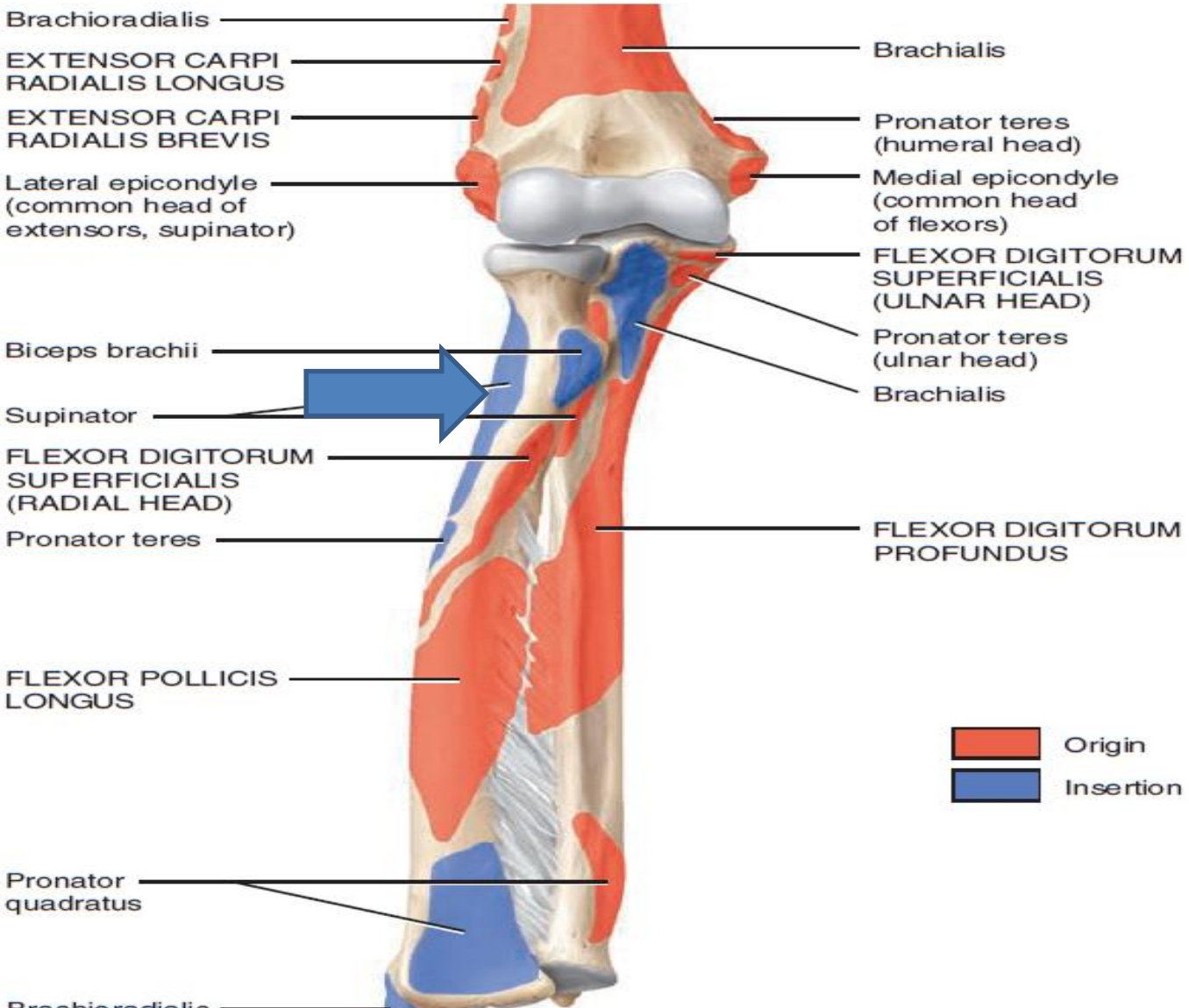
Attachments

- Biceps brachii – inserts on radial tuberosity
- Supinator-inserted into upper part of lateral surface
- Pronator teres-inserted into middle of lateral surface
- Brachioradialis-inserts above the styloid process,
- Pronator quadratus-inserted into lower part of anterior surface.

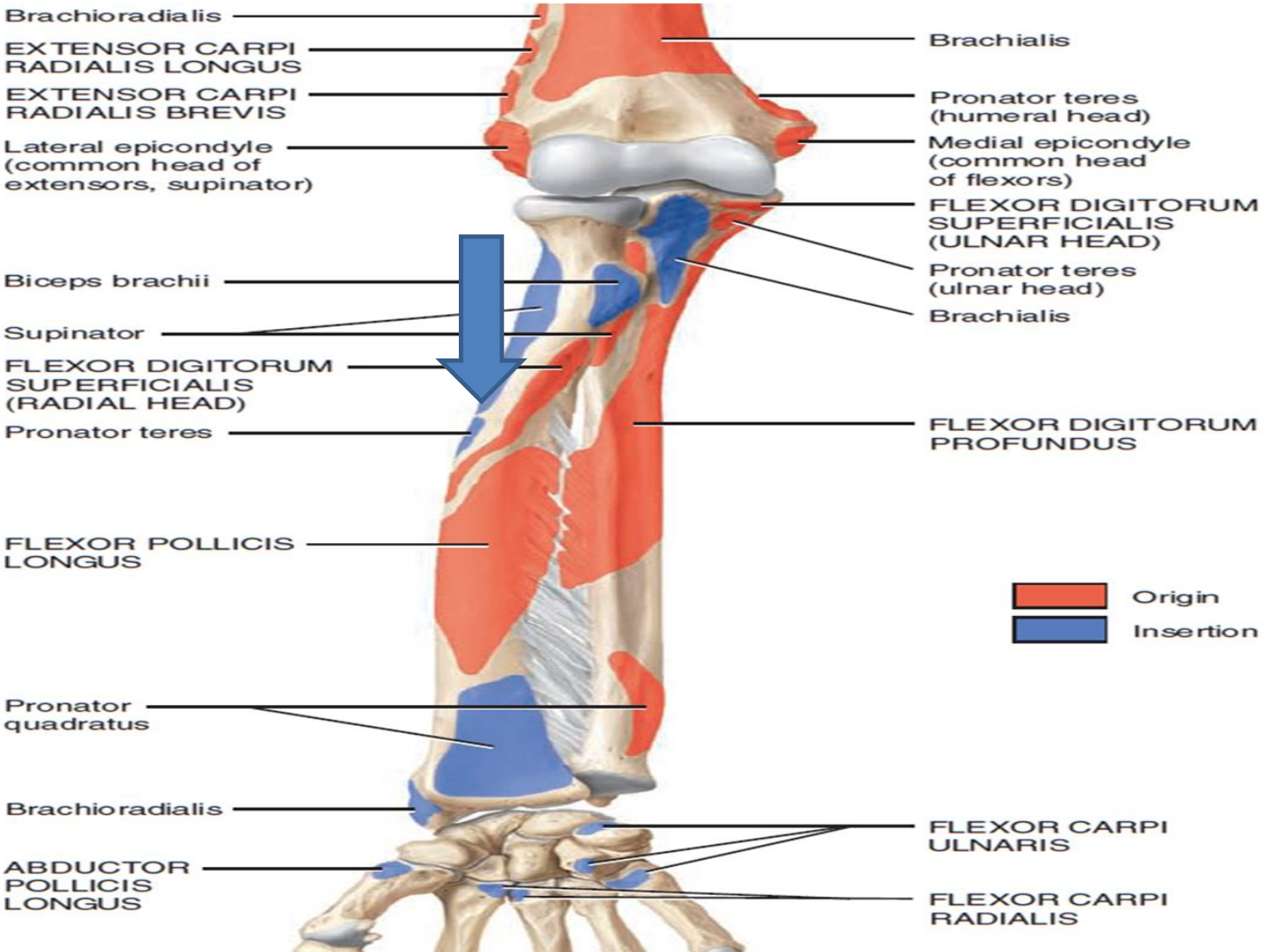
BICEPS BRACHII



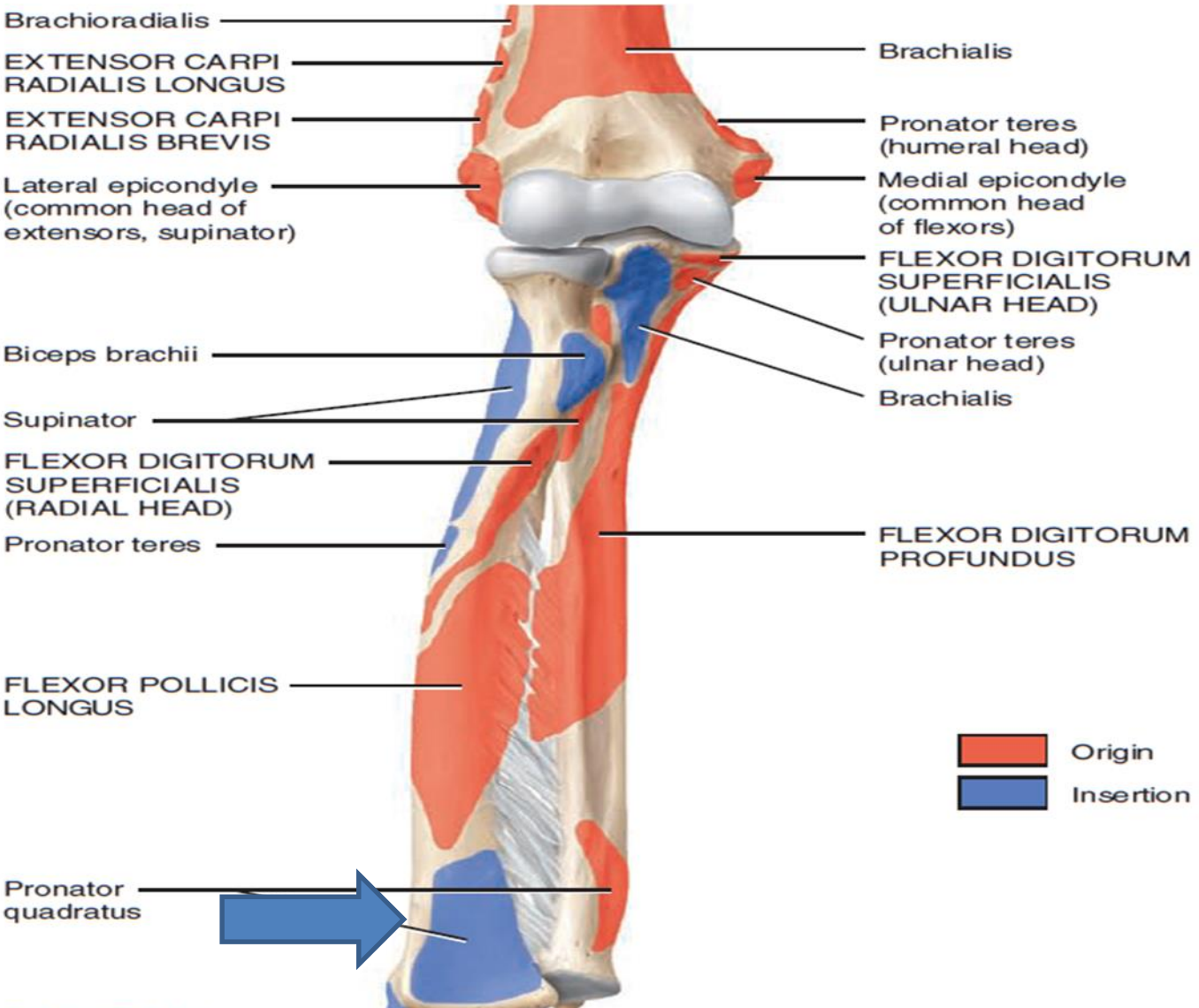
SUPINATOR MUSCLE



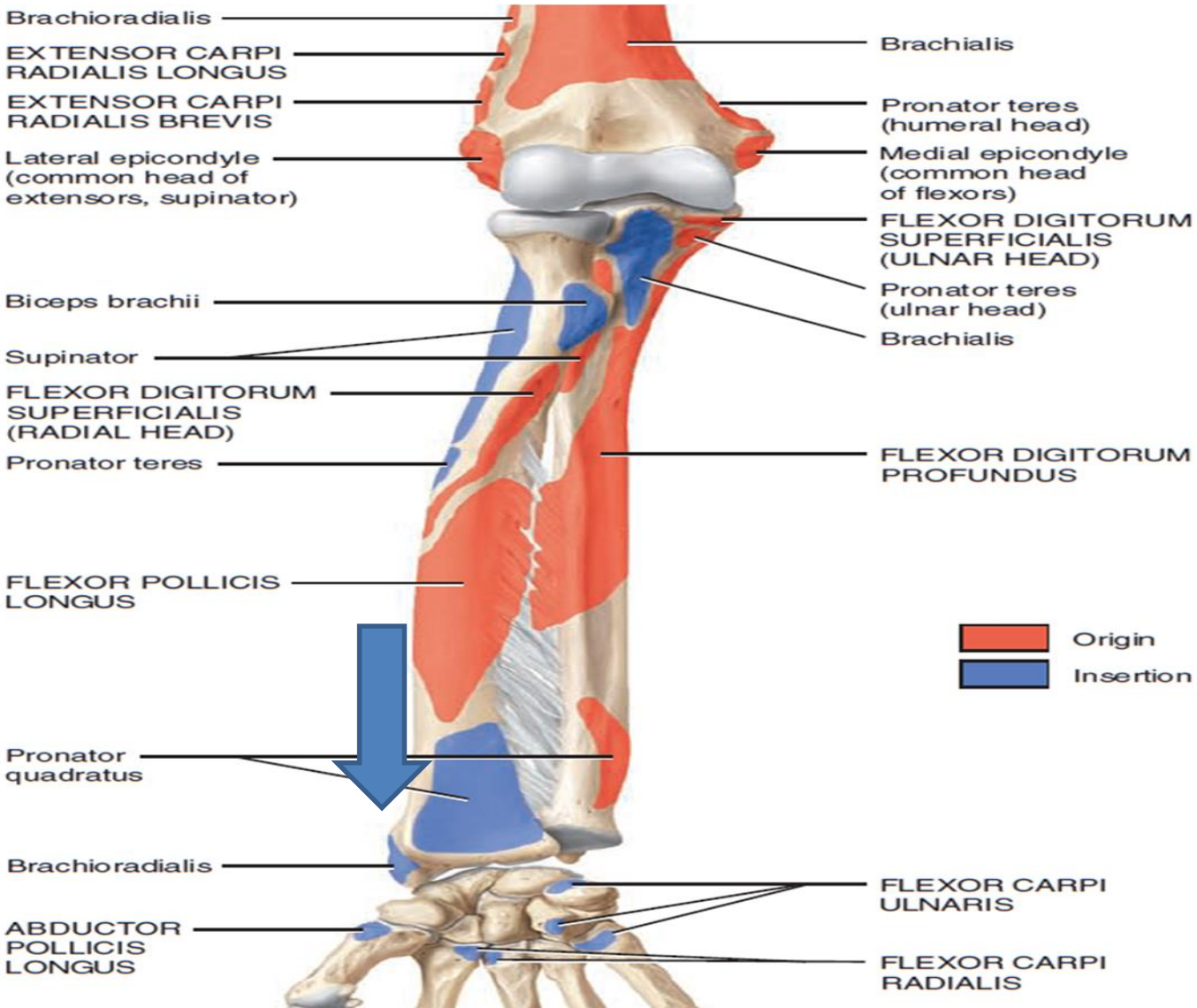
PRONATOR TERES MUSCLE



PRONATOR QUADRATUS



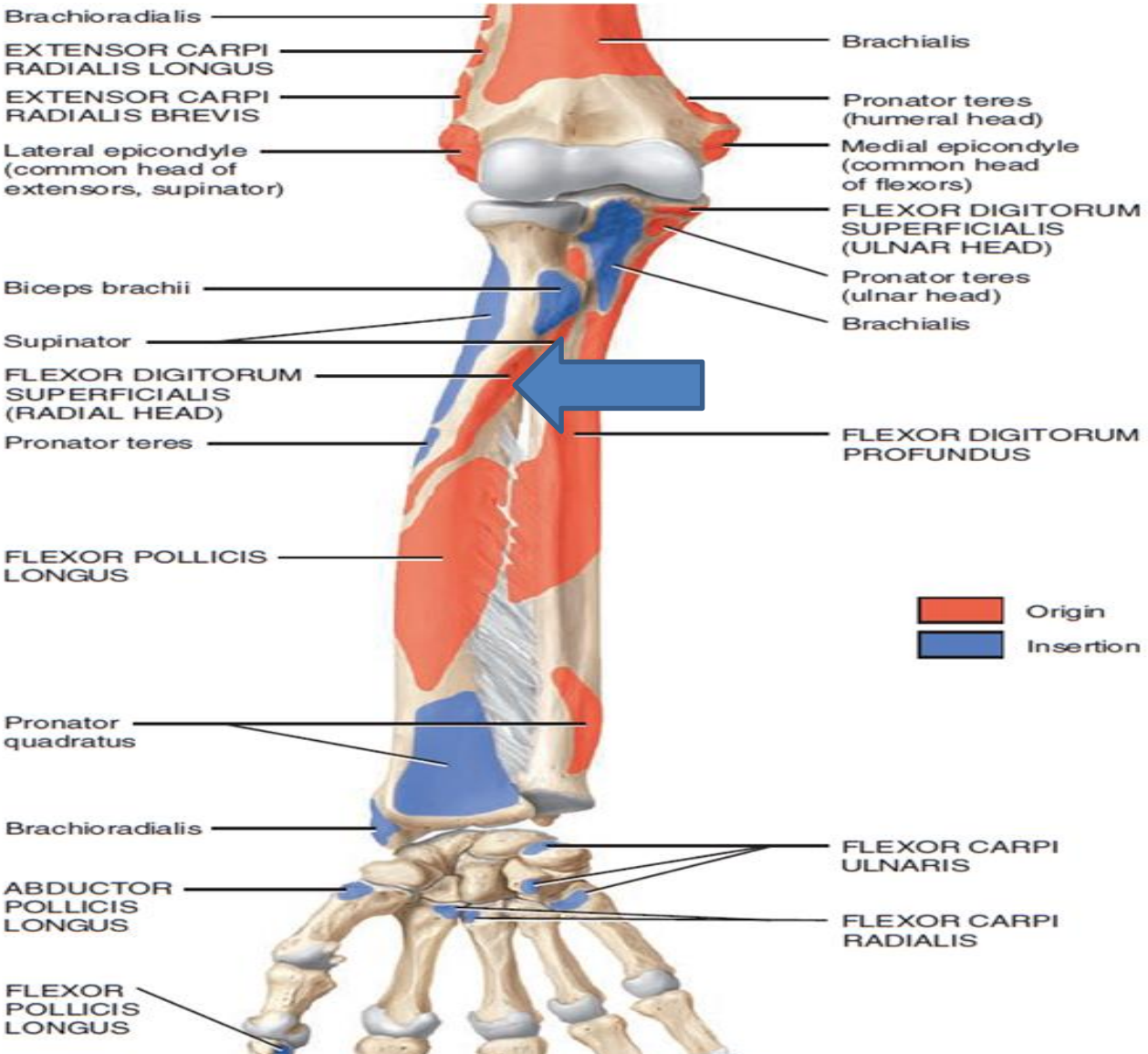
BRACHIO RADIALIS MUSCLE



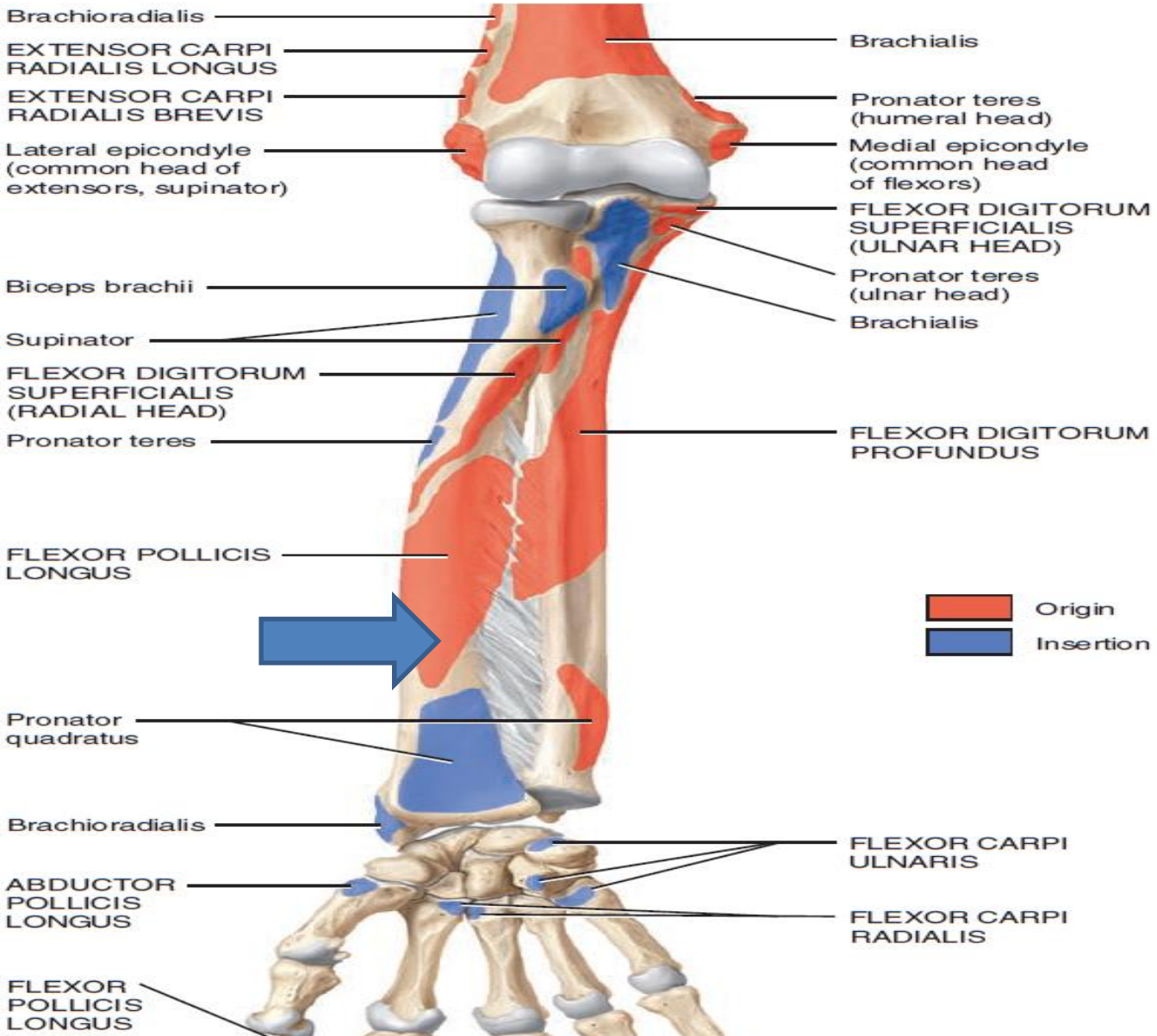
Attachments

- Flexor digitorum superficialis-origin from upper part of anterior border
- Flexor pollicis longus- origin form upper 2/3 of anterior surface
- Abductor pollicis longus-arise form posterior surface
- Extensor pollicis brevis- posterior surface
- Interosseous membrane-attached to interosseous border

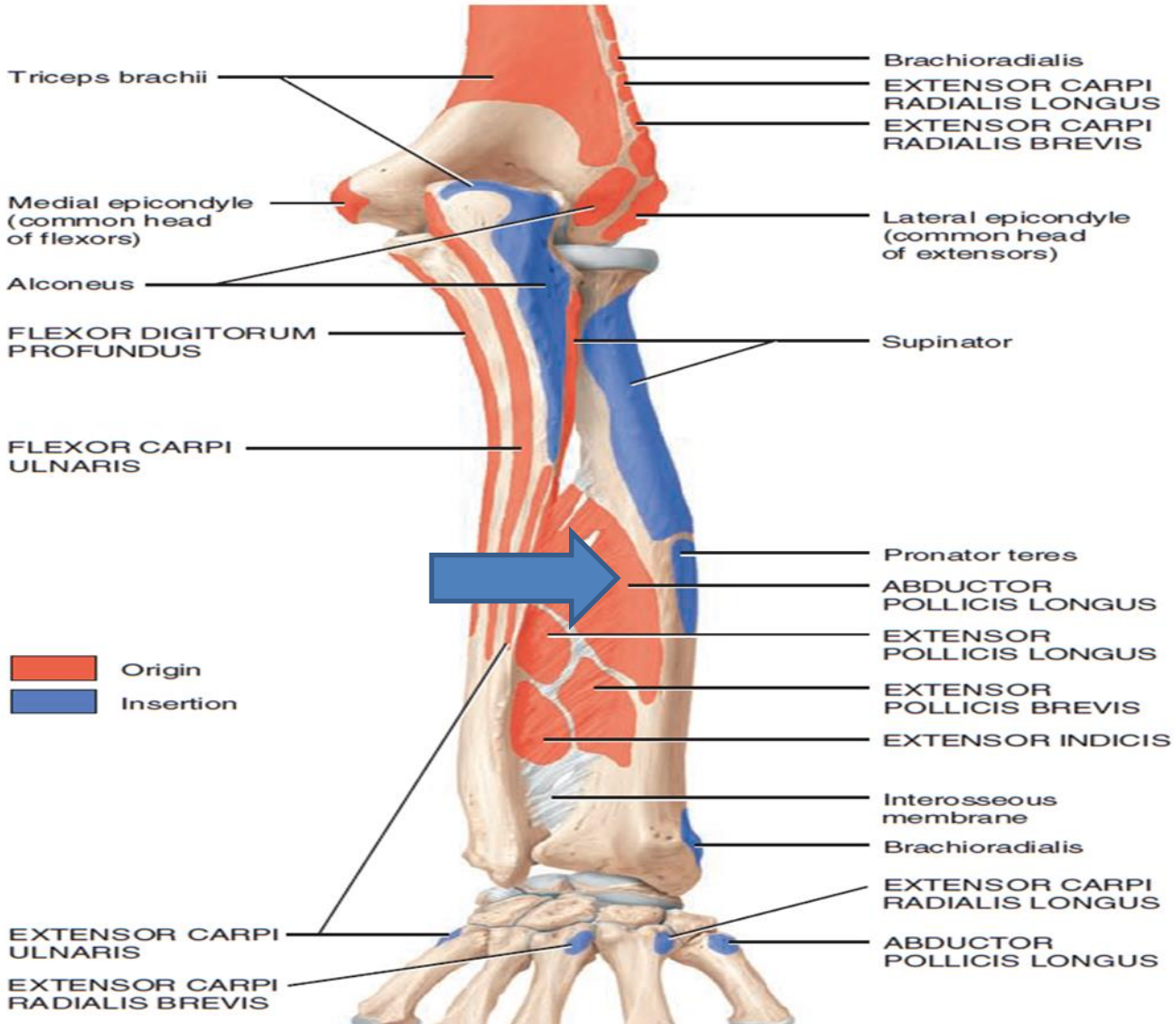
FLEXOR DIGITORUM SUPERFICIALIS



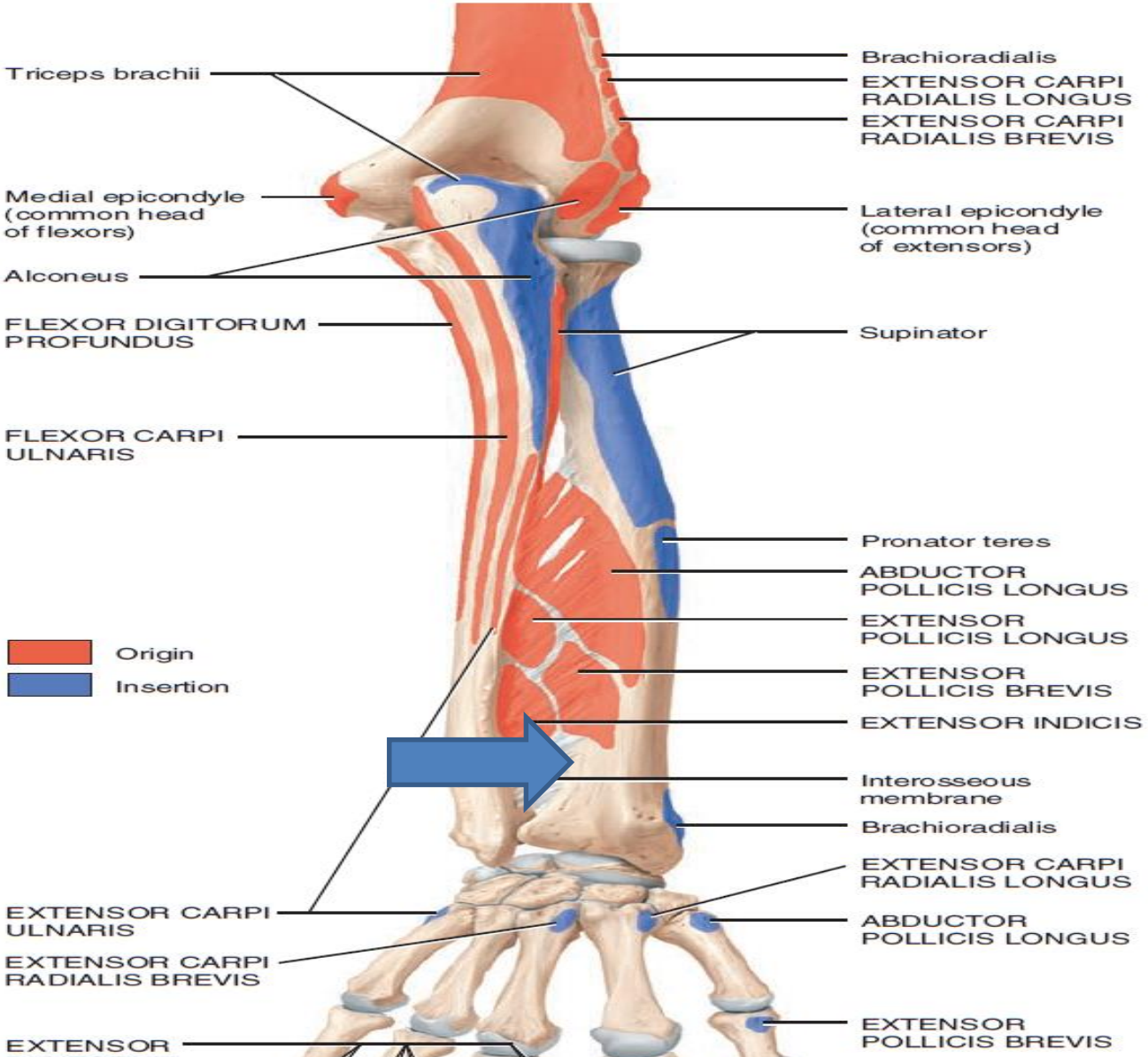
FLEXOR POLLICIS LONGUS



ABDUCTOR POLLICIS LONGUS



EXTENSOR POLLICES BREVIS



SUMMARY OF THE MUSCLES

- UPPER END….
- BICEPS BRACHII……radial tuberosity

- LOWER END….
- LATERAL TO LISTER TUBERCLE…
- Extensor carpii radialis brevis
- Extensor carpii radialis longus

Muscles at lower end

- MEDIAL TO THE LISTER TUBERCLE….
- Extensor pollicis longus
- Extensor digitorum
- Extensor indices

MUSCLES ON SHAFT(INSERTION)

- Biceps brachii
- Supinator
- Pronator teres
- Pronator quadratus
- Brachioradialis

MUSCLES ON SHAFT (ORIGIN)

- Flexor digitorium superficialis
- Flexor pollicis longus
- Abductor pollis longus
- Extensor pollicis brevis

Clinical Anatomy

- Colles' fracture= radius gets fractured about 2cm above its lower end due to fall on outstretched hand.
- Smith's fracture= if distal fragments gets displaced anteriorly.

Colle's vs Smith's

Distal Radius Fractured

Q – Dorsal angulation of the distal bone fragment...

A – Colle's

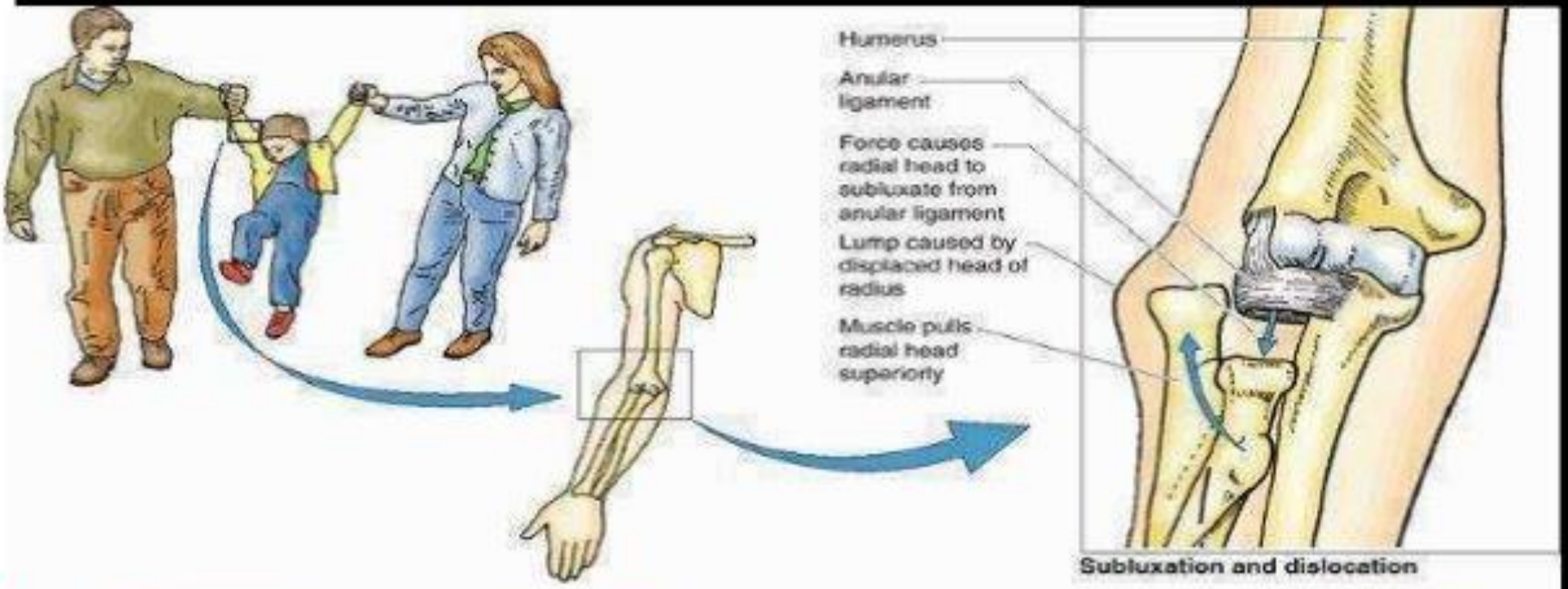
Q – Palmar angulation of the distal bone fragment...

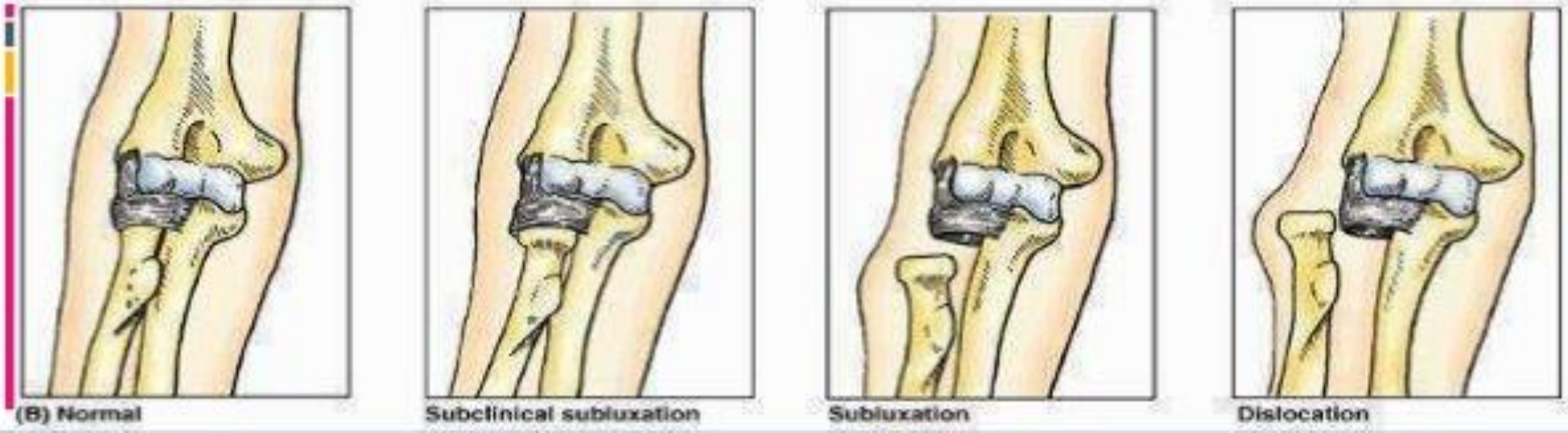
A – Smith's – More dangerous due to the neurovascular structures in this direction!

Pulled elbow

- Subluxation of head of radius – due to sudden powerful jerk on the hand of a child may dislodge the head of radius from the annular ligament.

Pulled or nursemaid's elbow






Thank
you!!