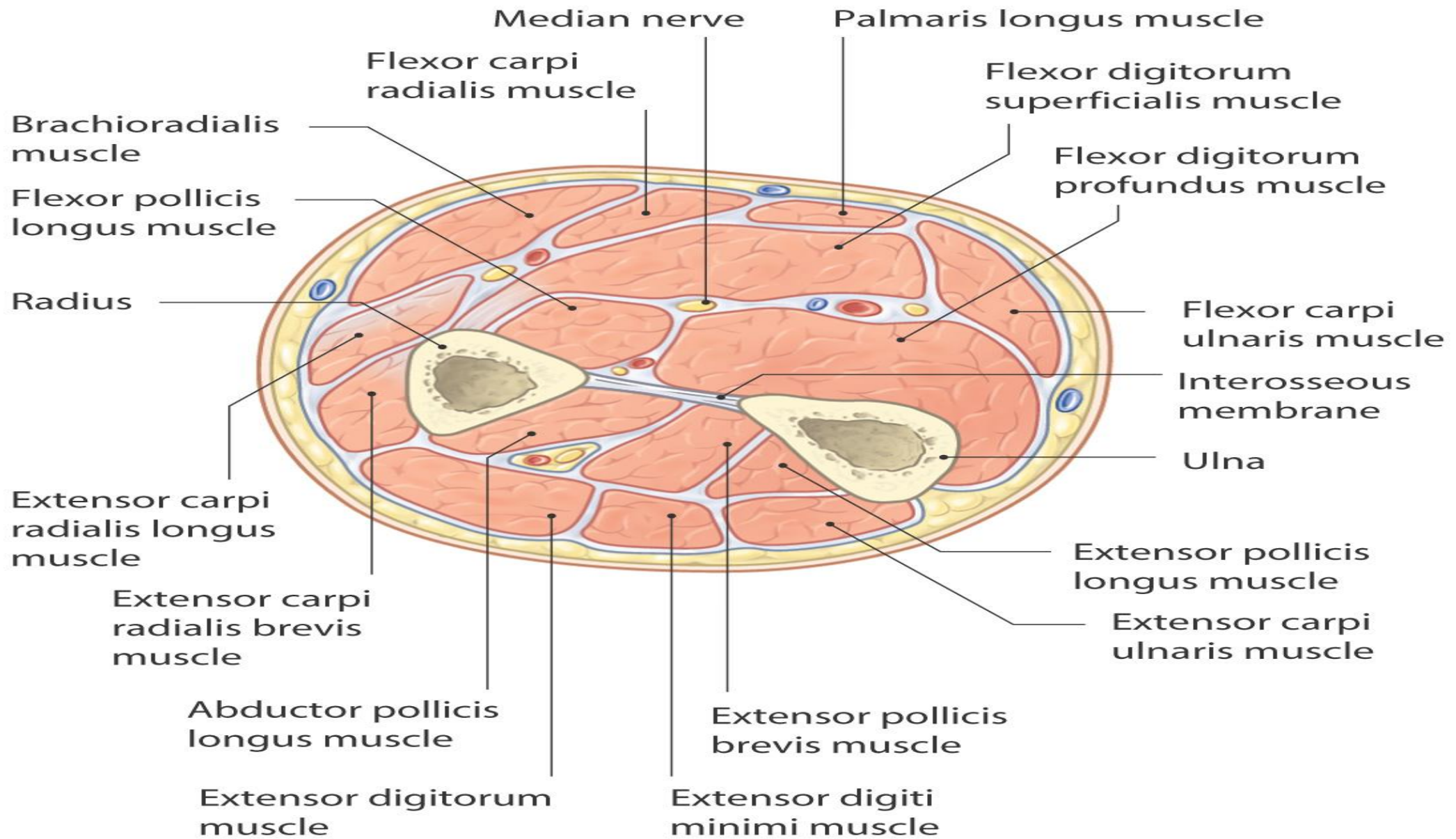


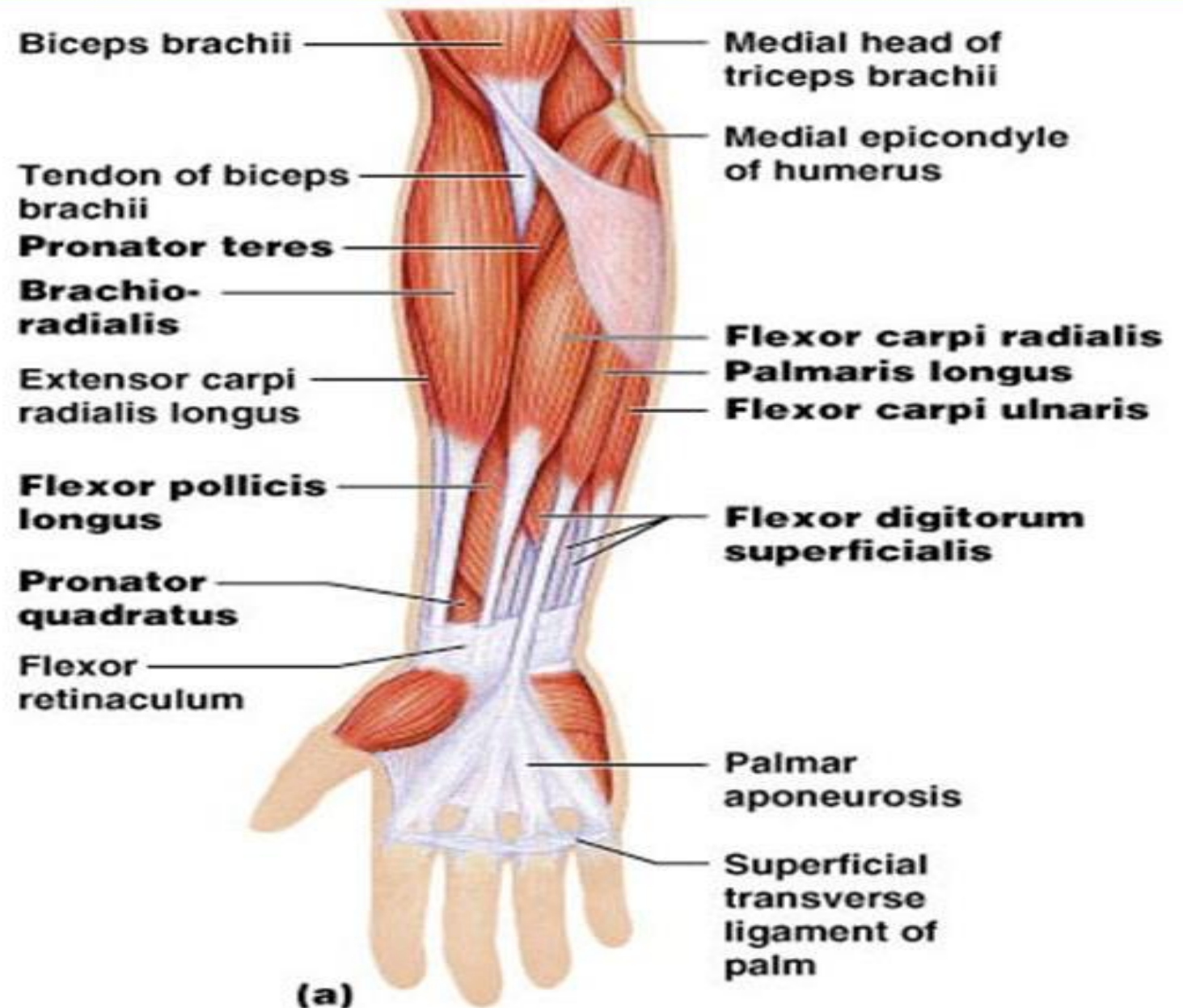
# **FRONT OF THE FOREARM**

**BY DR. DALIA M BIRAM**



# Muscles of the Forearm: Anterior Compartment

- These muscles are primarily flexors of the wrist and fingers

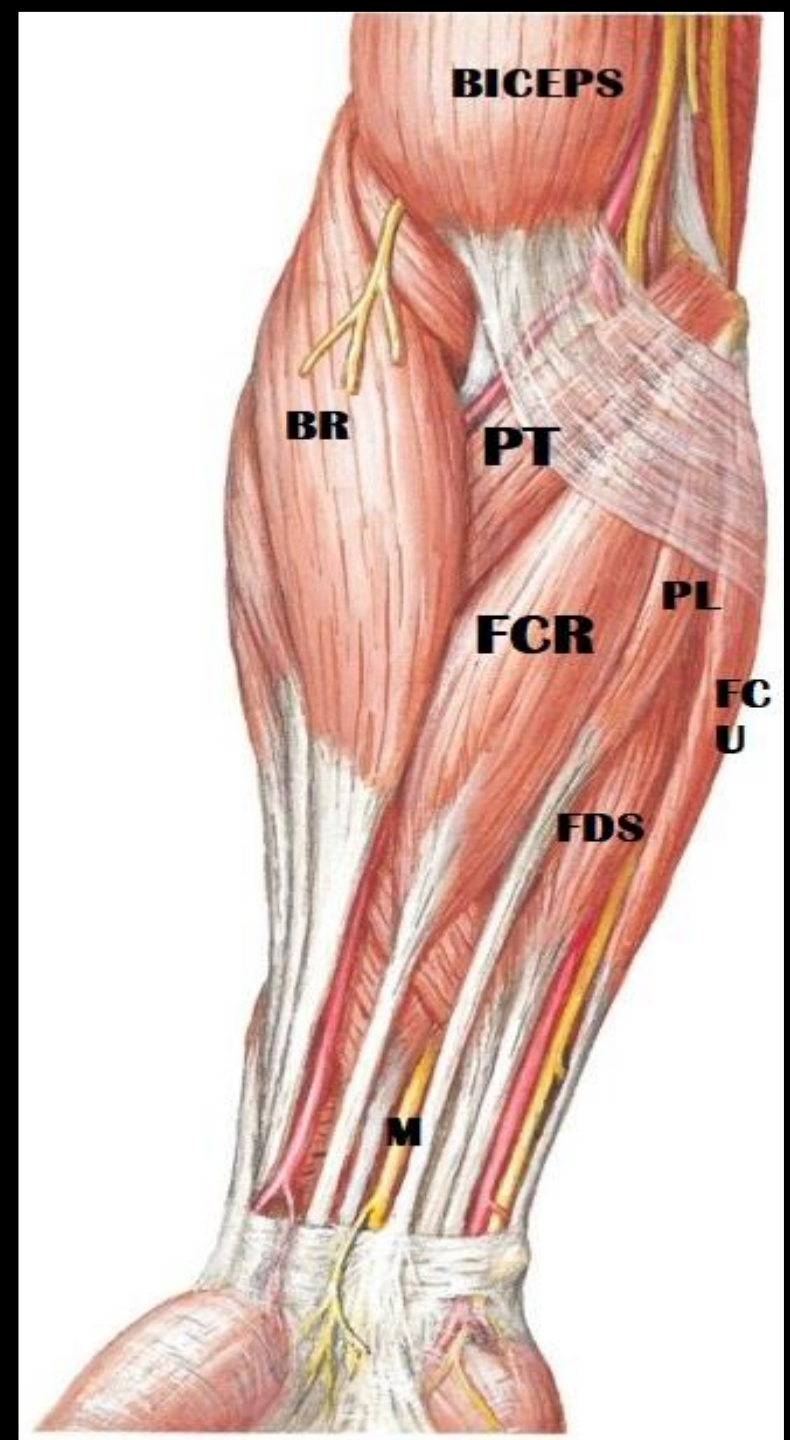


# FLEXORS OF THE FOREARM

The muscles of the forearm are arranged into 2 groups; superficial and deep

## I- Superficial group of flexors of forearm:

- They are 5 in numbers arranged from lateral to medial are:
- **Pronator teres.**
- **Flexor carpi radialis.**
- **Palmaris longus.**
- **Flexor carpi ulnaris.**
- **Flexor digitorum superficialis**
- All muscles arise from the front of medial epicondyle of humerus (Common flexor origin i.e. C.F.O.)
- All muscles arise by 2 heads except flexor carpi radialis and palmaris longus.
- All muscles are supplied by median nerve except flexor carpi ulnaris which is supplied by ulnar nerve .
- Common action : weak flexors of elbow & flexion of wrist (except pronator teres).



# 1- Pronator teres

## Origin:

**Superficial (humeral) head:** common flexor origin (the front of medial epicondyle).

**Deep (ulnar) head:** Medial border of coronoid process of ulna.

## Insertion:

**Into an impression on the middle of the lateral surface of shaft of radius.**

**Nerve supply:** Median nerve.

## Action

**Pronation of the forearm.**

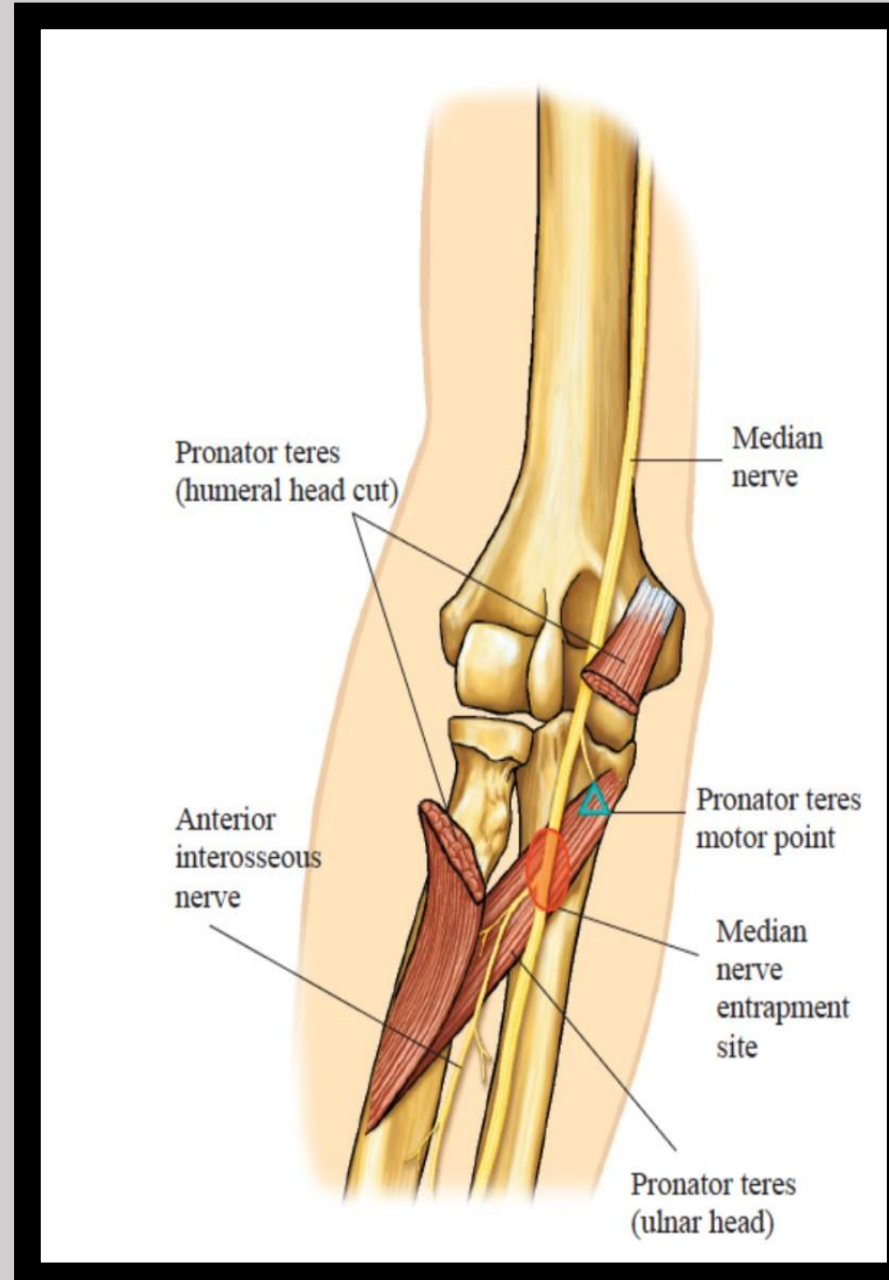
**Helps in flexion of the elbow.**

## Relations :

1) Median nerve enters the forearm between the 2 heads of pronator teres while ulnar artery pass deep to the 2 heads .

2) Radial artery & superficial radial nerve cross over its insertion

3) It forms the medial boundary of cubital fossa .



## 2- Flexor Carpi Radialis

### Origin:

Common flexor origin.

### Insertion:

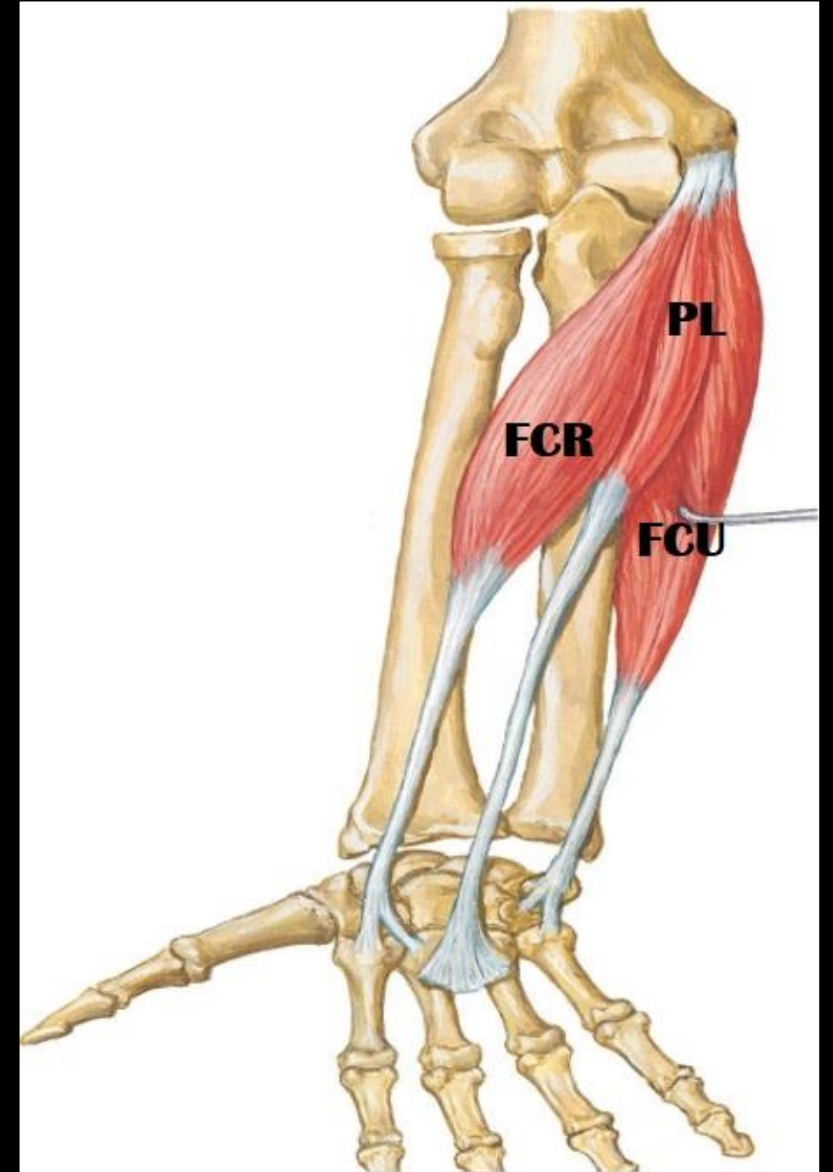
Bases of palmar aspect of **2nd** and **3rd** metacarpal bones.

**Nerve supply:** Median nerve.

### Actions:

Flexion and abduction of the wrist.

Flexion of forearm.



### 3- Palmaris longus

(This muscle may be absent):

**Origin:**

Common flexor origin.

**Insertion:**

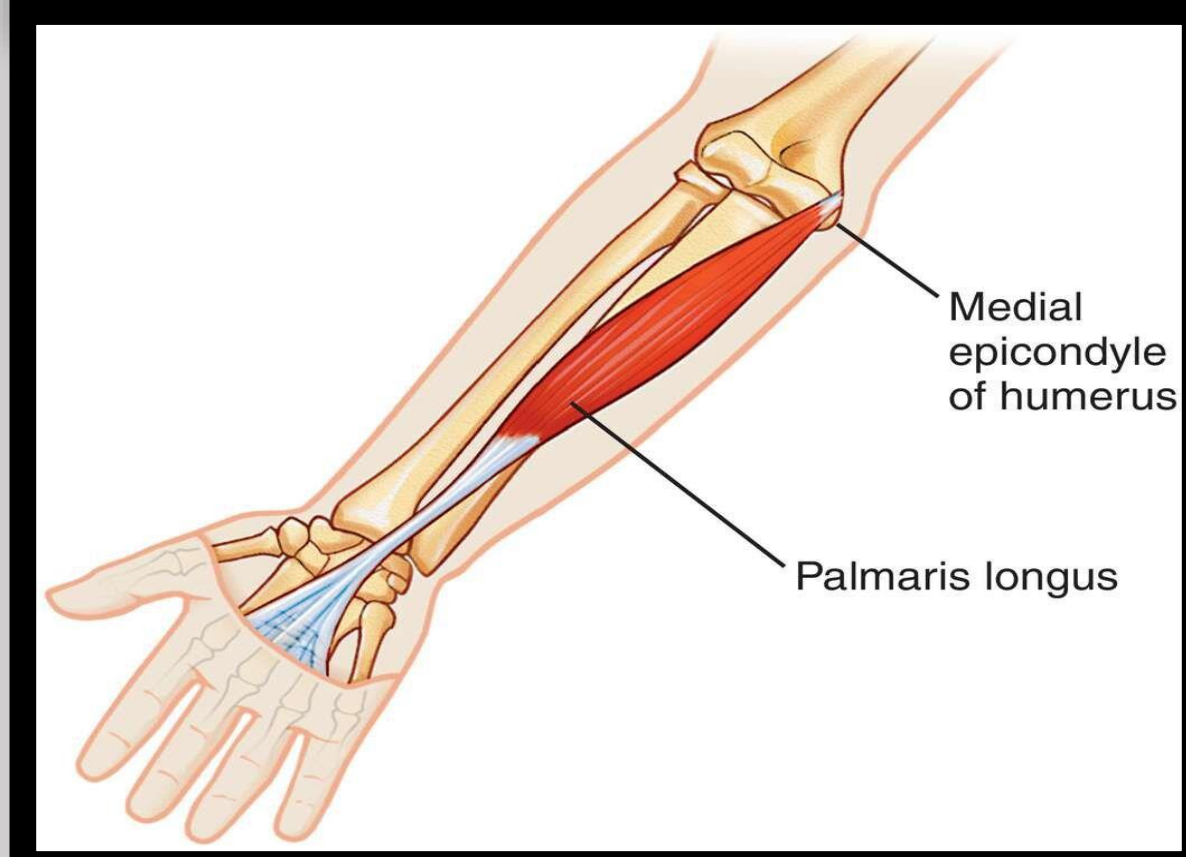
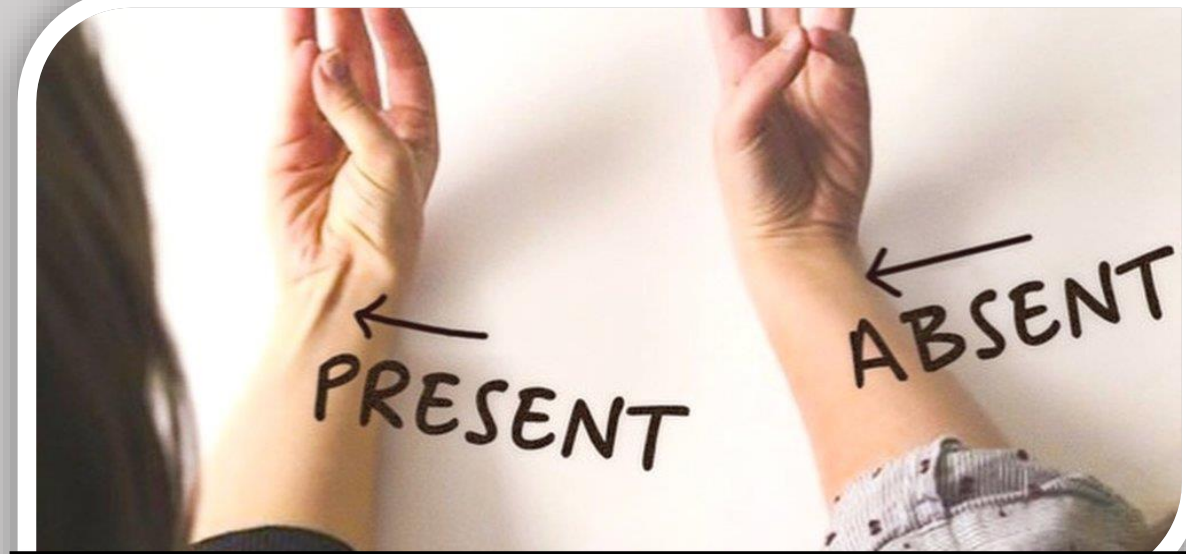
Apex of palmar aponeurosis which is a triangular thickening of deep fascia of the palm.

**Nerve supply:** Median nerve.

**Action:**

Flexion of wrist.

Tension of the palmar aponeurosis.



# 5- Flexor Carpi Ulnaris

## Origin:

**Humeral head:** from common flexor origin.

**Ulnar head:** from medial border of olecranon process and posterior border of ulna.

The ulnar nerve enter the forearm between these two heads

## Insertion:

Pisiform bone,

pisohamate ligament (to hook of hamate)

pisometacarpal ligament (to base of 5th metacarpal bone).

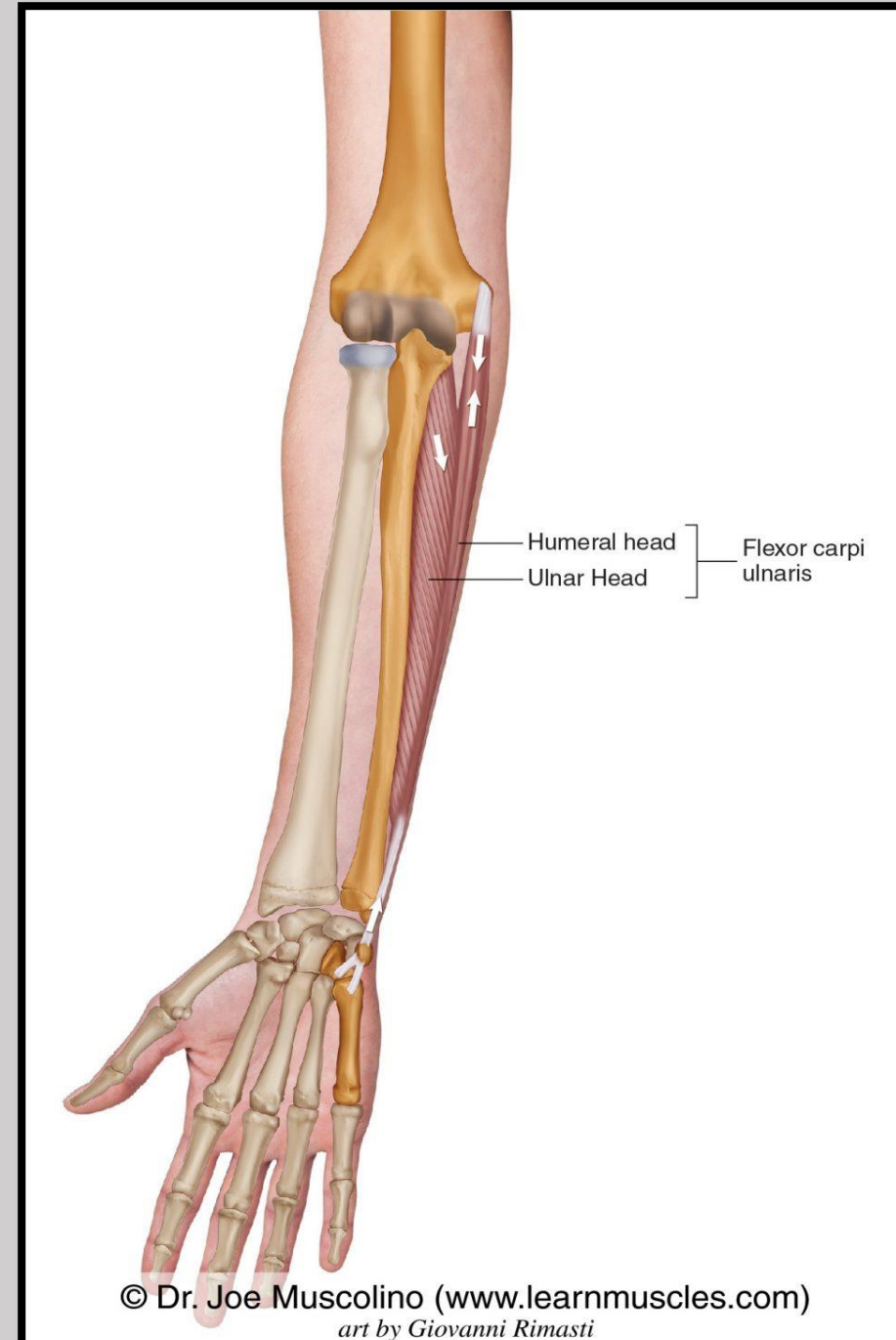
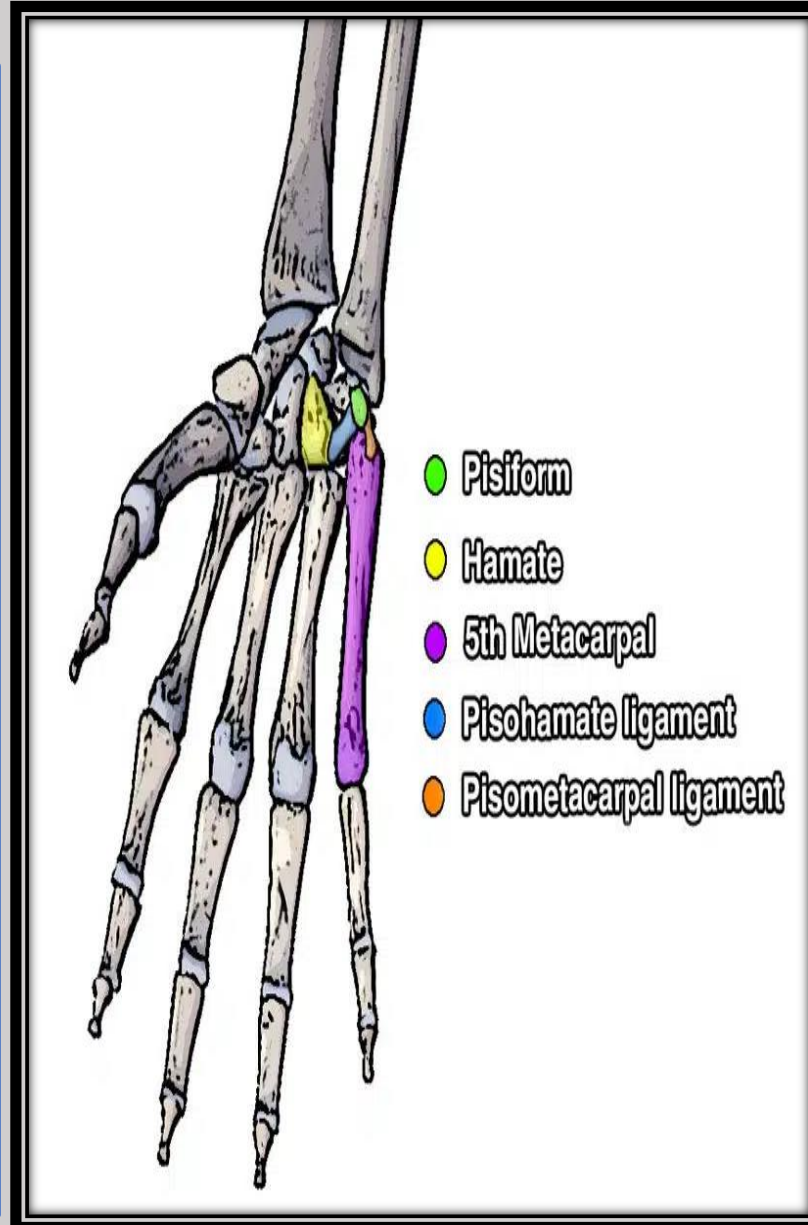
base of 5th metacarpal bone

**Nerve supply:** Ulnar nerve.

## Actions:

Flexion and adduction of wrist joint

Flexion of forearm





# 4- Flexor Digitorum Superficialis

## Origin:

**Humeroulnar head:** common flexor origin and medial border of coronoid process of ulna.

**Radial head:** from the oblique line on front of shaft of radius.

## Insertion

By 4 tendons into the middle phalanges of the medial 4 fingers. On reaching the proximal phalanges, each tendon divides into two slips, and finally inserted into the sides of the middle phalanges. It gives passage for the flexor digitorum profundus tendons

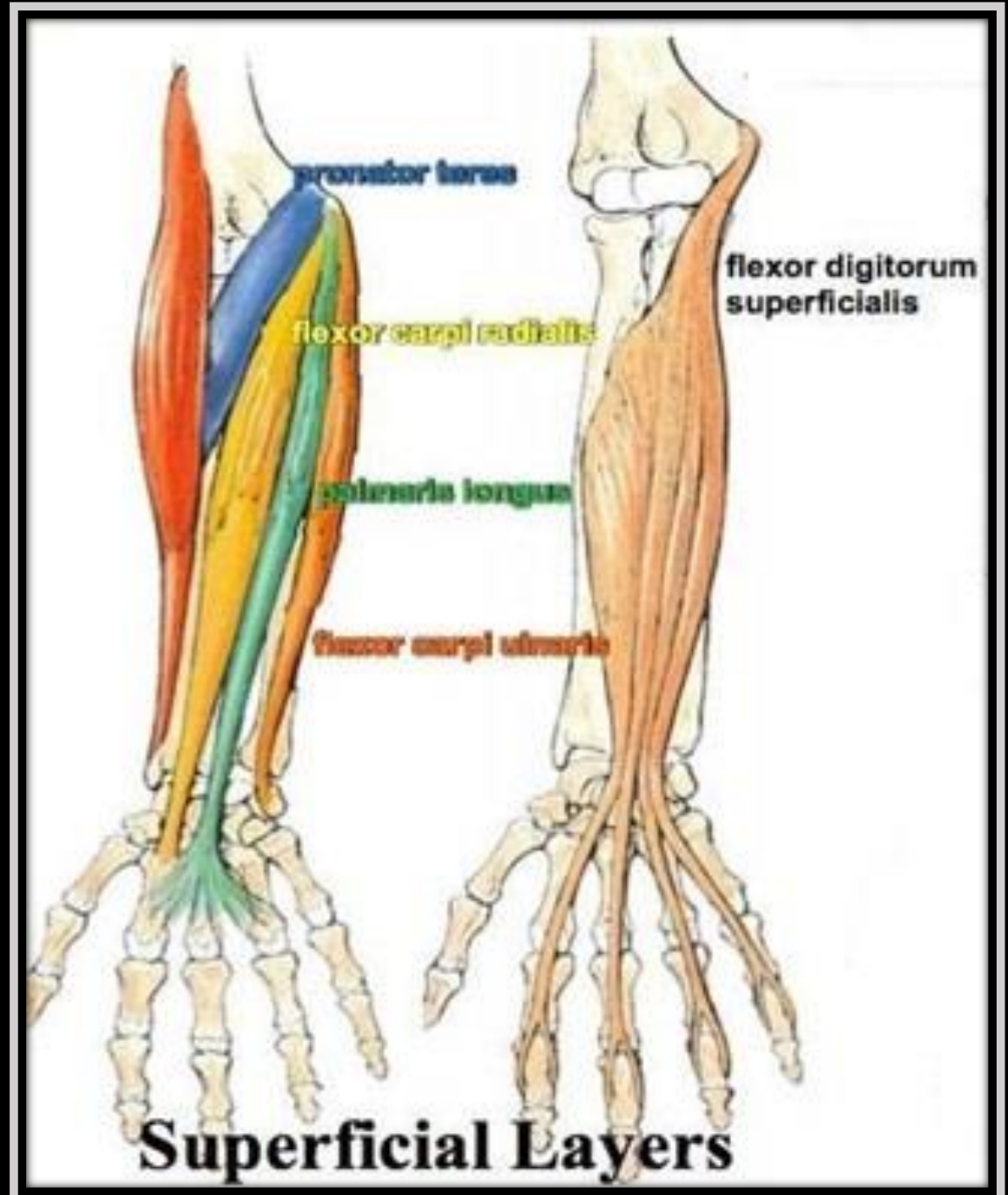
**Nerve supply:** Median nerve.

## Actions:

Flexion of proximal interphalangeal and metacarpophalangeal joints of the medial 4 fingers

Flexion of the wrist

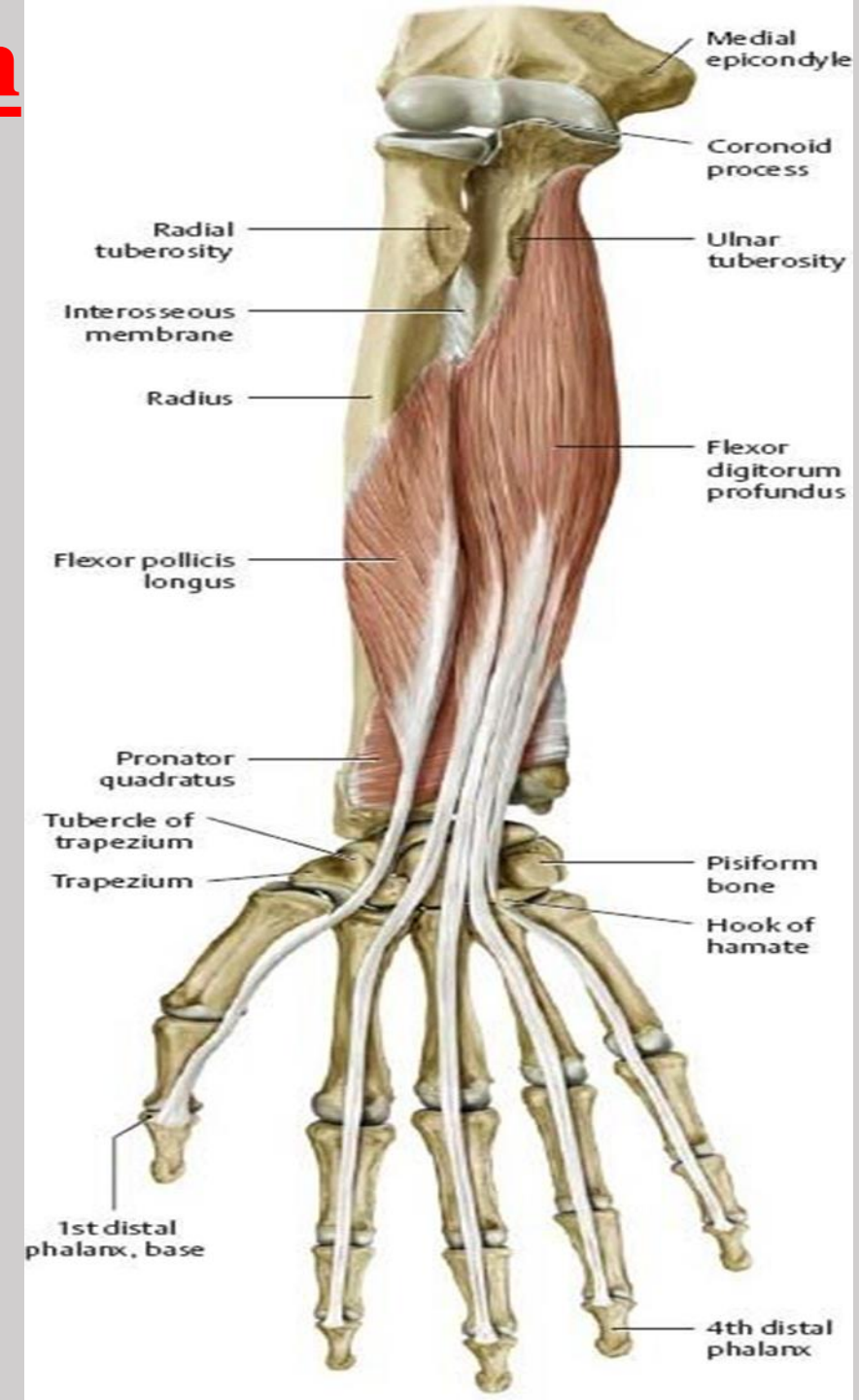
helps in Flexion of forearm



# II- Deep group of flexors of forearm

**They are three muscles:**

- **Flexor pollicis longus.**
- **Flexor digitorum profundus.**
- **Pronator quadratus**
- **Common origin** : interosseous membrane and the anterior surface of the shaft of corresponding bone ( except pronator quadrates )
- All muscles are supplied by **anterior interosseous nerve** (branch of median nerve ) except medial 1/2 of Flexor digitorum profundus which is supplied by **Ulnar nerve**.
- **Common action** : Flexion of wrist and all joints of fingers related ( except pronator quadrates ) .



# 1-Flexor pollicis longus

## **Origin:**

**(it is unipennate muscle)**

- Middle part of anterior surface of the shaft of radius.
- Interosseous membrane.

## **Insertion:**

**Base of terminal phalanx of the thumb.**

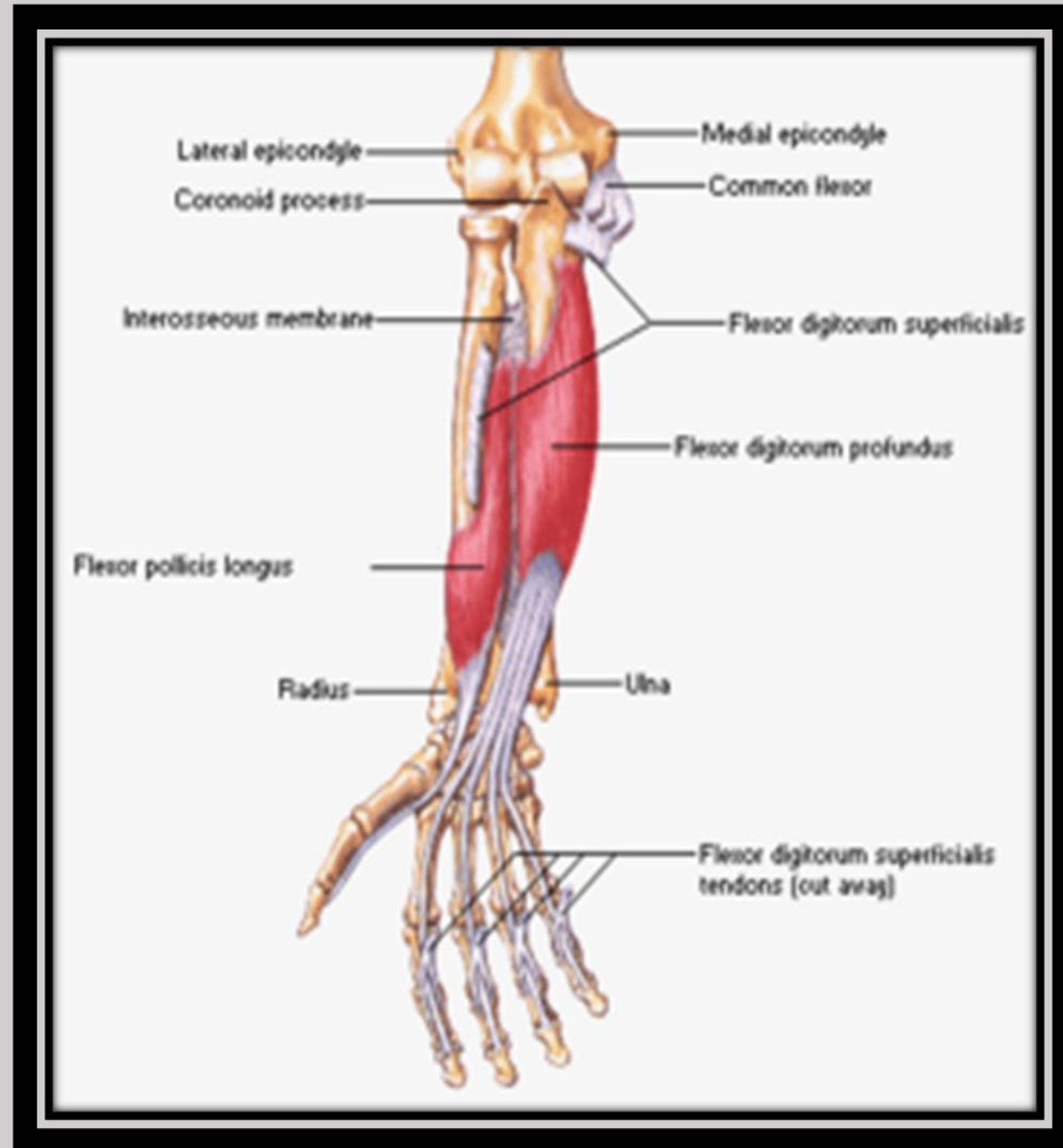
## **Nerve supply:**

**Anterior interosseous nerve.**

## **Actions:**

**Flexion of all joints of the thumb.**

**Helps in flexion of wrist.**



## 2- Flexor digitorum profundus

### Origin:

1. Upper  $\frac{3}{4}$  of anterior and medial surfaces of shaft of ulna.
2. Interosseous membrane.

### Insertion:

Bases of terminal phalanges of the medial 4 fingers.

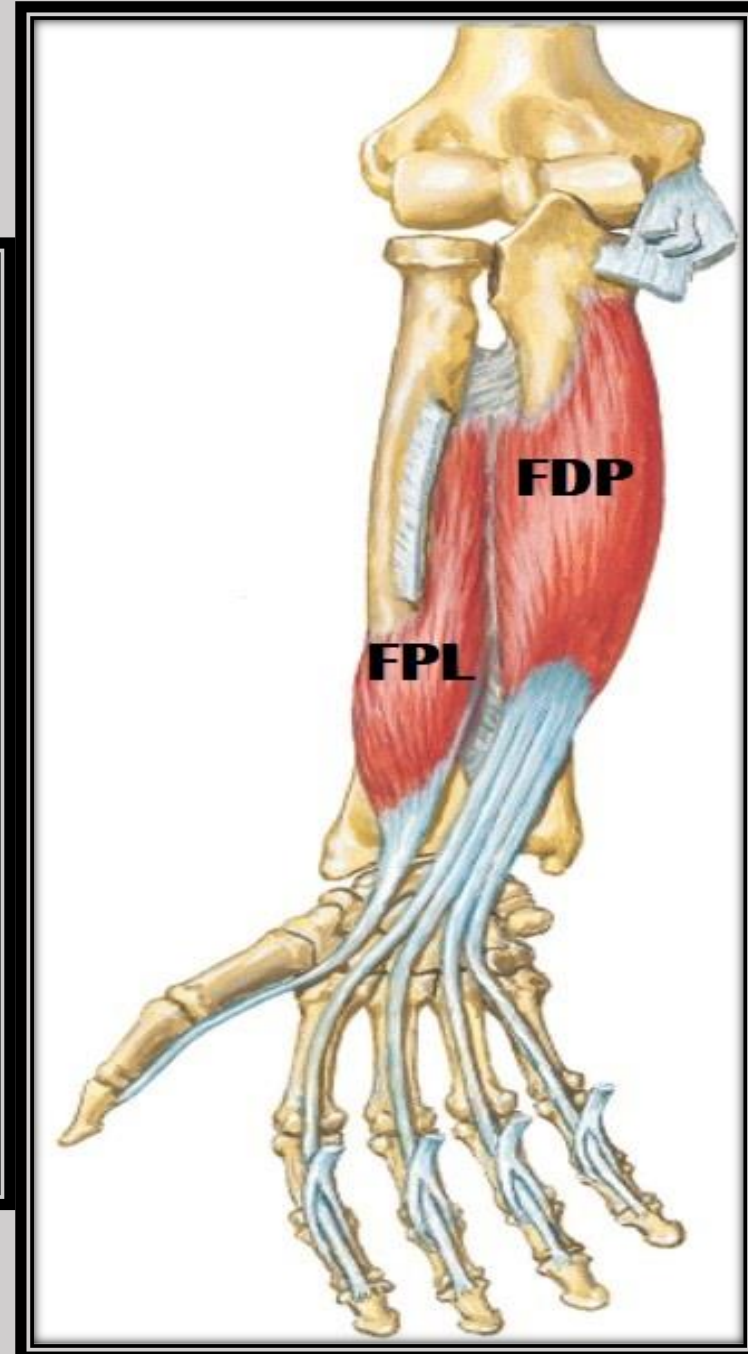
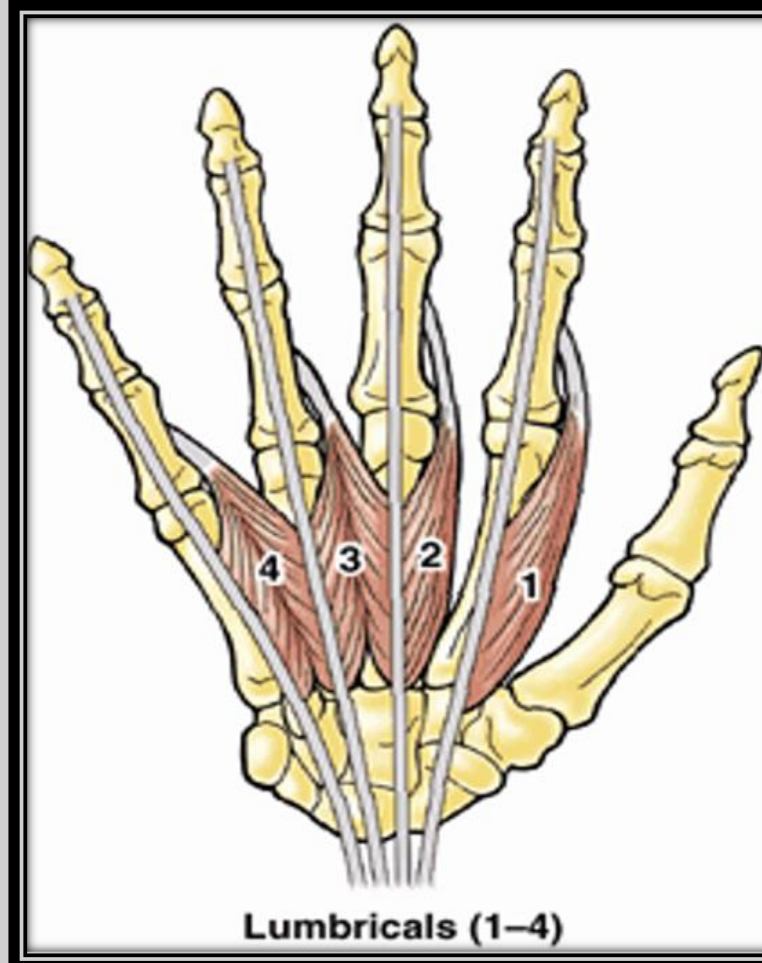
*Each tendon of flexor digitorum profundus gives origin to a lumbrical muscle in the hand*

### Nerve supply:

Medial 1/2 by ulnar nerve.  
Lateral 1/2 by anterior interosseous nerve.

### Actions:

Flexion of all joints of the medial 4 fingers.  
Helps in flexion of wrist joint.



### 3- Pronator quadratus:

**Origin:**

**Lower part of anterior surface of shaft of ulna.**

**Insertion:**

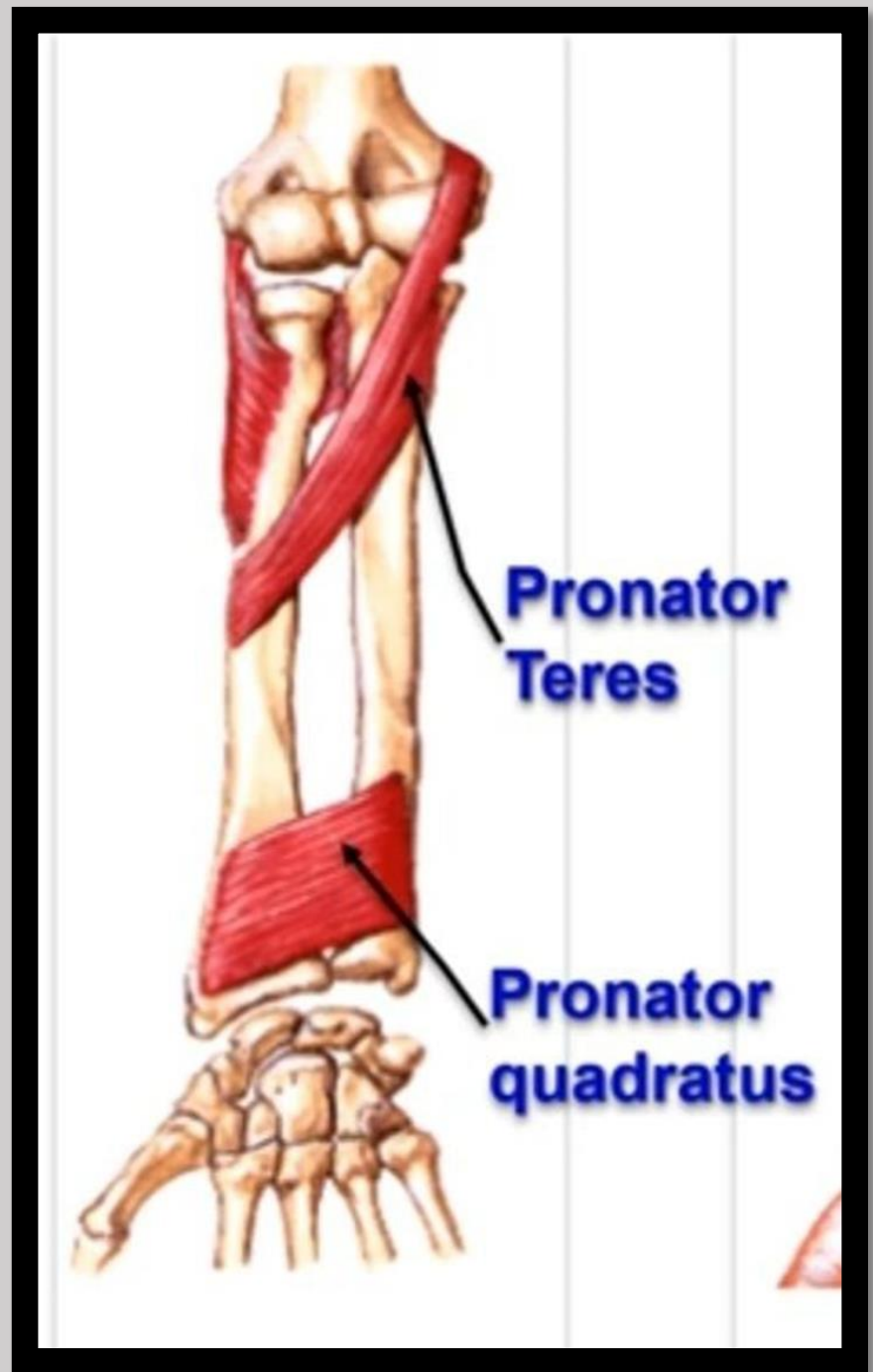
**Lower part of anterior surface shaft of radius.**

**Nerve supply:**

**Anterior interosseous nerve.**

**Action:**

**Pronation of forearm.**



Lateral ↔ medial

