

The University Of Jordan
Faculty Of Medicine



The Hand

By

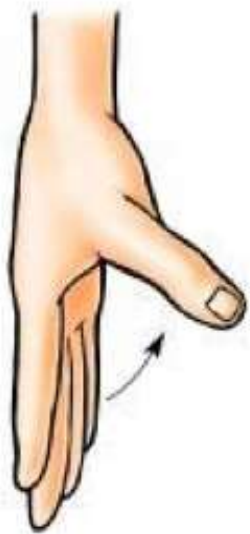
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Associate Professor of Anatomy

Muscles of The Hand



Thumb and fingers Movements .



Abduction



Adduction



Extension



Flexion



Opposition



Reposition

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(d) Metacarpophalangeal joints of the fingers (not the thumb)

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Muscles of The Hand

20 Muscles

Lateral (Thumb)

1-Adductor Pollicis

2-Thenar Muscles

- Abductor Pollicis Brevis
- Flexor Pollicis Brevis
- Opponens pollicis

Central

4 Lumbricalis

4 Dorsal Interossei

4 Palmar interossei

Medial (little finger)

1-Palmaris Bervis

2- Hypothenar Muscles

- Abductor digiti minimi.
- Flexor digiti minimi.
- Opponens digiti minimi

Nerve Supply

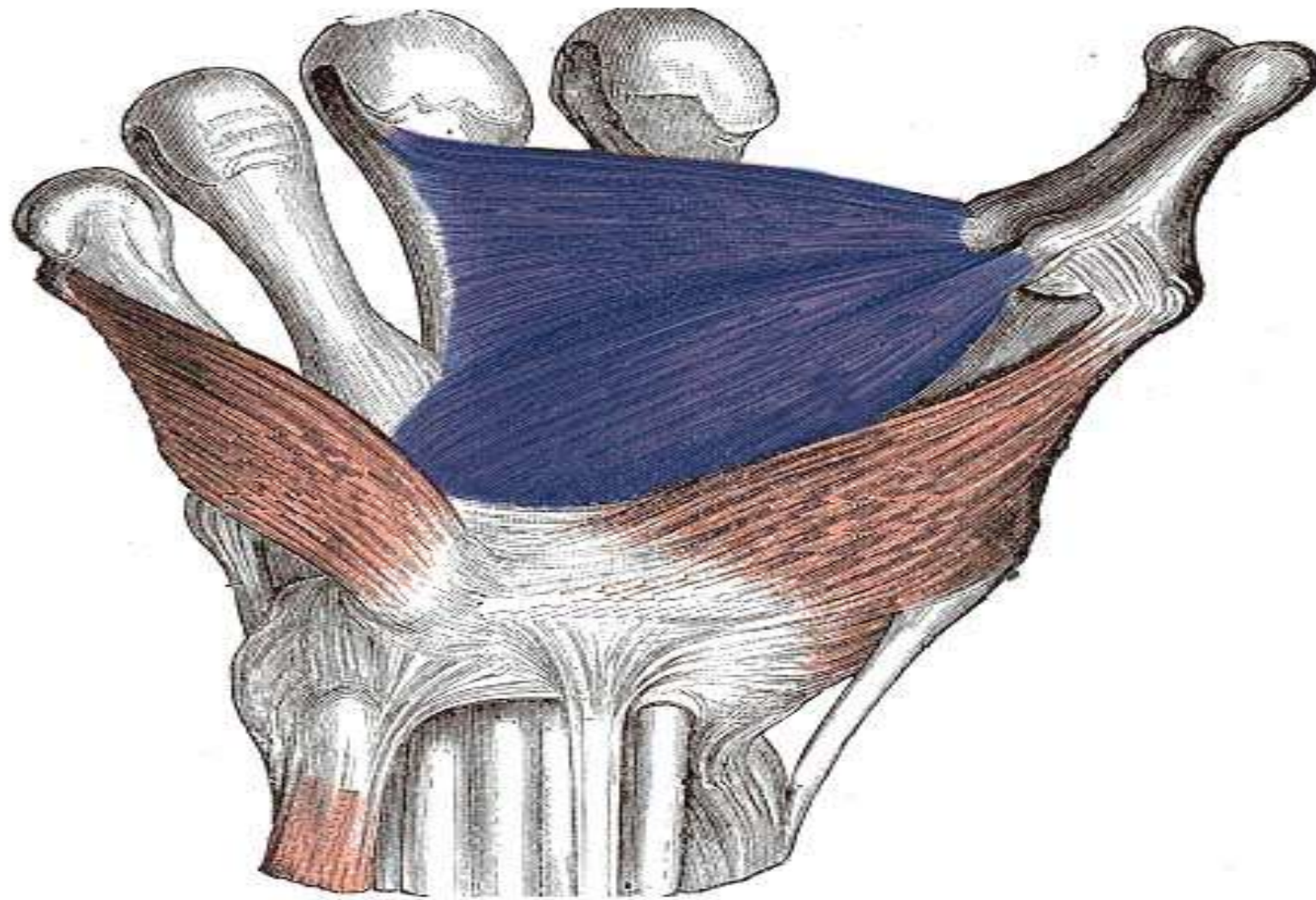
All Muscles of the hand are supplied by **ULNAR nerve**

EXCEPT

Thenar Muscles

1st and 2nd Lumbricalis

by MEDIAN nerve



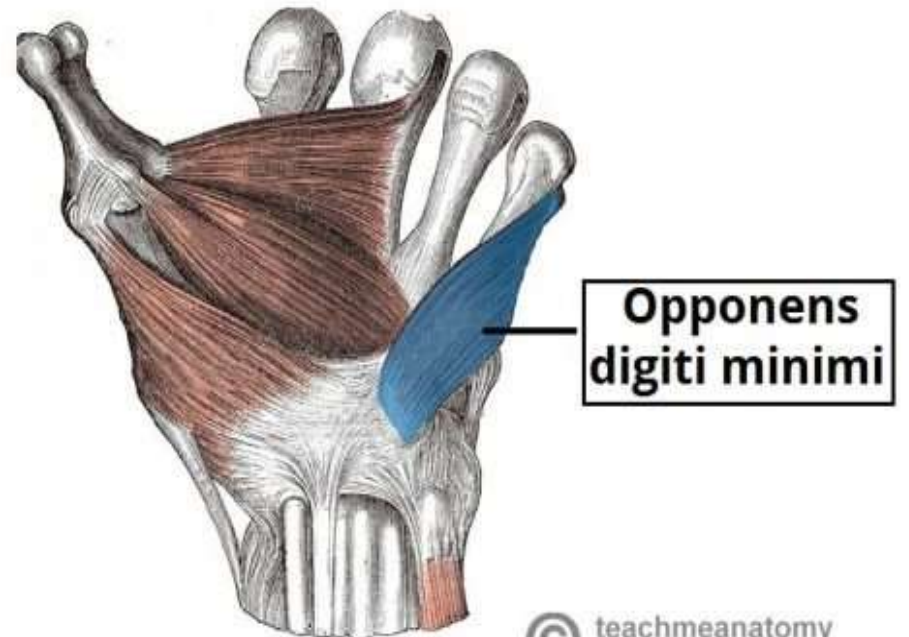
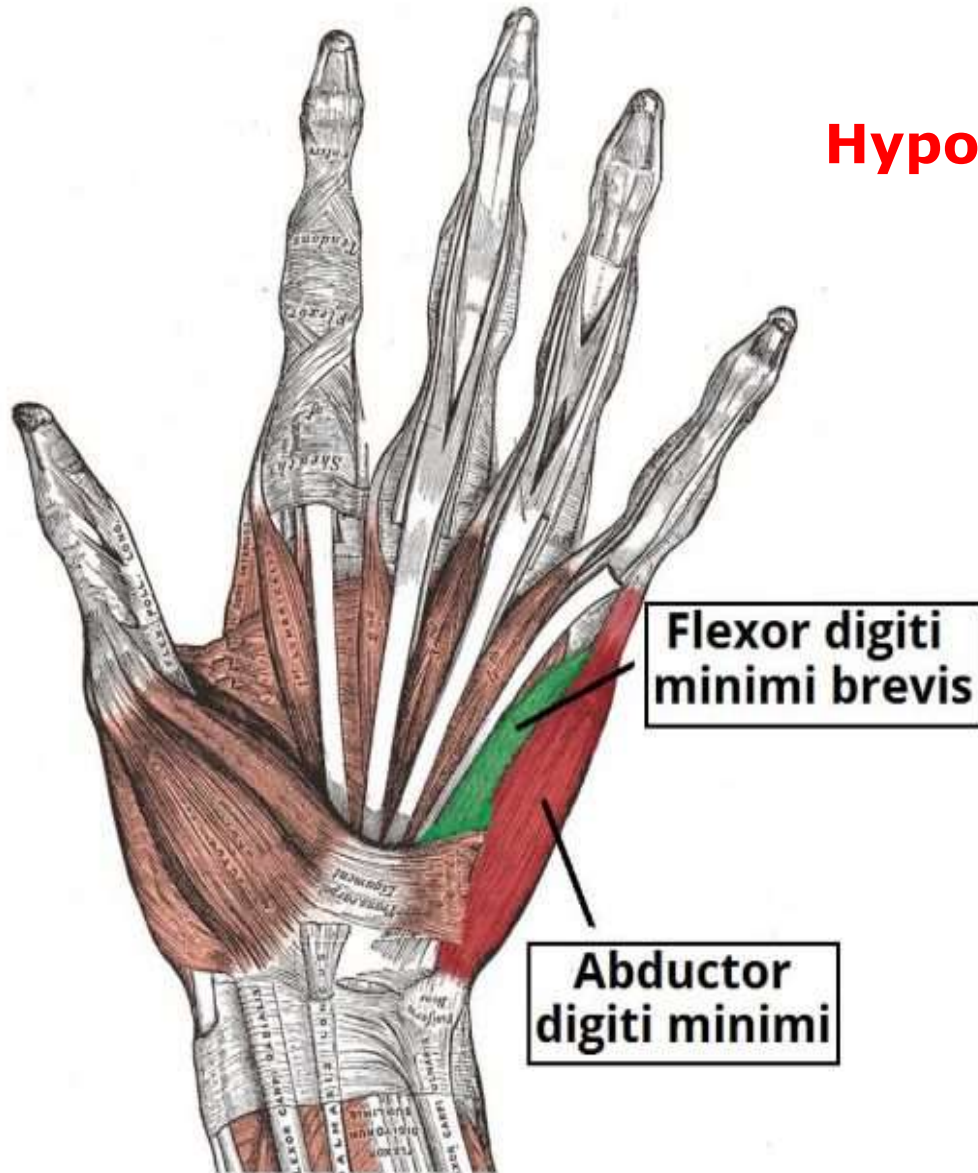
a) Adductor pollicis



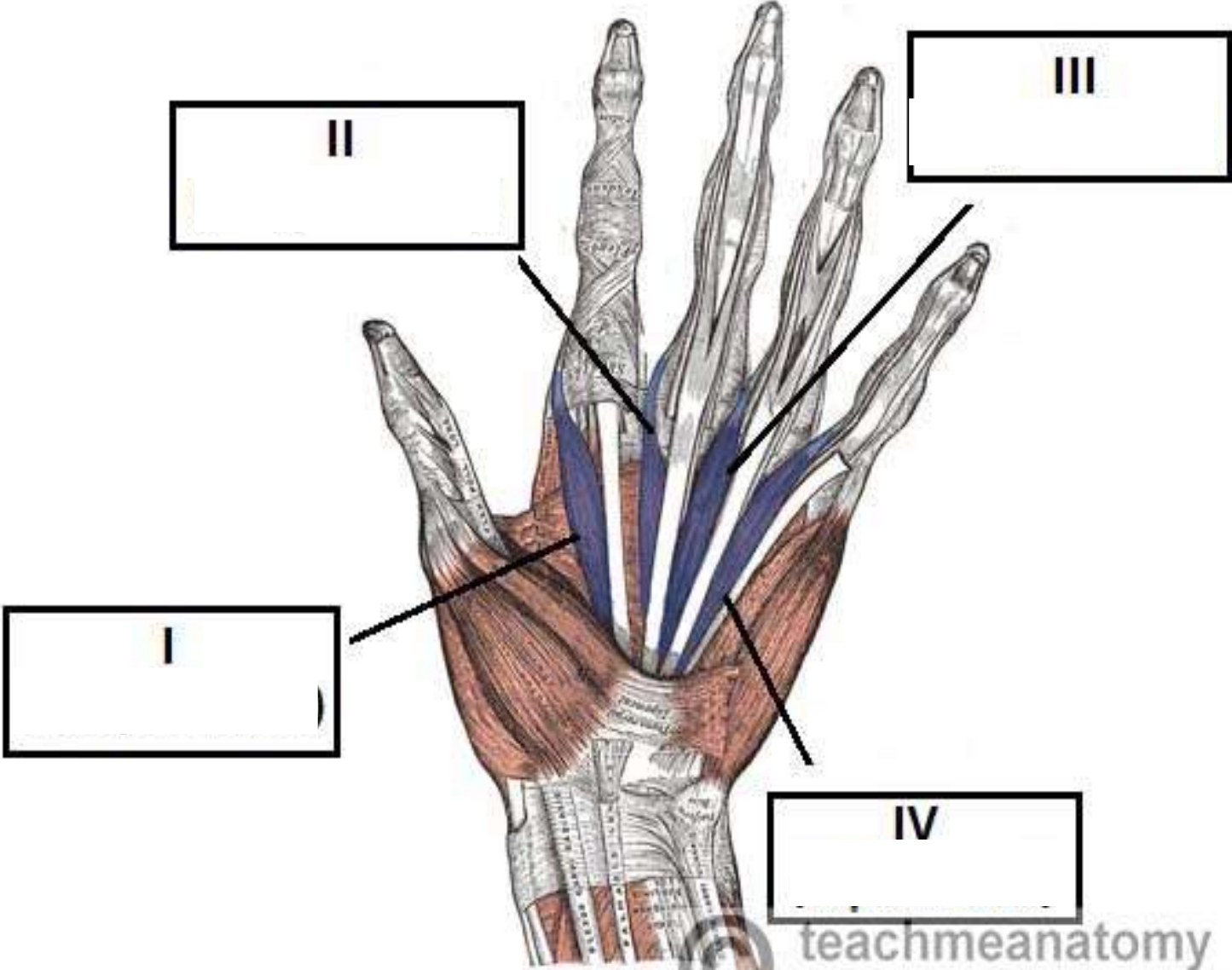
teachmeanatomy

The #1 Applied Human Anatomy Site on the Web

HypoThenar Muscles



Lumbricals Muscles



teachmeanatomy
The #1 Applied Human Anatomy Site on the Web.

Action

1- BY name

Abductor (Pollicis and digiti minimi) :

Flexor (Pollicis and digiti minimi) :

Opponens (Pollicis and digiti minimi) :

Adductor (Pollicis) :

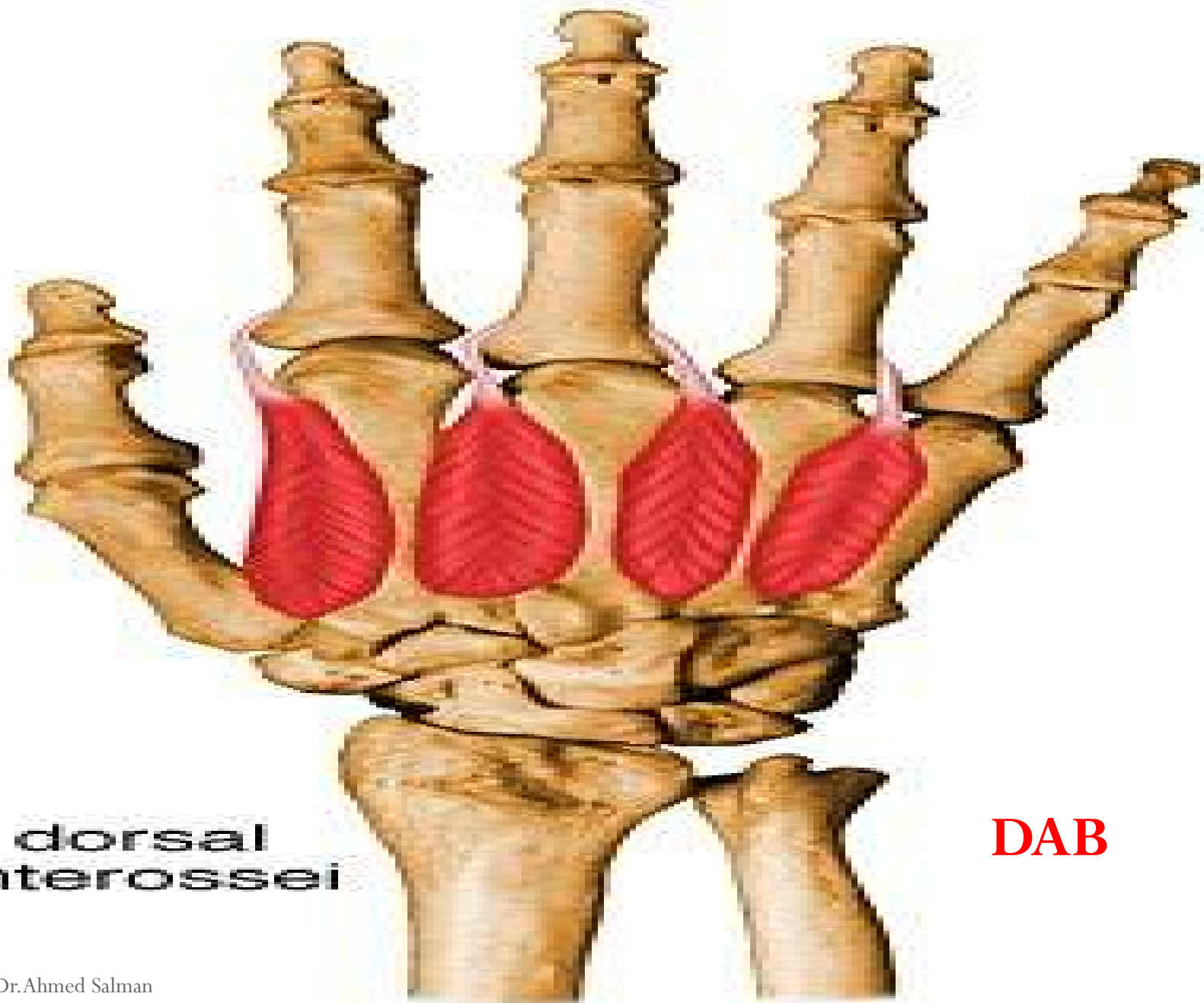
2-Palmaris Brevis : Deepening the hollow of the palm

3-Palmar Interossei : **PAD** (**AD**duction of the little ,ring ,index and thumb fingers towards the middle finger)

4-Dorsal Interossei : **DAB** (**AB**duction index , ring and middle fingers)

5-Lumbricalis and Interossi : Writing position

(Flex metacarpophalngeal and extend interphalangeal joint)



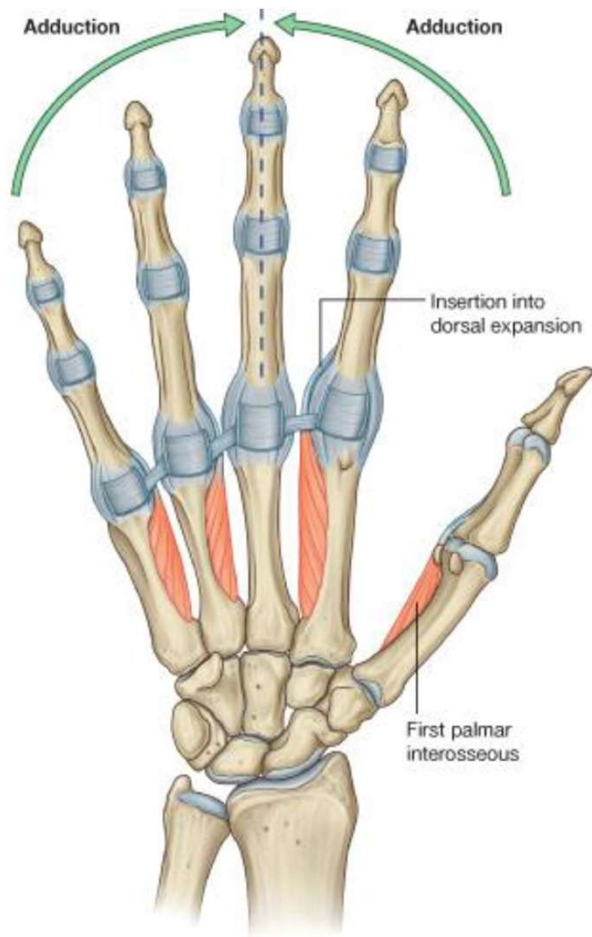
**dorsal
interossei**

DAB

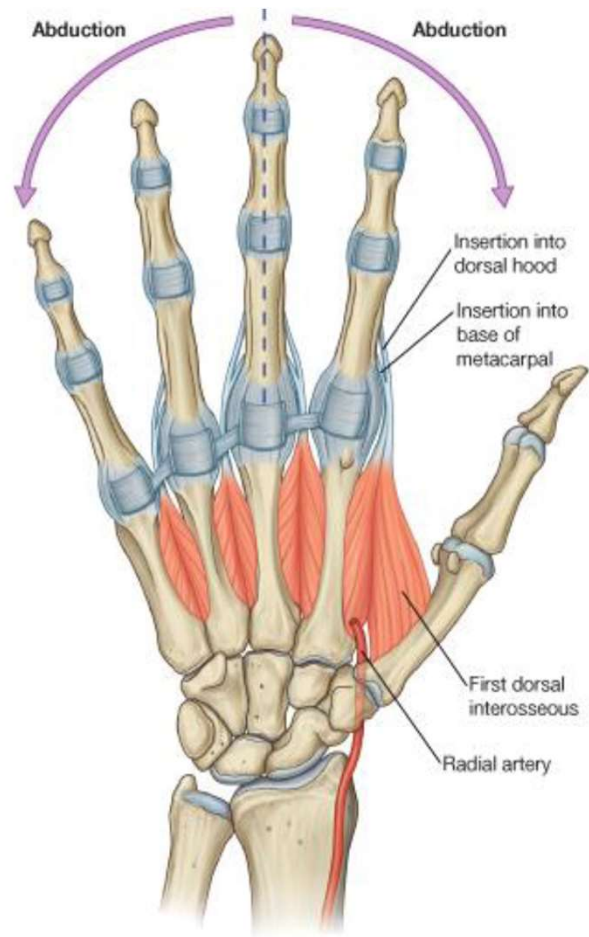
PAD



palmar
interossei



**PALMAR INTEROSSEI
PAD**



**DORSAL INTEROSSEI
DAB**

PALMAR INTEROSSEI

All fingers

Except middle finger **(WHY)**

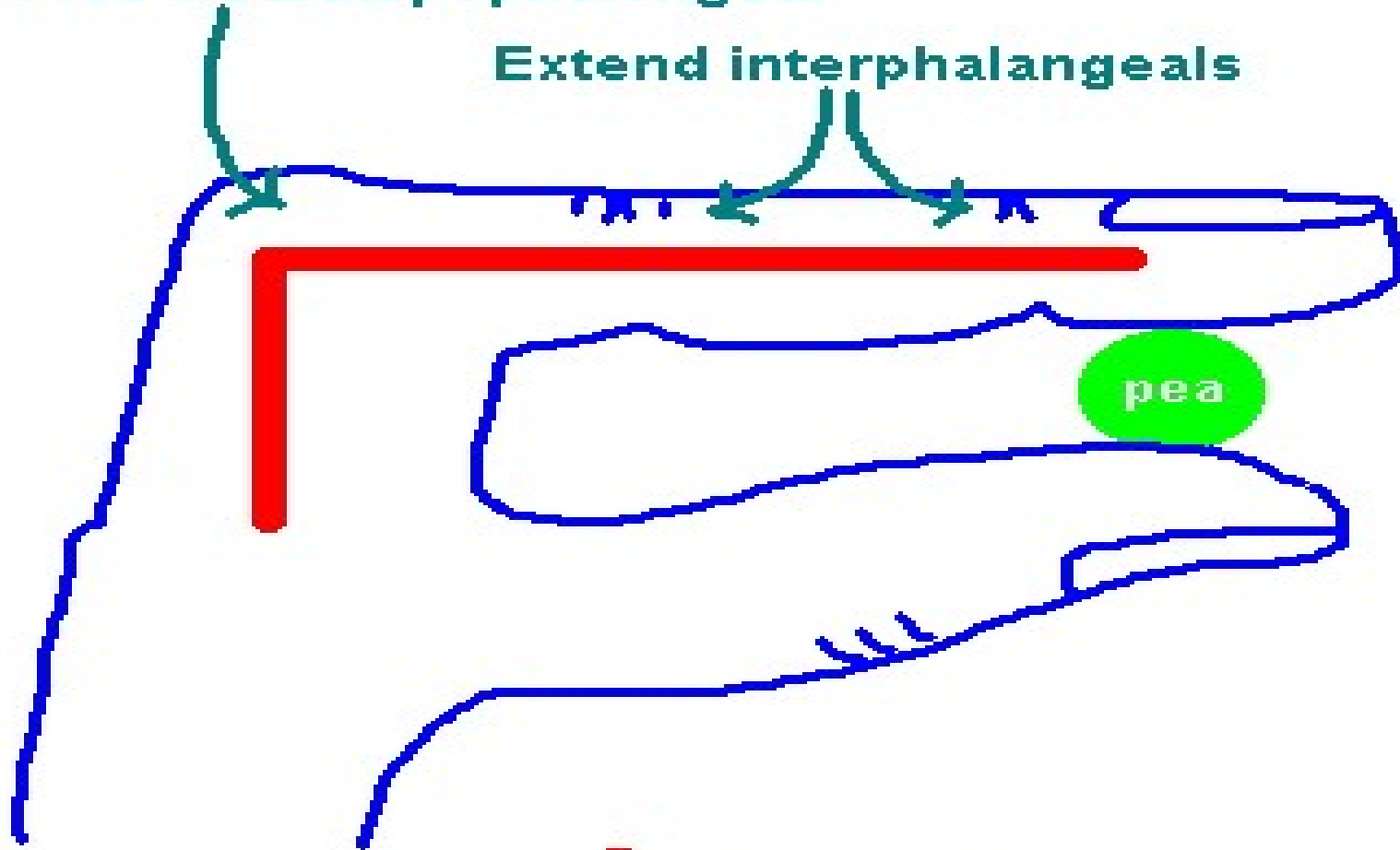
DORSAL INTEROSSEI

All fingers

Except Thumb and little finger **(WHY)**

Flex metacarpophalangeal

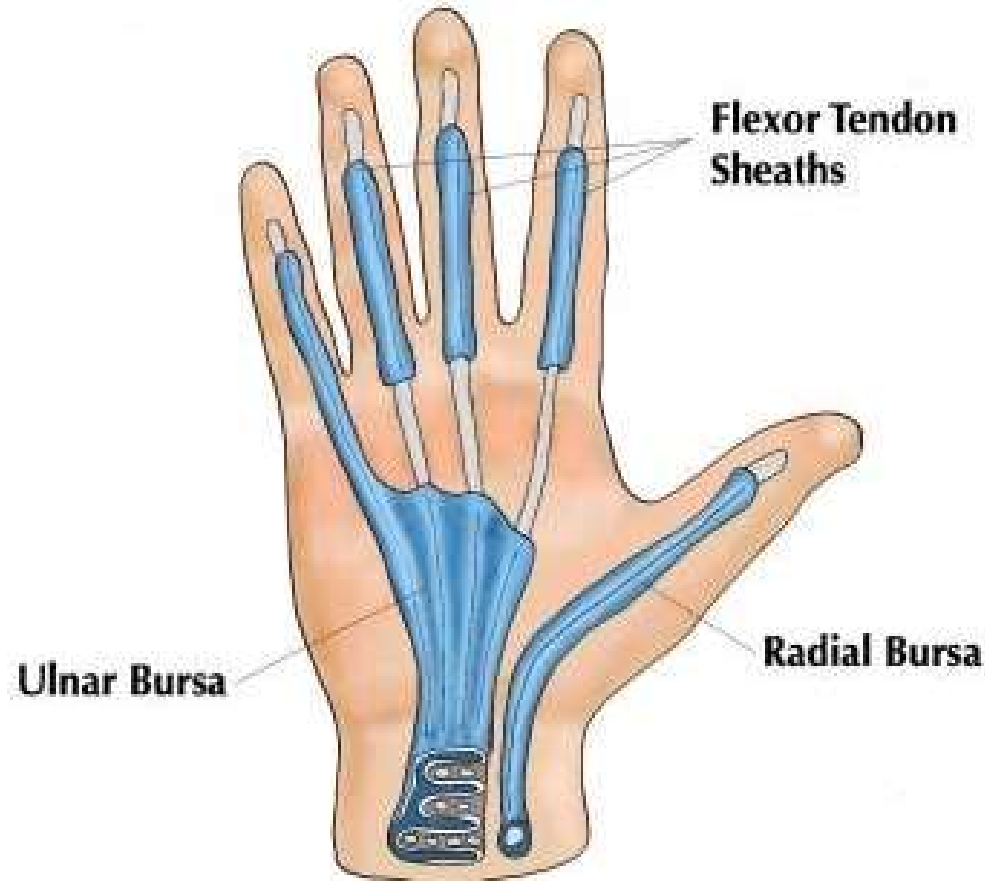
Extend interphalangeals



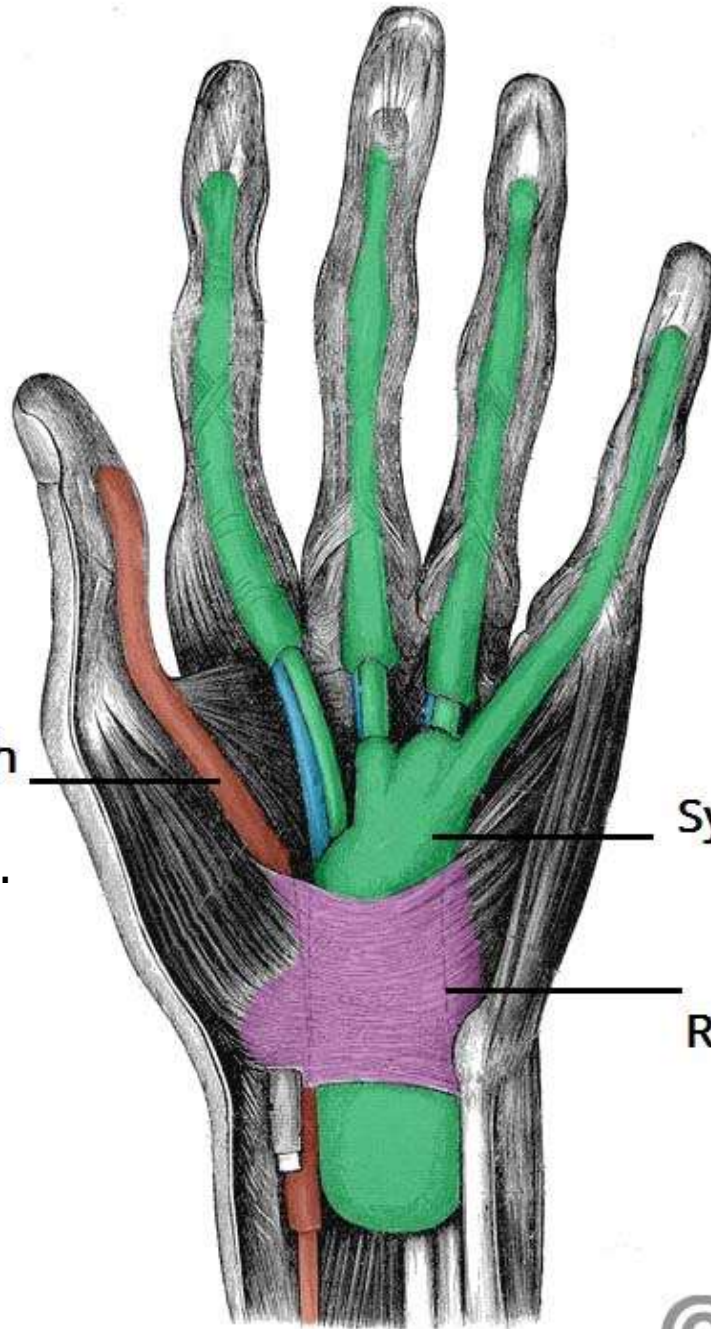
Lumbrical

Synovial sheaths of the flexor tendons

1. The tendon of flexor pollicis longus is surrounded by synovial sheath known as **radial bursa**.
2. The 8 tendons of flexor digitorum superficialis and profundus invaginate a synovial sheath from the lateral side which is called **ulnar bursa**.



Synovial sheath
of the FPL
Radial bursa.



Synovial sheath of the
FDS and FDP
Ulnar bursa.

Flexor
Retinaculum

Guyon's (ulnar) canal

It is 4cm in length. It extends from the proximal aspect of the pisiform bone to the origin of the hypothenar muscles

Contents

Ulnar nerve , ulnar artery .

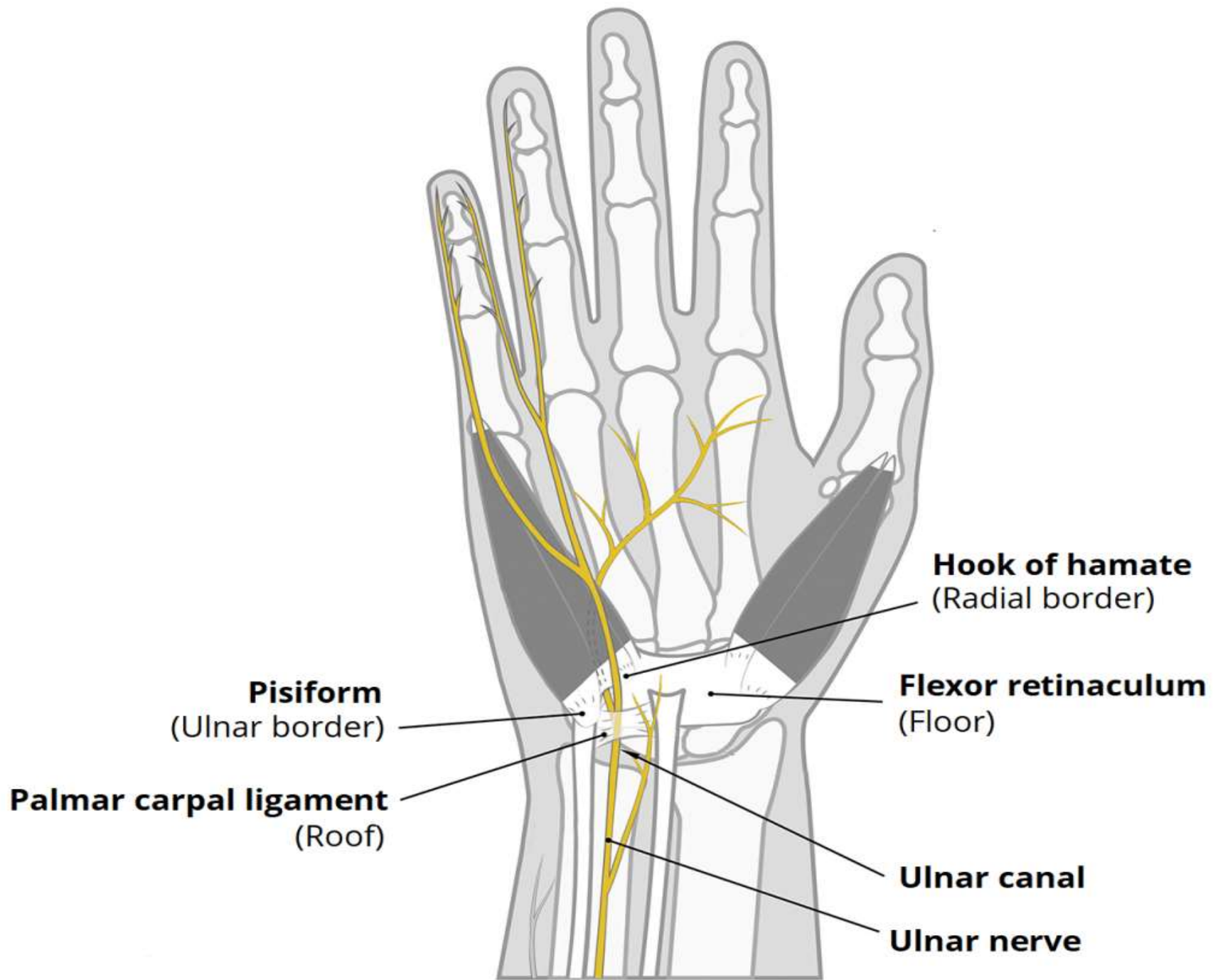
Borders (REED ONLY)

Medial : pisiform, flexor carpi ulnaris tendon, abductor digiti minimi muscle.

Lateral : hook of hamate.

Roof : palmar carpal ligament.

Floor : flexor retinaculum, pisohamate ligament, and hypothenar muscles.





The palmar aponeurosis

Shape:

Triangular with an **apex** directed proximally and a **base** directed distally.

- The **apex** is attached to the distal border of the flexor retinaculum and receives the insertion of palmaris longus tendon.
- The **base** is divided at the root of the medial 4 fingers into **4 slips**

Importance of palmar aponeurosis

- 1.It is firmly attached to the overlying skin so improving hand gripping
- 2.It protects the underlying structures

Clinical note:

Dupuytren's contracture:

It is a deformity in the hand caused by Fibrosis of the medial part of the palmar aponeurosis leads to retraction and shortening which producing progressive flexion of the little and ring fingers.



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Palmar aponeurosis

Dupuytren's contracture

The palmar septa

- The palmar aponeurosis sends a septum into the depth of the palm , known as lateral and medial palmar septa which are attached to the 1st and 5th metacarpal bones respectively .

Fascial compartments of the palm

The lateral and medial palmar septa divide the palm into 3 main fascial compartments;

a) Lateral compartment: contains the thenar muscles.

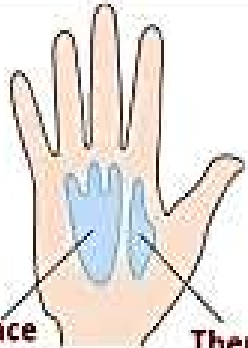
b) Medial compartment: contains the hypothenar muscles.

c) Intermediate compartment: lies between the lateral and medial palmar septa.

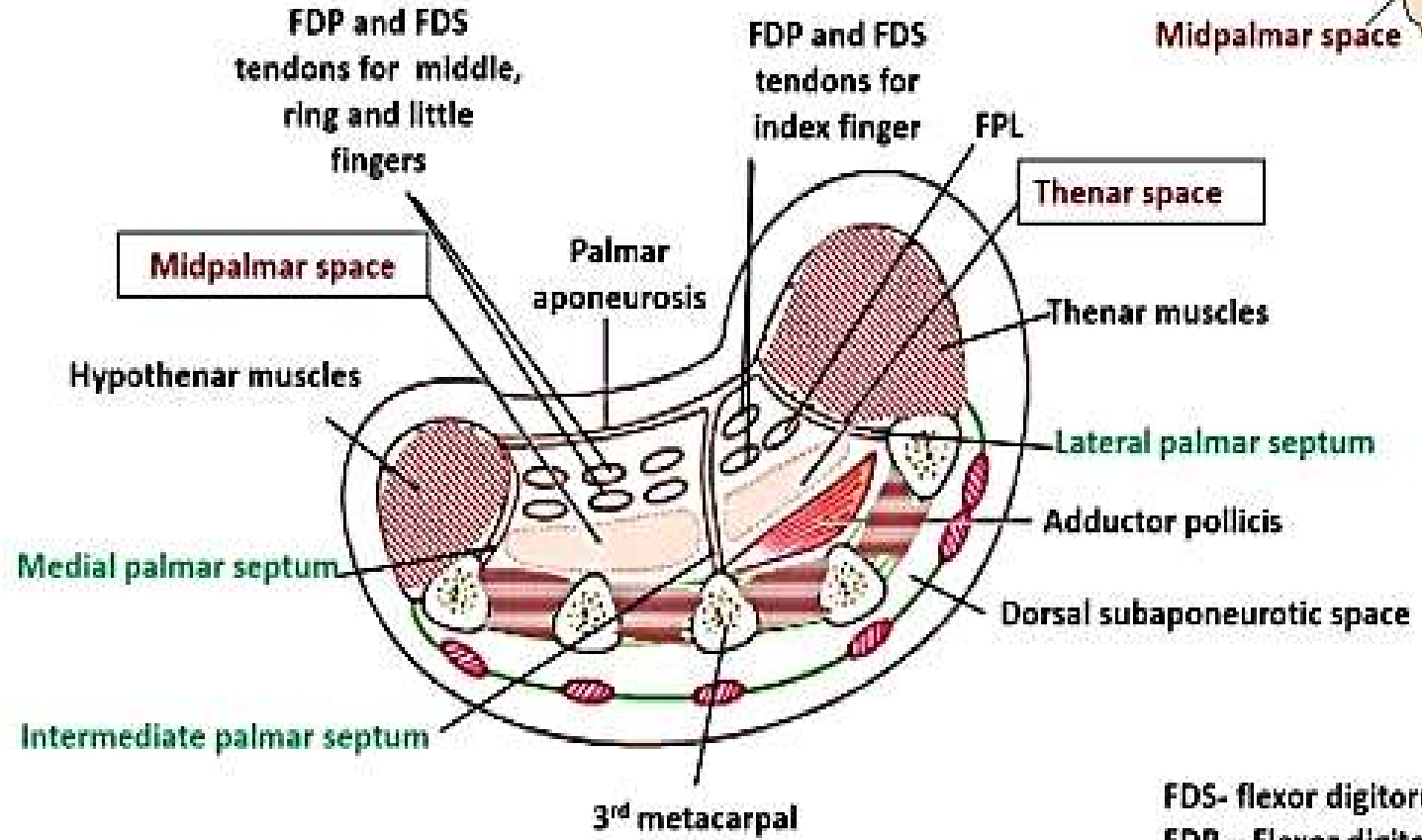
It is divided by intermediate palmar septum into:

1. Lateral part (thenar compartment).
2. Medial part (mid-palmar compartment).

Midpalmar and Thenar Spaces



Midpalmar space Thenar space



FDS- flexor digitorum superficialis
 FDP – Flexor digitorum profundus
 FPL – Flexor pollicis longus

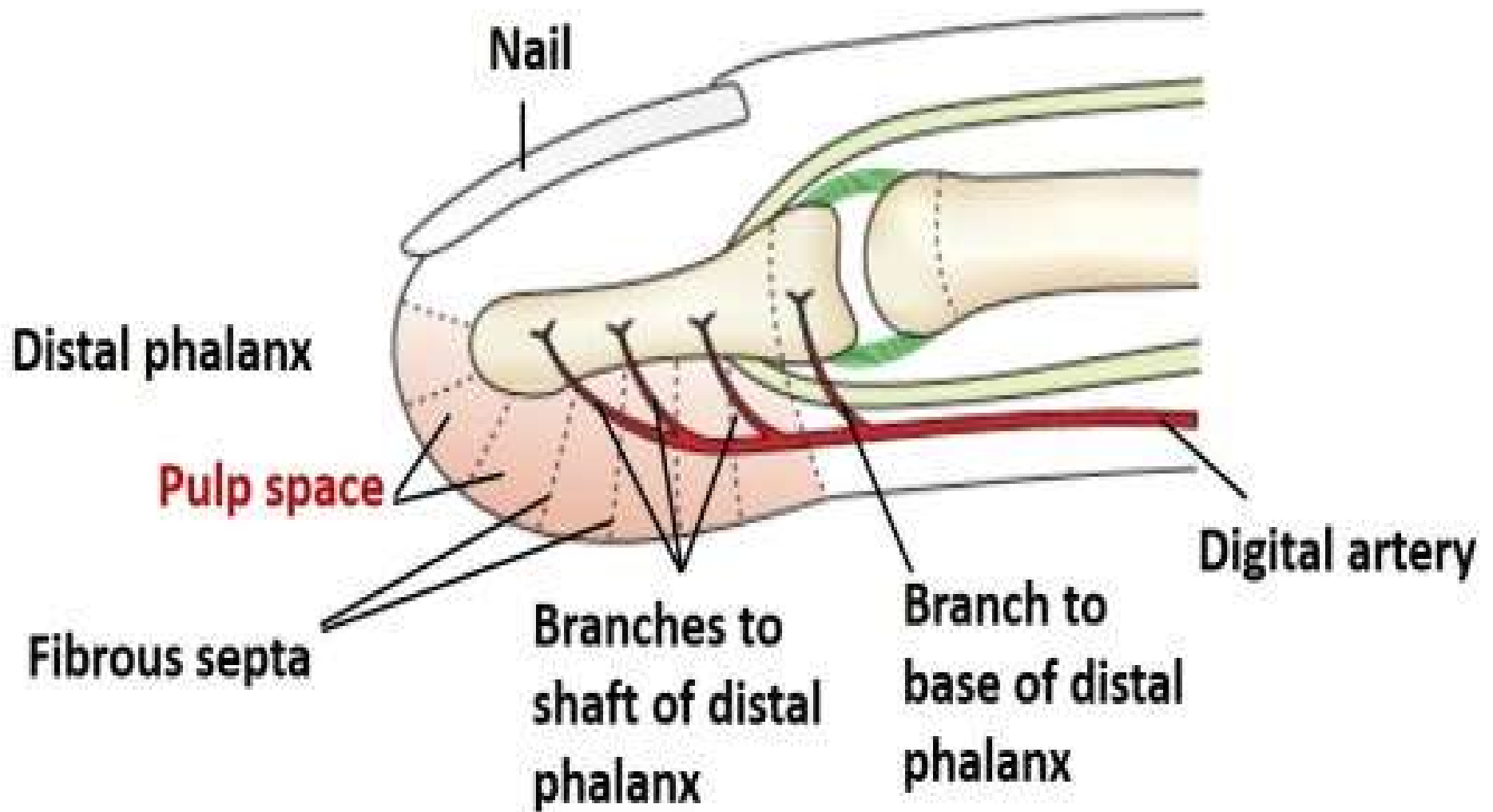
Pulp space :

It is the space which lies over the palmar surface of the distal 3/4 of the terminal (distal) phalanx, just distal to insertion of tendon flexor digitorum profundus.

Clinical Anatomy

- ❑ Infection of the pulp space is very painful .
- ❑ It leads to accumulation of pus which will cause thrombosis and obstruction of the arteries inside the space causing necrosis of the distal 3/4 of the terminal phalanx.
- ❑ The base of the phalanx is not affected because it receives its blood supply from outside the pulp space.

Digital Pulp Space





Thank
you

