

Exam of the Lacerated Hand

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Disclosures

- We have no disclosures that are pertinent to this presentation



Objectives

At the end of this presentation, learners will be able to

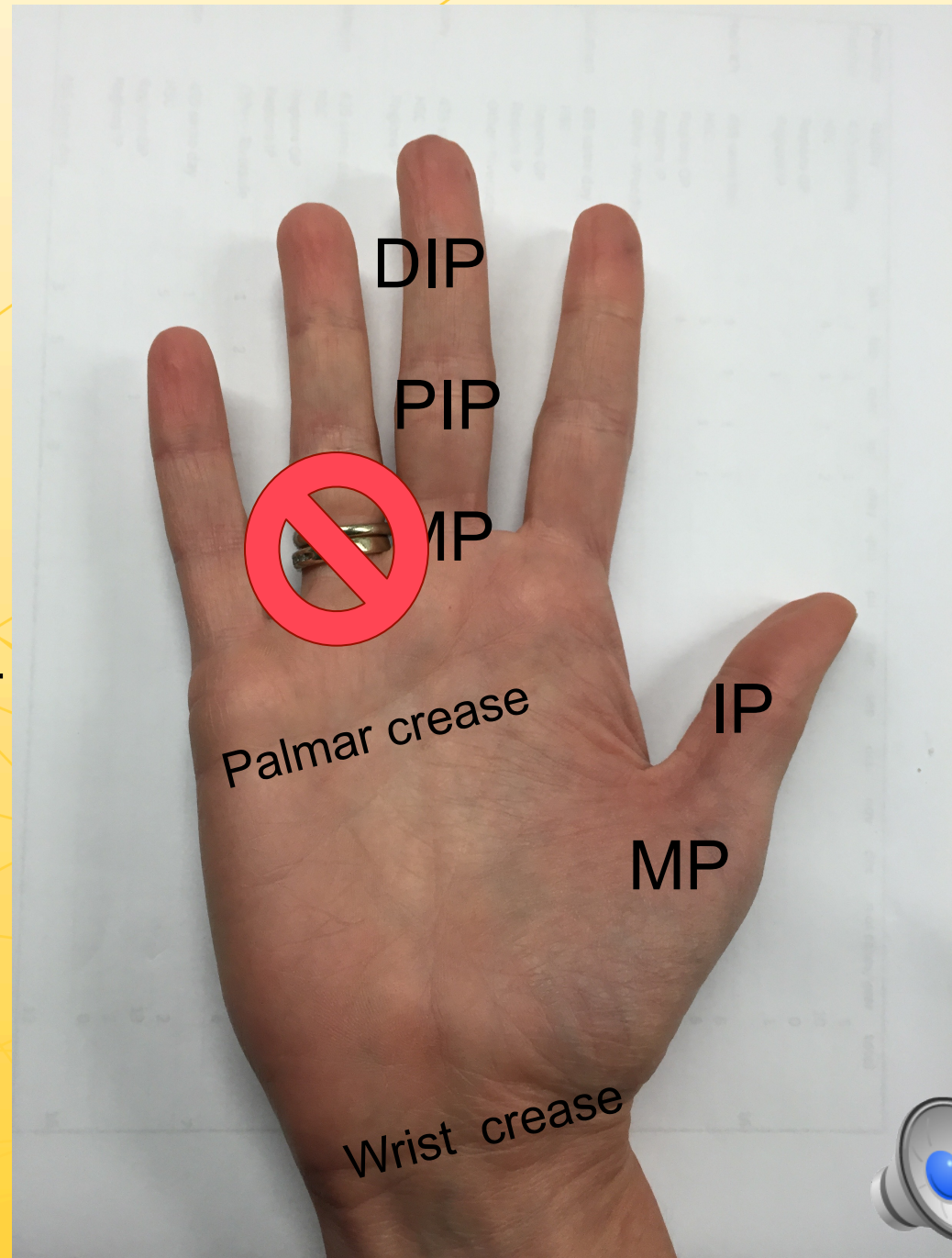
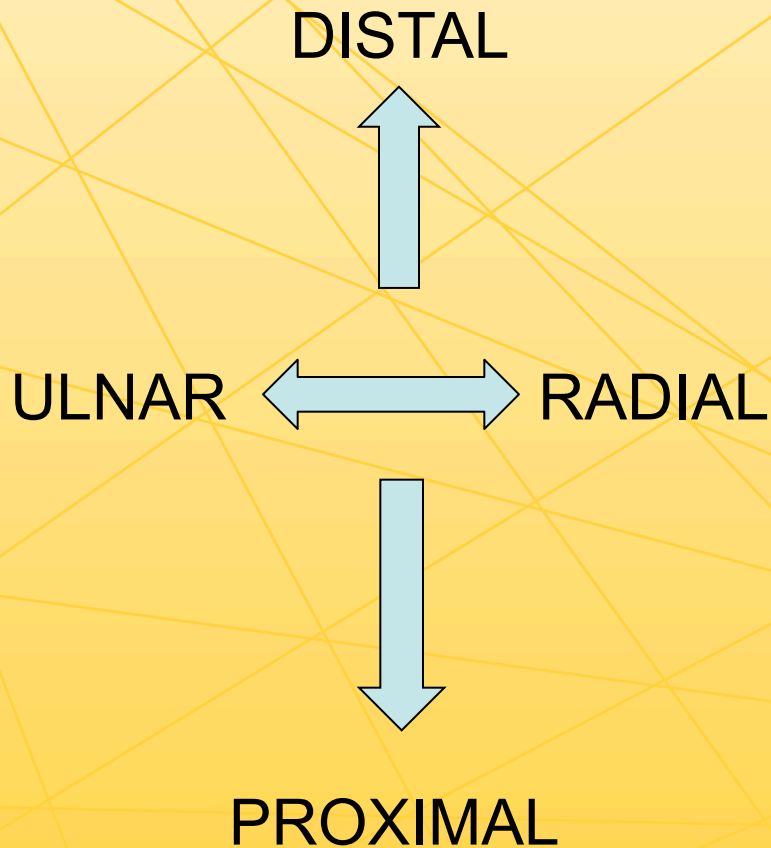
- Describe injuries to the hand
- Identify structures at risk from those injuries
- Initiate care for those injuries, and arrange appropriate followup



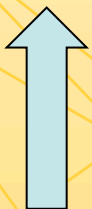
Terminology



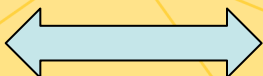
Terminology



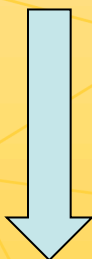
DISTAL



RADIAL



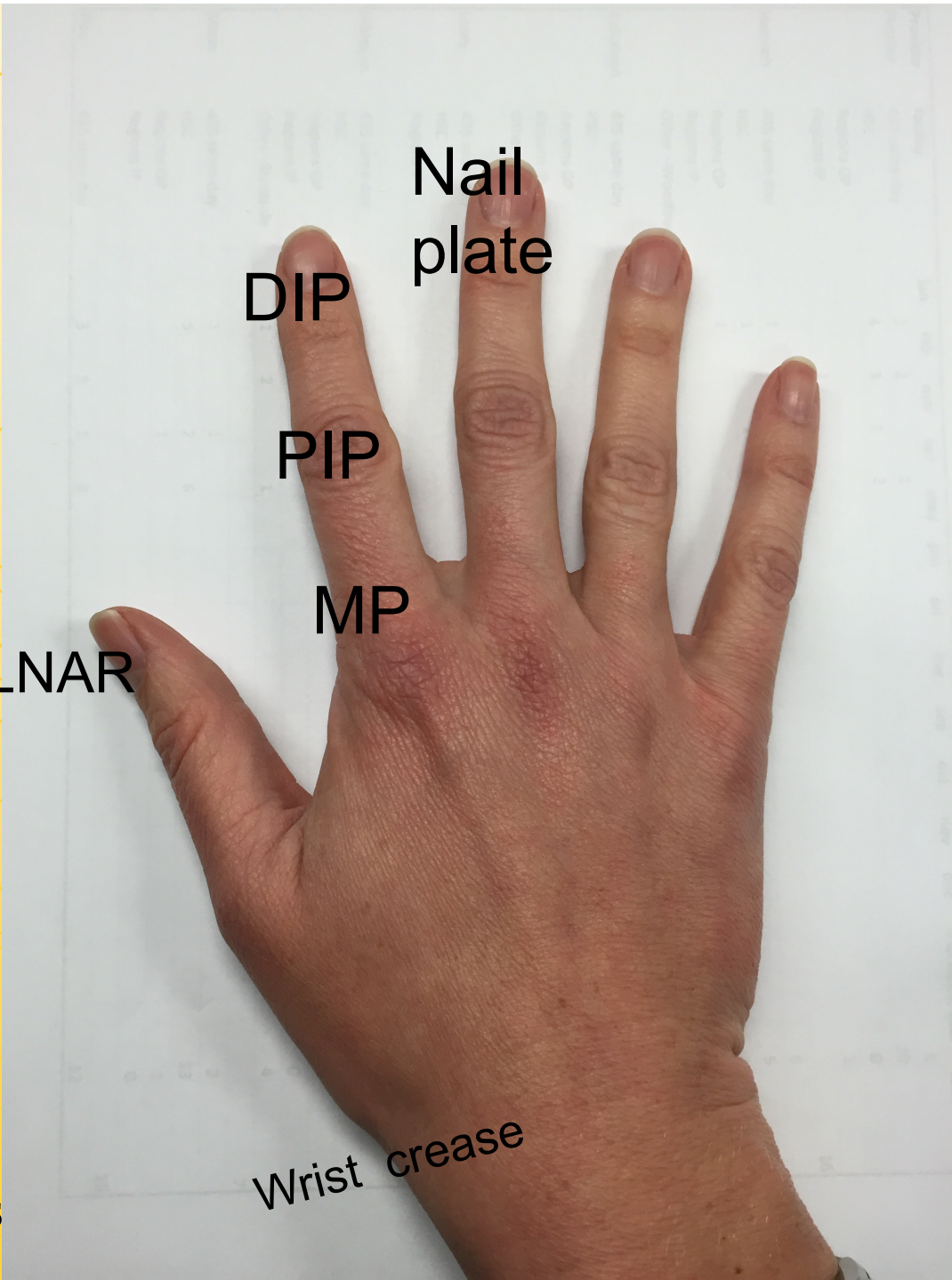
ULNAR



PROXIMAL



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Nail plate

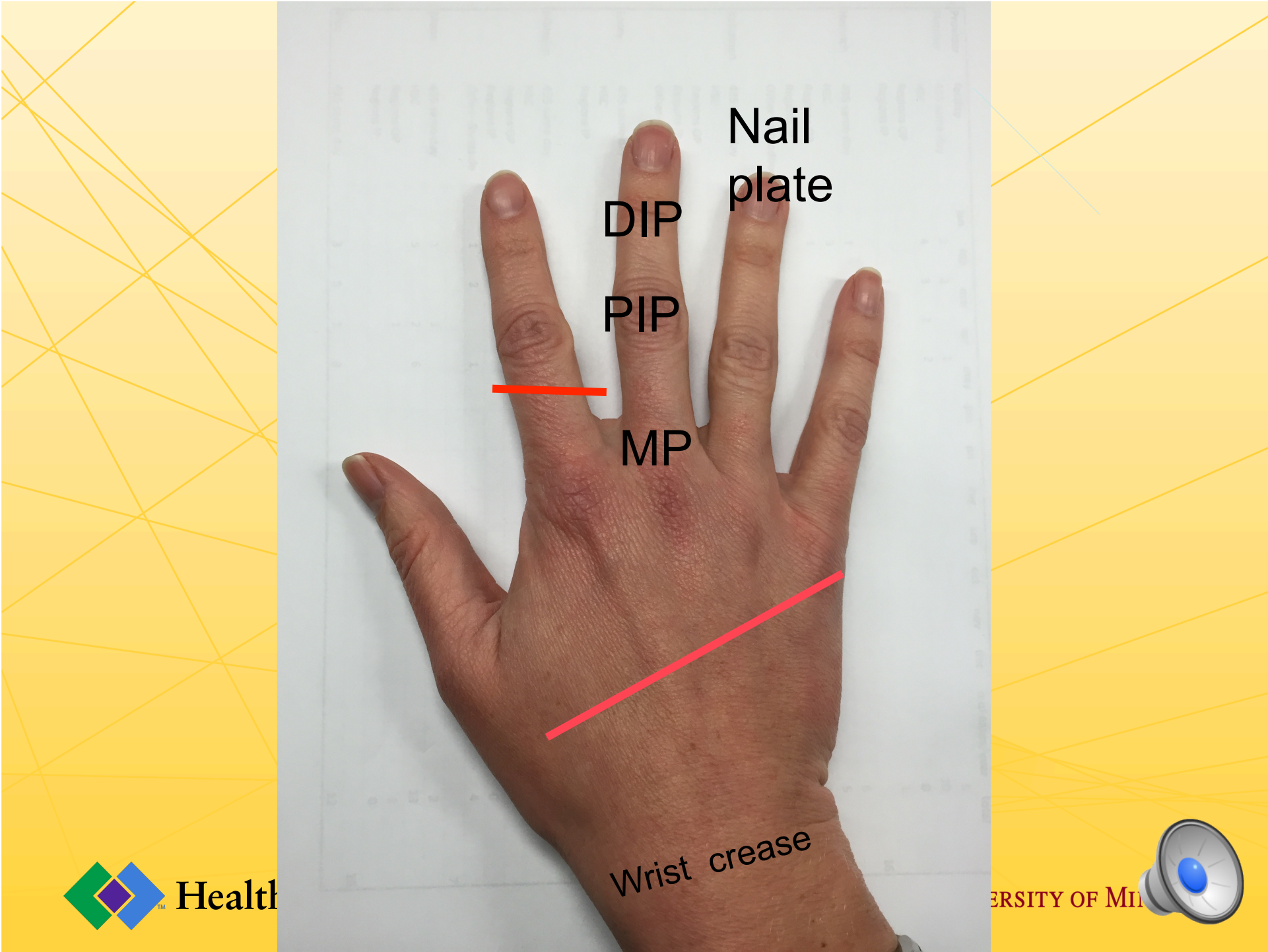
DIP

PIP

MP

Wrist crease





Other useful terms

- Near amputation
 - Bone completely cut, skin on one side cut
 - “dusky dangler”
- Complete amputation
 - Finger in a bucket
- Fingertip injury
 - Anything distal to the DIP
 - Not going to be replanted



A word on exploration . . .

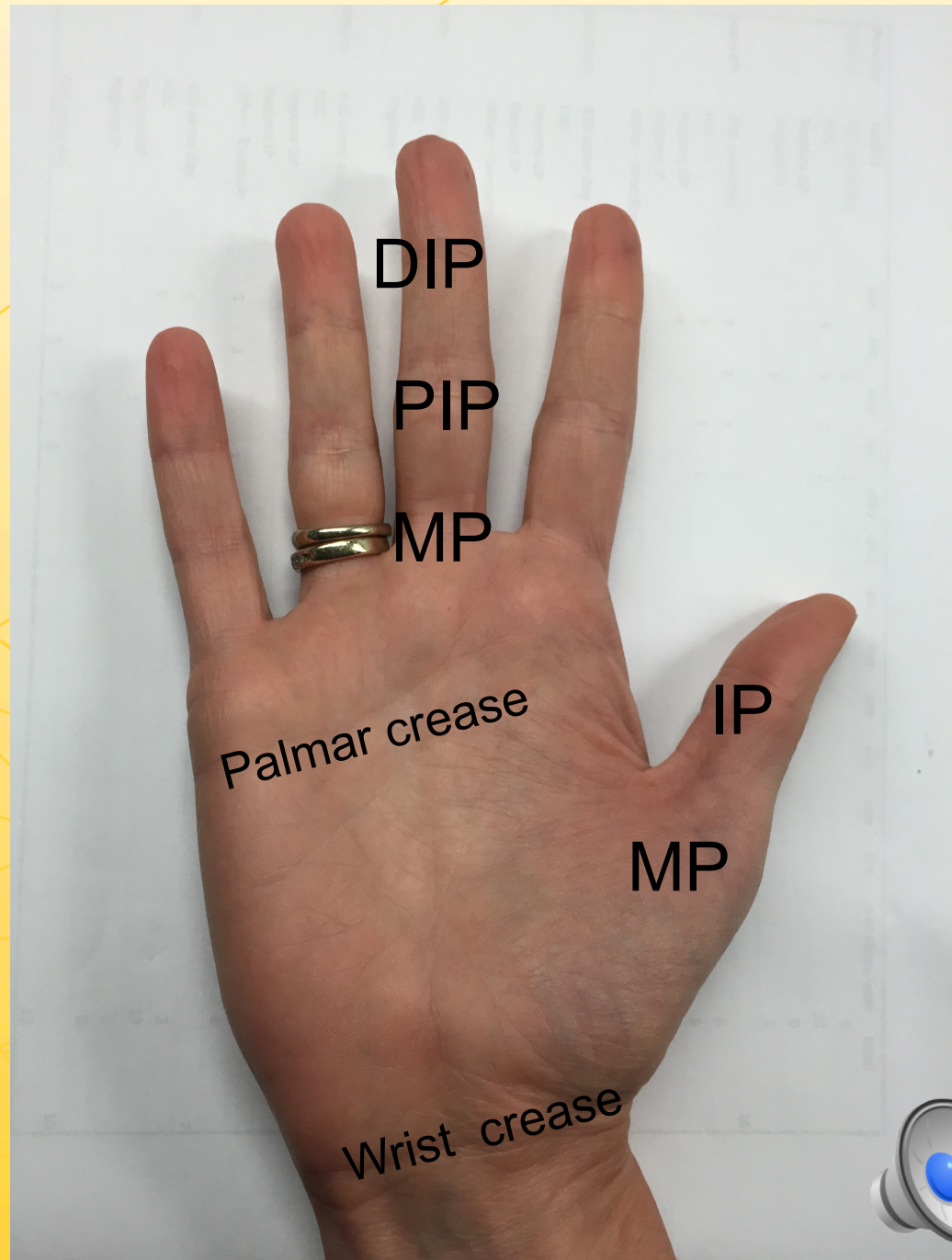
- Decision for operative intervention is based on clinical exam NOT what is seen in the wound







Terminology





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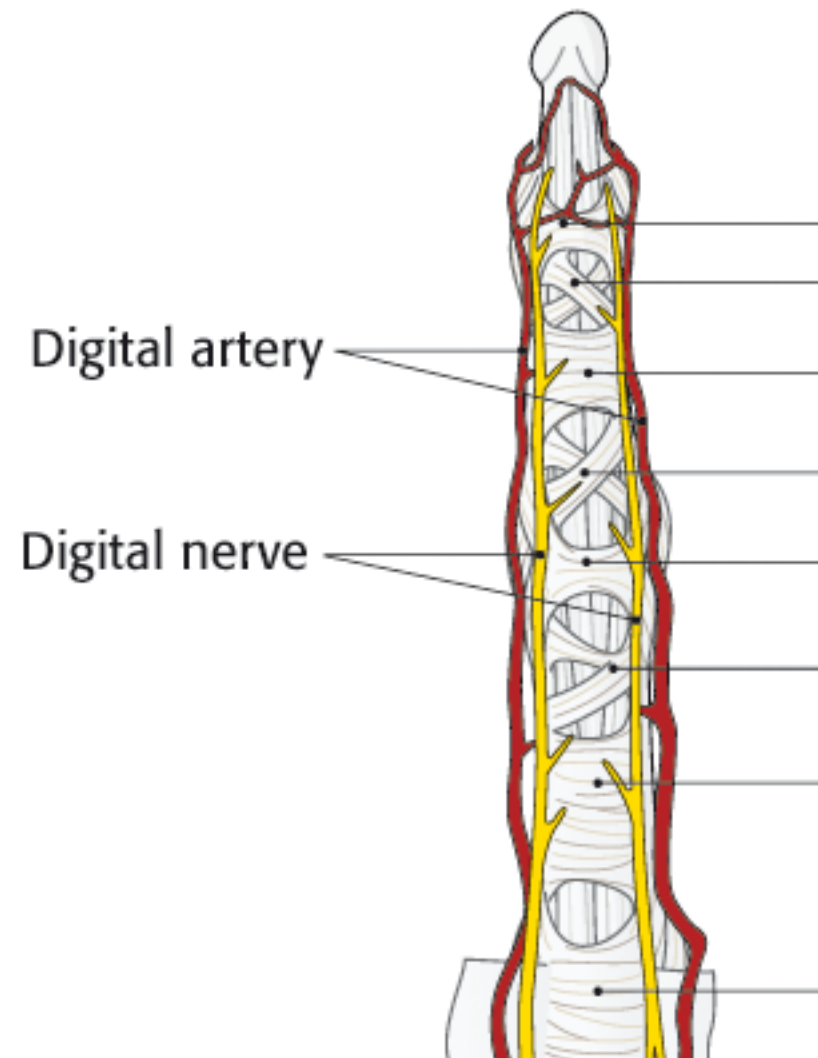


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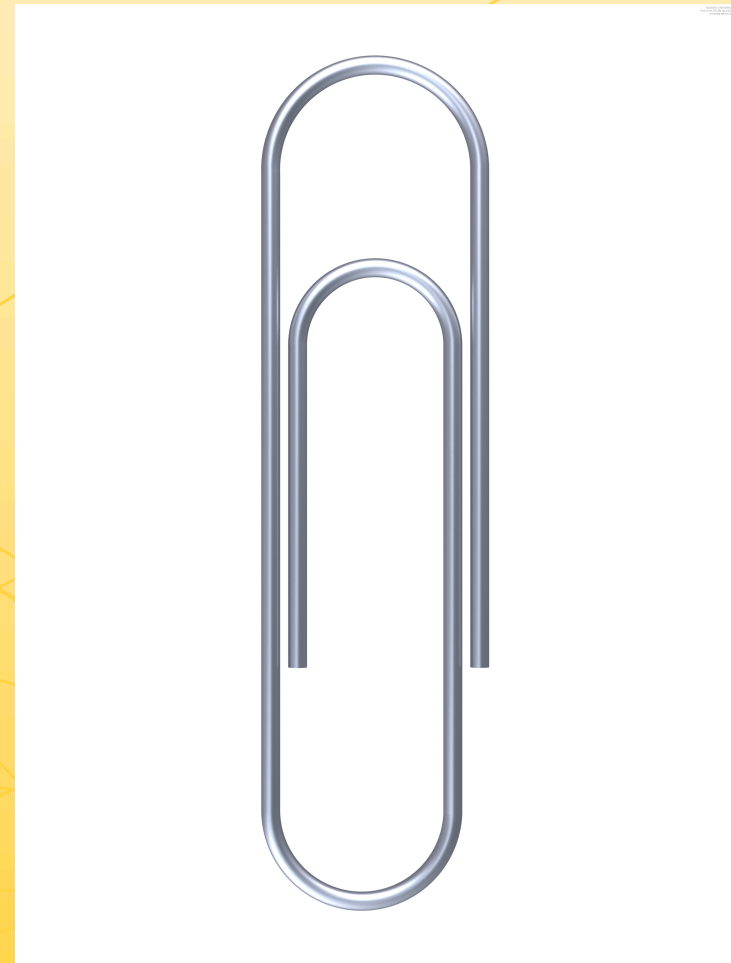
Volar finger

- Digital nerve
- Digital artery- usually can't cut the digital artery without cutting the digital nerve
- Flexor tendon



Testing digital nerves

- Do not numb up the finger first
- Check both ulnar and radial sides



Digital artery injury

- Only need one intact digital artery to survive
- Check cap refill
- Fingertip color
- Turgor



Testing flexor tendons



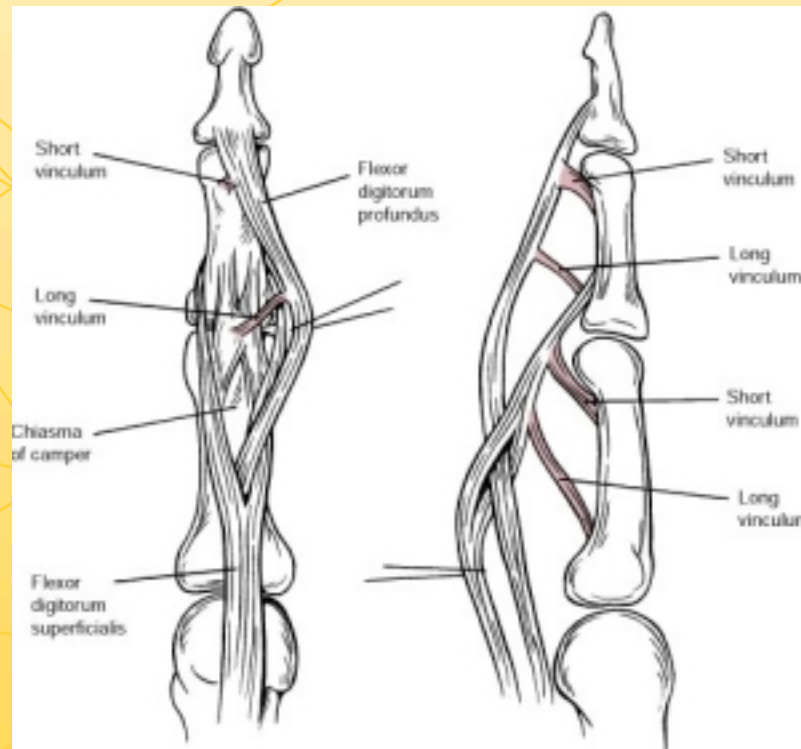
Rests in extension

No flexion with tenodesis

Squeeze test



Each finger has two flexor tendons



Testing FDS



Lacs on the volar finger injure...

Digital nerve



Surgical repair ideally within 10-14 days

Digital artery



One artery: no treatment (but digital nerve is likely cut)
Two arteries: dysvascular finger
SURGICAL EMERGENCY

Flexor tendon



Surgical repair within 7-10 days



Initial care

- Antibiotics
- Tetanus
- Dorsal block splint
- Primary wound closure
- Arrange follow up with hand surgeon
 - **If you leave follow up to the patient, make sure they understand the importance of timely follow up**



Case example

Transverse laceration over volar long finger just distal to the PIP joint

Finger is well perfused

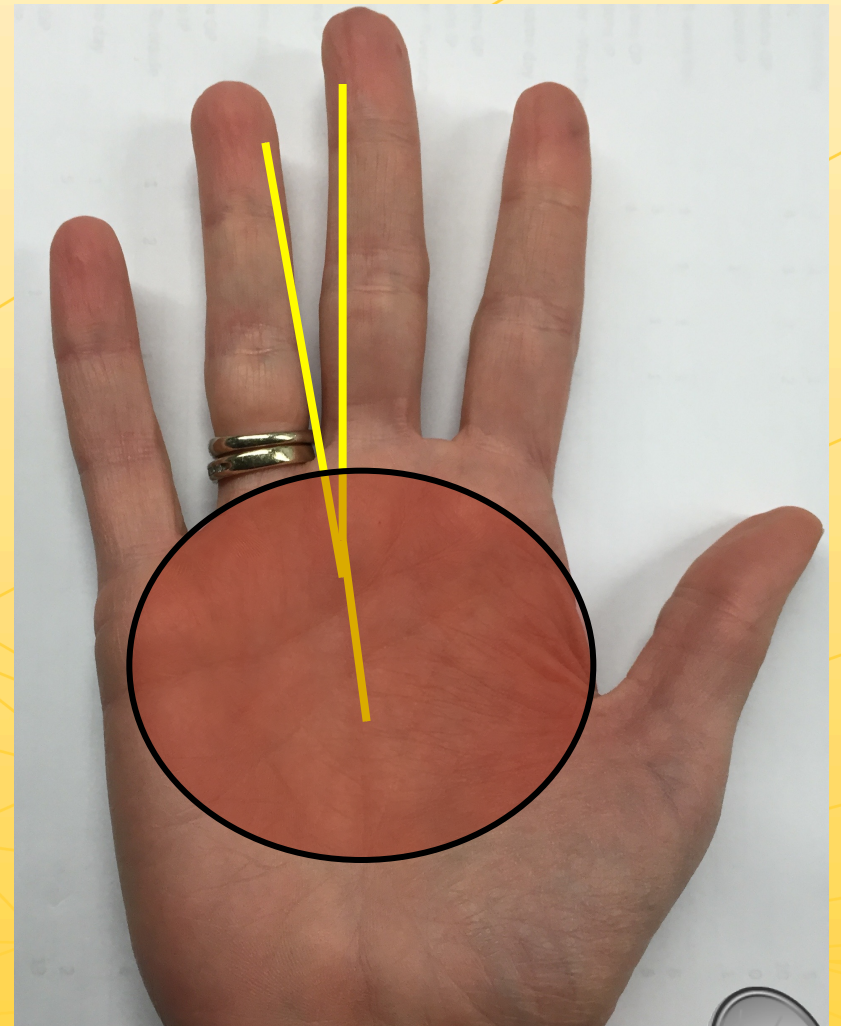
Unable to flex at DIP or PIP joints

Diminished sensation on ulnar digit



Volar hand- distal to carpal tunnel

- Common or proper digital nerve
- Digital artery- or superficial arterial arch
- Flexor tendon: FDS and FDP



Lacerations to the palm injure . . .

Digital nerve



Surgical repair ideally within 10-14 days

Digital artery



One artery: no treatment
(but digital nerve is likely cut)
Two arteries: dysvascular finger
SURGICAL EMERGENCY

Flexor tendon

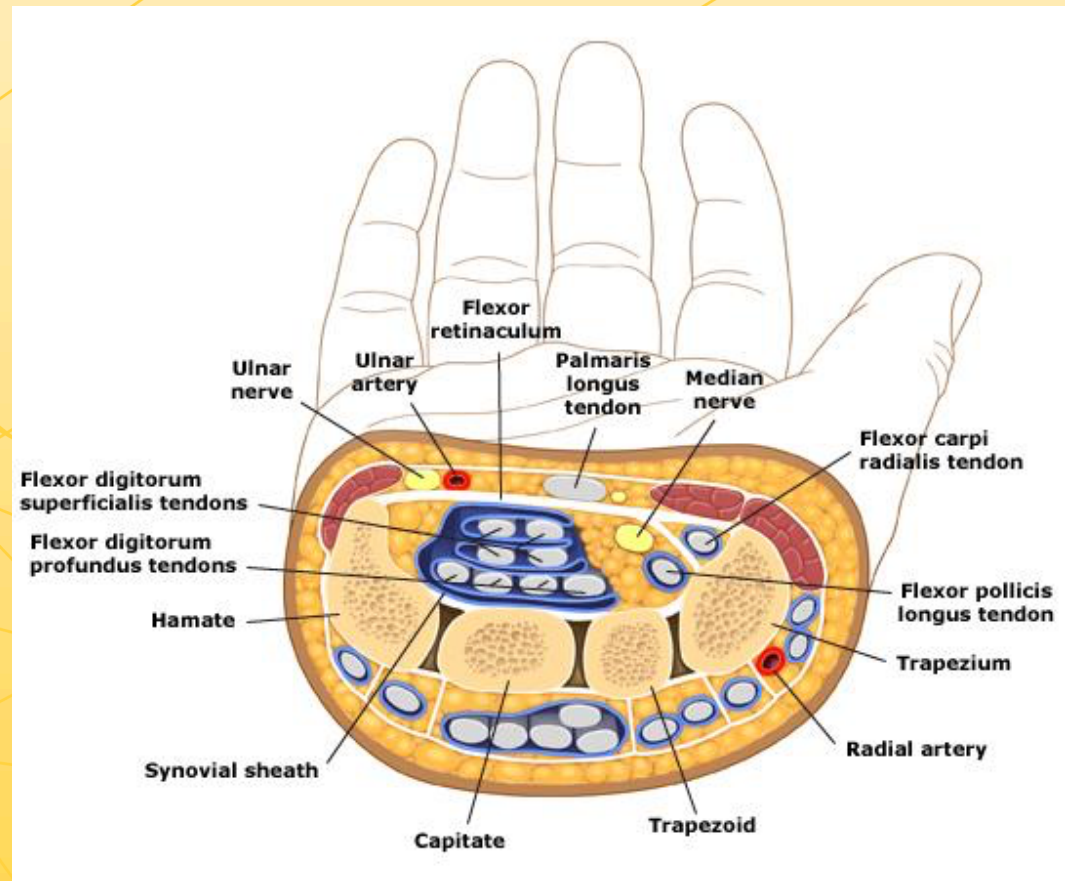


Surgical repair within 7-10 days



Volar hand- carpal tunnel and proximal

- Median nerve
- Ulnar nerve
- Radial artery
- Ulnar artery
- Flexor tendon: FDS and FDP



RARE TO CUT ONLY ONE STRUCTURE



Radial artery
Ulnar artery



Pulsatile
bleeding OR
dysvascular
hand



**SURGICAL
EMERGENCY**
Apply direct
pressure NOT a
tourniquet

- Rarely injure only the ulnar artery- almost always injure ulnar nerve as well





Median nerve



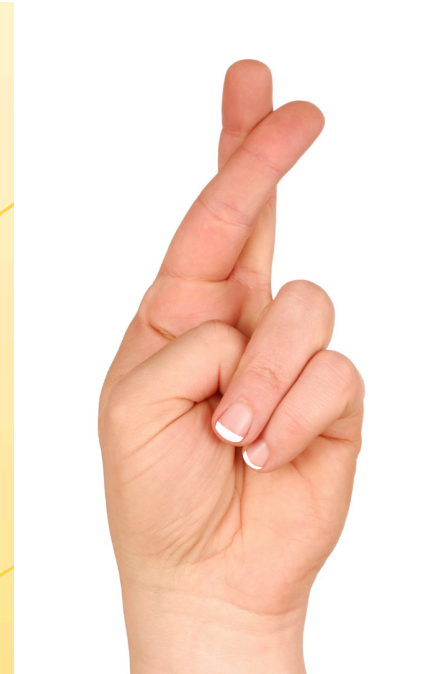
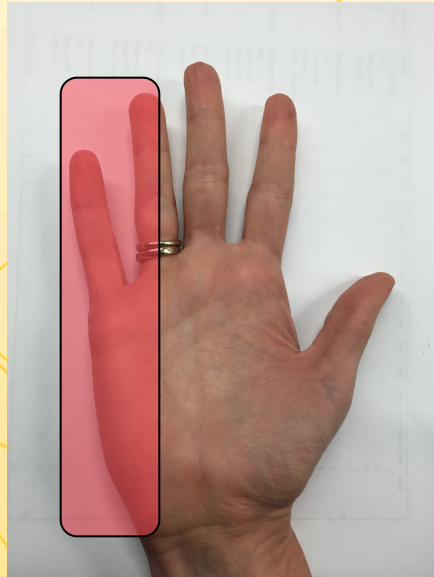
Lack of
sensation over
volar thumb,
index, long
finger



Surgical repair
in 10-14 days

- Median nerve injury can result from small puncture wound.
- Partial median nerve injuries are COMMON
- Often associated FDS injury





Ulnar nerve



Lack of sensation
over small and
ring fingers
Inability to abduct/
adduct digits
(cross fingers)



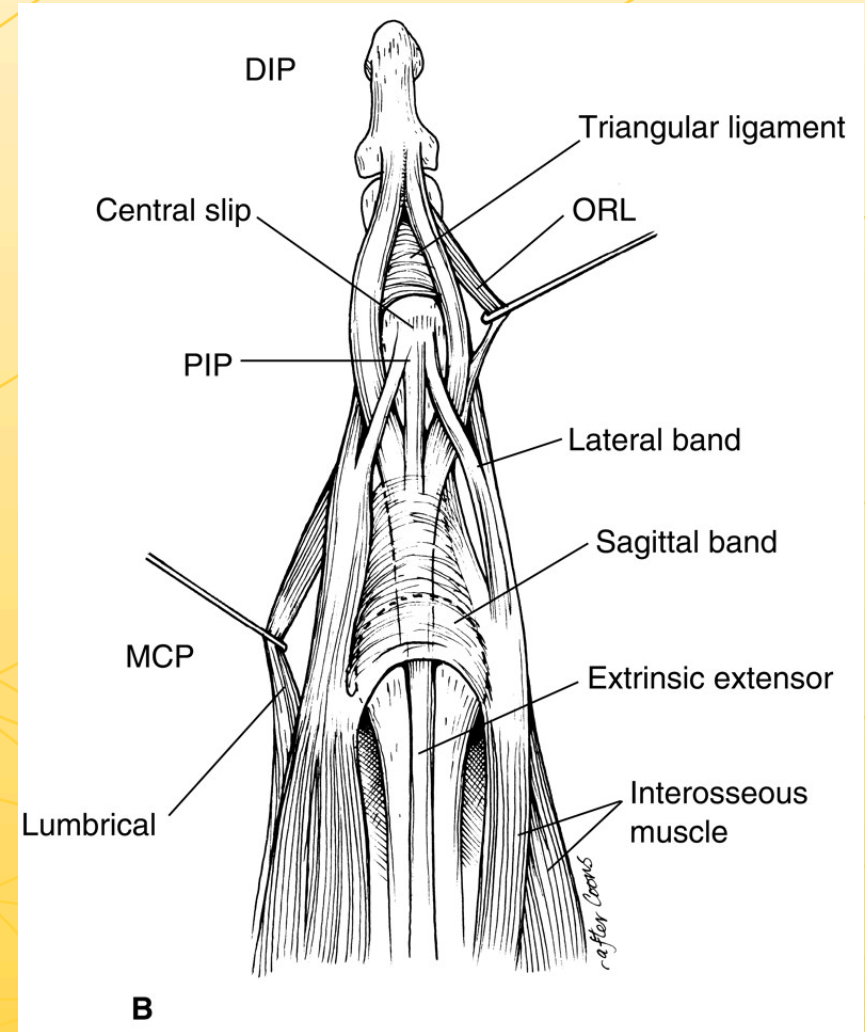
Surgical repair in
7-10 days

- At this level, can have partial injury of ulnar nerve (either motor or sensory)



Dorsal finger

- Nailplate/ nail bed
- Extensor tendon



“Tuft” fractures



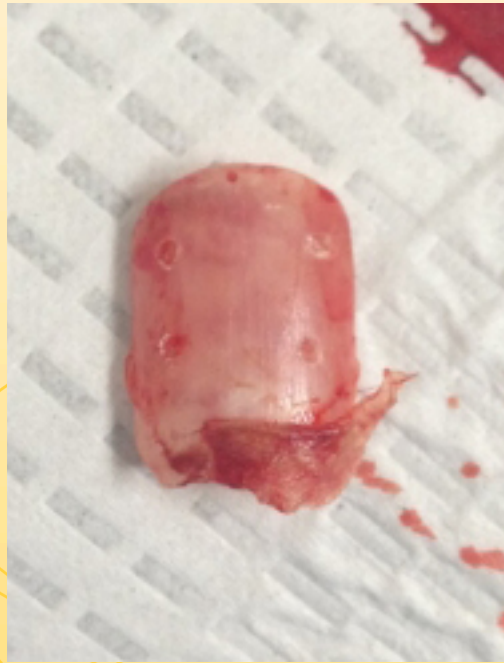
- Common tip of distal phalanx fractures, usually from a crushed finger
- Almost never require surgical intervention
- Nail plate acts as splint



Tuft fractures

- Often associated with subungual hematoma
 - DO NOT need to remove the nail plate if it is intact
 - Nail trephination does NOT turn it into an open fracture (does not need antibiotics)
 - Just splint at DIP joint, not PIP joint to prevent finger stiffness







Proximal nailplate sitting on top of nail fold





Nailplate removed and cleaned





**Trim the edges of the nail AND
the proximal feathery end**





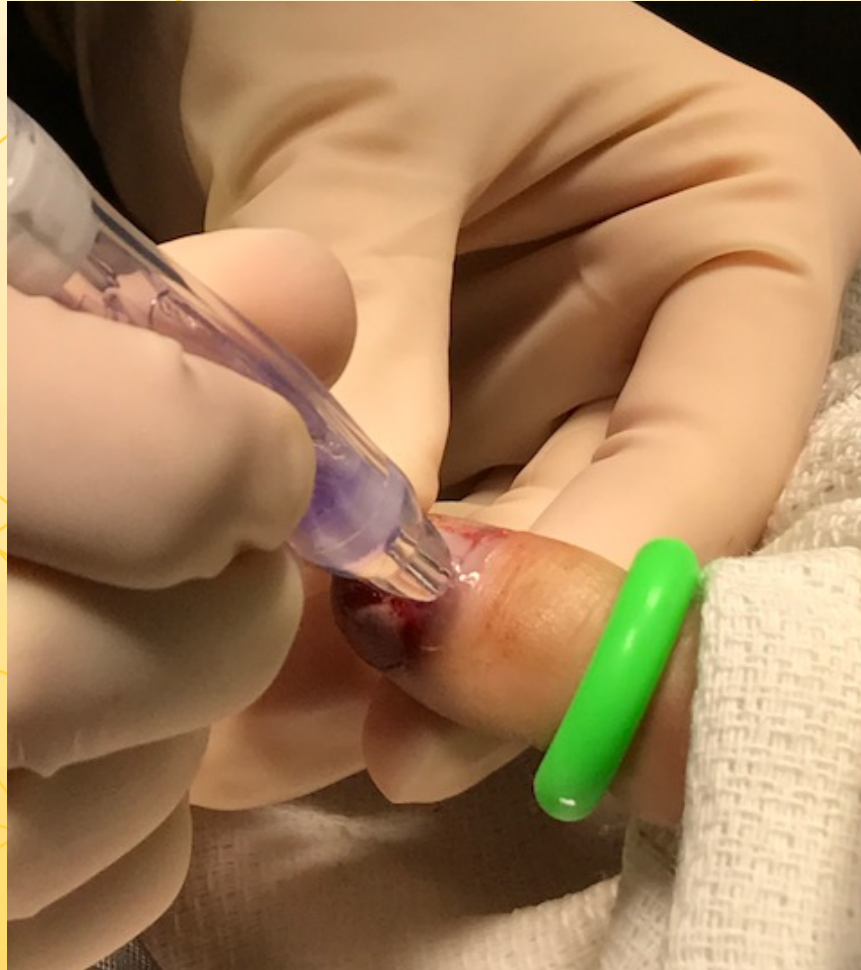
**Suture repair along edges of finger first,
then nailbed if absolutely necessary
Establish nailfold with elevator.
Irrigate thoroughly**





A dot of dermabond on the sterile supporting matrix





Nail plate under the nailfold and dermabond at the fold

Finger tourniquet controls bleeding so dermabond can dry

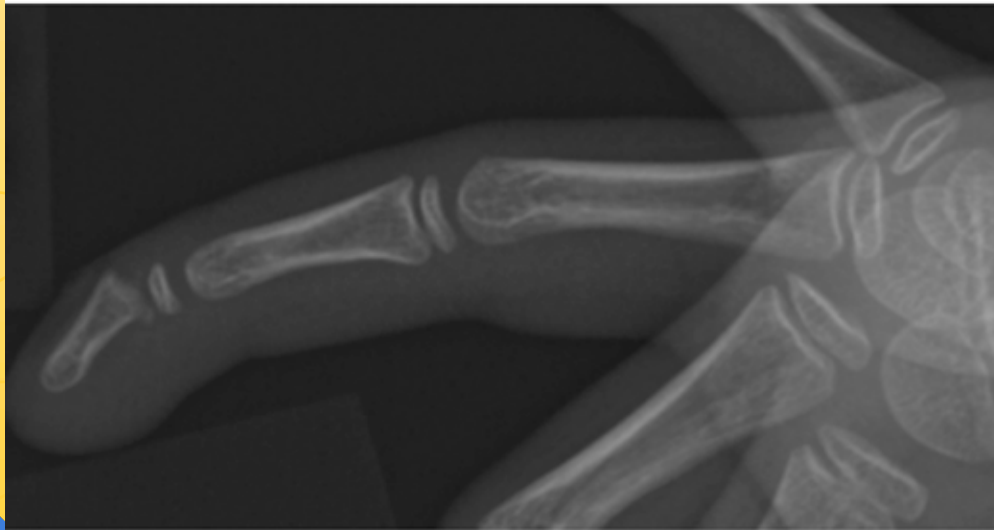




**Leave tourniquet until the dermabond is dry- but
don't forget to remove it before the patient leaves**

Nail under the nail fold





Seymour fractures

- Pediatric fracture through the physis
- Needs to be washed out within 24 hours, typically in the OR (to facilitate pinning)
 - <24 hours → 0 infections
 - acute, partial treatment → 15% infections
 - delayed treatment → 45% infections

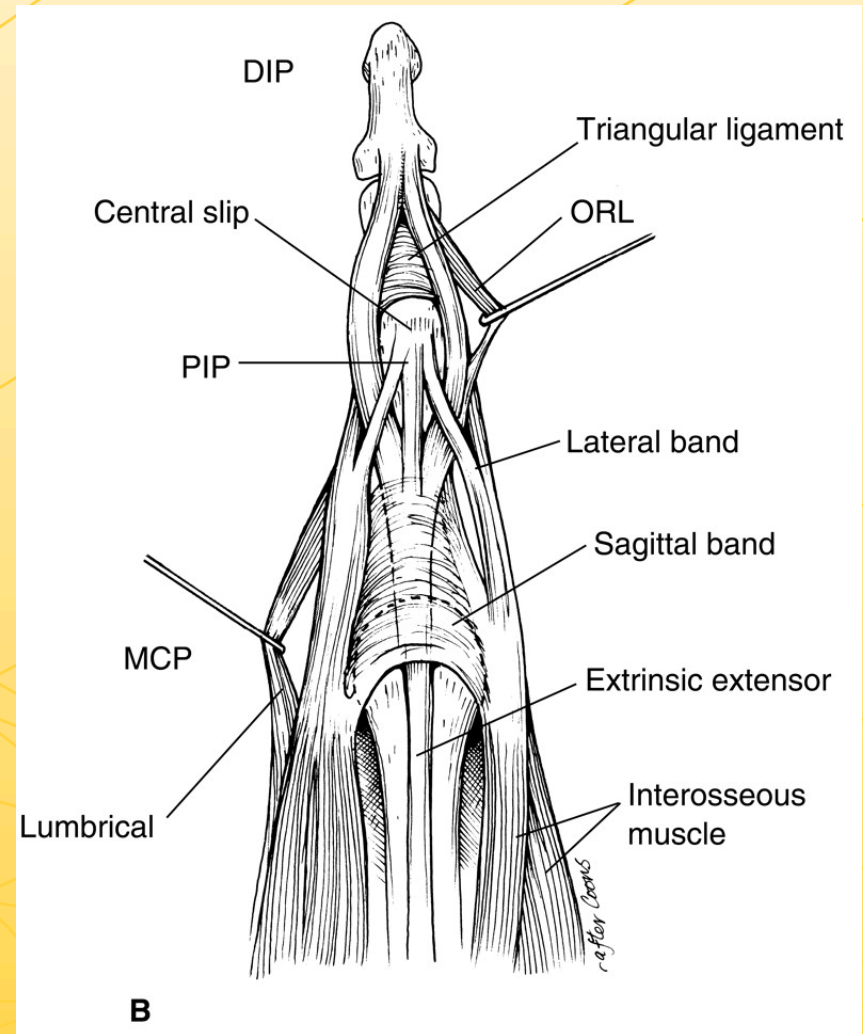


Extensor tendons

- At the PIP (boutonniere)

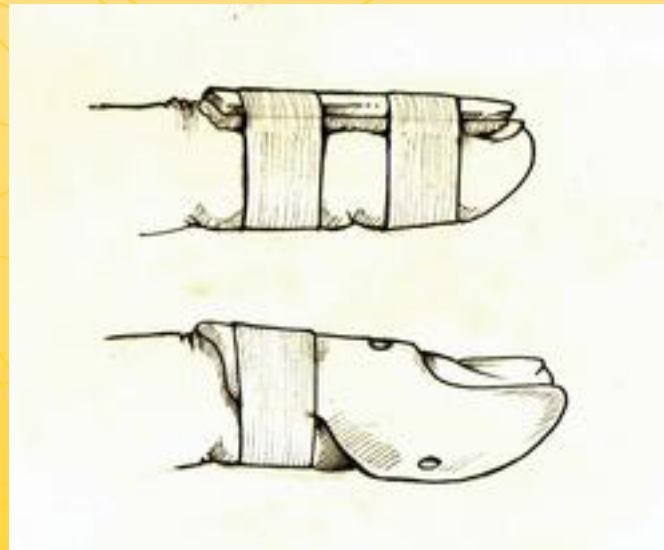
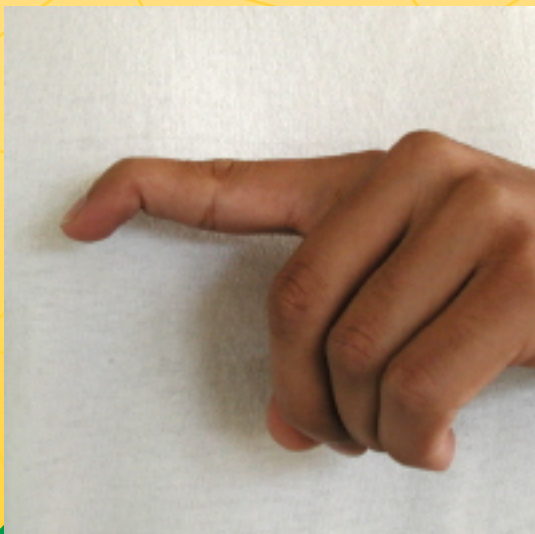


- At the DIP (mallet)



Mallet finger (minus laceration)

- disruption of distal end of extensor tendon
- Common even with minor trauma
- Splint with the DIP in extension and the PIP free. **FULL TIME SPLINT X 6-8 WEEKS.**



Lacerations to the dorsal finger injure...

Subungual
hematoma
(+/- tuft fracture)



Decompress or nothing

Nail plate
disrupted



Same day repair in the
office or ER vs f/u in
clinic

Extensor tendon



Surgical repair within
7-10 days



Dorsal hand

- Extensor tendon.....
that's about it



Extensor tendon



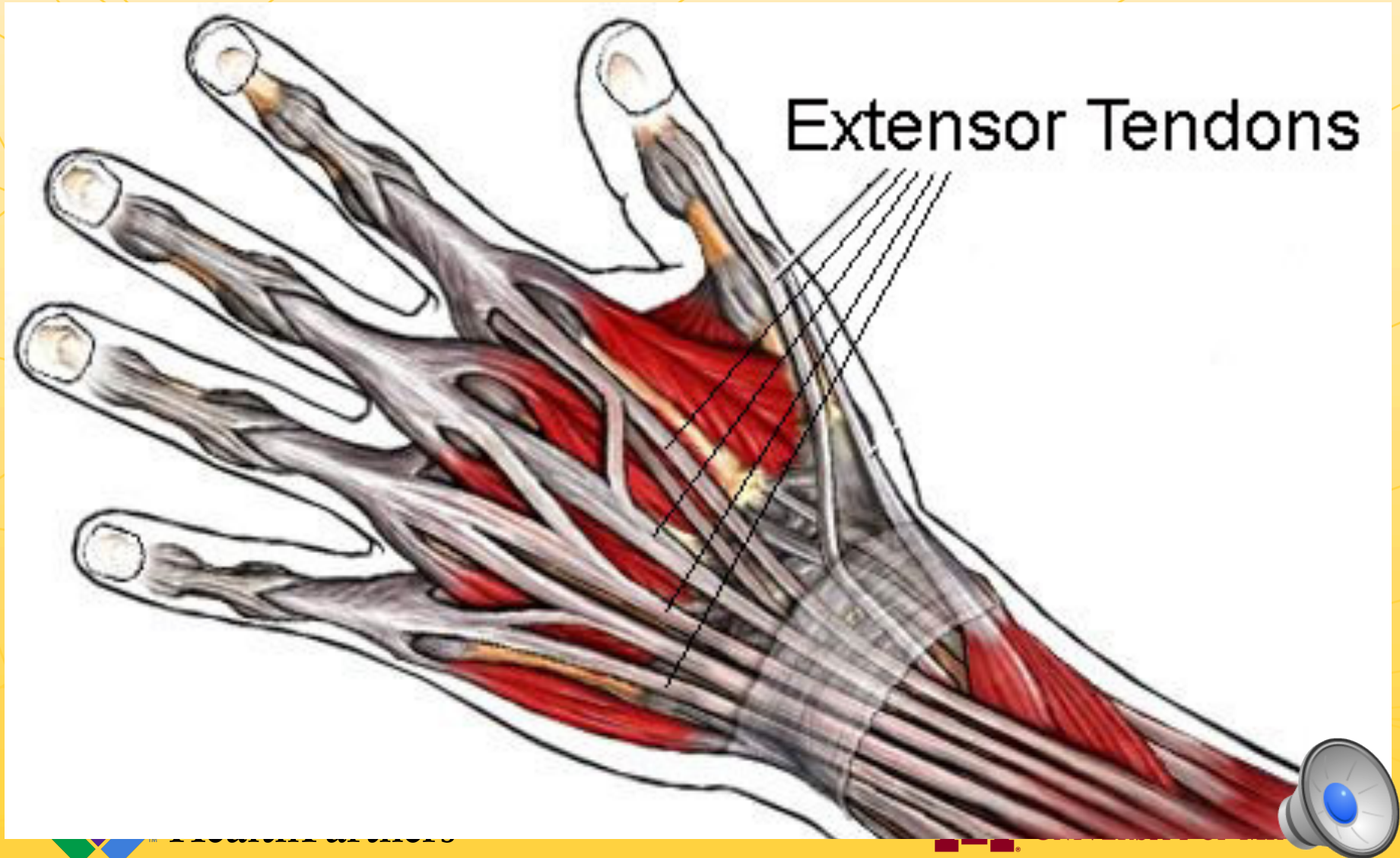
Surgical repair within
7-10 days







Redundancy of extensors





Initial care (dorsal hand)

- Antibiotics
- Tetanus
- **Splint wrist and fingers in extension**
- Primary wound closure
- Arrange follow up with hand surgeon
 - If you leave follow up to the patient, make sure they understand the importance of time to f/u



A word about fight bites ...

- Small lac over dorsal MP joint from punching someone's mouth
- Extensor tendon typically fully functional
- Needs xrays, good irrigation and debridement, as well as antibiotics



- **Volar hand**
 - Flexor tendons
 - Median and ulnar nerves, digital nerves
 - Radial and ulnar arteries
- **Dorsal hand**
 - Nailbed
 - Extensor tendons
 - Fight bite
- **If you are uncertain, splint and refer for prompt repeat exam**



THANK YOU!

