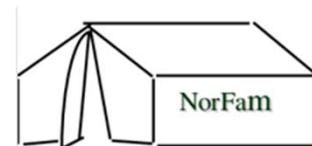


MSK Point of Care Ultrasound

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NorFam, Goose Bay



1

Link for MSK imaging


- <https://www.essr.org/subcommittees/ultrasound/>
 - This site has images and technical guidelines for the six joints noted below

 Ankle

 Elbow

 Hip

 Knee

 Shoulder

 Wrist

2

Disclosure of Commercial Support -none to declare but willing to consider...

This program has received no commercial financial support
No relationships that may introduce potential bias and/or conflict of interest to declare

3

Objectives

- Basic principles of MSK POCUS
- Identify intact vs. disrupted* cortex
- Look at some joints and tendons
- Visualize the MCL of thumb
- Find the scapholunate junction
- Measure an Achilles tendon thickness

4

Tips

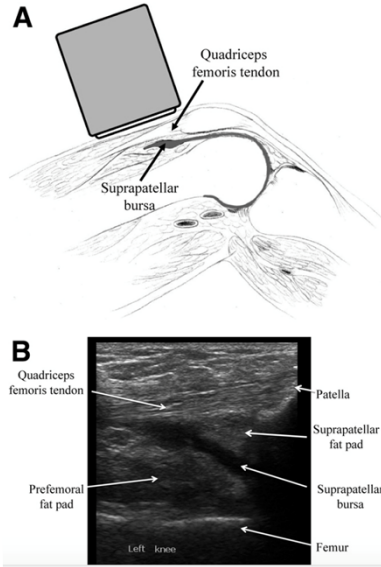
- Positioning
- Palpation
- Transducer-high freq linear usually
- Transducer-low freq curvilinear for deep
- To see an effusion "Don't push", or "see your layer of gel"

5

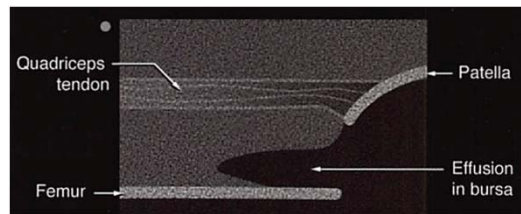
Joints

6

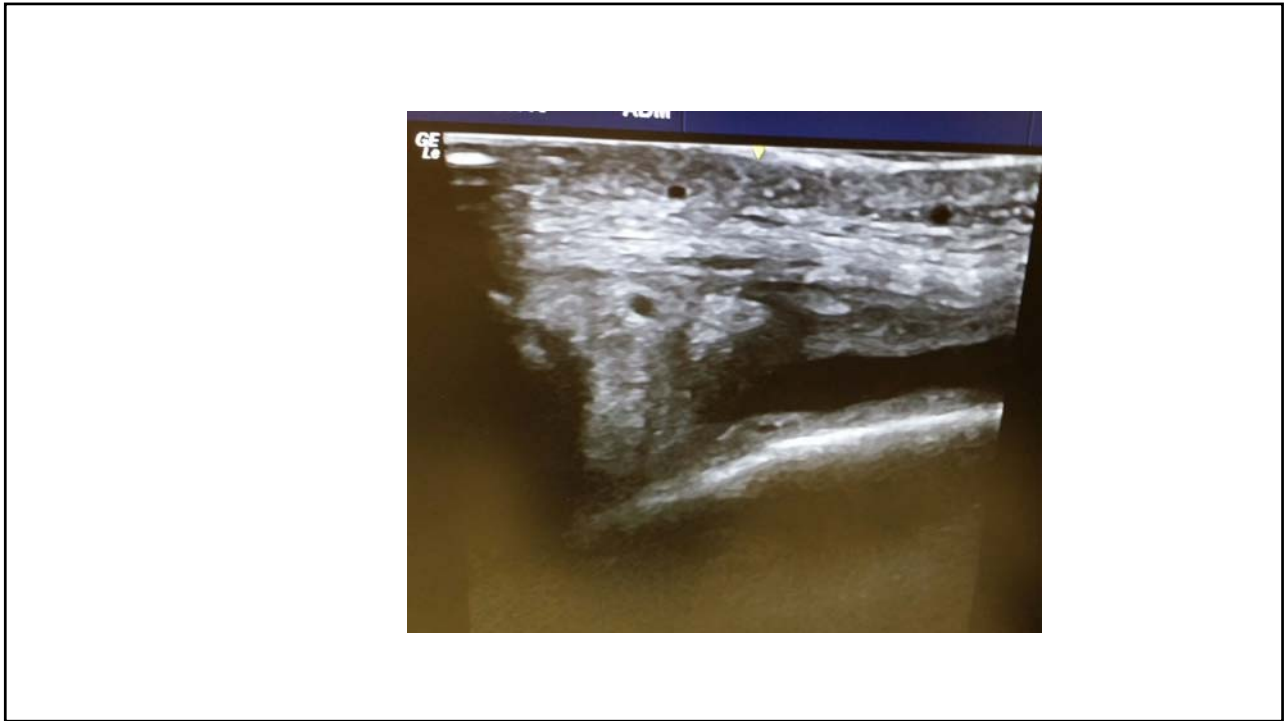
Knee



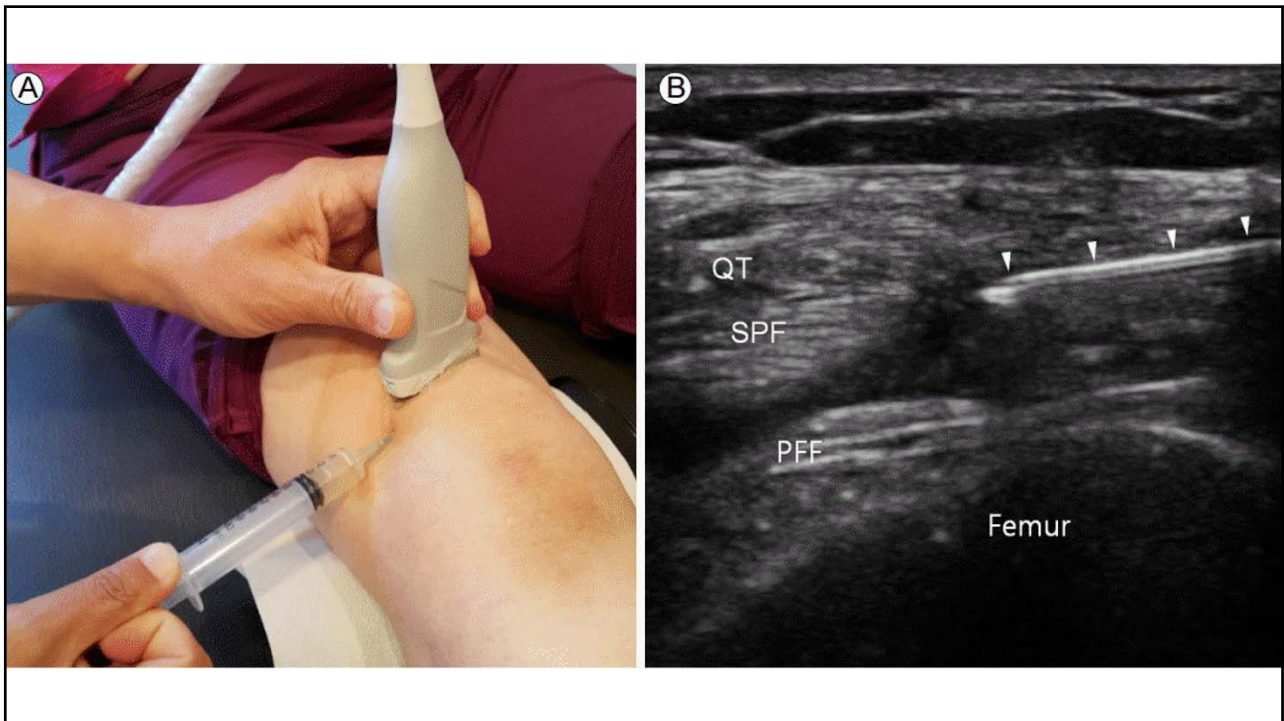
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8



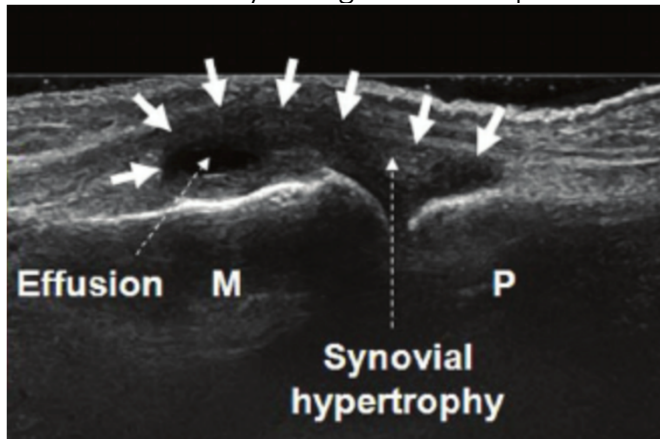
9



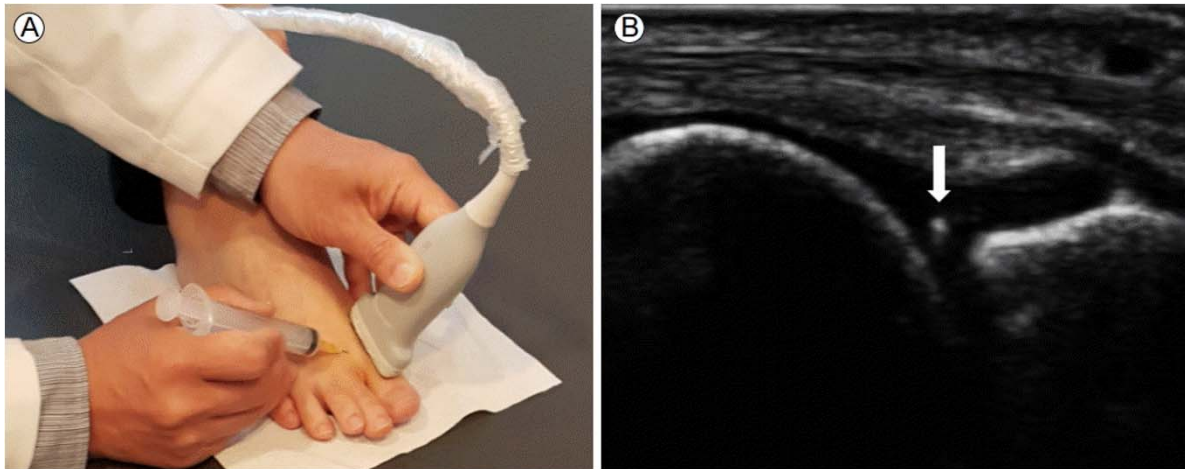
10

Injections Pearls

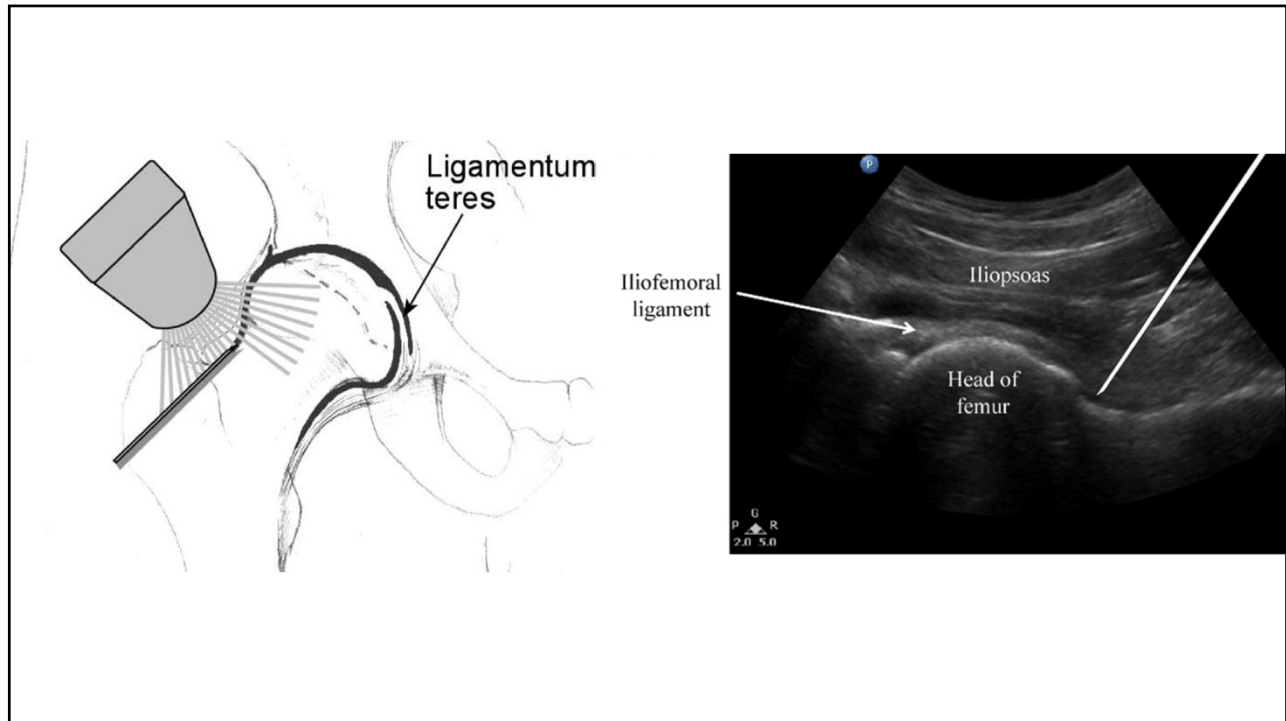
- the needle tip does NOT need to be inside the joint; just under the capsule surrounding the joint
- You should always see gel on the top



11



12



13

Blind vs POCus guided injections

Accuracy Rates

- Via palpation (Cadaver): 40 – 100% accurate
- Via palpation (clinical): 25 – 100% accurate
- US guided (cadaver): 90 – 100% accurate
- US guided (clinical): 79 – 100%

▪ Hall 2013 The Accuracy and Efficacy of Palpation versus Image-Guided Peripheral Injections in Sports Medicine, *Current Sports Medicine Reports*, 12(5), 2013

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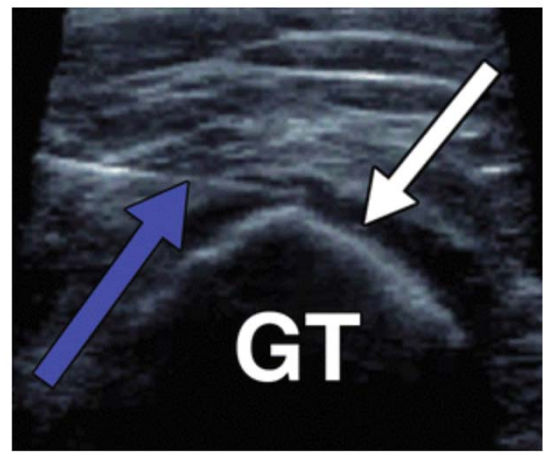
Blind vs POCUS guided injections

Accuracy ranges for selected peripheral joint injections.

Joint	Palpation (Clinical)	US Guided (Clinical)
Glenohumeral	10% to 100% (7-9,11-14,16,17)	97% to 100% (21-23)
Acromioclavicular	39% to 50% (29,30)	8) 100% (31)
Elbow	38% to 100% (7,41-43)	91% to 100% (41,42)
Wrist	25% to 97% (7,41,43)	79% to 94% (42,44)
Hip	51% to 78% (51-54)	100% (55-57,107)
Knee	40% to 100% (7,41,42,58-63)	75% to 100% (22,58,66-68)

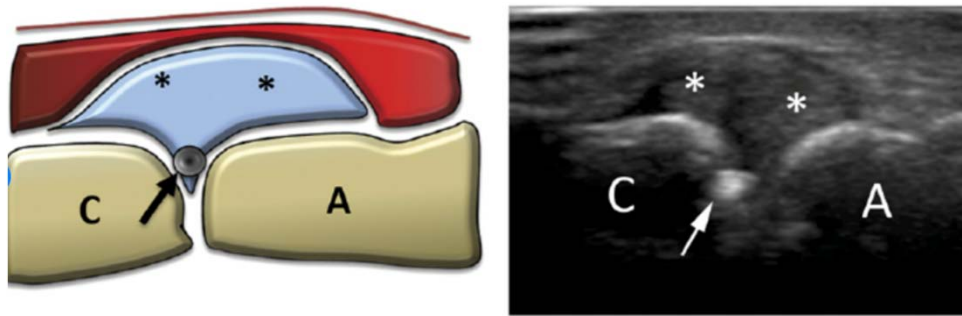
15

Greater trochanter



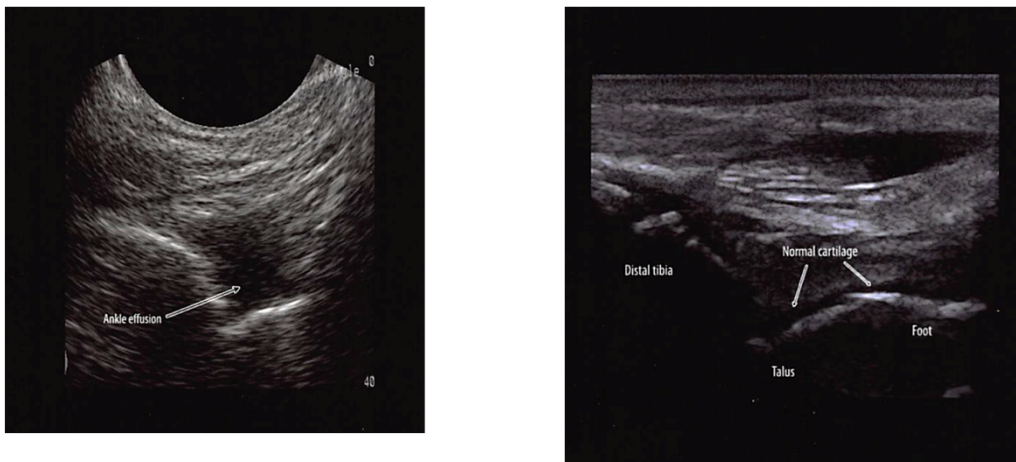
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AC JOINT



17

Ankle

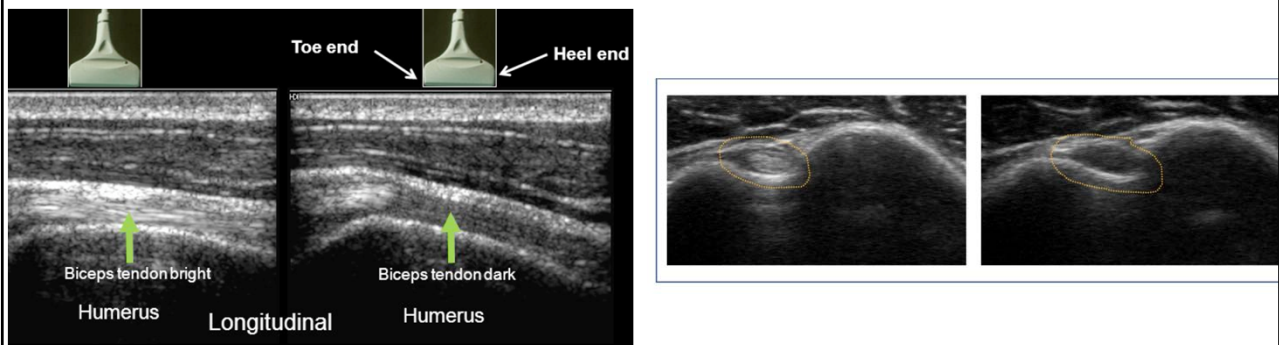


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Ligaments and tendons

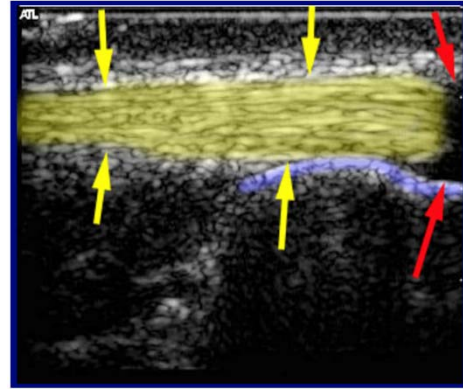
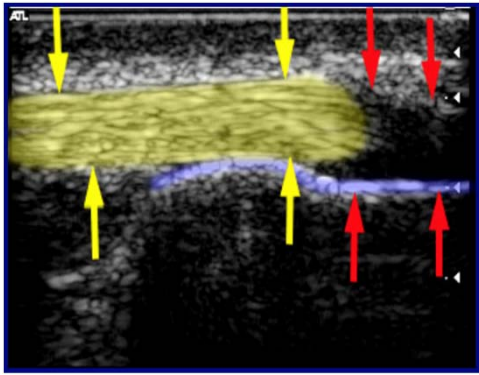
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Anisotropy- hypoechoic \neq pathology



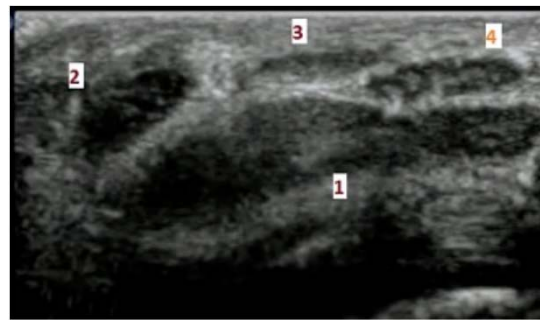
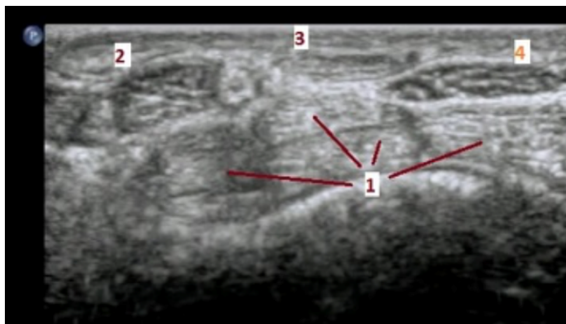
20

This Achilles tendon is fine!



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Anisotropy- friend and foe



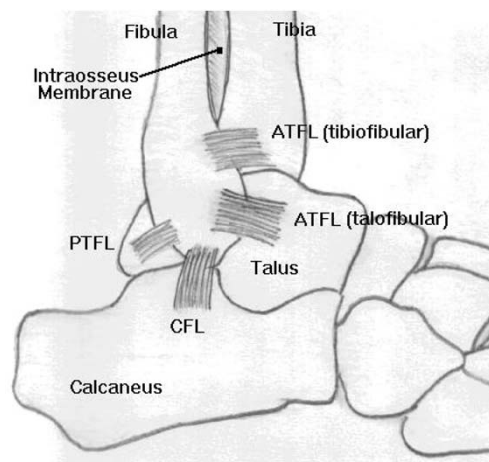
22

Hints

- Scan in two planes- transverse and longitudinal
- Dynamic- get the joint/ tendon moving
- Compare sides
- It helps to know anatomy, but POCUS helps you cheat
 - Makes terrible doctors decent and...

23

Ankle



24

4 anterior tibiofibular ligament

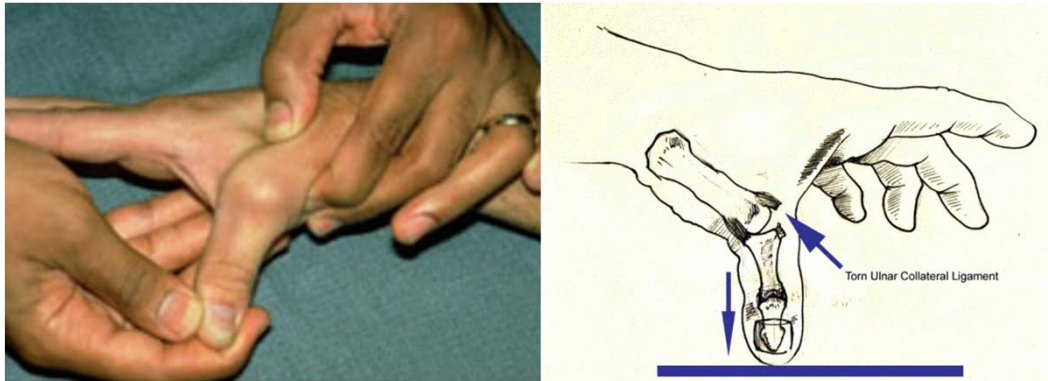
From the position described at point-3 (first sentence), keep the posterior edge of the transducer on the lateral malleolus and rotate its anterior edge upwards to image the anterior tibiofibular ligament. The transducer will pass over a part of the talar cartilage, which lies in between the anterior talofibular ligament and the anterior tibiofibular ligament.



Legend: arrowheads, anterior tibiofibular ligament; LM, lateral malleolus

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SKIER'S THUMB

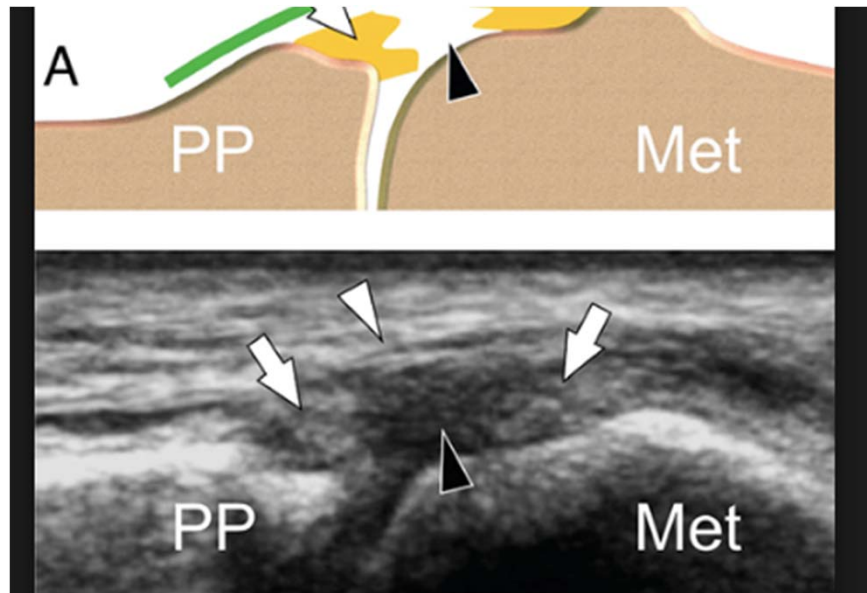


26

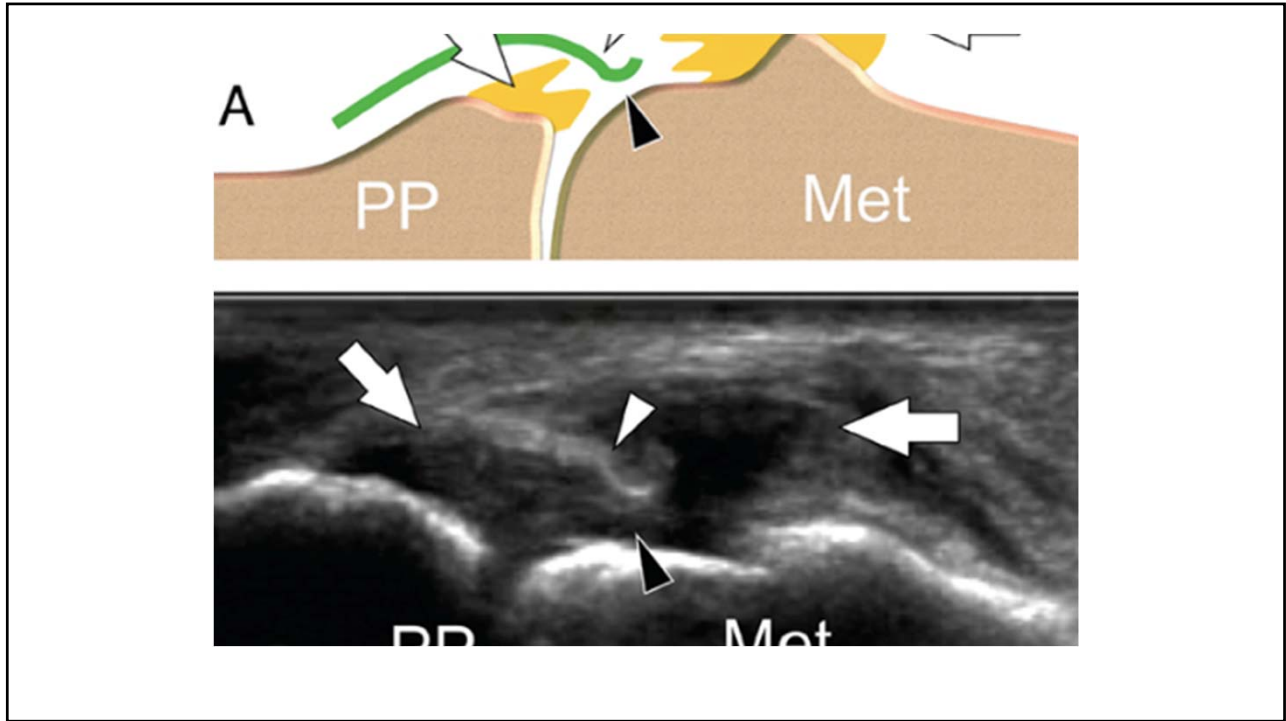
Adductor pollicis overlies MCL



27



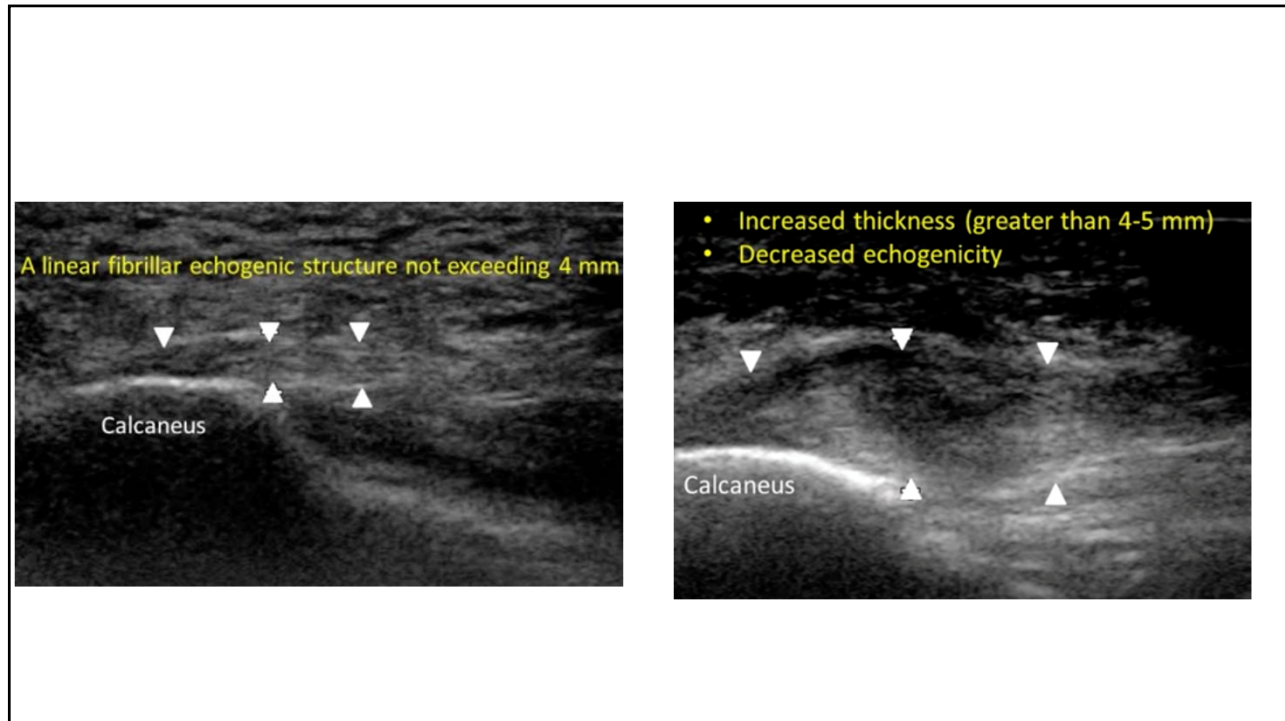
28



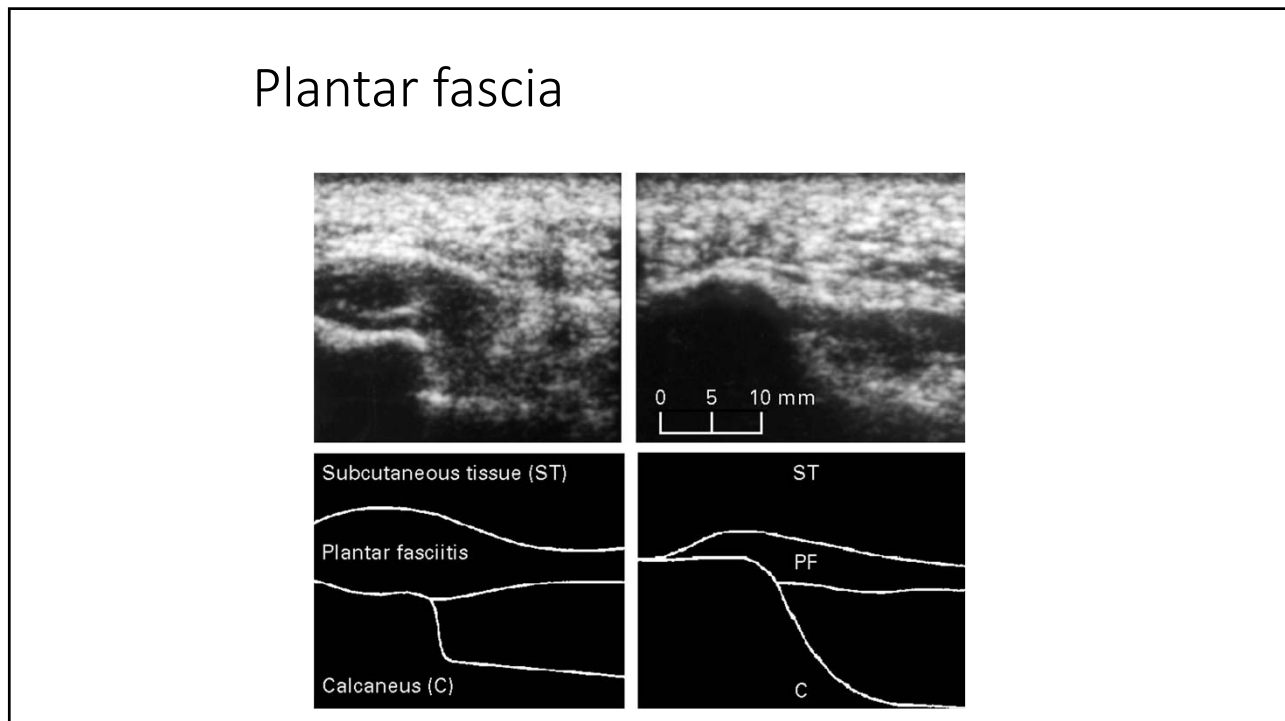
29



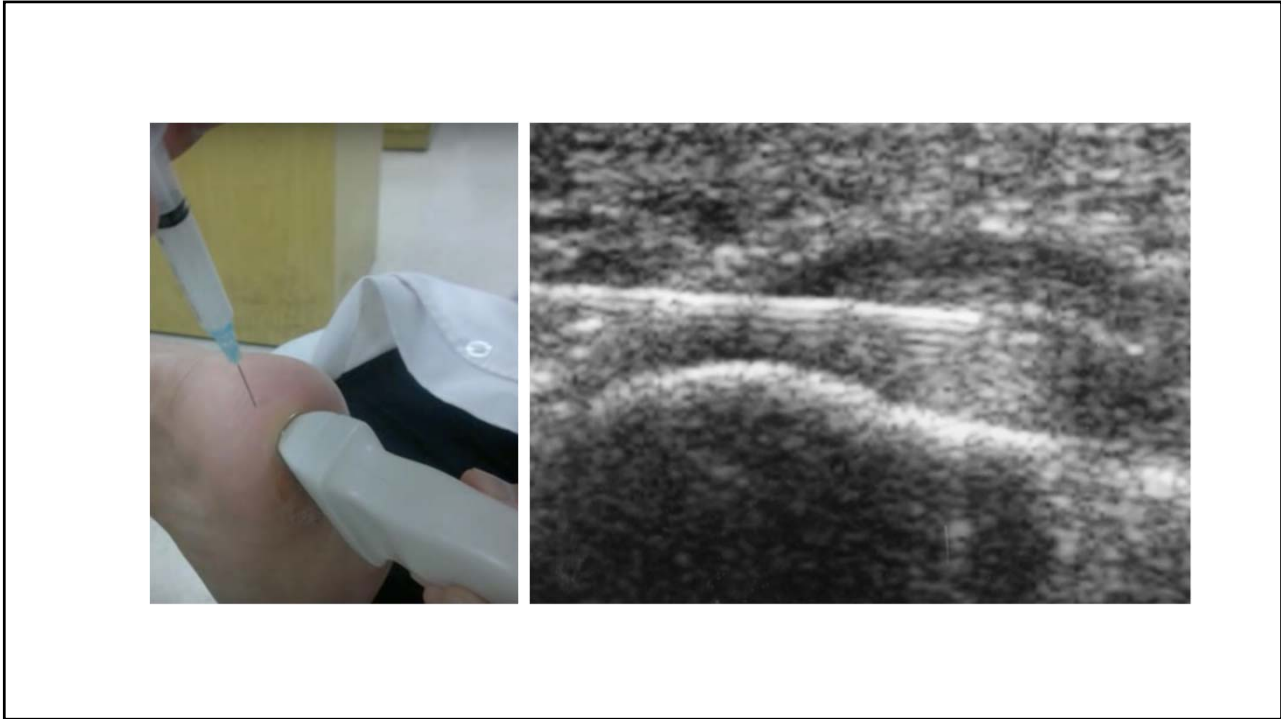
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31

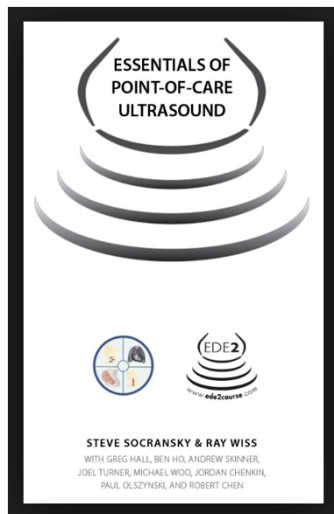


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Fractures

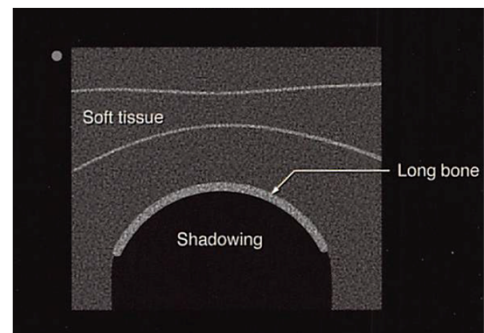
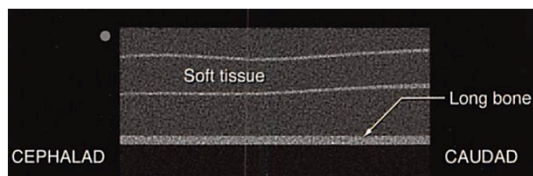


34

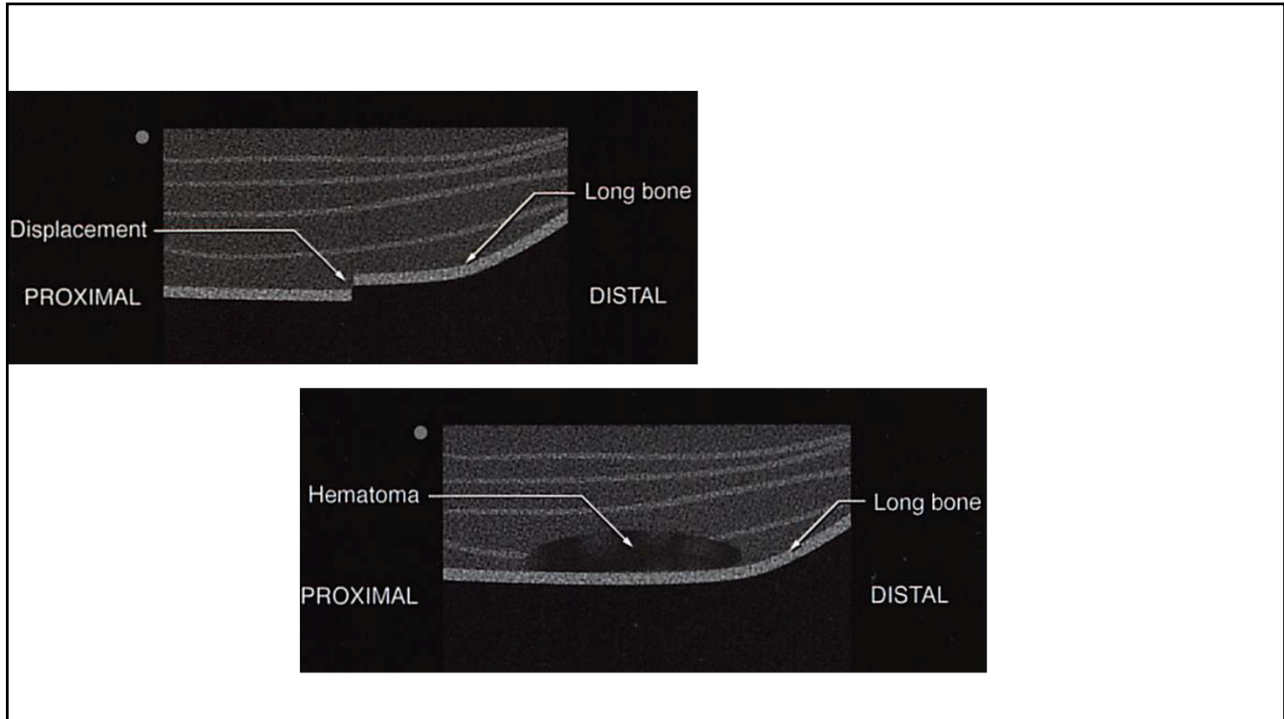
FRACTURE EDE - THE STEPS

1. Place the probe proximal to the area of possible fracture and identify the bone in the longitudinal plane.
 2. Slide the probe from side to side to optimize the view.
 3. Slide the probe distally looking for signs of fracture.
 4. Return to the starting point and place the probe over the bone in the transverse plane.
 5. Slide the probe distally looking for signs of fracture.
-

35



36



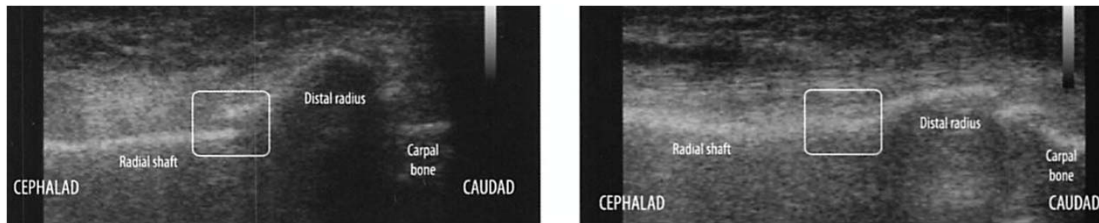
37

Cortical disruption- Labrador Cup



38

Distal radius



39

Pitfalls

- Was it his ankle or his calcaneus?
- Don't skip an indicated plain film
- You can't see all of a bone
- In acute trauma everything is a mess

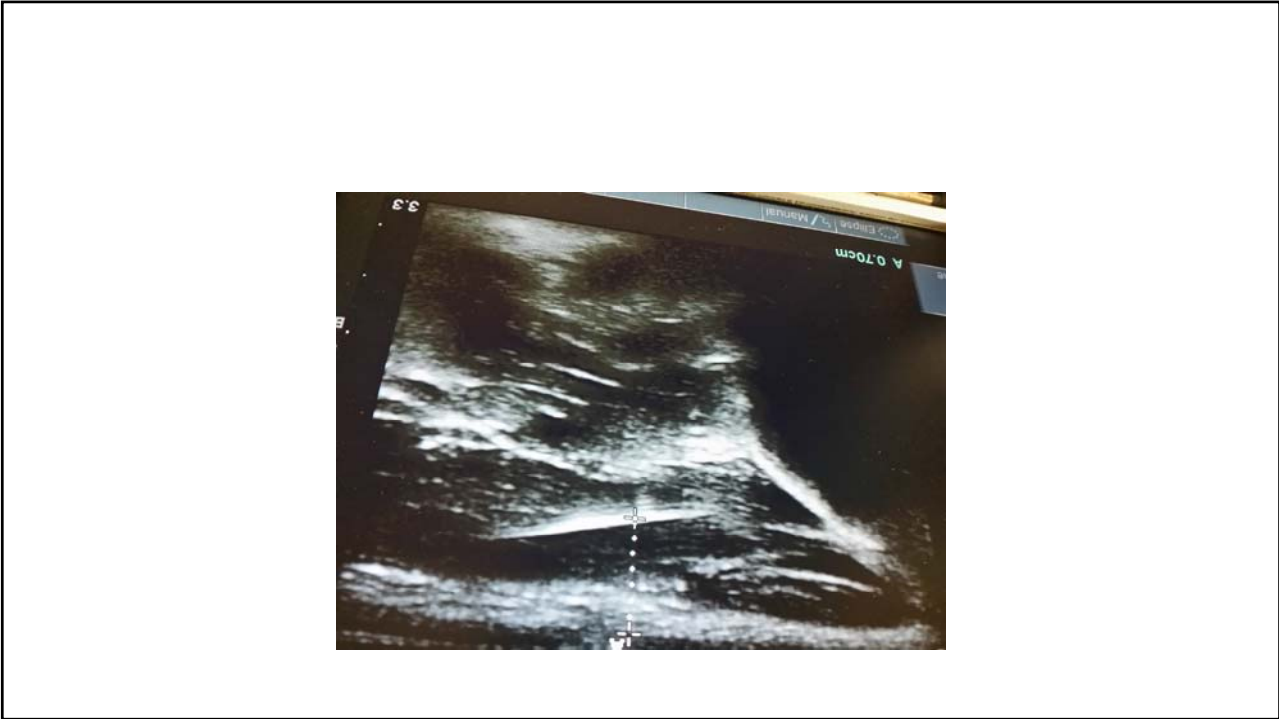
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Foreign bodies

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