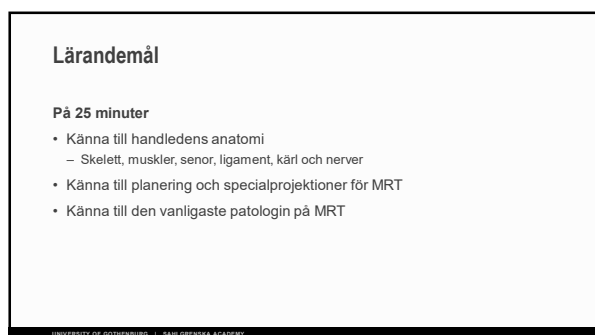


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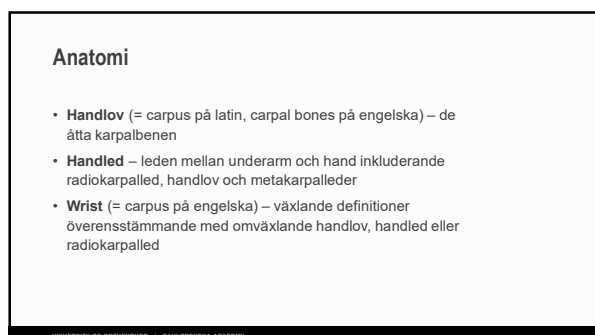
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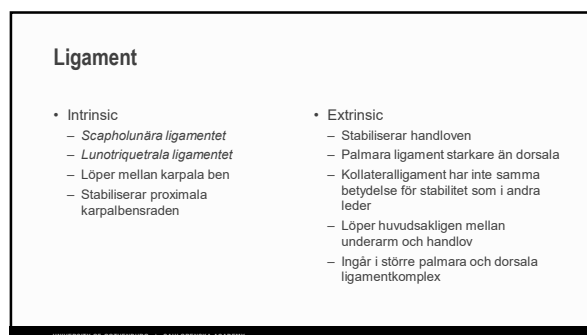
3



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5



6

Definitioner

- Intrinsic (adj.)**
 - Belonging to a thing by its very nature
 - Situated within or belonging solely to the organ or body part on which it acts
 - Happening or arising or located within some limits or especially surface
- Extrinsic (adj.)**
 - Not forming an essential part of a thing or arising or originating from the outside
 - Associated by chance and not an integral part
 - Added or derived from something outside; not inherent
 - Not contained in or deriving from the essential nature of something
 - Coming from the outside
 - Not essential
 - Not basic or fundamental

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Dorsalt

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Palmar

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Sekvenser – helst 3T

- SE T1
- SE PD ± fs
- T2 ± fs
- 3D
- SE T1 fs + iv. Gd (indirekt eller intravenös MR-artrografi)
- SE T1 fs + ia. Gd (MR-artrografi)

Förslag till protokoll

PD fs 3D
 PD fs ax
 PD fs cor
 T1 cor
 PD fs sag

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Patientpositionering viktig!

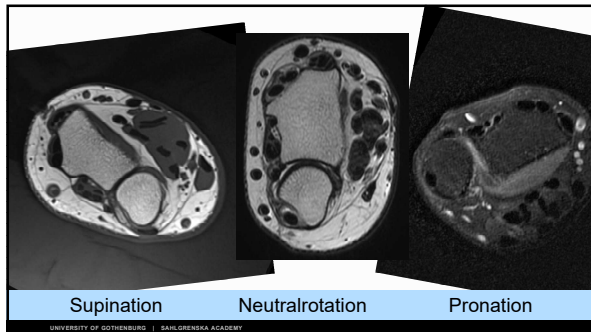
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13

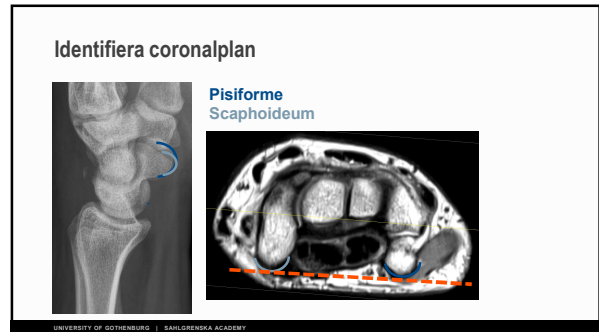
Rotationsläge handled?

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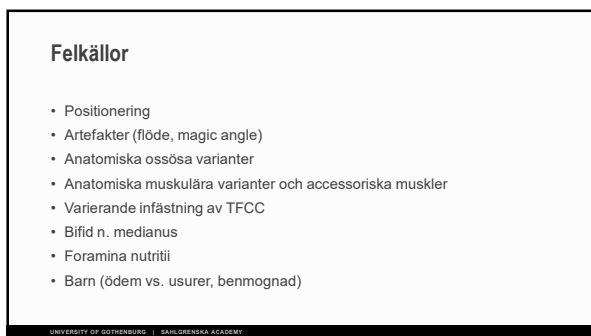
14



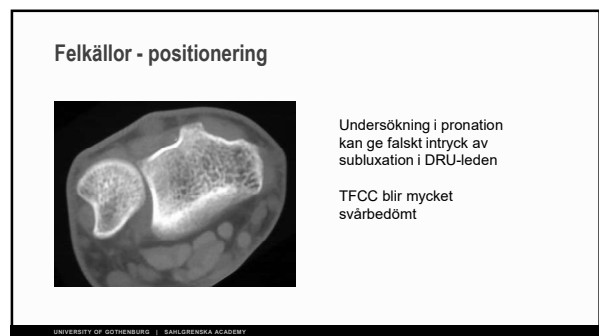
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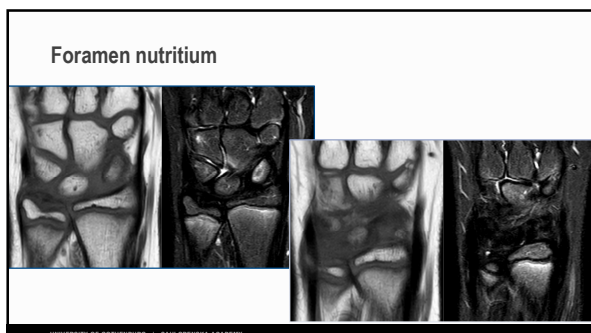
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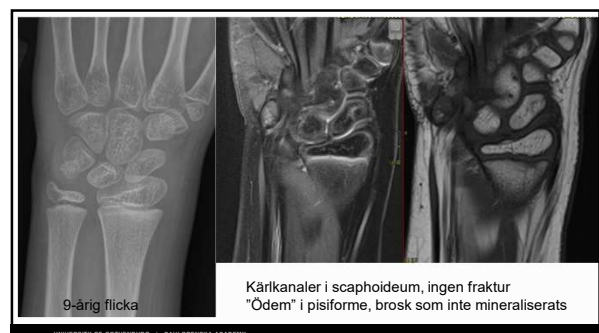
18



19



20



21

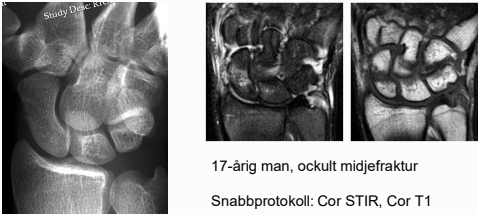
Scaphoideumfraktur

- I genomsnitt 16 % missas på röntgenundersökning
- Frakturspalt 1-2 mm = felställd fraktur med risk för pseudartos
- Radiologisk uppföljning vid klinisk misstanke viktigt – kanske inte lika viktigt vad man gör
- CT hög sensitivitet, hög specificitet
- MRT troligen ännu högre sensitivitet, måttlig specificitet
- Snabbt protokoll cor T1 + cor STIR

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Midjeffaktur scaphoideum



17-årig man, okkult midjeffaktur

Snabbprotokoll: Cor STIR, Cor T1

Mallee 2011 Comparison of CT and MRI for diagnosis of suspected scaphoid fractures

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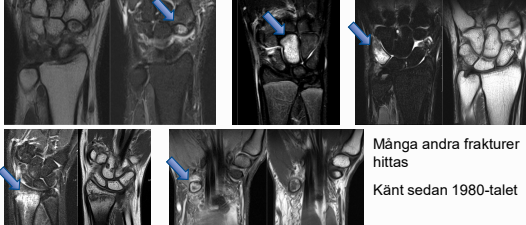
Kriterier för scaphoideumfraktur på MRT

- The MRI findings taken to represent a fracture were the presence of both marrow oedema (demonstrated best by the STIR images) and a trabecular fracture line (shown by the T1 and T2 images).
- A **bone bruise** was diagnosed when there was marrow oedema but no fracture line.
- *Fowler 1998 A comparison of bone scintigraphy and MRI in the early diagnosis of the occult scaphoid waist fracture*
- Criteria for a **bone fracture** on MR images included the presence of a cortical fracture line, a trabecular fracture line, or a combination of both (14). Such a fracture line had to be evidenced by linear disruption of the normal trabecular pattern and had to be hyperintense on STIR and T2-weighted images and hypointense or hyperintense on T1-weighted images.
- Evidence of a zone of diffusely increased signal intensity on STIR images was interpreted as **bone marrow edema** but not as a manifest fracture.
- *Memarsadeghi 2008 Occult scaphoid fractures comparison of multidetector CT and MR imaging—initial experience*

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Tillfällighetsfynd vid MR scaphoideum



Många andra frakturer hittas
Känt sedan 1980-talet

Brisman 1988 Skeletal scintigraphy of the wrist in suggested scaphoid fracture

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Scapholunära ligamentet SLL

- Tjocke dorsal skänkel
- Tunna volar skänkel

Lunotriquetrala ligamentet LTL

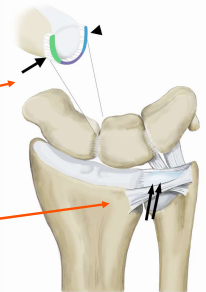
- Tjocke volar skänkel
- Tunna dorsal skänkel

Använd axiala sektioner, helst 3D

Gredtzer 2016 Optimal detection of scapholunate ligament tears with MRI

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Scapholunära ligamentet SLL

- Tjockare dorsal skänkel (grön) och tunnare volar skänkel (blå)
- Membranös proximal del

Lunotriquetrala ligamentet LTL

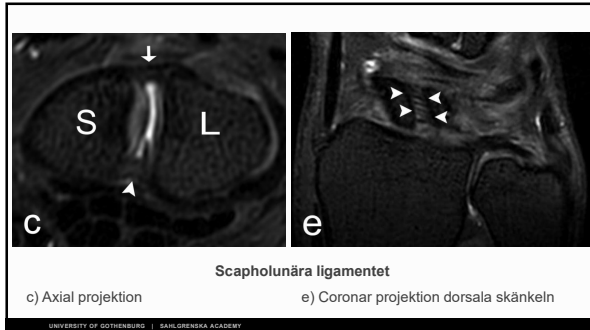
- Tunna dorsal skänkel och tjockare volar skänkel
- Membranös proximal del

Triangular fibrocartilage complex TFCC

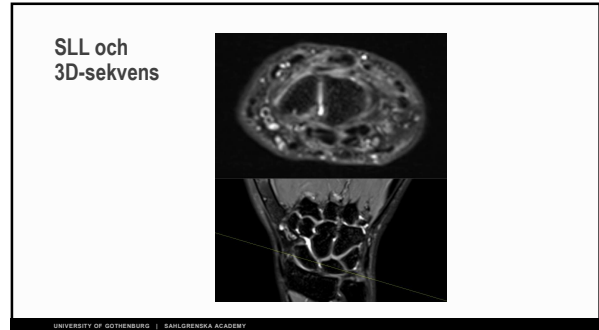
- Dorsala och palmara radioulnära ligamentet
- Discus triangularis (pillar)
- Fovealt och ulnart fäste

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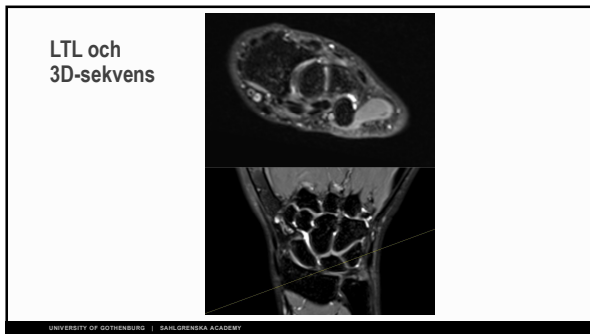
37



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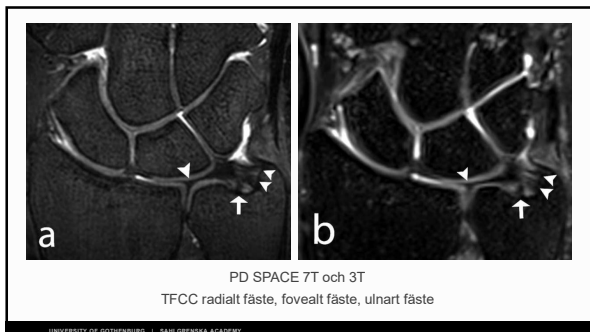
39



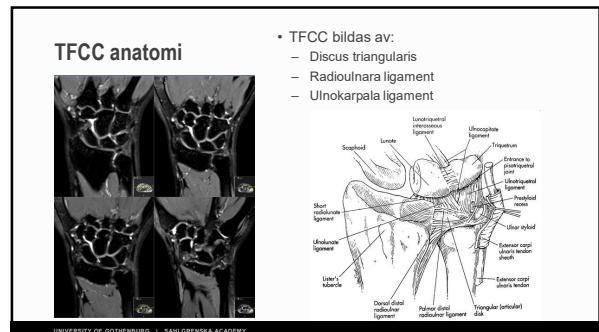
40



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TFCC komponenter

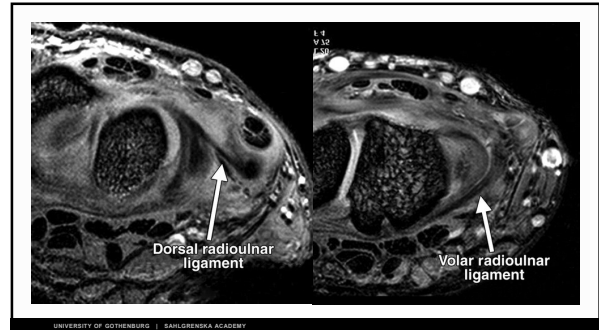
- Discus triangularis
- Lig. triangularis
- Lig. radioulnaris palmaris/dorsalis
- Meniskhomolog
- Lig. ulnotriquetrale
- Tendo m. extensor carpi ulnaris
- Lig. collaterale ulnaris
- Interkarpala ligament

Triangular Fibro Cartilage Complex
This region allows the wrist to twist (ulnar/radial) while hand and move left to right.

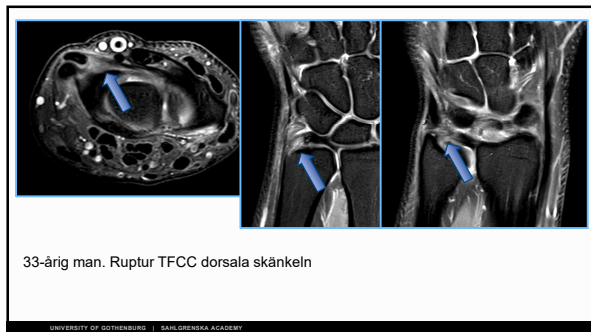
1. Ulnar collateral ligament
2. Ulnotriquetral ligament
3. Ulnolunate ligament
4. Palmar radioulnar ligament
5. Triangular fibro cartilage
6. Dorsal radioulnar ligament
7. Extensor carpi ulnaris tendon sheath

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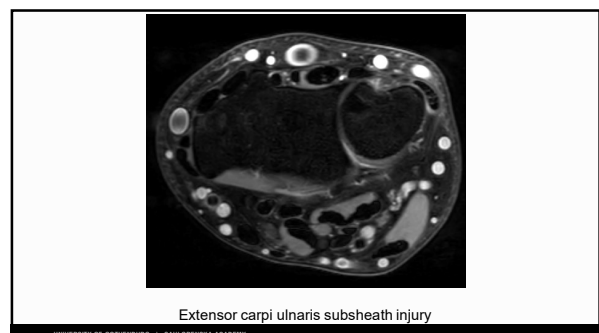
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Triangular Fibrocartilage Complex Tear Classification (Palmer)

Class I: Traumatic (Acute)	
A)	Central Perforation
B)	Ulnar Avulsion with or without Ulnar Styloid Fracture
C)	Distal Avulsion from Carpus
D)	Radial Avulsion with or without Ulnar Sigmoid Notch Fracture
Class II: Degenerative (Chronic)	
A)	TFCC Wear
B)	TFCC Wear + Lunate/Ulnar Head Chondromalacia
C)	TFCC Perforation + Lunate/Ulnar Head Chondromalacia
D)	TFCC Perforation + Lunate/Ulnar Head Chondromalacia + LT Ligament Perforation
E)	TFCC Perforation + Lunate/Ulnar Head Chondromalacia + LT Ligament Perforation + Ulnocarpal Arthritis

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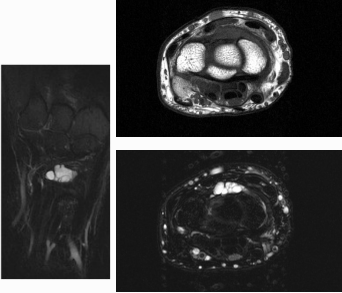


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Ganglion

Posttraumatiskt
Överansträngning
Spontan?

Oftast dorsalt
Mindre ofta volart om
processus styloideus
radii



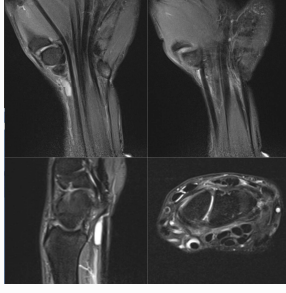
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Senskideganglion

Skiljs från tenosynovit

Skall inte benämnas som
"vätskeökning"



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Senskada / tenosynovit

Posttraumatisk tenosynovit



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Orsaker till nervkompression

- Mjukdelstumörer
- Ganglion, cystor
- Tenosynovit
- Skelettförändringar (posttraumatiska)
- Accessoriska muskler och blodkärl
- Ischemi

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Karpaltunnelsyndrom

- Tillplattad, svullen, deformerad n. medianus
- Ökad signal n. medianus
- Utspänt flexorretinakulum
- Palmar bursit
- Tenosynovit
- Tumörer
- Ökad signal i angränsande muskulatur
- Ratio karpaltunnelinnehåll/volym
- Ratio karpaltunnelvolym/handledsvolym

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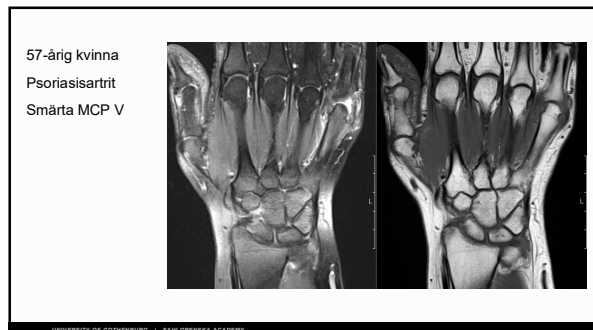
55

Artriter

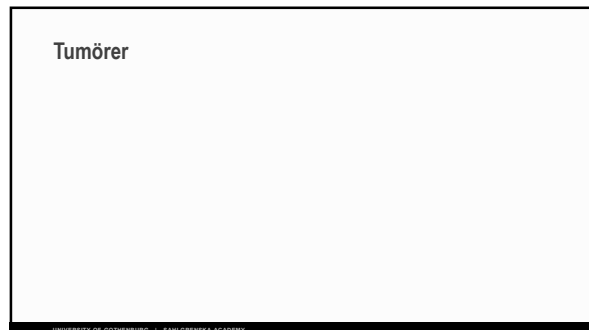
- **MR handled med IV-kontrastmedel** viktig för diagnostik av synovit vid debut av reumatoid artrit
- Ibland tillfällighetsfynd – usurer, ödematös ledkapsel, utgjutning

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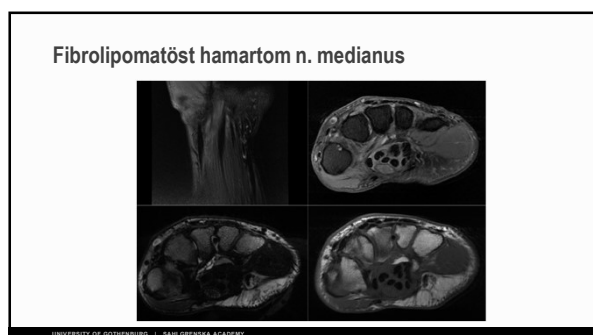
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