

# Wrist deformities in RA

## Etiopathogeny and biomechanical consequences

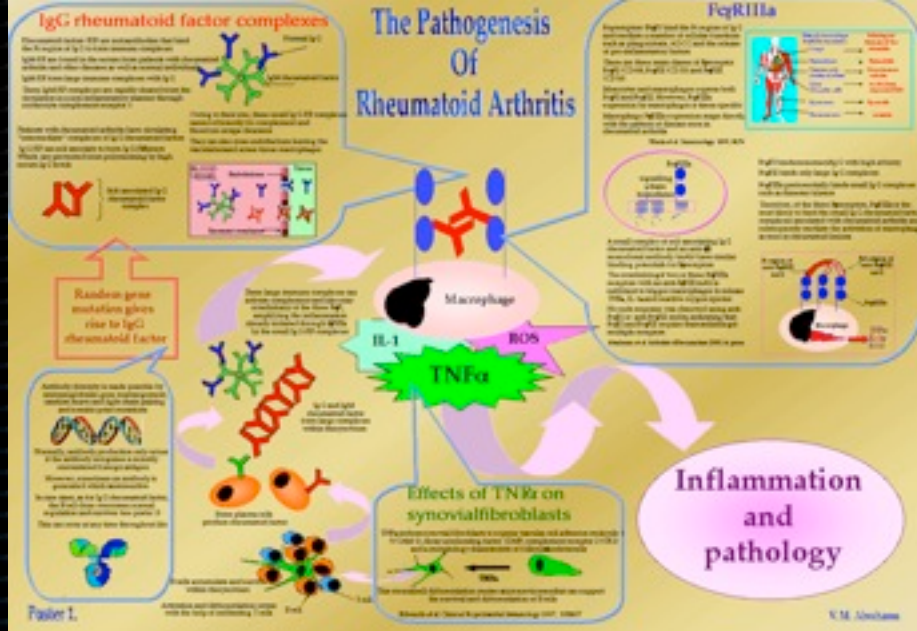


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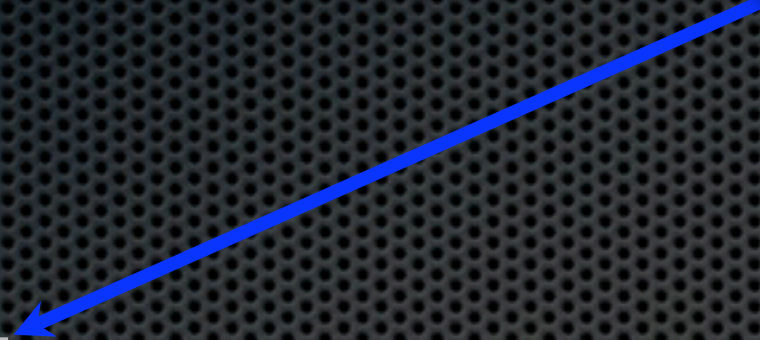
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With the help of Pr Tubiana



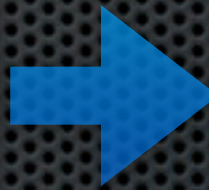


Inflammed joint



Capsular and ligament loosening

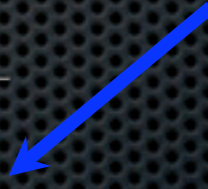
Mechanical stresses



Bony erosion

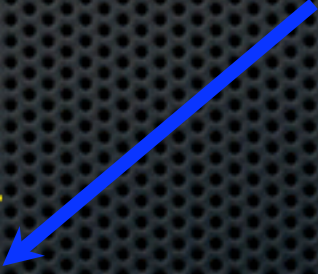


Joint deformity



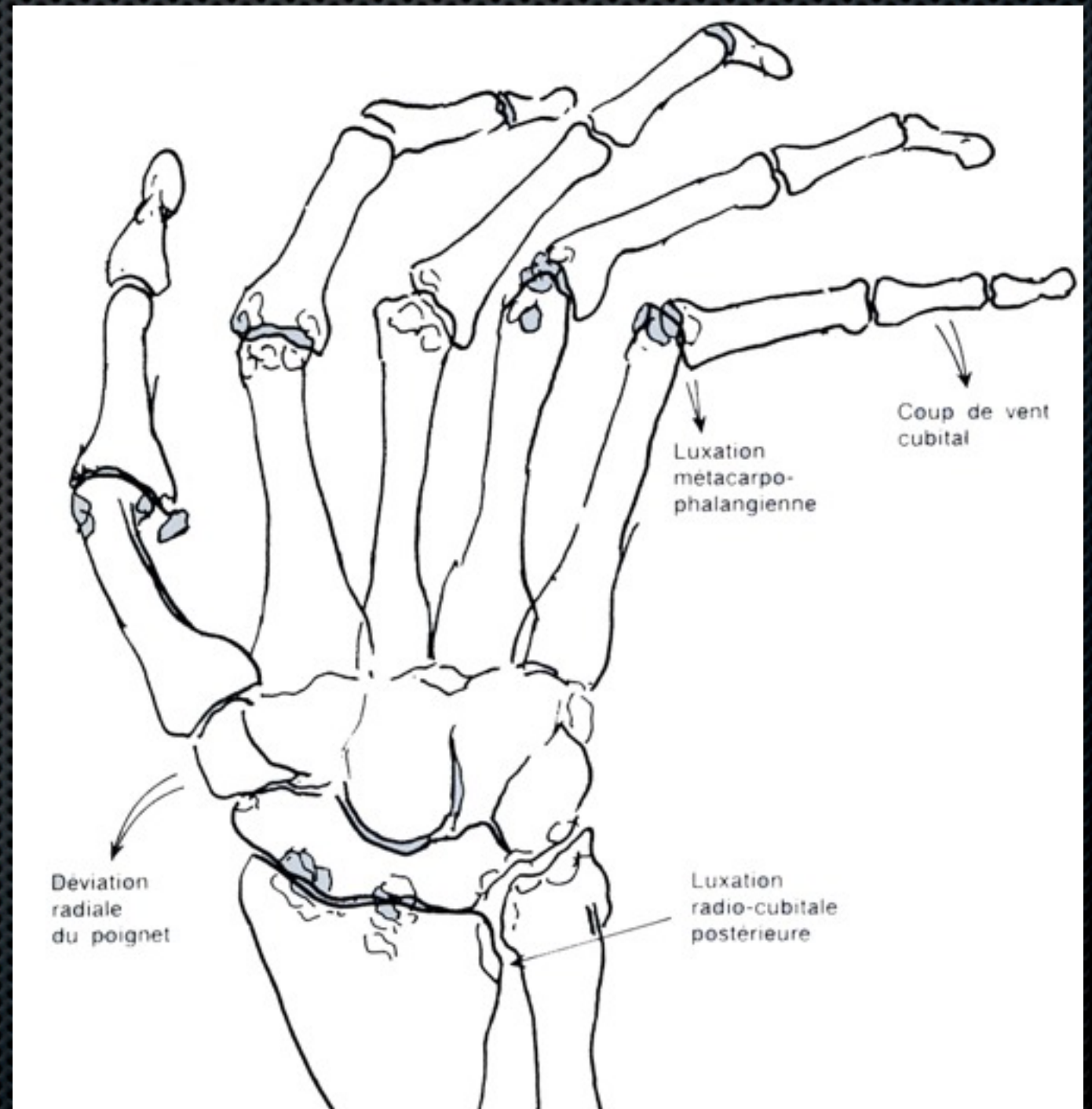
Distant deformity

Increased and/or Fixed deformity





# All these factors ended up with a typical rheumatoid hand





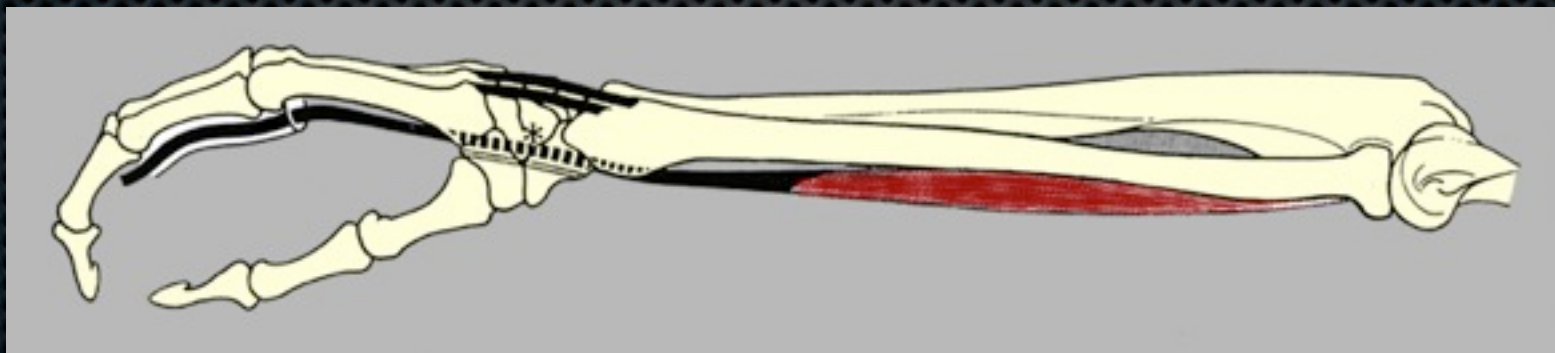
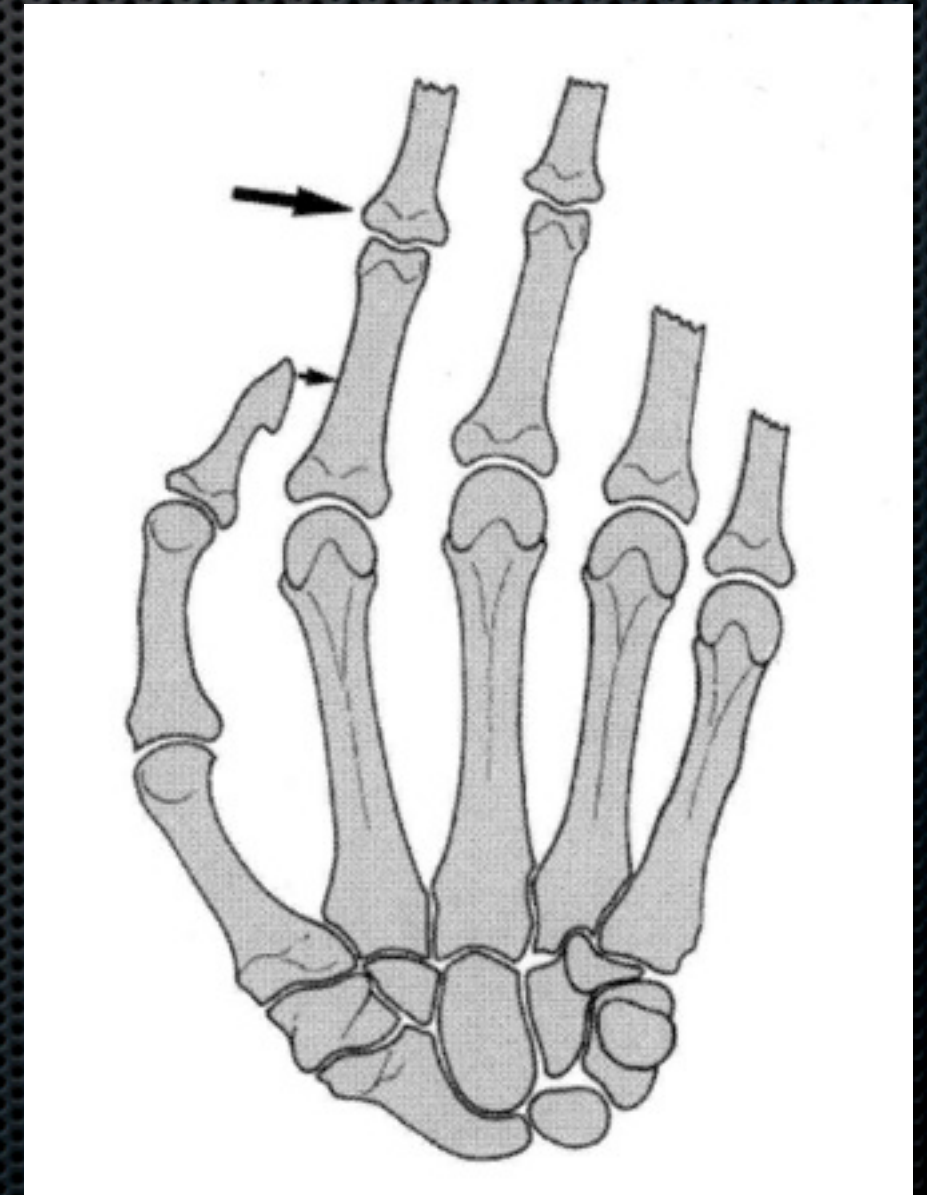
# To prevent or correct deformities

- One should know the mechanical stresses that are placed on finger/wrist
- One should know the structures involved by the disease that start the deformation
- One should know the evolution of deformation once started



# The mechanical stresses

- ✦ All activities of daily living place loads on the fingers, hand and wrist
- ✦ Prevention and protection of diseased joints are an essential part of the treatment





# Location of synovitis

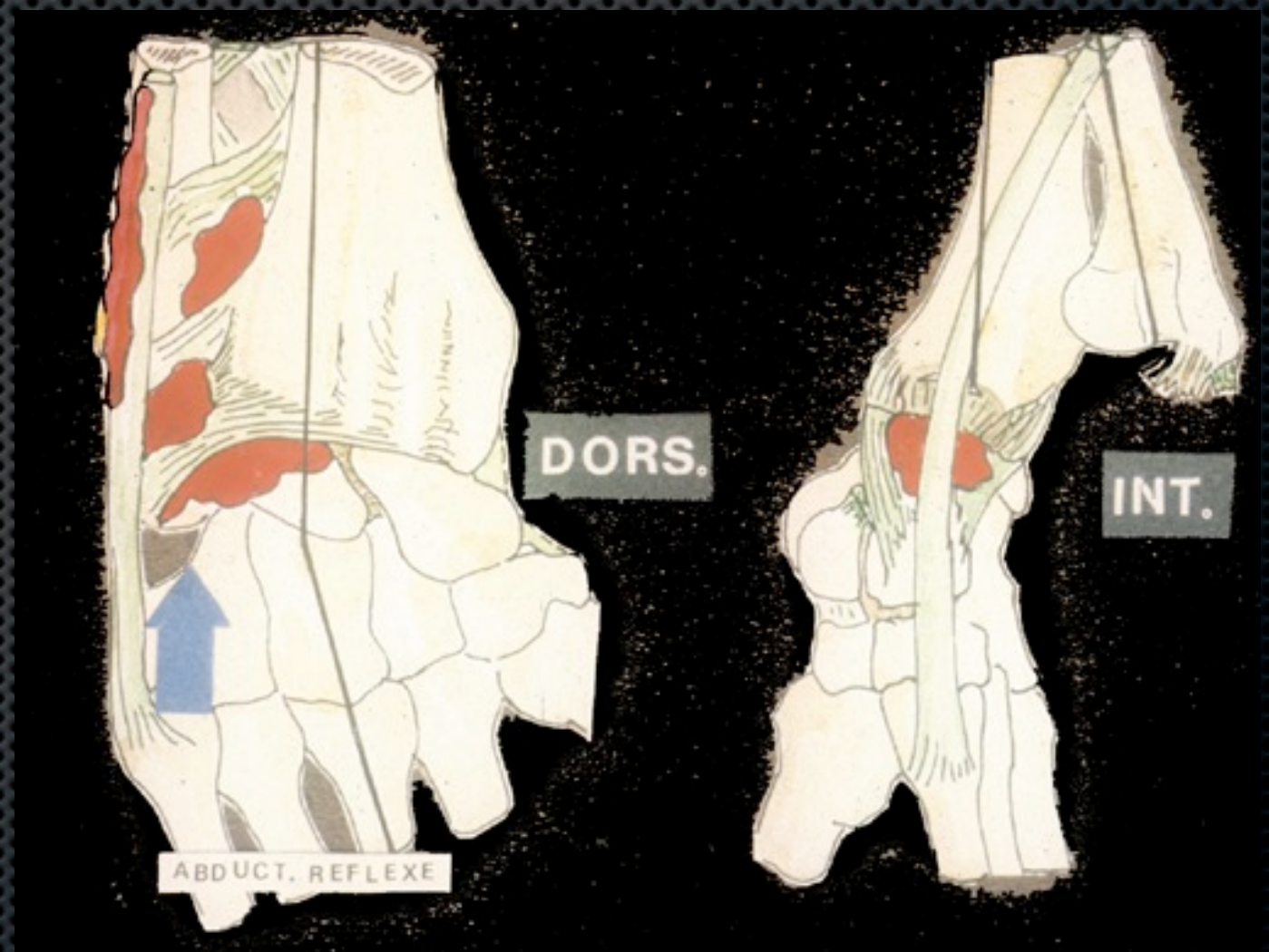
- Synovitis starts in the most vascularized zones
- Penetration of the disease follows the vascular axes
- One can define three types of deformity according to the predominance of the vascular axis





# Ulnar involvement (46%)

- ECU sheath
- TFCC
- Radio-carpal ligaments





▪ ECU sheath involvement = Volar dislocation of the ECU

- Loss of ulnar inclination
- Radial inclination of the carpus
- Loss of wrist extension
- Anterior translation of the carpus
- Mano supinata

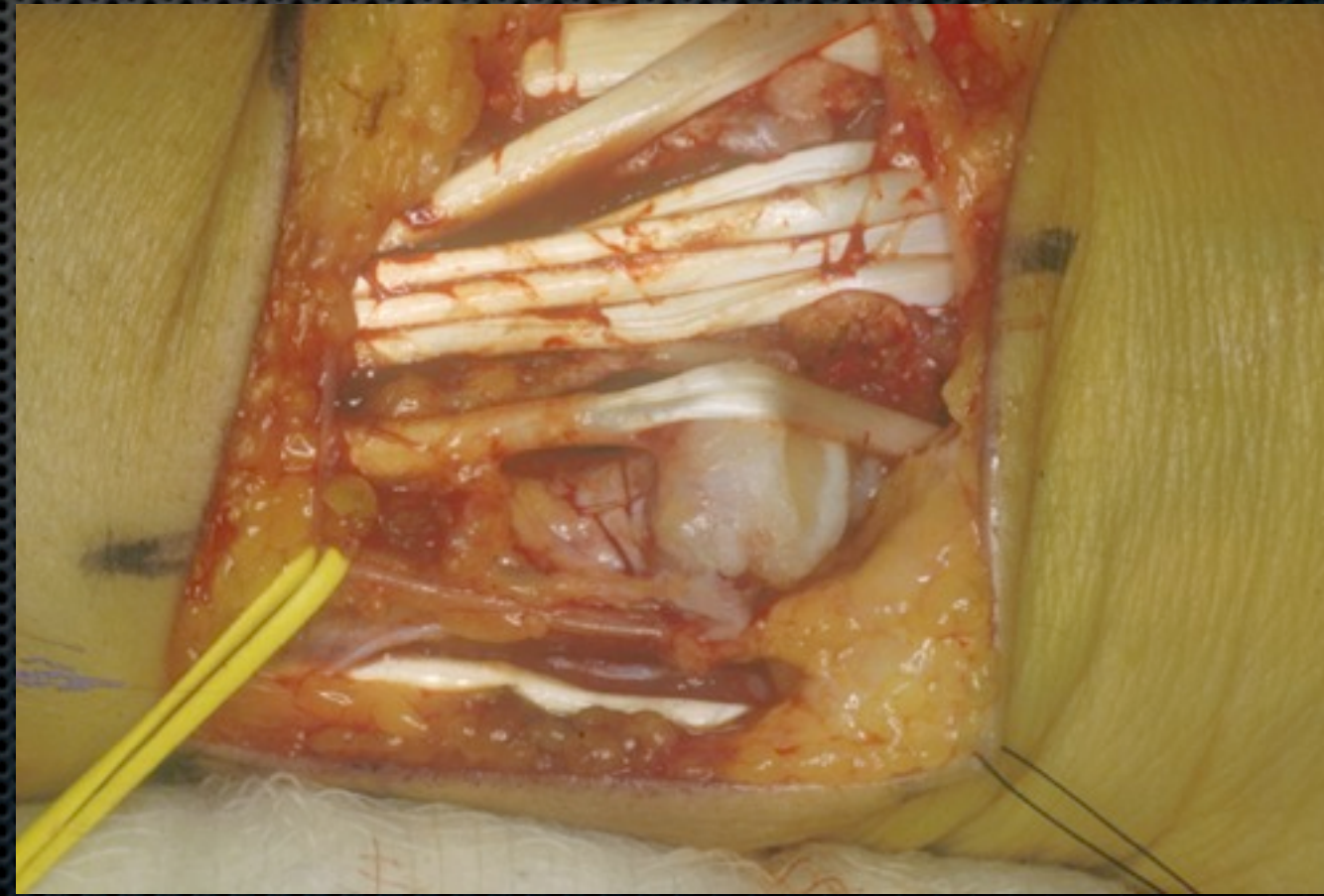
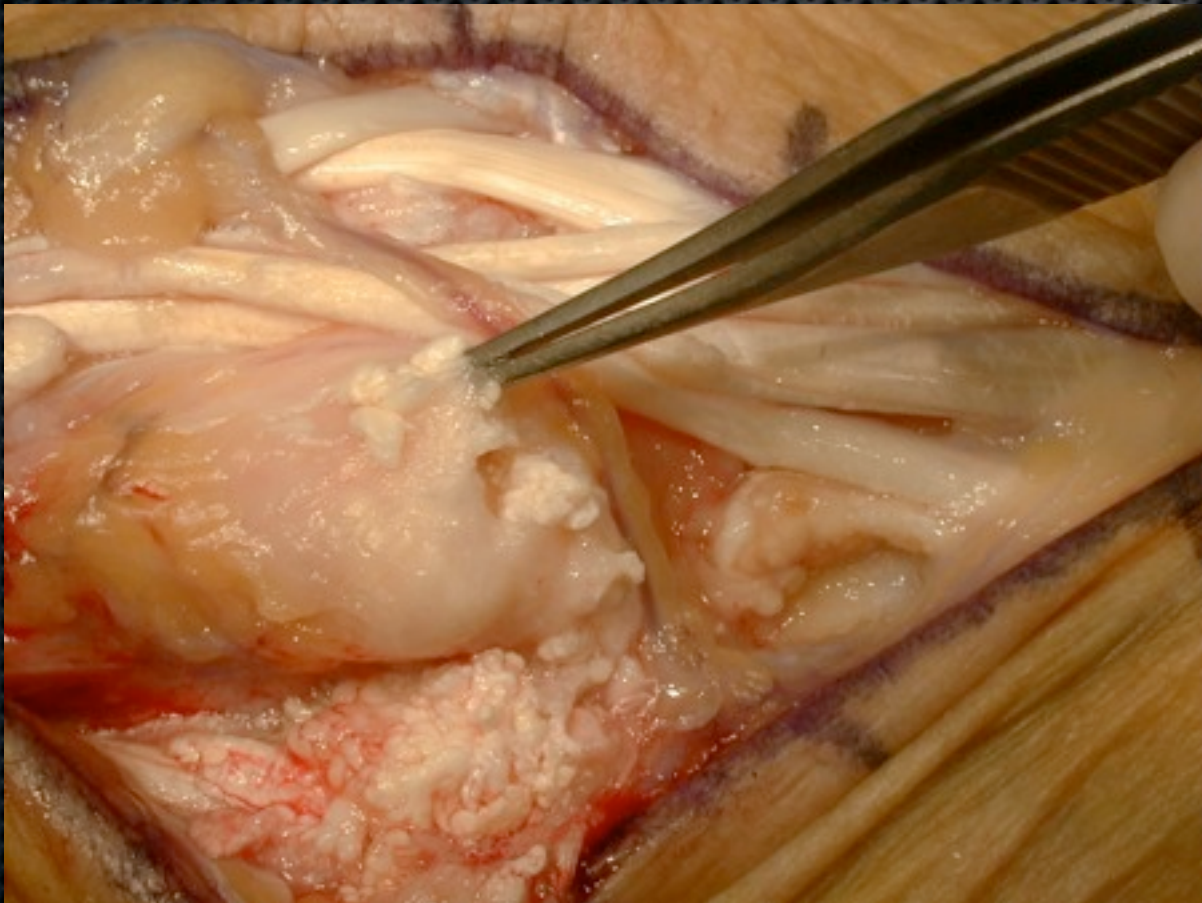




• TFCC involvement = Instability of the DRUJ +/- bony erosions

➔ « Dorsal dislocation of the ulna »

➔ Contribute to extensor tendons rupture

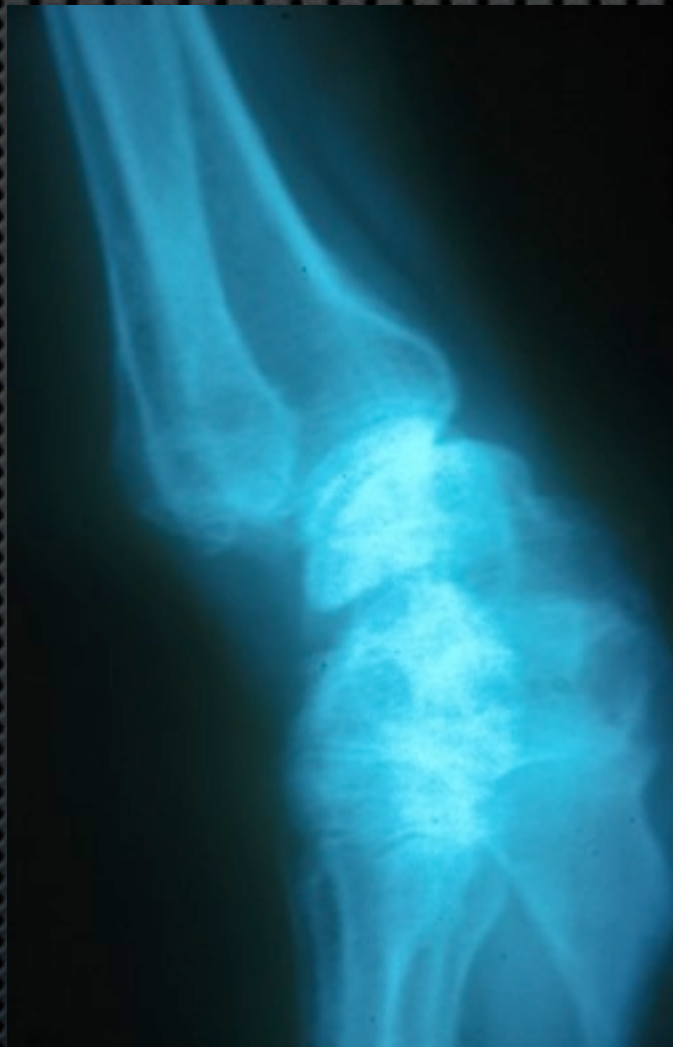




- Radio-carpal ligaments involvement = Anterior instability of the carpus

- Anterior instability of the carpus

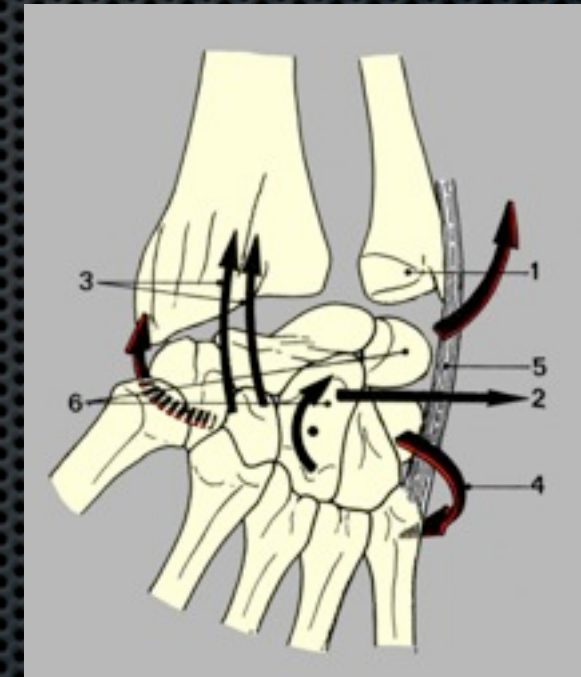
- Ulnar translation of the carpus





# Evolution of ulnar side involvement

- ✦ Mano supinata
- ✦ Extensor tendon ruptures
- ✦ Ulnar drift of MP joint (linked to radial inclination of the carpus)





# Central involvement (18%)

- Destruction of scapholunate ligament
- Destruction of radiocarpal ligaments
- Destruction of the lunate fossa



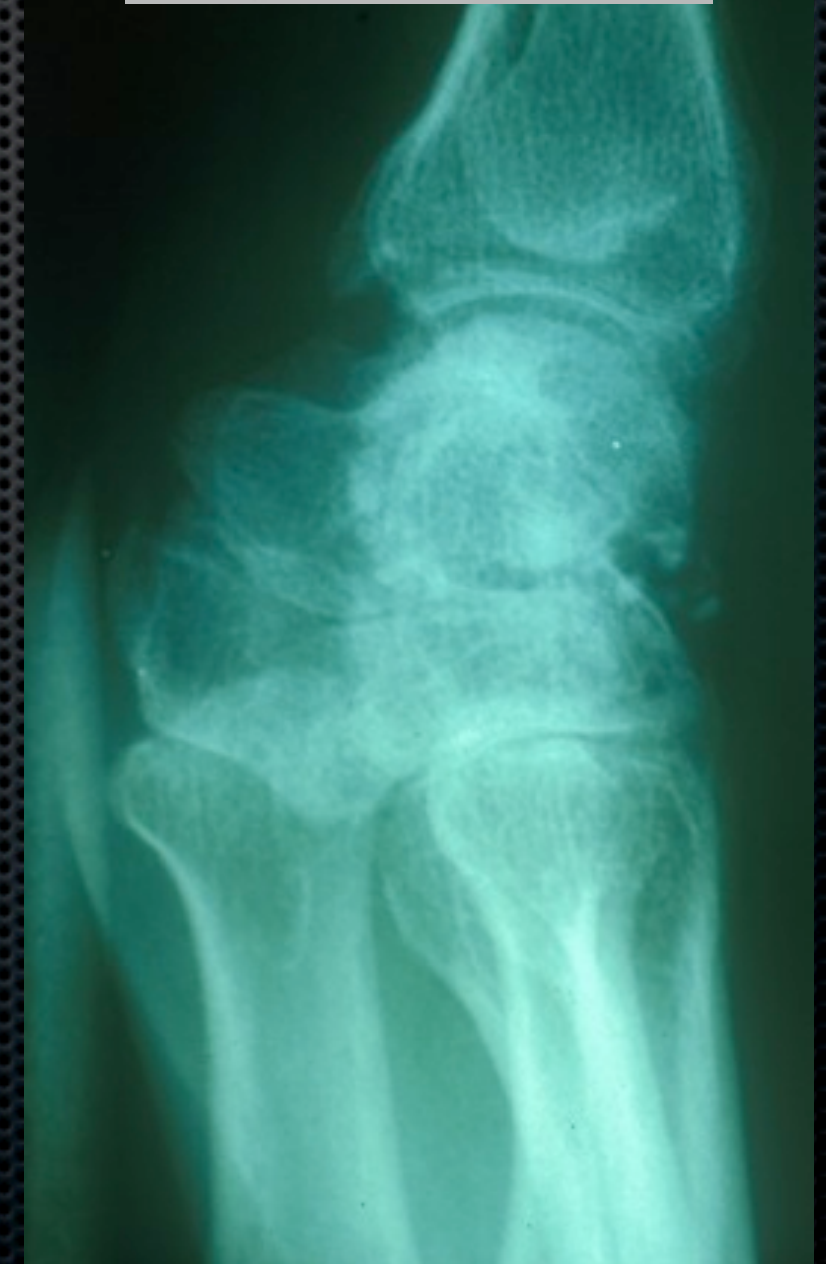
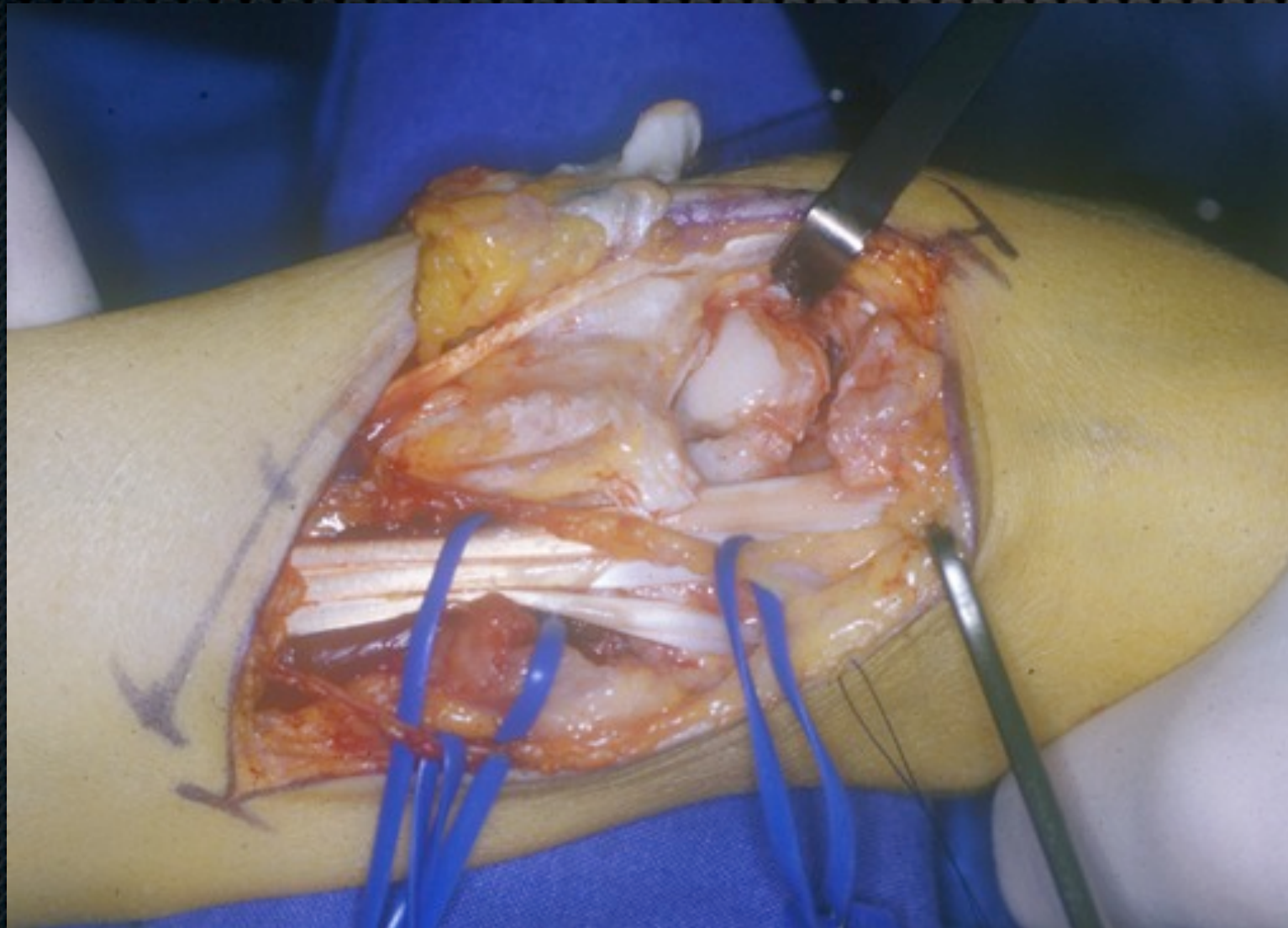
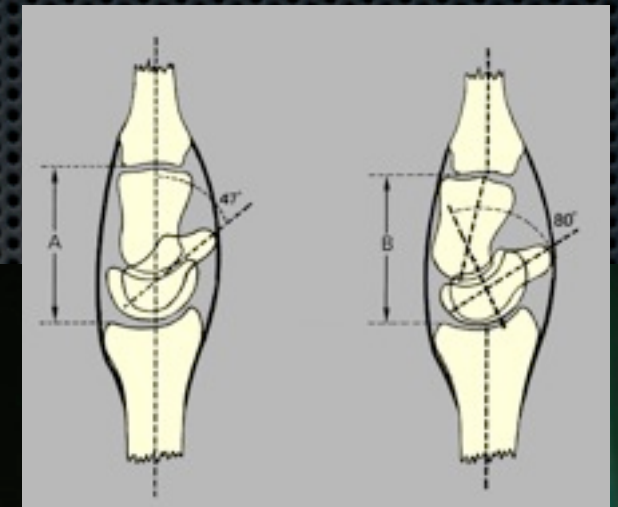


# ✦ Scapholunate instability

➔ Carpal collapse

➔ Mano supinata

➔ DISI deformity





# ✦ Radiocarpal Lgts involvement

➔ Anterior carpal translation

➔ Ulnar translation





## ✦ Lunate fossa destruction

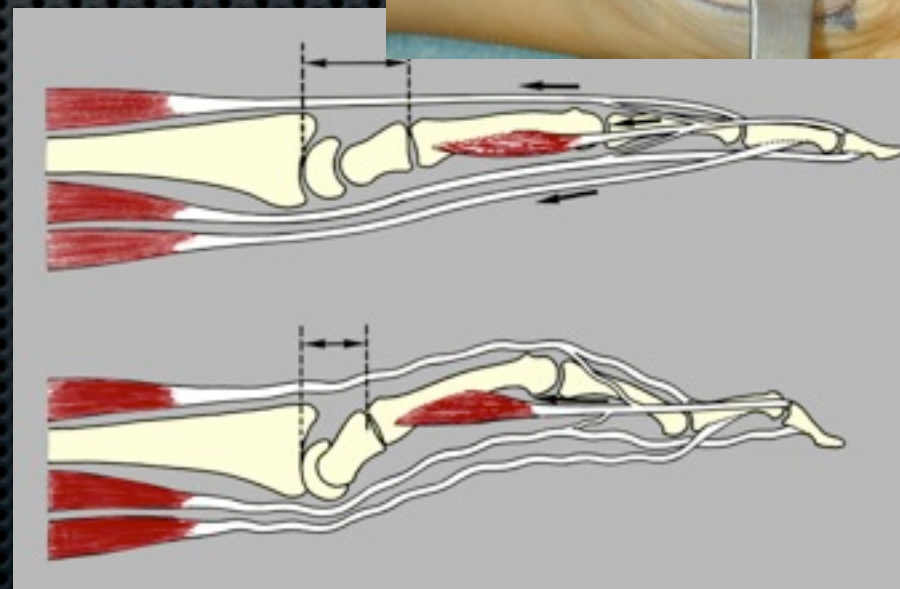
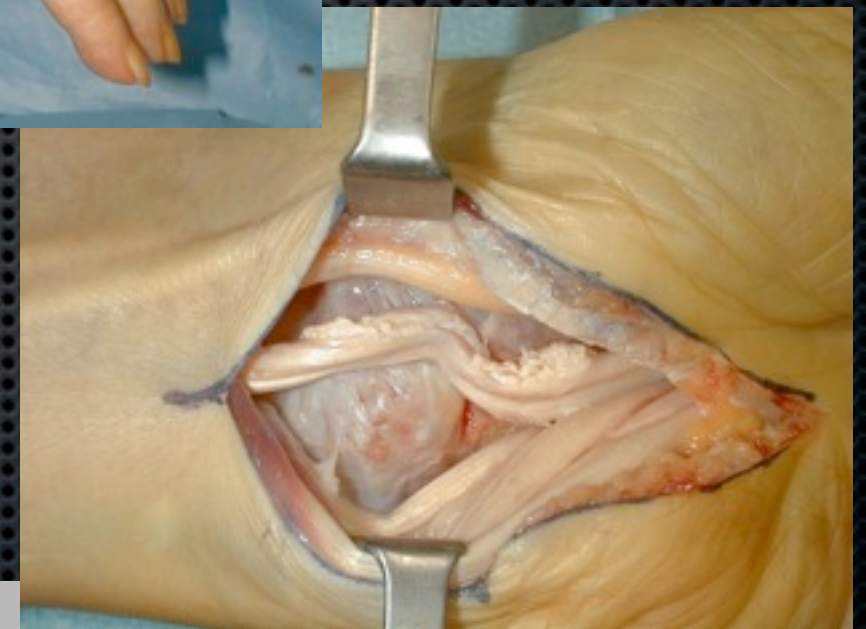
➔ Ulnar inclination / translation of the carpus





# Evolution of central involvement

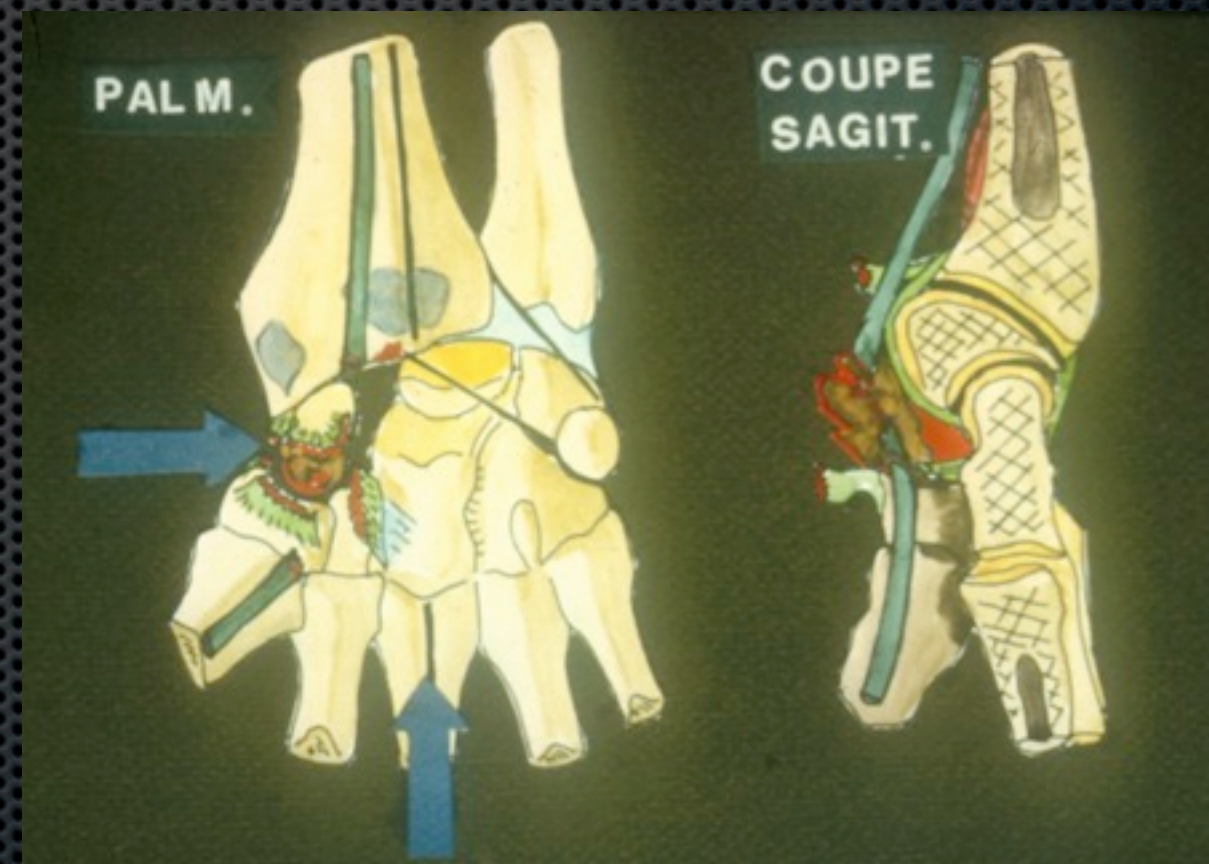
- ✦ Mano supinata
- ✦ Anterior dislocation of the lunate with secondary flexor tendon ruptures
- ✦ Swan-neck deformity (PIP) due to carpal shortening





# Radial involvement (36%)

- Radio-carpal ligaments destruction
  - Ulnar and anterior translation of the carpus
- STT joint destruction/instability

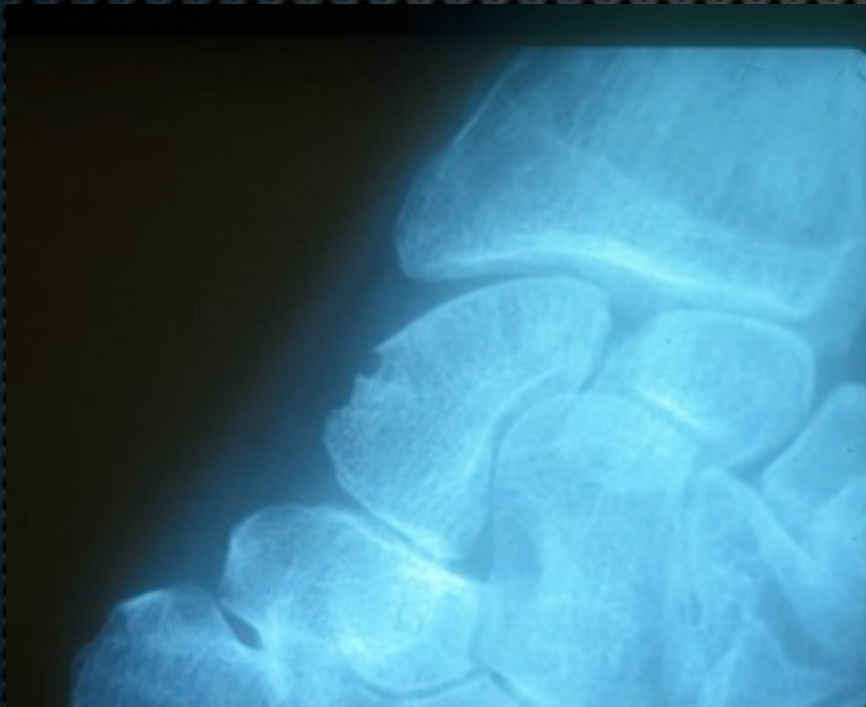




- ✦ STT joint involvement

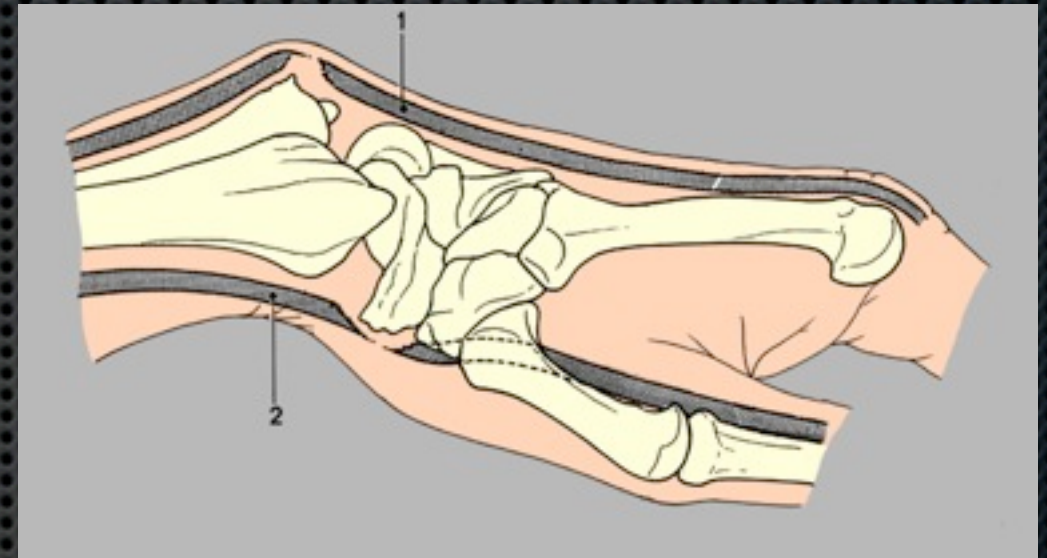
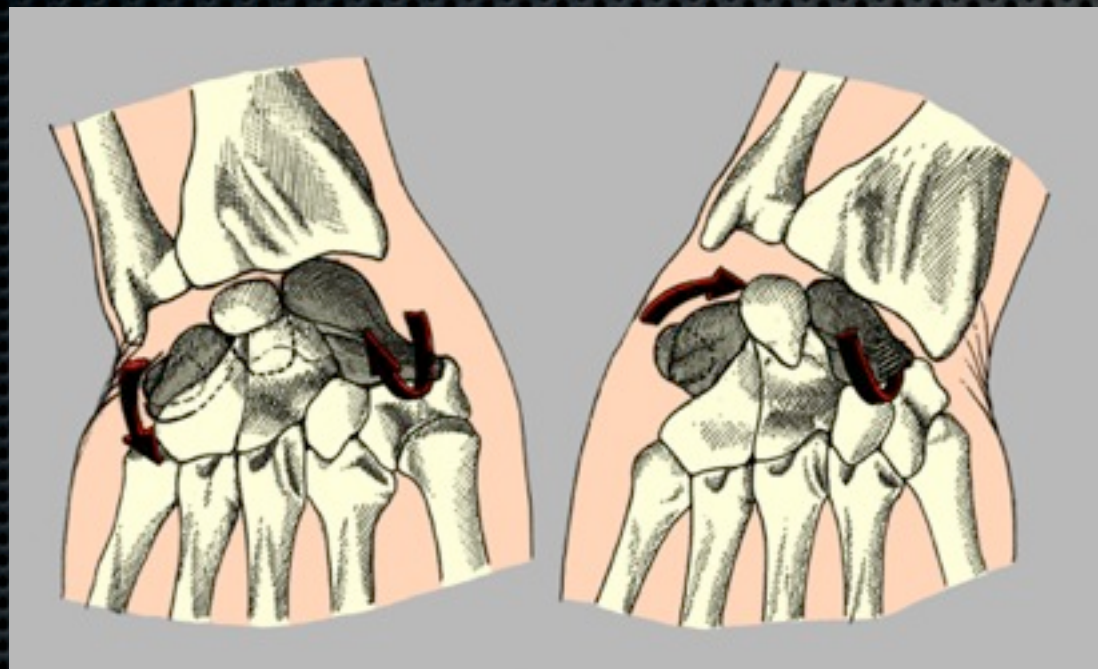
- ➔ Anterior projection of the STT

- ➔ Radial inclination of the carpus





# Evolution of radial involvement

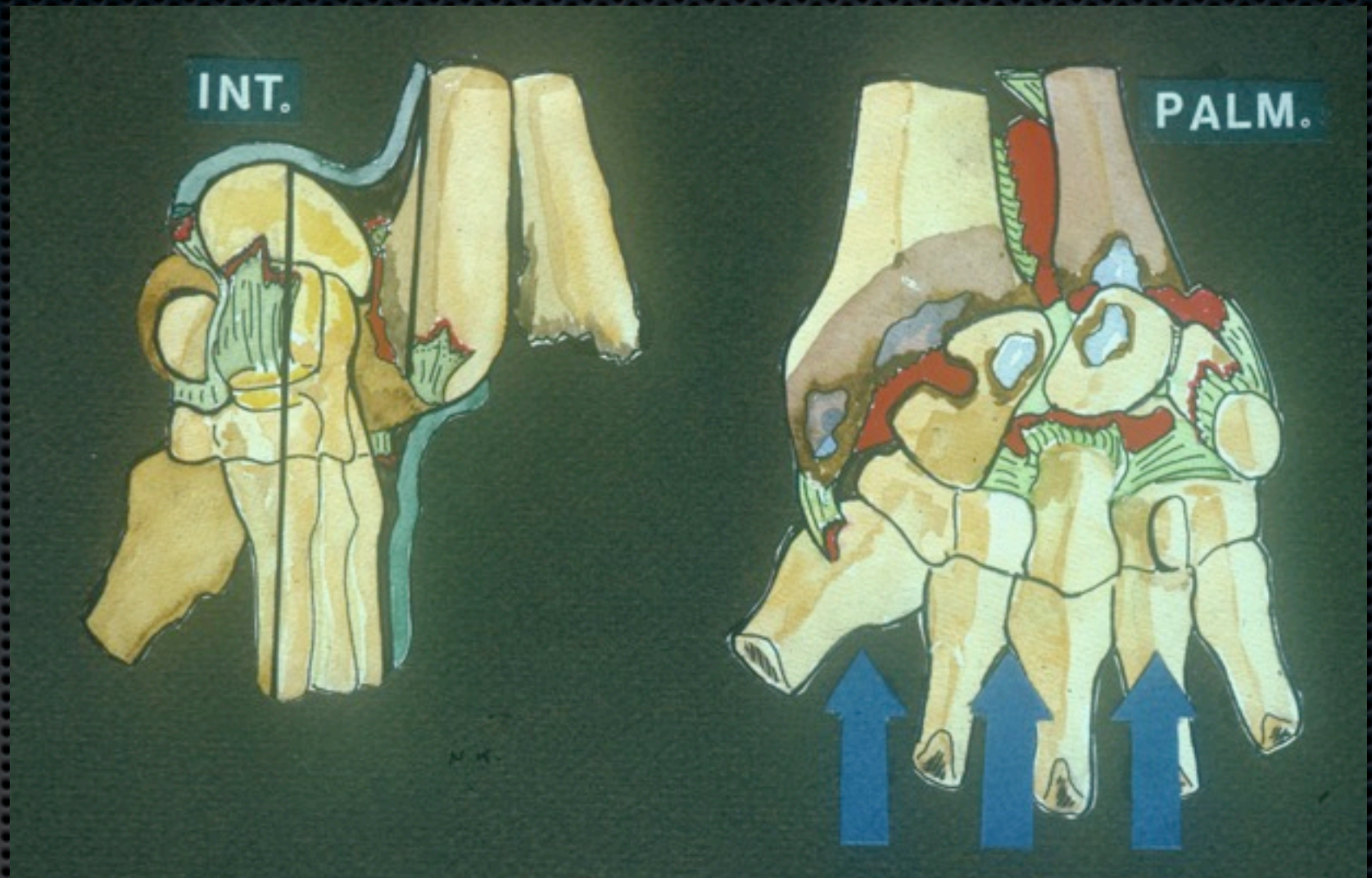


- ✦ Mano supinata
- ✦ Ruptures of flexor tendons (FPL)





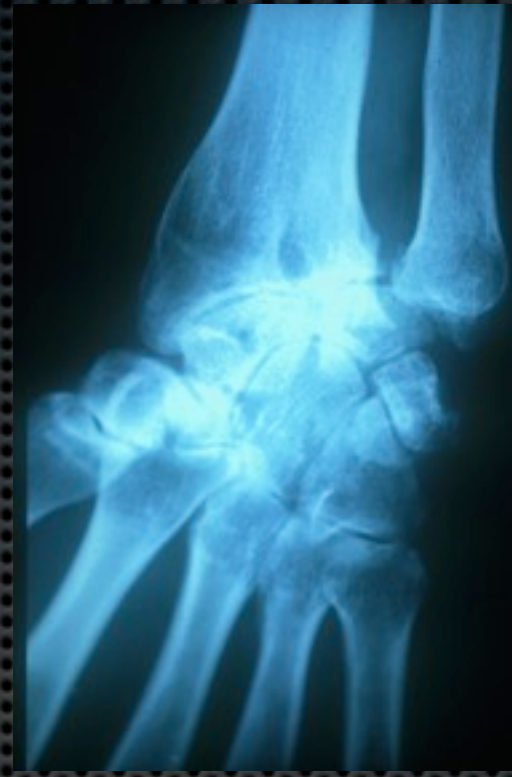
# Combined type



- All combinations are possible and depends of the location of synovitis, and the quality of bony support



# However



- These classifications are also modified by the natural history of the disease
- Simmens described 3 types of evolution (stiff, dislocate, erosive) that cannot always be predicted





# Conclusion



- Knowledge of the physiopathology helps to understand the observed deformities, to correct them and to prevent them as they may also interfere with the fingers
- However, the natural history of the disease is still unknown and surgical treatment should be complete to obviate secondary deformation

