Partial Wrist Fusions
Aims of Partial/Limited Wrist Fusions

- Eliminate Motion by Arthrodesis
  - Or
- Surgical Excision of Offending joints
  - Thus
- Reducing Pain
  - Whilst
- Preserving as much motion as possible
Expected motion outcomes

• Relatively predictable
• Based upon cadaver studies
• Rule of Thumb
  – Any fusion involving the midcarpal joint
    • Results in 50-66% normal ROM
  – Any fusion involving the Radio-carpal joint
    • Results in 33-50% normal ROM
Assessment

• History
• Examination
• X-rays – AP and Lateral
• CT Scan
  – Radioscaphoid
    • SL Disruption/ Scaphoid Non-Union
  – Radiolunate
    • Main articulation for 4 Corner Fusion
  – Head of Capitate
    • Mid Carpal articulation PRC
Basic Principles

- Take down at least half of the joint surfaces involved in the arthrodesis
- Denude all degenerative surfaces down to good cancellous bone
- Use good quality autogenous cancellous graft
- Use the most rigid fixation method possible
- Attempt to reduce the carpal bones into the most anatomical position possible and hold initially with a K wire
- Undertake regular post op X-rays to assess fusion rate
Chamay Fusion

• More Common in Rheumatoid Arthritis
• First Identified by Dr Chamay
• Prevents further ulnar translation of the carpus
• Maintains some ROM – 33-50%
STT Joint Fusion

• Indications
  – Solitary STT joint OA
    • Less common CMC joint OA
  • Causes
    – Previous trauma
    – Calcium pyrophosphate deposition disease
    – Most idiopathic
    – 2% Post menopausal females
  – SL instability
  – Kienbock’s Disease
STT Joint fusion

- Contra-indicated
  - Radioscaphoid Degenerative Disease
- Complications
  - 13% Non-union
  - Pin Track infection
  - Osteomyelitis
  - Radiostyloid impingement
  - Superficial radial nerve sensitivity
- Review of 258 STT joints
  - 49% Wrists still painful at 38 months post op
  - Average ROM 60% Normal
  - Grip Strength 74% Normal
Scapho-capitate Fusion

• Indications
  – SL instability
  – Unusual
  – Little in literature
Radioscapholunate Fusion

- **Indications**
  - Severe distal radius fracture
  - Subsequent Post traumatic OA

- **Outcome**
  - 33% normal ROM which can be increased to 50% if distal scaphoid excised.
4- Corner Fusion

• Indications
  – Scapho-lunate instability
  – Radio-scaphoid arthritis
    • SLAC and SNAC Wrists

• ROM
  – 60-80%

• Grip Strength
  – 75%

• Complications
  – Dorsal radiocarpal impingement due to inadequate reduction of the capitolunate relationship