

# Elbow Instability

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# Pathophysiology

- Static constraints:
  - Primary: Ulna-humeral articulation, Ant. Band of MCL, LUCL
  - Secondary: Radio-capitellar articulation, common flex/ext origins, capsule
- Dynamic constraints:
  - Flexors & extensors across elbow
  - Anconeus

# Posterior Lateral Rotatory Instability (PLRI)

- Common
- Axial load + varus + supination
- MCL + LUCCL tear
- Non-operative treatment:
  - Hinged brace for 4-6 weeks
  - Activity modifications

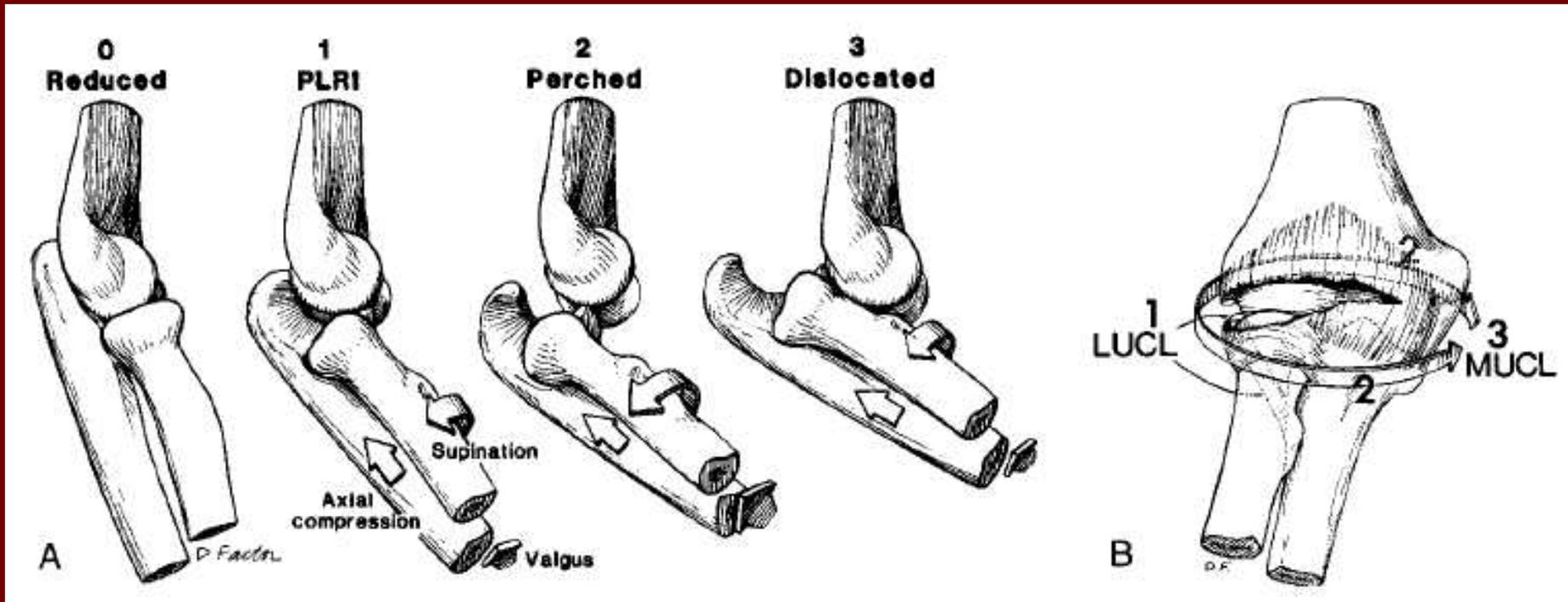
# PLRI

- Indications for reconstruction/ repair:
  - Symptomatic, chronic tear that failed conservative treatment
  - High-demand person/athlete

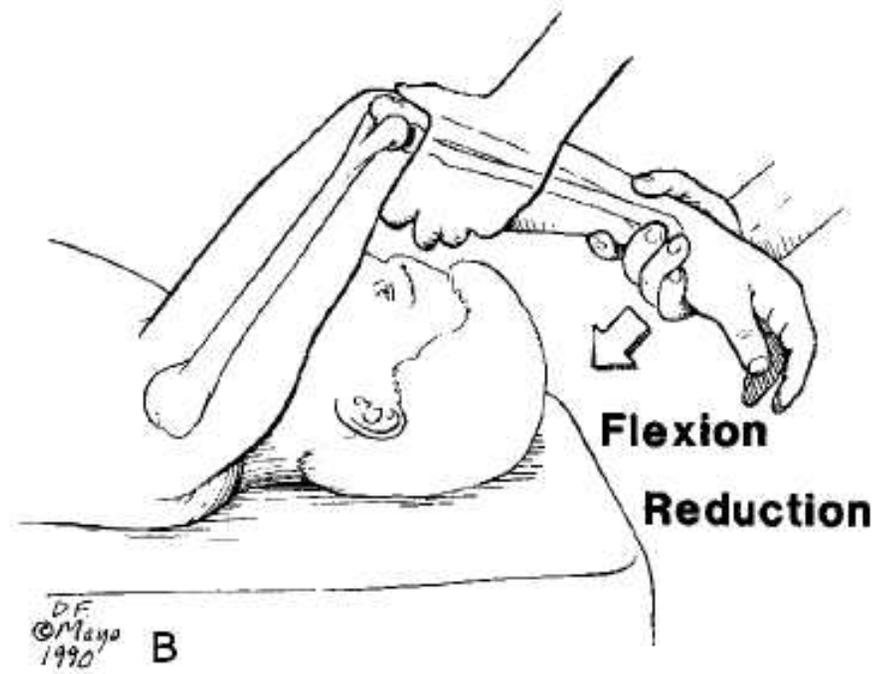
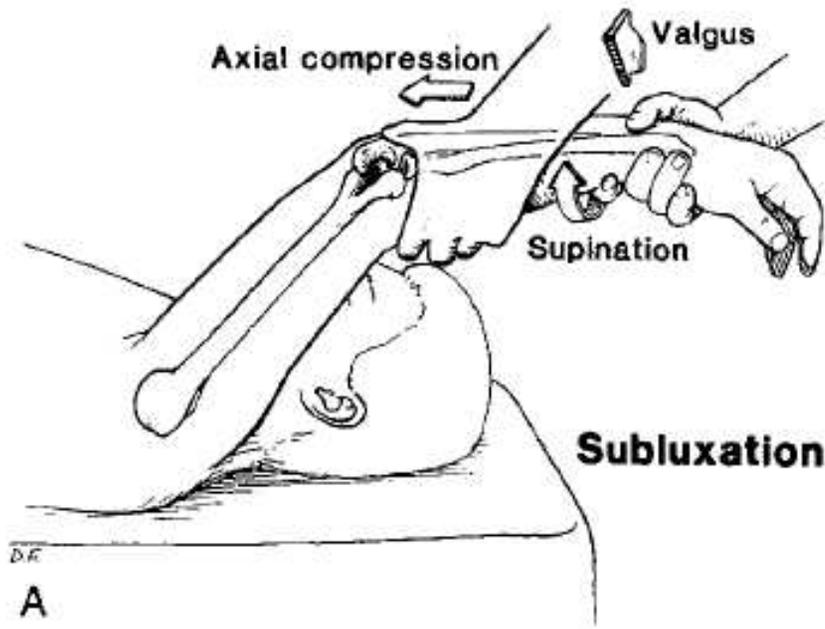
# PLRI

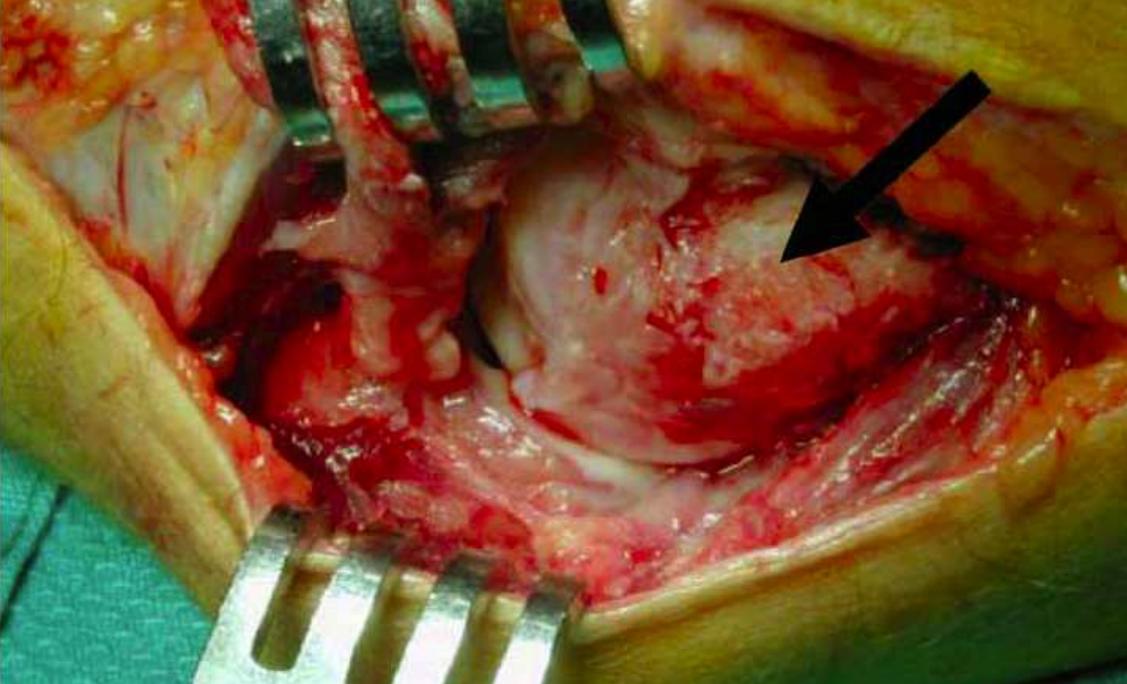
- Operative techniques:
  - Open:
    - Modified Kocher approach
    - Auto/Allograft through ulnar tunnels and humeral (isometric point) tunnels
    - Alternative: the “Docking technique”
    - Plication of ant./post. Capsule
  - Arthroscopic:
    - Plication & repair is possible, not reconstruction

# PLRI: stages

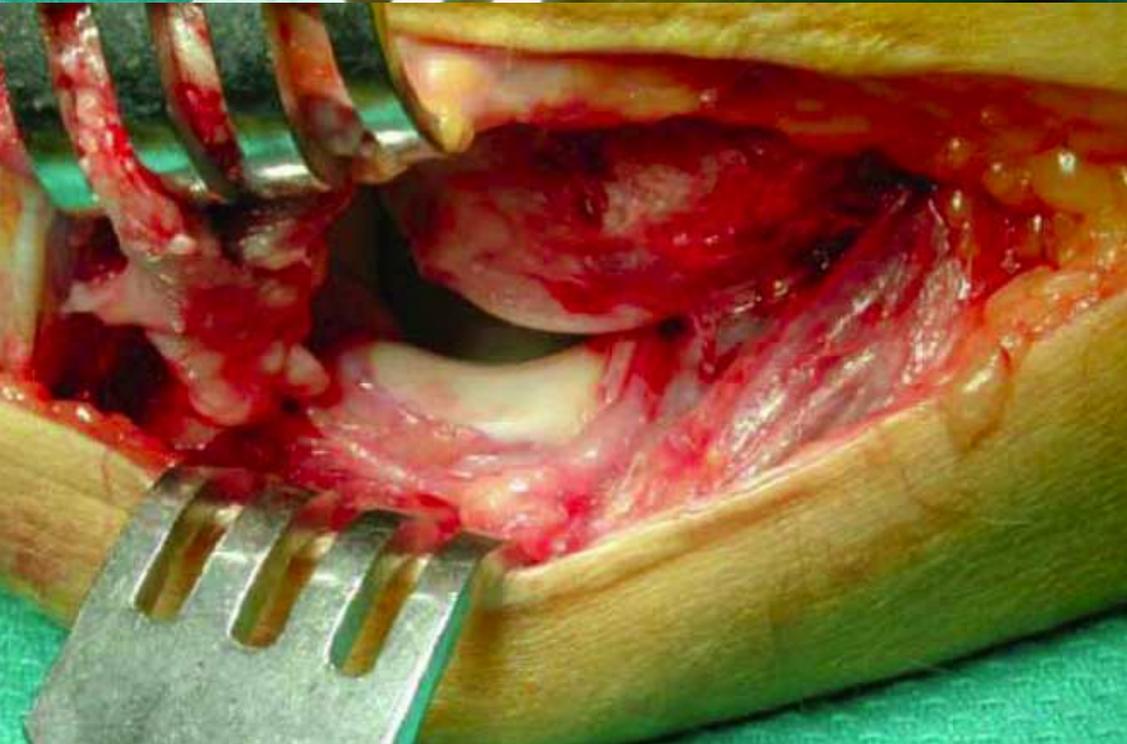


# PLRI: pivot shift test





PLRI



- *“Posterolateral Rotatory Instability of the Elbow Following Radial Head resection”*
- Hall et al. JBJS-A 2005
- 42 patients reviewed for elbow pain following radial head resection
- 7 diagnosed with PLRI (17%)
- Observational study, no follow-up post-op for most patients, small number

- *“Ligamentous repair and reconstruction for posterolateral rotatory instability of the elbow”*
- Sanchez-Sotelo et al. JBJS-B 2005
- 12 repairs and 33 reconstructions
- 89% success rate with reconstructions
- 7 recurrences after reconstruction
- Higher mayo scores in reconstructions and if no previous surgery
- Retrospective, different techniques, small numbers

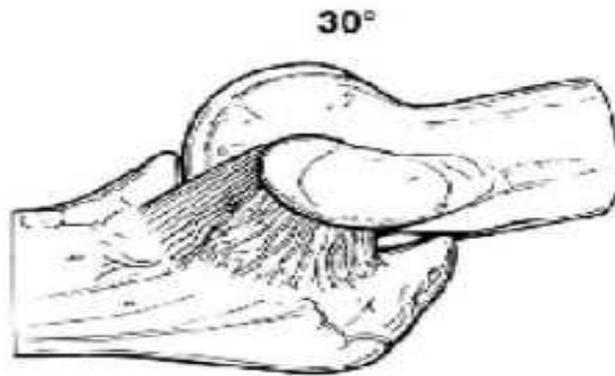
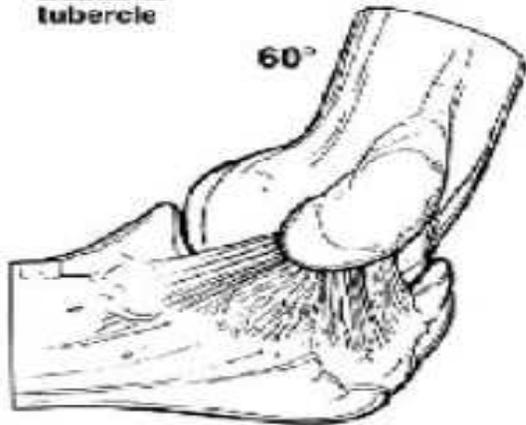
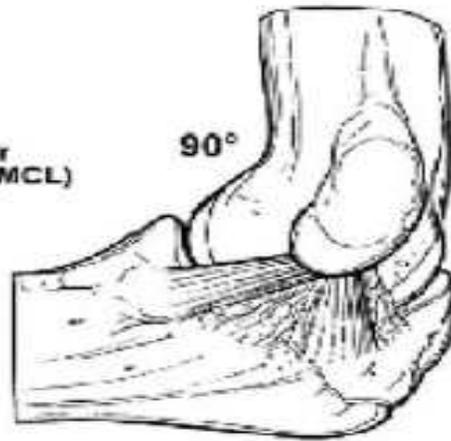
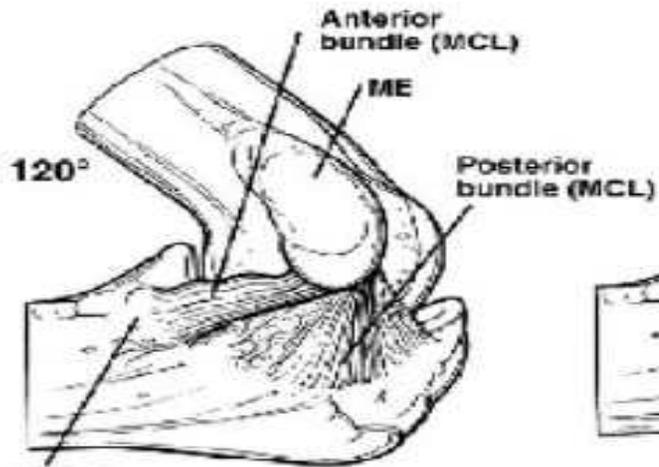
- *“Single-strand reconstruction of the lateral ulnar collateral ligament restores varus and posterolateral rotatory stability of the elbow”*
- King et al. JBJS 2002
- Both single and double strand reconstruction gives a stable elbow
- Biomechanical (cadaveric) study

- *“Surgical reconstruction for posterolateral rotatory instability of the elbow”*
- Brien et al. J should elbow surg 2003
- 11 patients, different procedures (repair, reconstructions)
- Outcomes where stability on pivot shift as well as overall result
- All 10 cases successful, but only 3 excellent results, 5 good & 3 fair

# MCL tears

- Valgus injury (thrower)
- Also part of lig. Injury in dislocations
- Coronoid # and LUCL rupture common associations
- Pain-not instability- is primary symptom
- Ulnar nerve symptoms
- Valgus stress X-rays, MRI

# MCL



Isometric point

# MCL tears

- Indications for surgery:
  - Elite level athletes
  - Patients not responding to non-operative treatment (ROM, stretching, strengthening..)
- Techniques:
  - Jobe: figure of 8 autograft through drill holes
  - Docking technique: sutures tied over humeral bone bridge.
  - Non-muscle (FCU) splitting techniques: no ulnar n. transposition required

- *“Ulnar collateral ligament reconstruction in athletes: Muscle-splitting approach without transposition of the ulnar nerve”*
- Thompson et al. J should elbow surg 2001
- 116 MUCCL reconstructions
- 93% of athletes who didn't have previous surgery had an excellent result
- All returned to their sport
- No validated outcome measure, authors own method used

- *"Operative treatment of ulnar collateral ligament injuries of the elbow in athletes"*
- Azar et al. Am J Sports Med 2000
- 91 elbows, Jobe technique.
- Follow-up of 35 months
- Success (returning to sports) rate: 79%
- 10 had ulnar nerve symptoms
- 9.8 months to return to return to competitive sports

- *“Medial Collateral Ligament Reconstruction of the Elbow using the Docking Technique”*
- Rohrbough et al. Am J sports med 2002
- 36 elite throwers
- Docking method used
- F/U of 3 years
- 92% returned to competitive sports
- No ulnar nerve dysfunction