

The ELBOW in SPORTS

Orthopaedics in the Lone Star State

PAOS, San Antonio, Aug 27, 2019

Bernard Morrey, MD

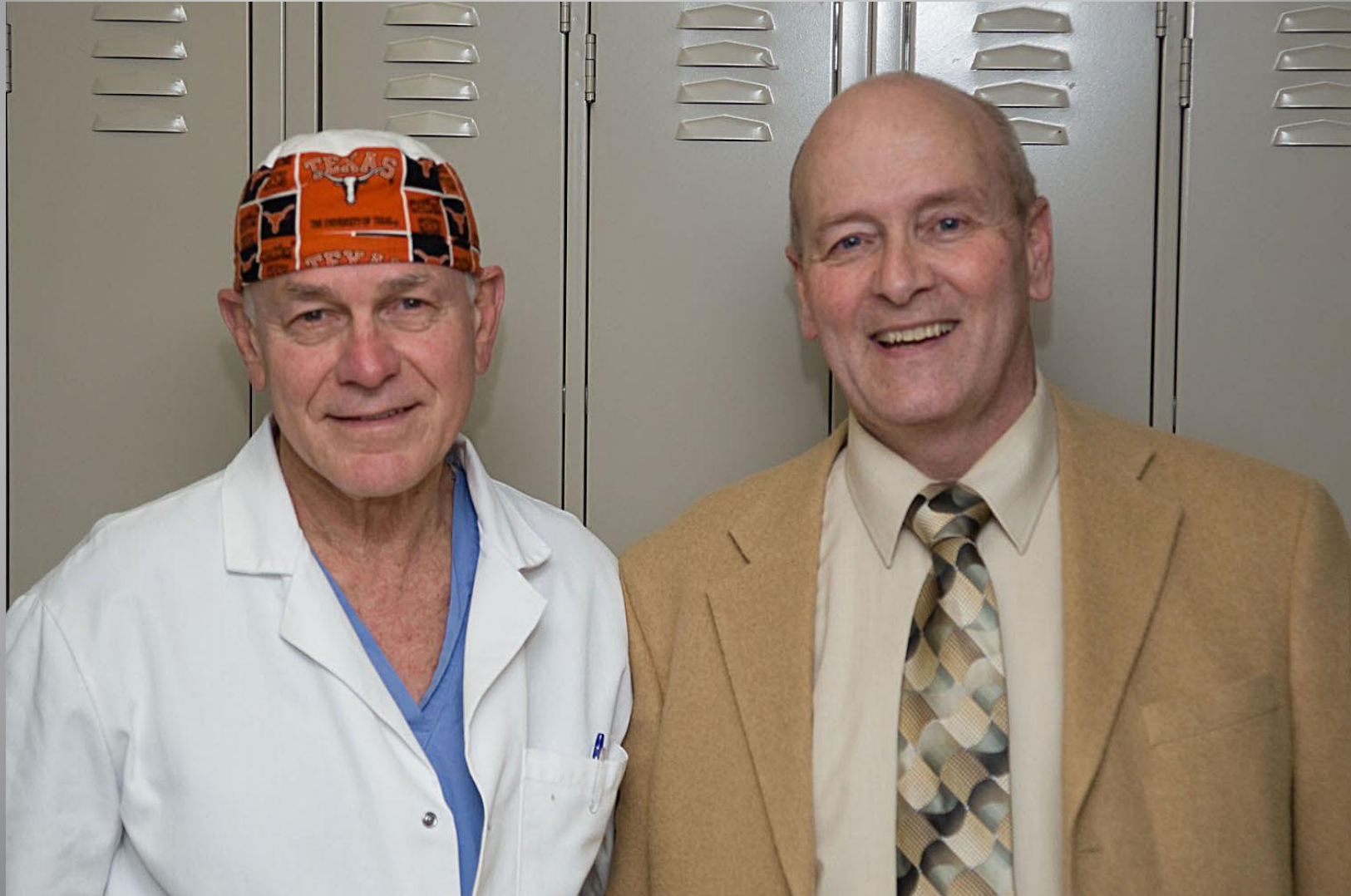
Professor of Orthopaedics

Mayo Clinic

UTHSCSA



COMMON SPORTS INJURIES of the ELBOW





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PARKING

The Mayo Clinic









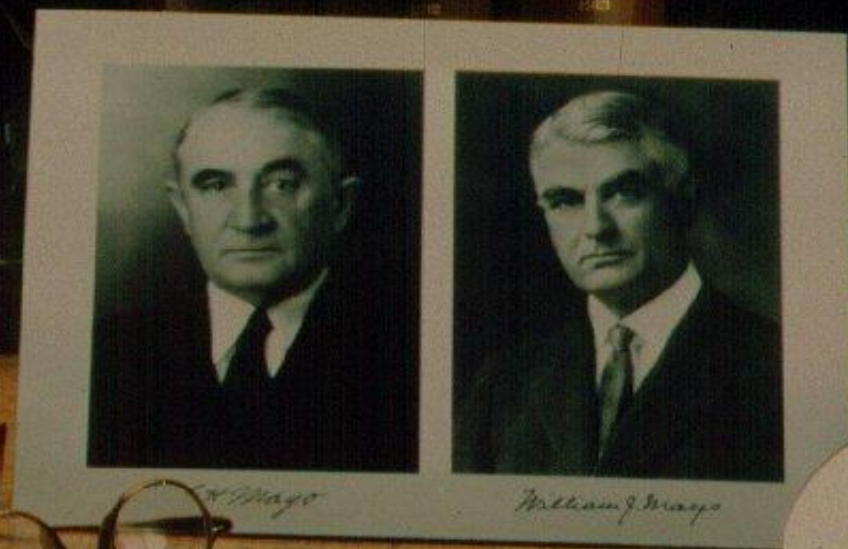
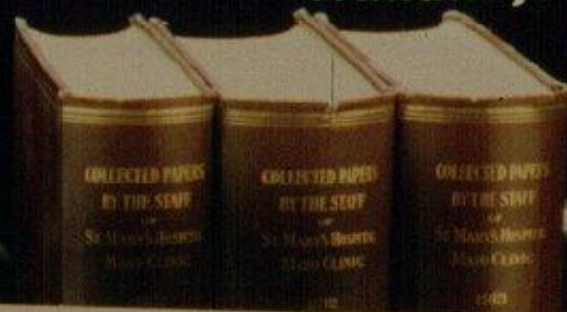






***“The best interest of the patient
is the only interest to be considered.”***

William J. Mayo



COMMON SPORTS INJURIES of the ELBOW


Disclosure

Potential conflicts

- **Zimmer – royalties, consultant**
- **Don Joy - Royalties**
- **Tenex – Medical director**

COMMON SPORTS INJURIES of the ELBOW

OUTLINE

- **Muscles/tendons**
 - **Ligaments**
 - **Articulation**
- 
- **Diagnosis**
 - **Treatment**
 - **Return to Sport**

COMMON SPORTS INJURIES of the ELBOW

Diagnosis

- **Ultrasound on the field**



COMMON SPORTS INJURIES of the ELBOW

Muscles/Tendons

- **Biceps**
- **Triceps**
- **Epicondylitis**

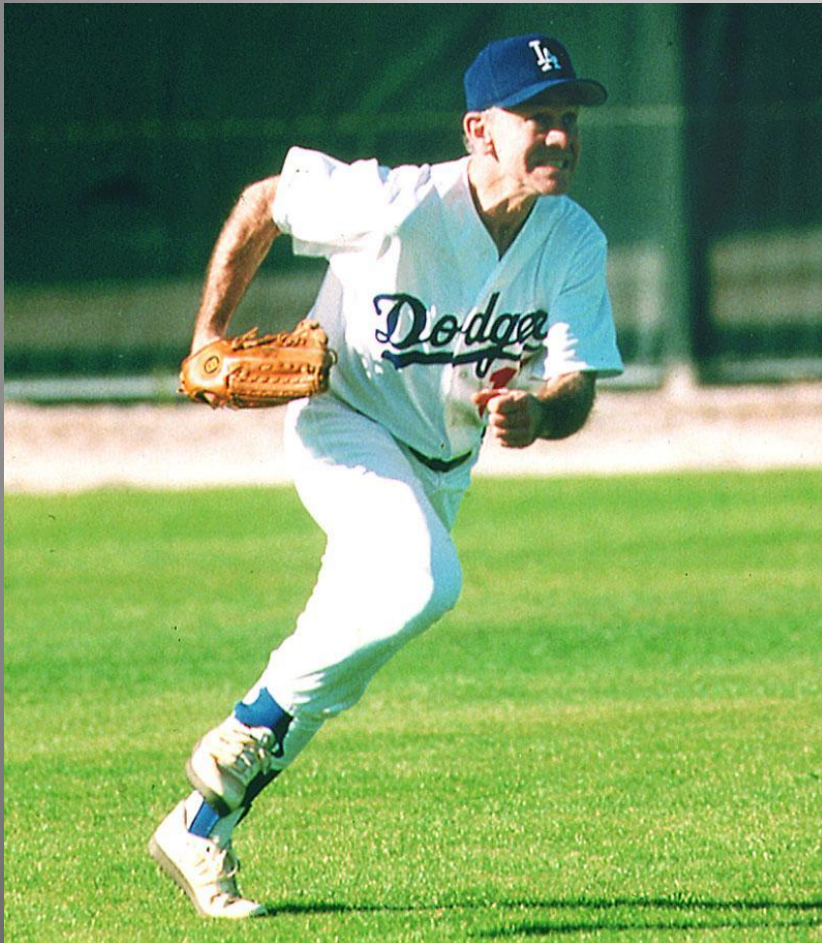
DISTAL BICEPS TENDON RUPTURE

QUESTIONS

- **Diagnosis – how hard is it**
- **Does it have to be fixed**
- **Does technique matter**
- **How long to protect/ rehab**
- **If fixed, what can pt expect**

DISTAL BICEPS TENDON RUPTURE

Diagnosis



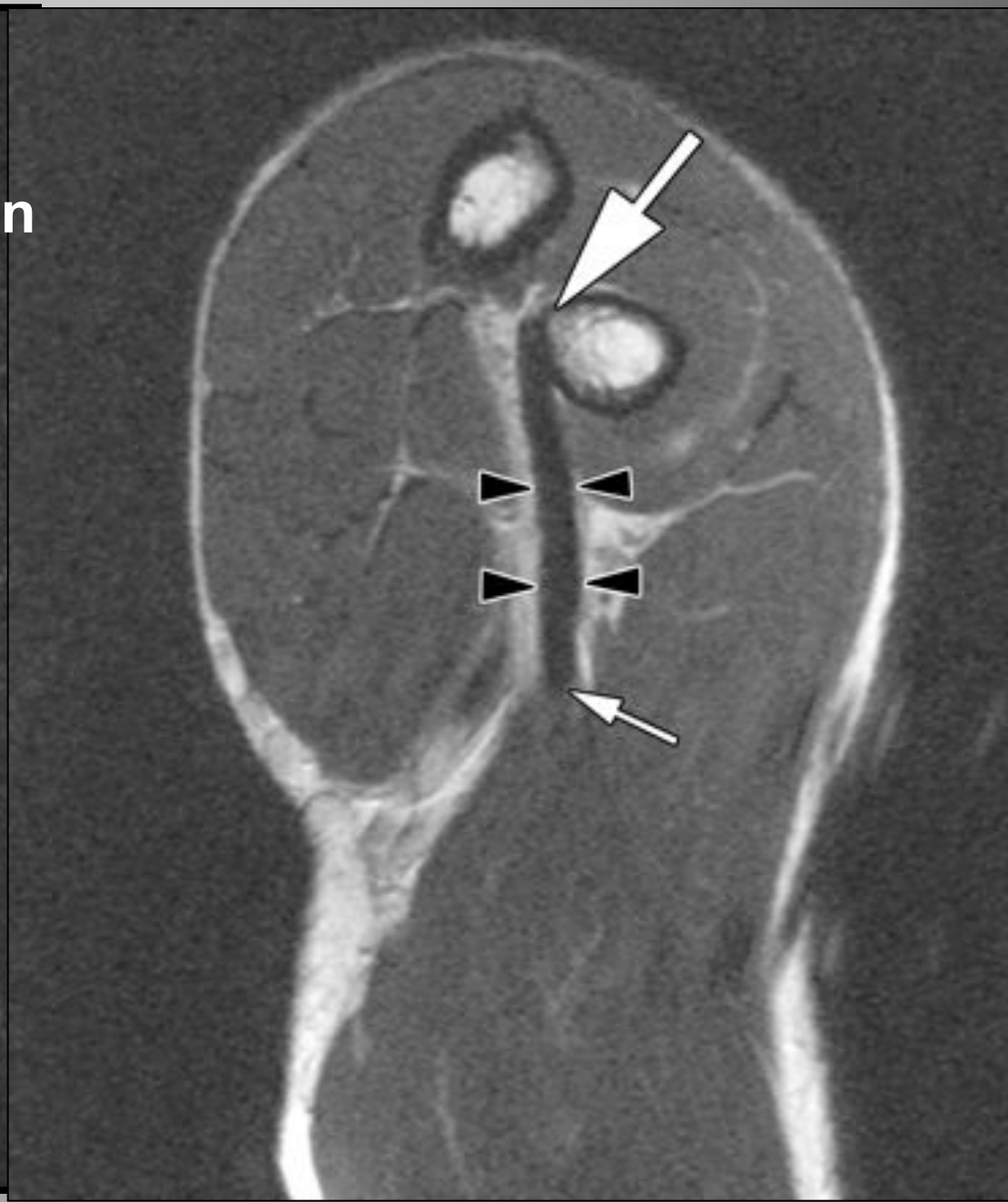
DISTAL BICEPS TENDON RUPTURE

Diagnosis

- **Clinical**
 - **Weakness**
 - **Supination**



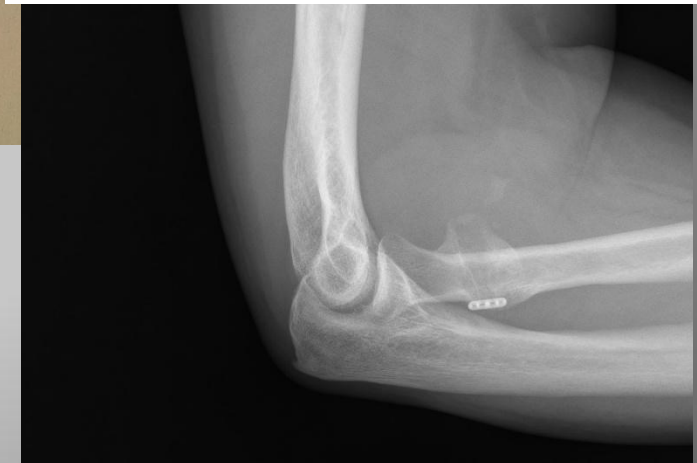
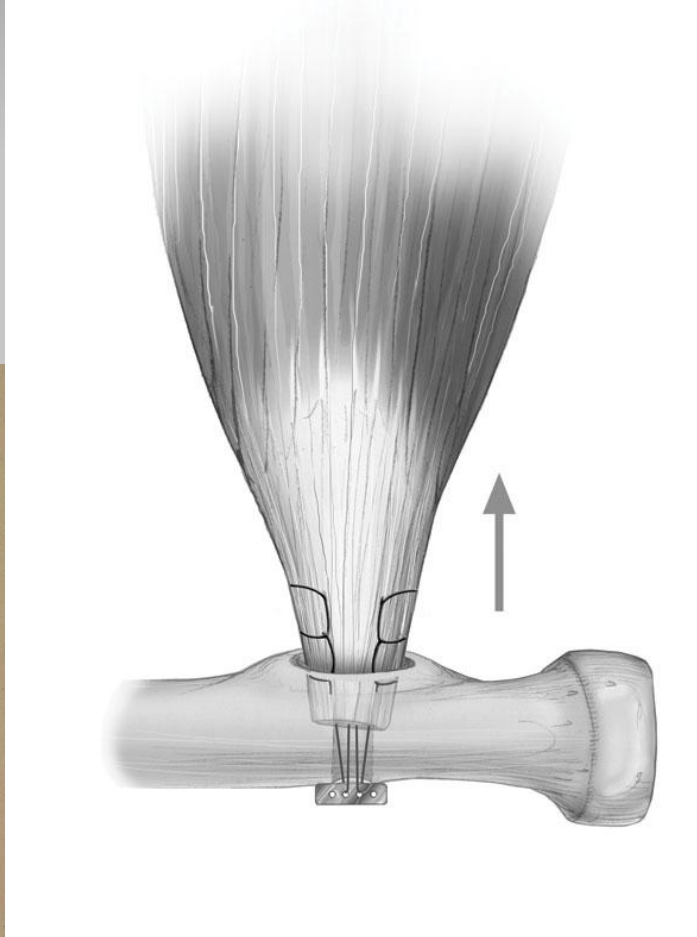
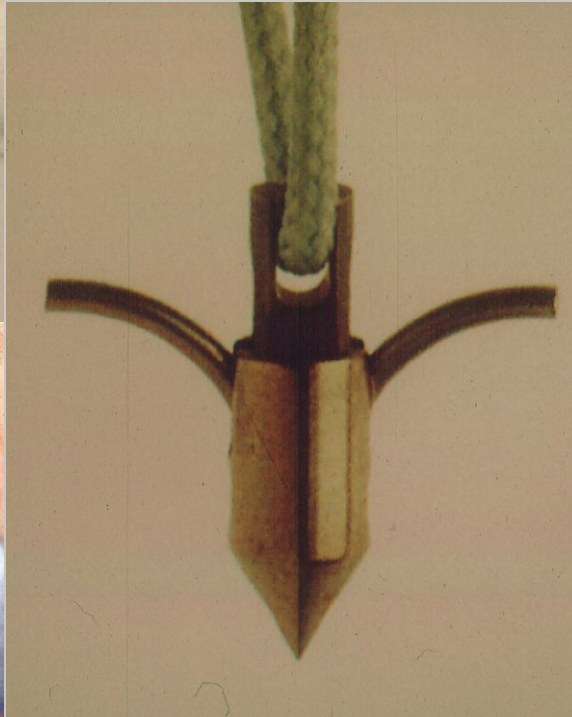
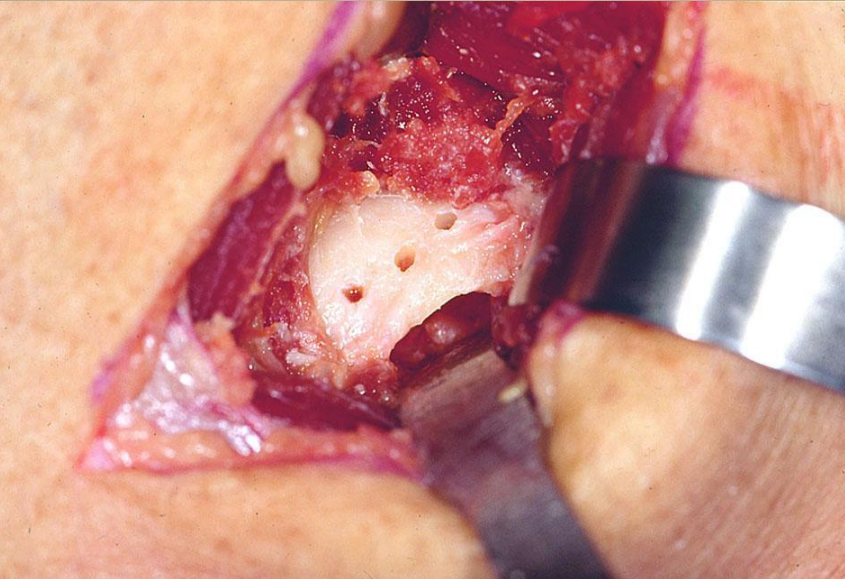
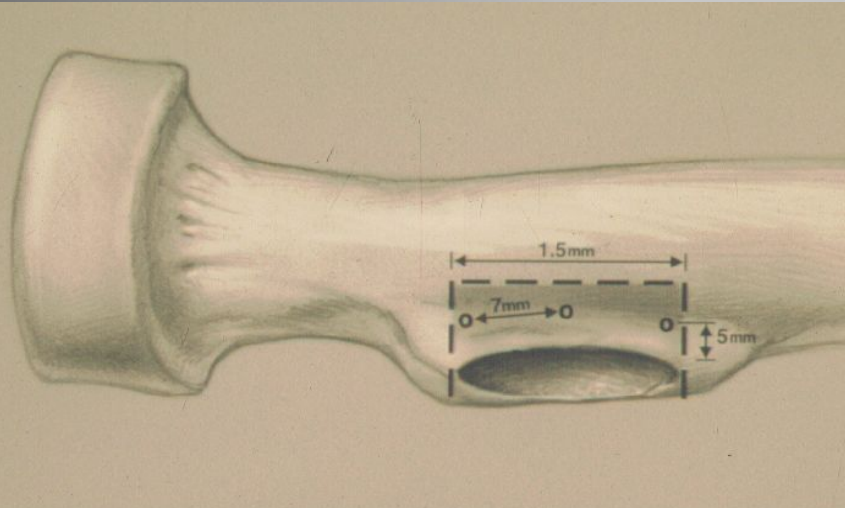
Flection
ABduction
Supination



DISTAL BICEPS TENDON RUPTURE

QUESTIONS

- Diagnosis – how hard is it
- Does it have to be fixed? No and Yes (Politics?)
 - Lose ~ 10 -15% flexion strength
 - Lose > 50% supination strength
 - Fatigue pain



Comparable clinical results

DISTAL BICEPS TENDON RUPTURE

QUESTIONS

- Diagnosis – how hard is it
- Does it have to be fixed
- Does technique matter
- **How long to protect/ rehab**
 - **Depends on security of repair**
 - **Immobilize: 3-4 days**
 - **Active assisted motion: 5-10 days**
 - **Against gravity: 10 -21 days**
 - **Progress to full activity: 1-4 months**

DISTAL BICEPS TENDON RUPTURE

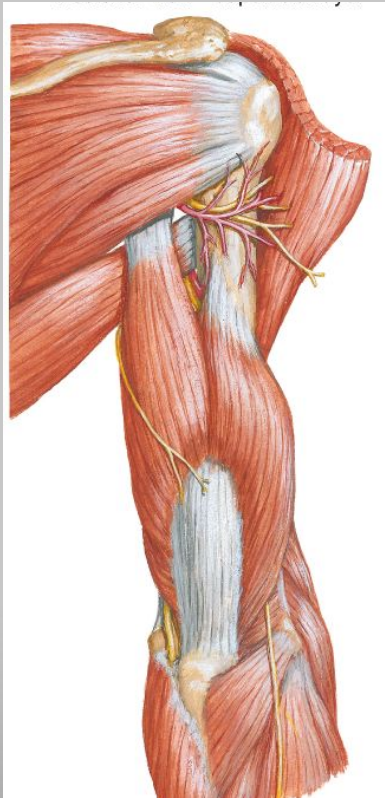
QUESTIONS

- Diagnosis – how hard is it
- Does it have to be fixed
- Does technique matter
- How long to protect/ rehab
- If fixed, what can you expect

TRICEPS TENDON RUPTURE

QUESTIONS

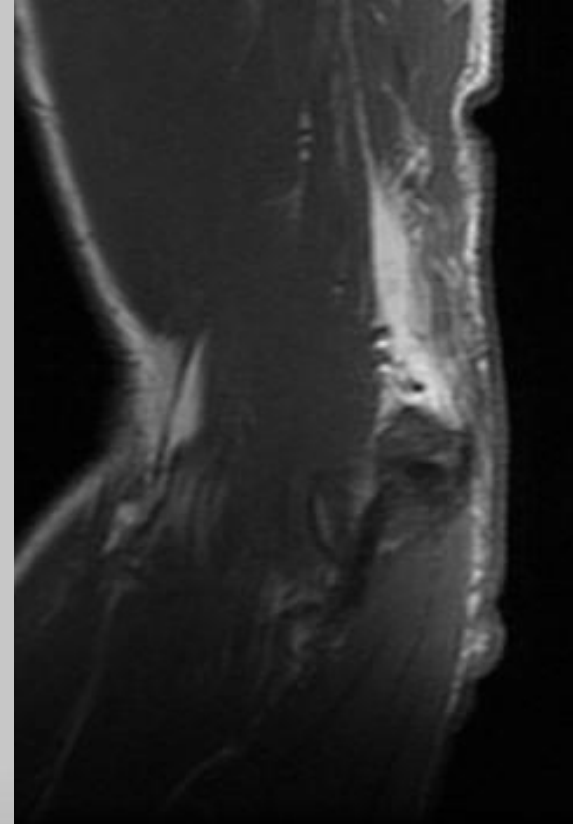
- **Diagnosis – How hard is it? - Beware**



TRICEPS TENDON RUPTURE

QUESTIONS

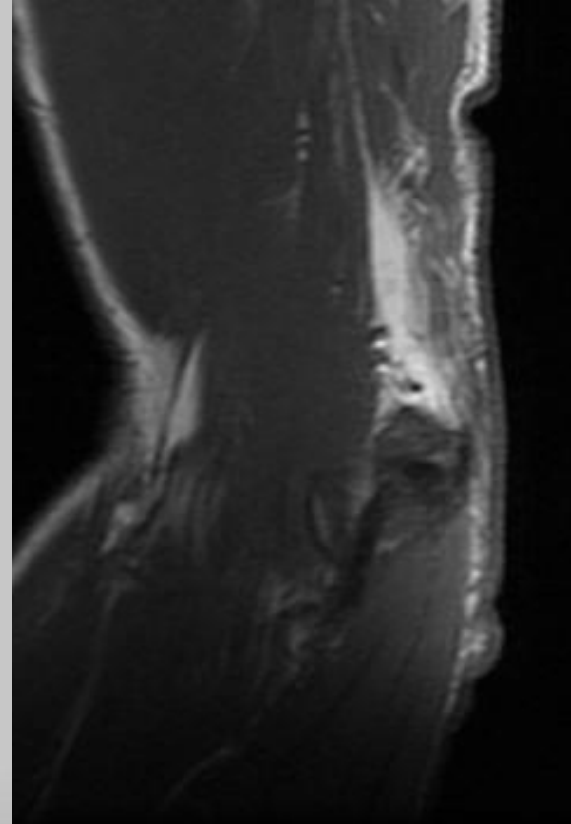
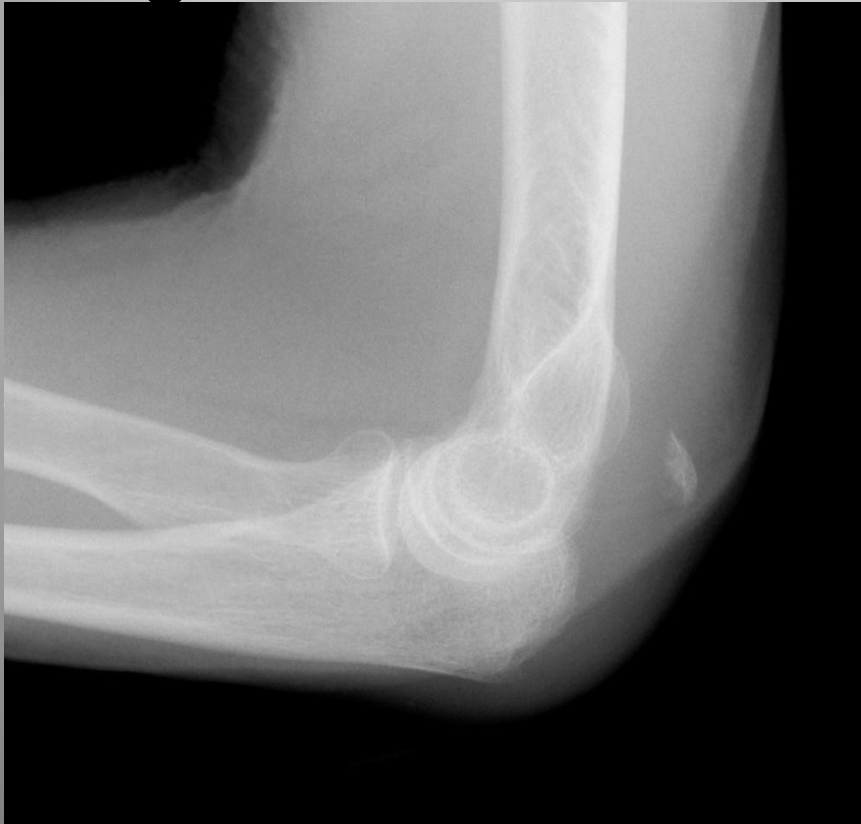
- **Diagnosis – How hard is it? Easy - Imaging**



TRICEPS TENDON RUPTURE

QUESTIONS

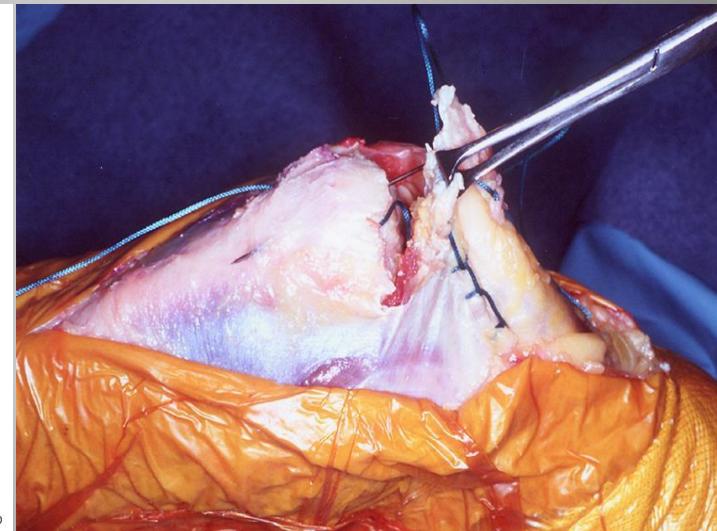
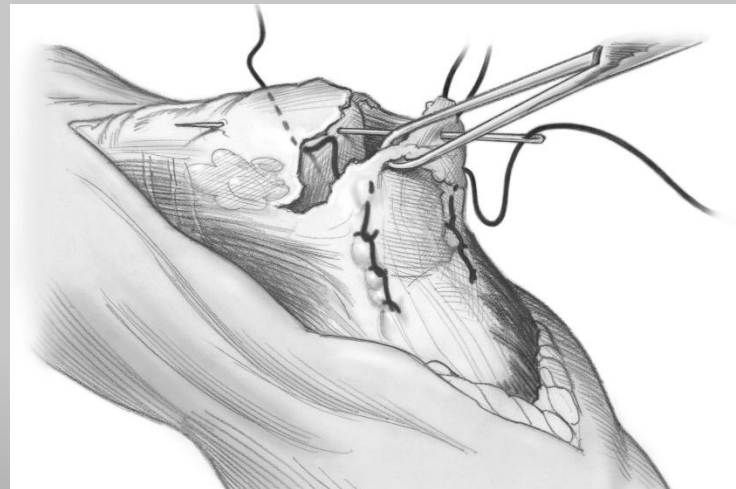
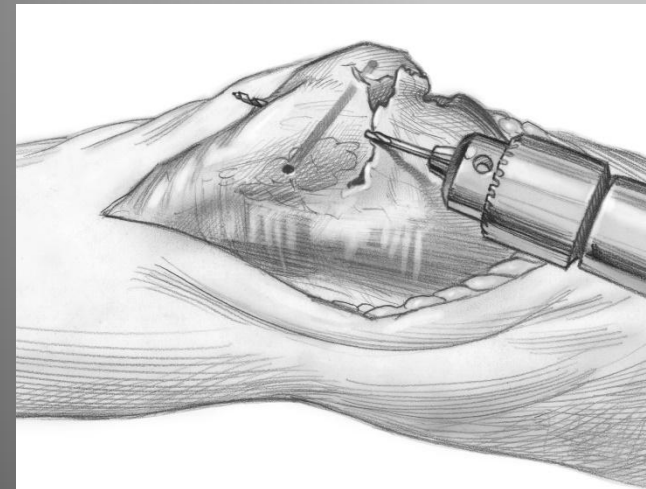
- **Diagnosis – Central attachment: MRI**



TRICEPS TENDON RUPTURE

QUESTIONS

- Diagnosis – Central attachment: MRI
- Does it have to be fixed - Yes
- How should it be fixed – Bone tunnels



TRICEPS TENDON RUPTURE

QUESTIONS

- Diagnosis – Central attachment: MRI
- Does it have to be fixed - Yes
- How should it be fixed – Bone tunnels
- How long is the rehab period - **1 year!!!**
- What can pt expect - **>90/90, if acute**

COMMON SPORTS INJURIES of the ELBOW

Muscles/Tendons

- Biceps
- Triceps
- **Epicondylitis**

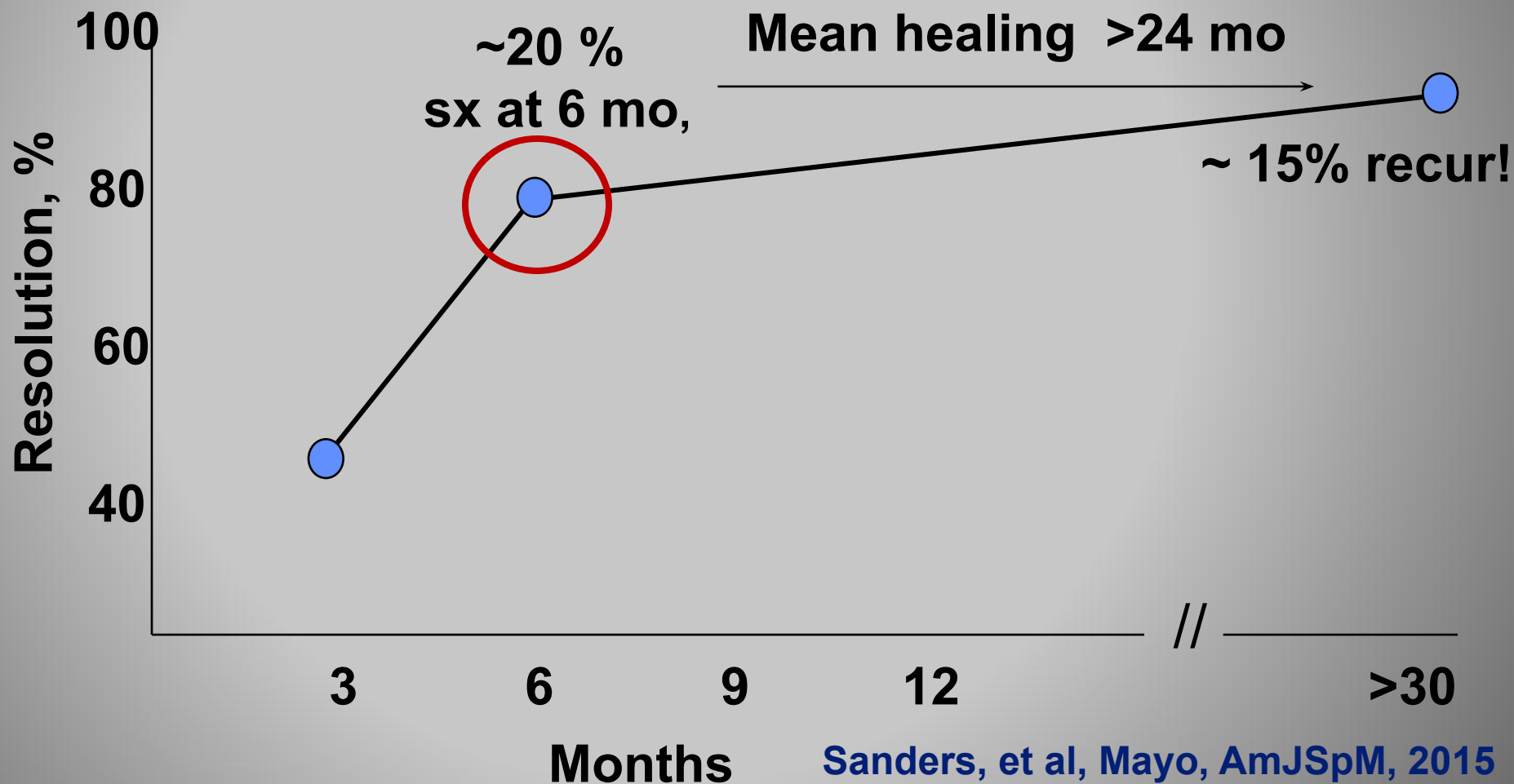
Epicondylitis: Where are we, really?

QUESTIONS

- **What are the trends**
- **What works?**
- **Anything new?**

Current Concepts to Treat Tendinopathy

Natural History - Epicondylitis



Current Concepts to Treat Tendinopathy

Options

- Physical therapy (or leave it alone)
 - **Eccentric exercise** (Stanish, 1986)

The Gold standard

- Effective – multiple sites (Achilles)
- Safe
- Prolonged
- Cost +/-

Current Concepts to Treat Tendinopathy

Options

- **Cortisone**

Lateral epicondylitis: RCT, 165 pt ; FU = 1yr

- **Eccentric exercises**

VS

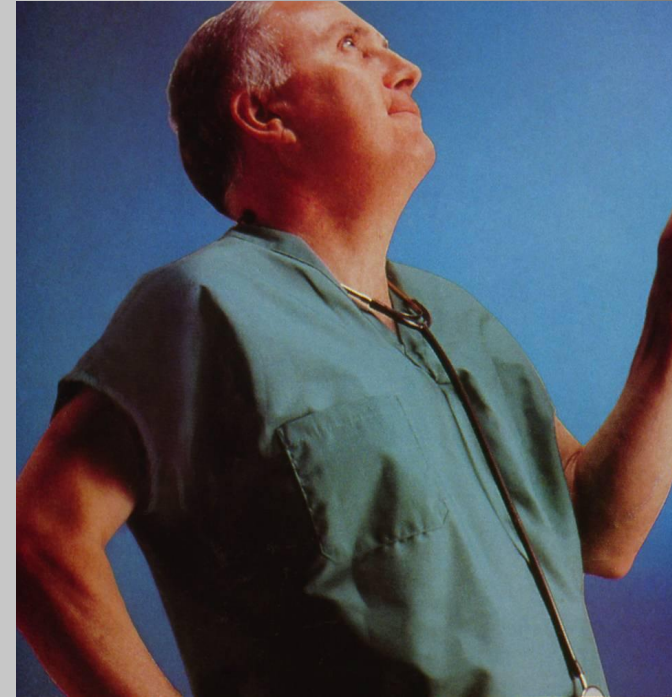
- **Steroid injection**

At one year the cortisone group statistically inferior

Current Concepts to Treat Tendinopathy

Treatment Nirvana

- **Single treatment**
- **Intervene early**
- **Well tolerated**
- **Reliable outcomes**
- **Minimal 'cost' from all perspectives**
- **Virtually no risks!**



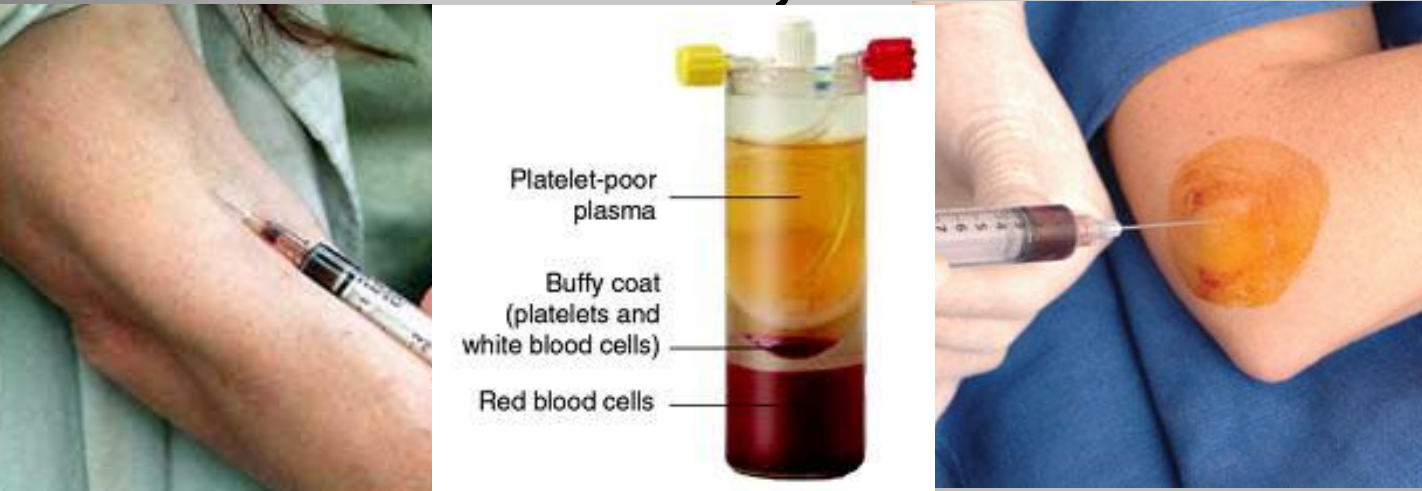
Current Concepts to Treat Tendinopathy

Conclusion

- PRP

- 2011 meta-analysis – no proof of efficacy!
- RCT @ 24 wks, > 25% improvement:

PRP – 84%; untreated control 68% (p=.037)



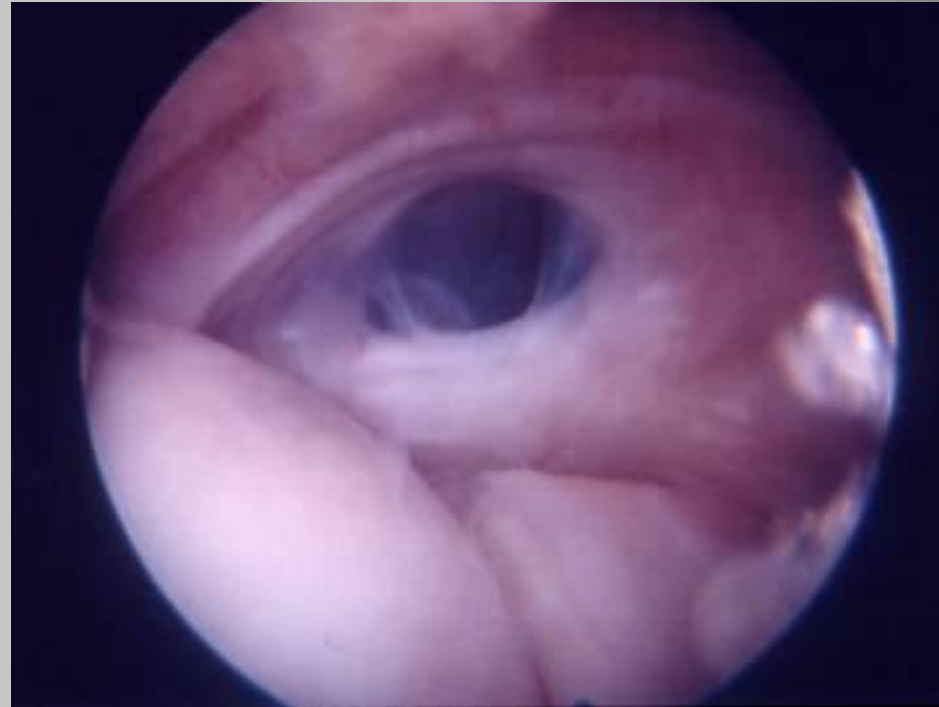
Mishra, et al, 2014

**It's out of pocket
But, it's SAFE**

Current Concepts to Treat Tendinopathy

Arthroscopy

- **Effective: 80 – 90%**
 - **Added value?**
 - **Cost effective?**



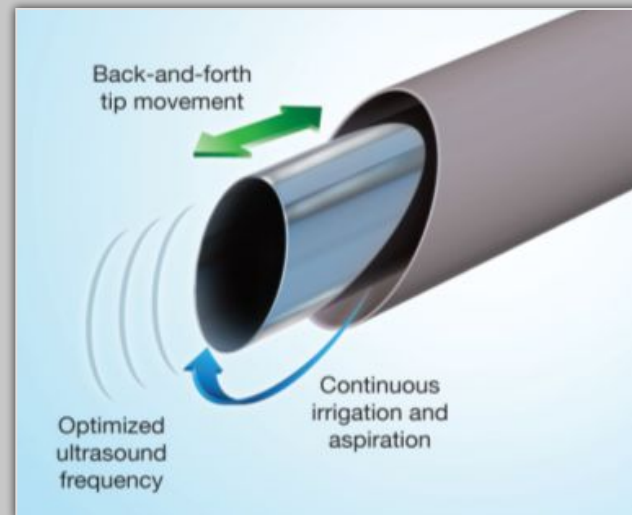
Current Concepts to Treat Tendinopathy

Treatment

- **Ultrasound !**

It removes the degenerative tissue

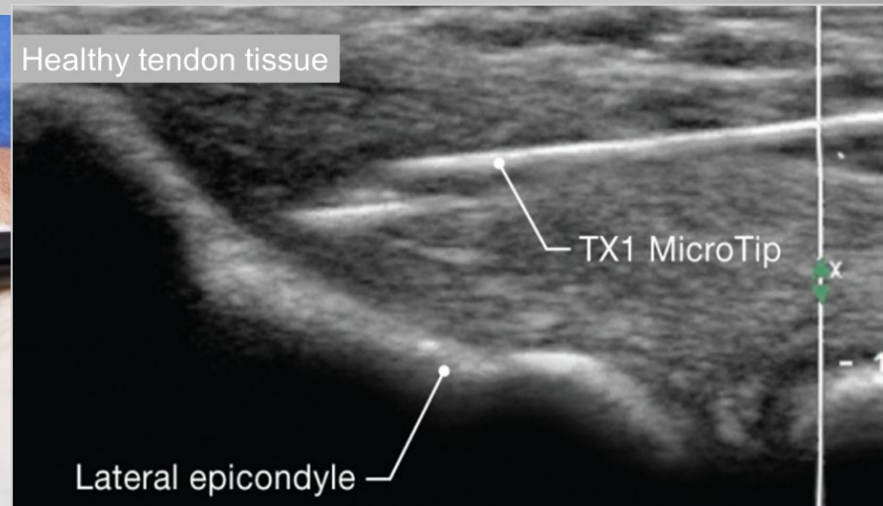
Lessens the impact of the 'stage' of disease



Current Concepts to Treat Tendinopathy

Tx1

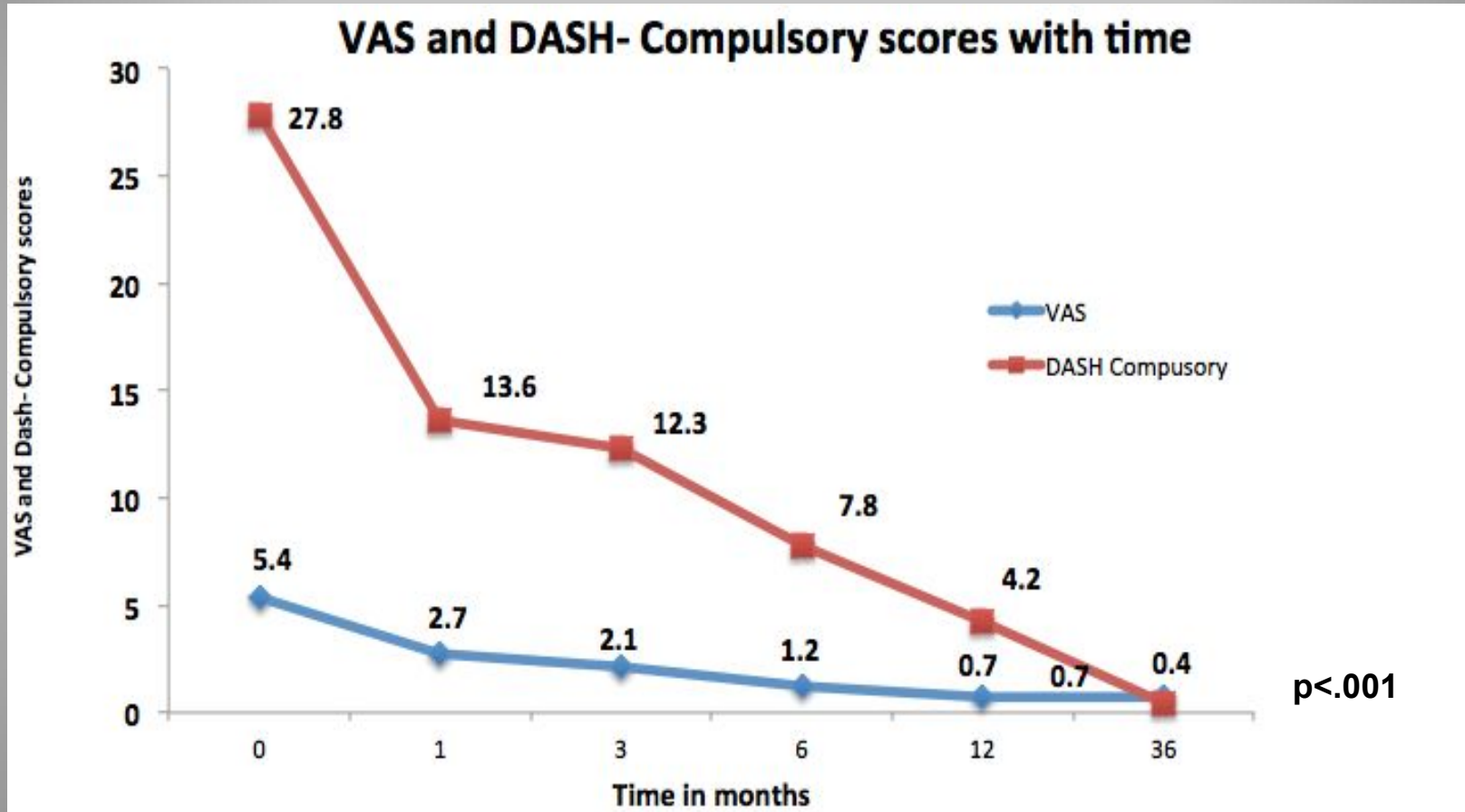
- **Technique**
 - **Can be in office**
 - **Local anesthetic**
 - **Approx 40 – 60 sec of energy**



Ultrasound As a Treatment for Tendinopathy

Effectiveness

Results: 3 years



20/20 patients satisfied
No device-related complications
No patient-related complications

Koh, et al; AJSp Med, 2013,
3 Year AJSM, 2015

Ultrasound As a Treatment for Tendinopathy

In summary, **TX1 / TX2/ TXHT**
Is a percutaneous treatment
technically similar to a cortisone injection
but with the efficacy of surgery
without the cost or morbidity

COMMON SPORTS INJURIES of the ELBOW

Ligaments

- MCL
- LCL



MCL Deficiency at the Elbow

QUESTIONS

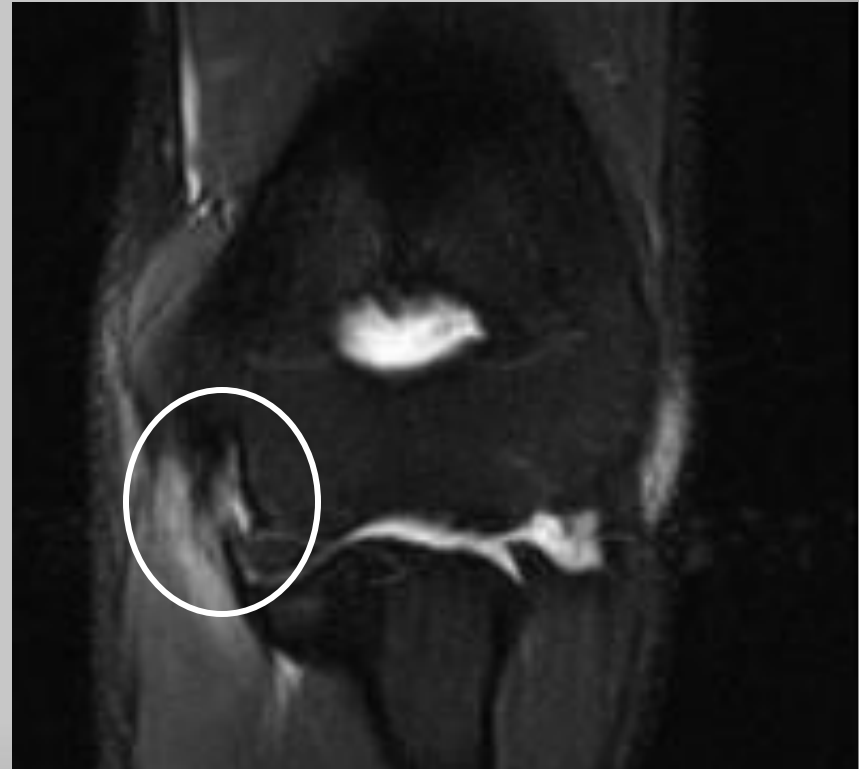
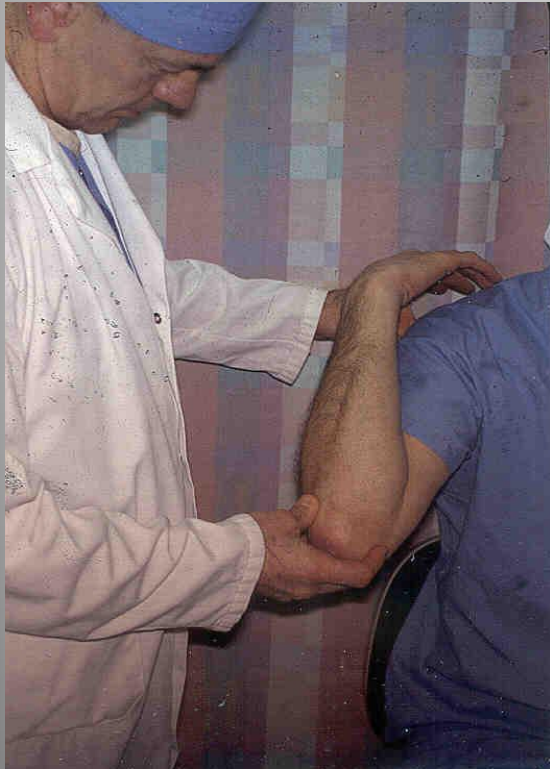
- Etiology? Spectrum
 - Single event; trauma
 - Repetitive; throwing



MCL Deficiency at the Elbow

QUESTIONS

- **Diagnosis – how hard is it**



MCL Deficiency at the Elbow

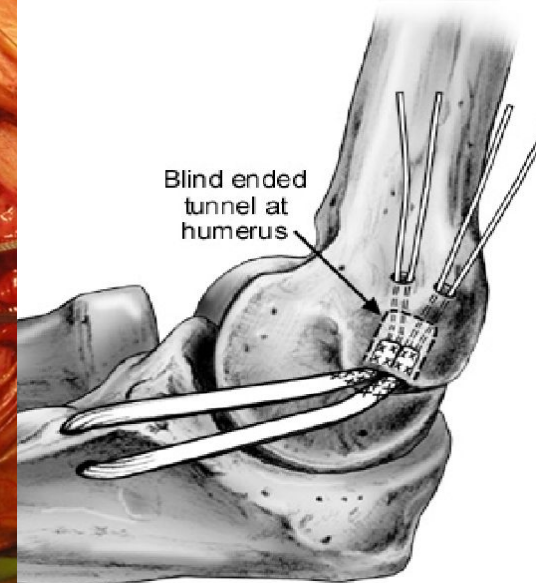
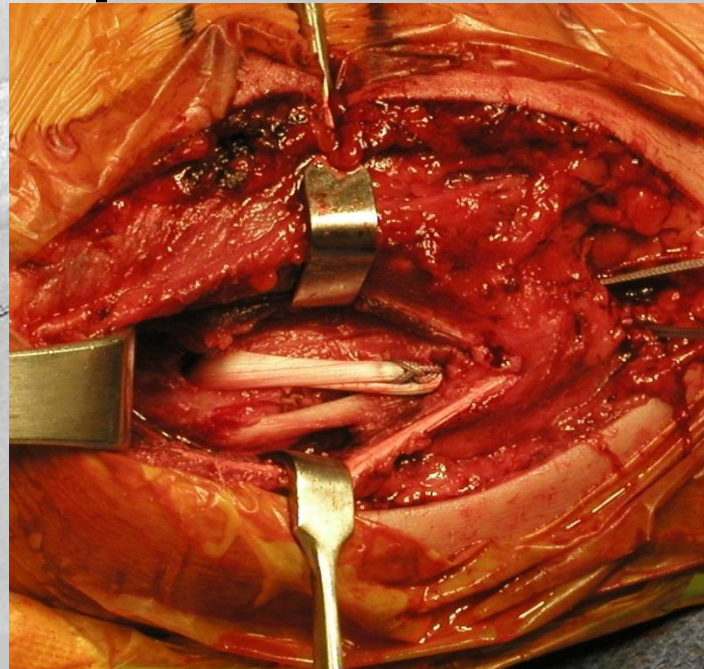
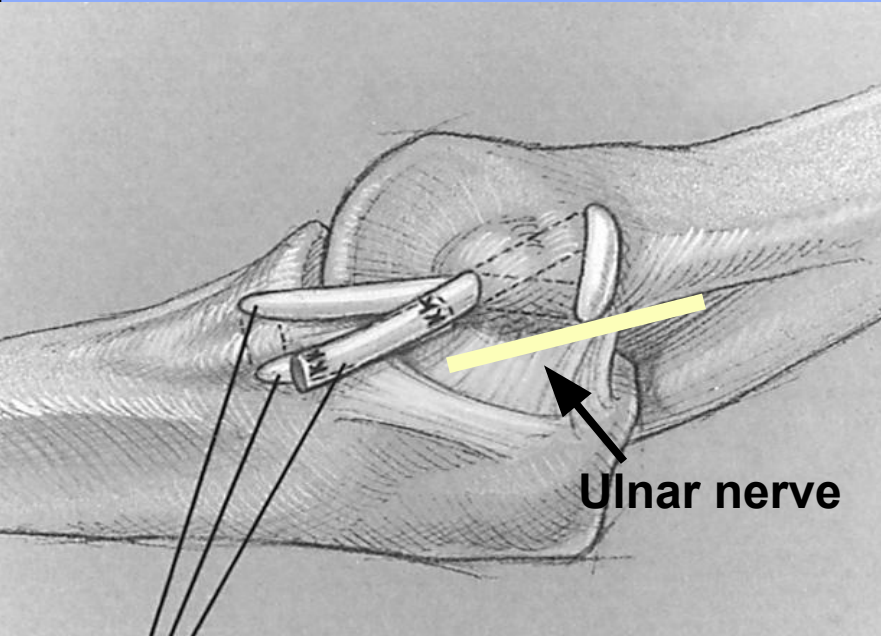
QUESTIONS



MCL Deficiency at the Elbow

Technique: **MUCL**

Docking concept preferred



MCL Deficiency at the Elbow

QUESTIONS

- When to operate
- How to fix it
- **Has the rehabilitation program changed?**
 - No, still 12 months (10 -12)
- **Expected outcome**
 - Athlete: 70%
 - Non – athlete: 90%

COMMON SPORTS INJURIES of the ELBOW

Articular

- **Plica**
- **Osteophyte**
- **Articular - OCD**

COMMON SPORTS INJURIES of the ELBOW

Plica

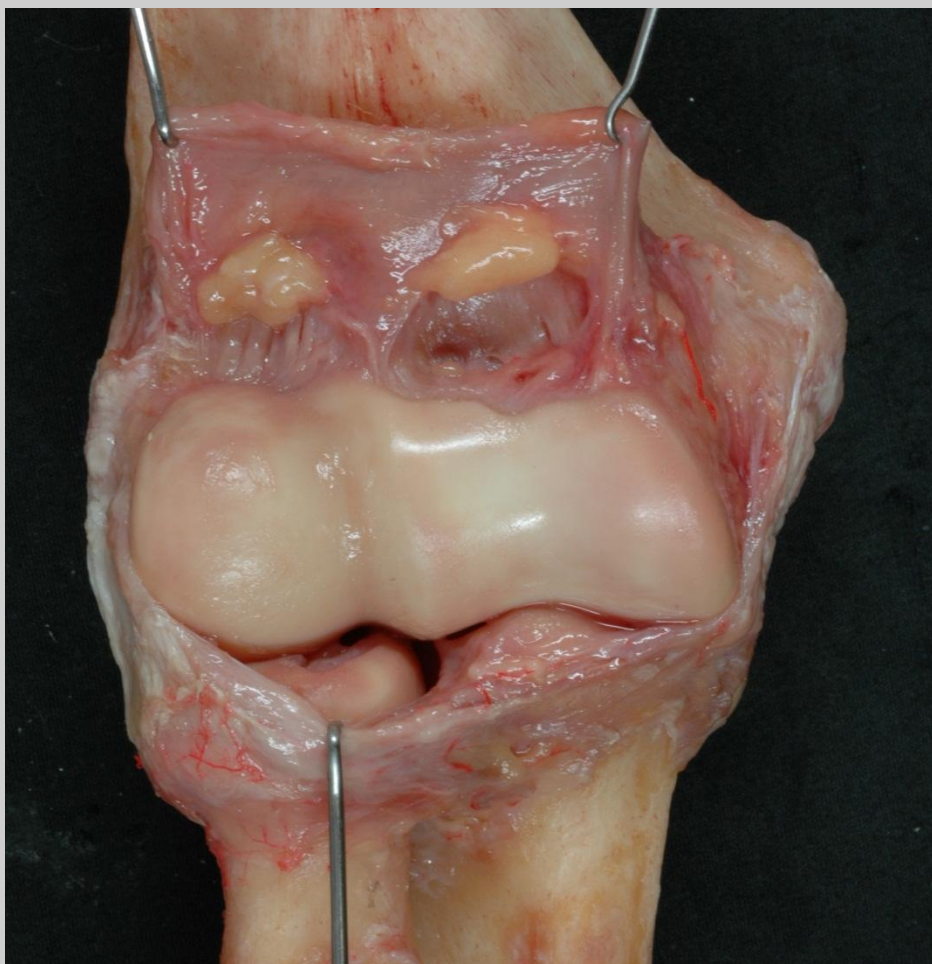
- **Snapping easy**
 - **Rolls over the head in flexion (60 deg)**
 - **Snaps back when going into extension**

BUT

- **May mimic epicondylitis !!!**

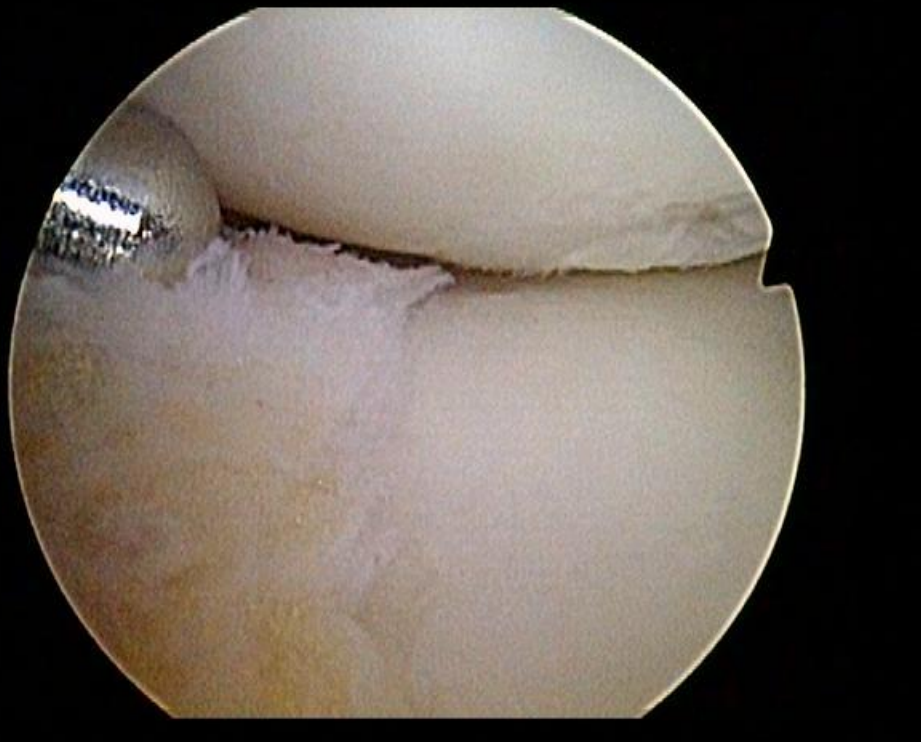
COMMON SPORTS INJURIES of the ELBOW

Plica



COMMON SPORTS INJURIES of the ELBOW

Plica



COMMON SPORTS INJURIES of the ELBOW

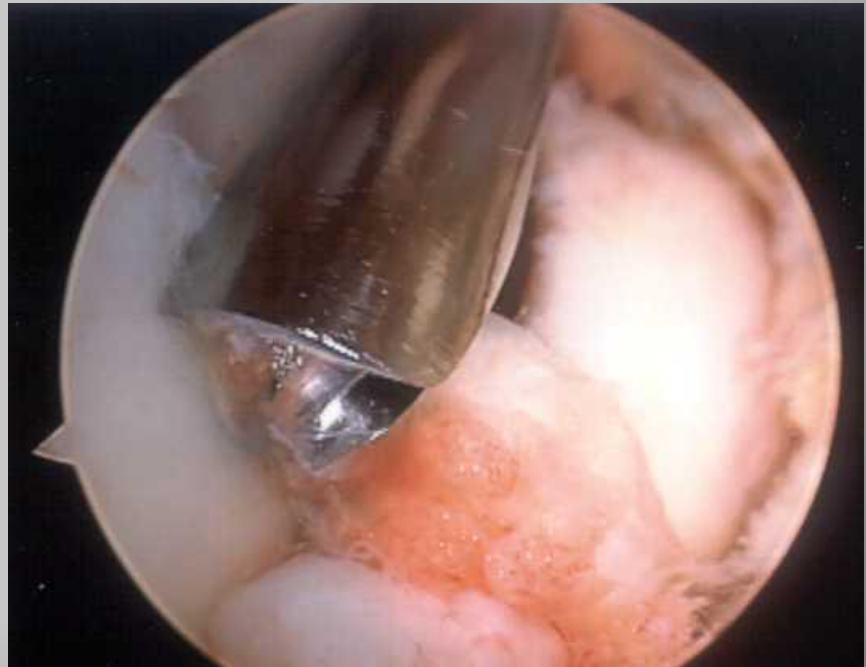
Articular

- Plica
- Osteophyte - impingement

COMMON SPORTS INJURIES of the ELBOW

Impingement

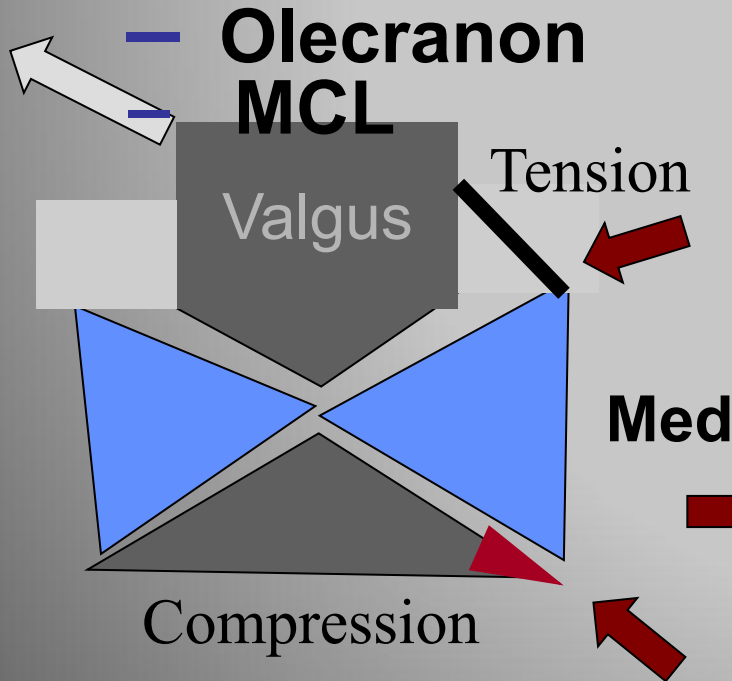
- Symptoms – extension pain
- How much should be removed



COMMON SPORTS INJURIES of the ELBOW

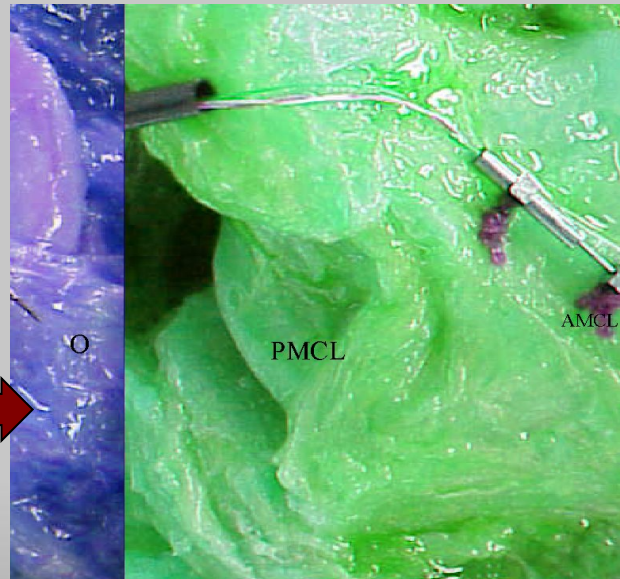
Rationale

- **Valgus**



Sensitivity

3 mm resection med corner increases lig strain!!



Kamineni, ElAttrache et al:
JBJS, Am, 2005

COMMON SPORTS INJURIES of the ELBOW

Articular

- Plica
- Osteophyte
- **Articular - OCD**

Osteochondritis of the Elbow

QUESTIONS

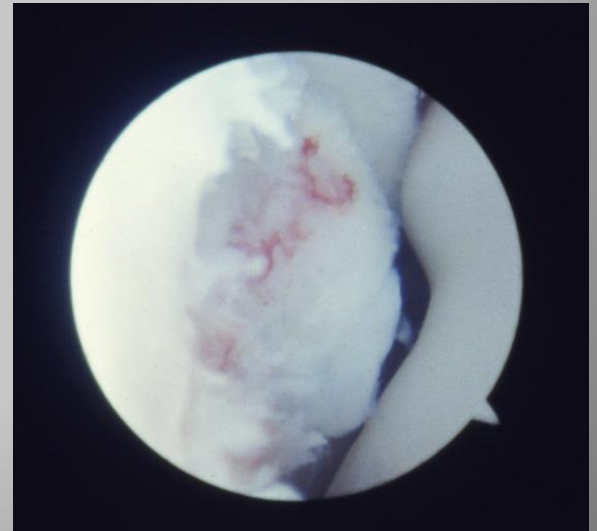
- **When to treat**
- **How to treat**
- **When can pt return to sport**



Osteochondritis of the Elbow

How to Rx

- Intact cartilage – drill
- Flap – sew back down
- Detached – graft/ micro fx



Osteochondritis of the Elbow

Beware!

- **Do NOT allow mechanical sx to persist**



Osteochondritis of the Elbow

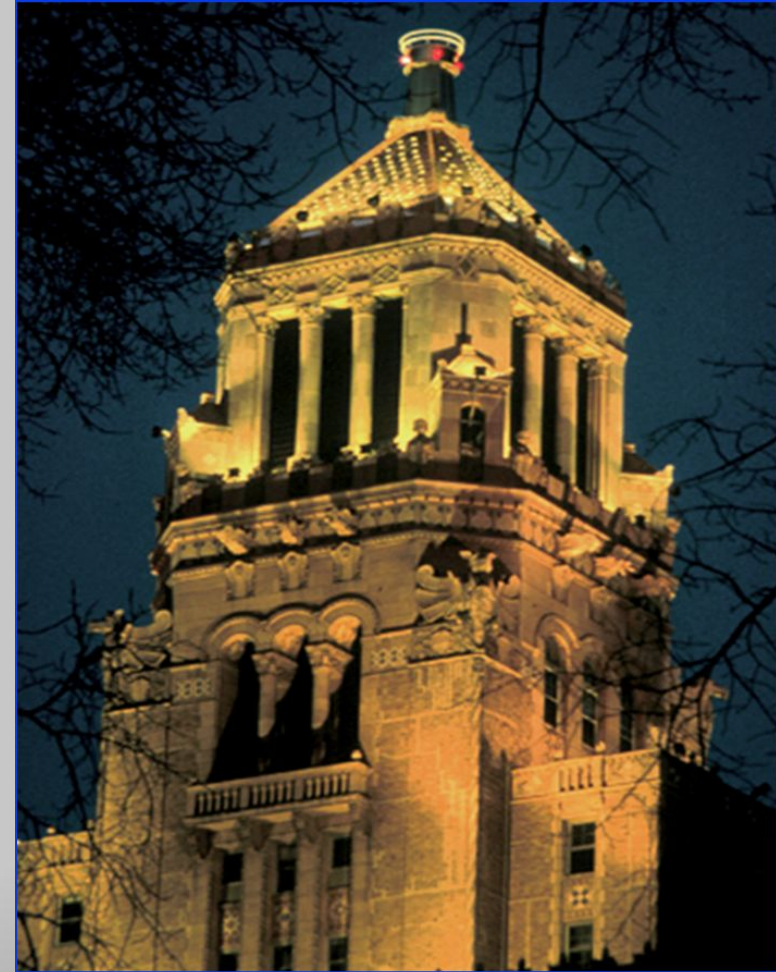
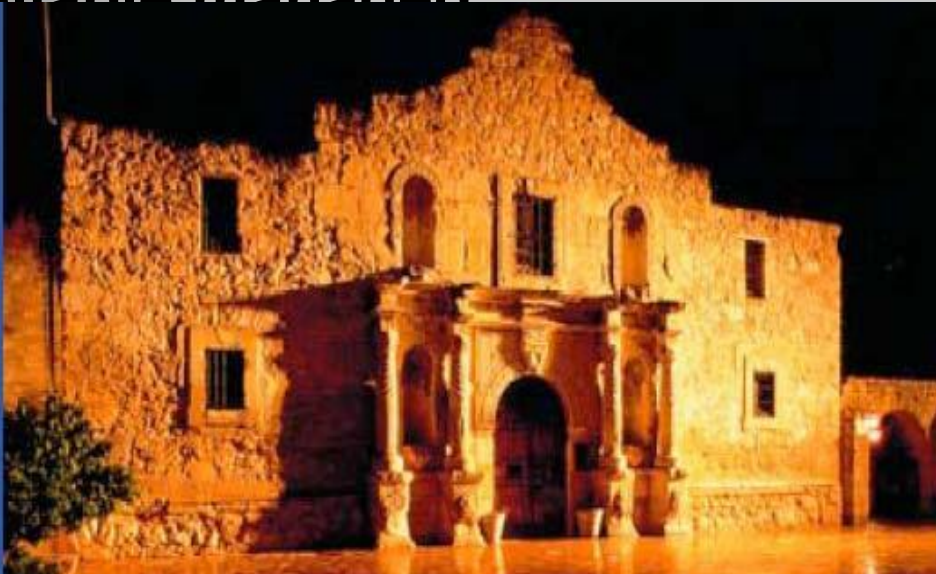
QUESTIONS

- When to treat
- How to treat
- **When can pt return to sport**
 - When healed
 - **When asymptomatic with progressive sports related activity**

COMMON SPORTS INJURIES of the ELBOW

Summary

- Spectrum of pathology
- Diagnosis – US, imaging
- Treatment – increasing reliability
- Today elbow injuries can be reliably managed



A sunset scene with a wooden fence in the foreground and trees silhouetted against a bright orange and yellow sky.

Thank You

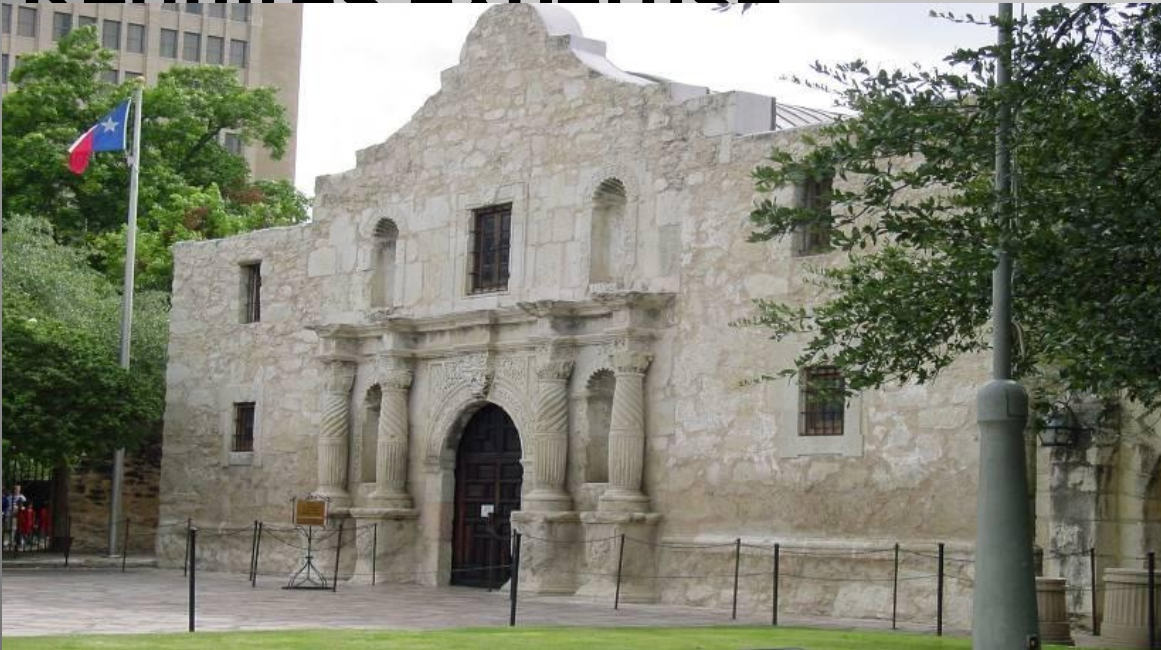
Elbow Bend Ranch, La Grange, Texas

COMMON SPORTS INJURIES of the ELBOW

Injuries to the Throwing Athlete

Summary

- Spectrum of pathology
- Reliable rx options
- Requires expertise



COMMON ELBOW INJURIES

In The Athlete

B F Morrey, MD

Professor of Orthopedics



Professor of Orthopedics
Mayo Clinic



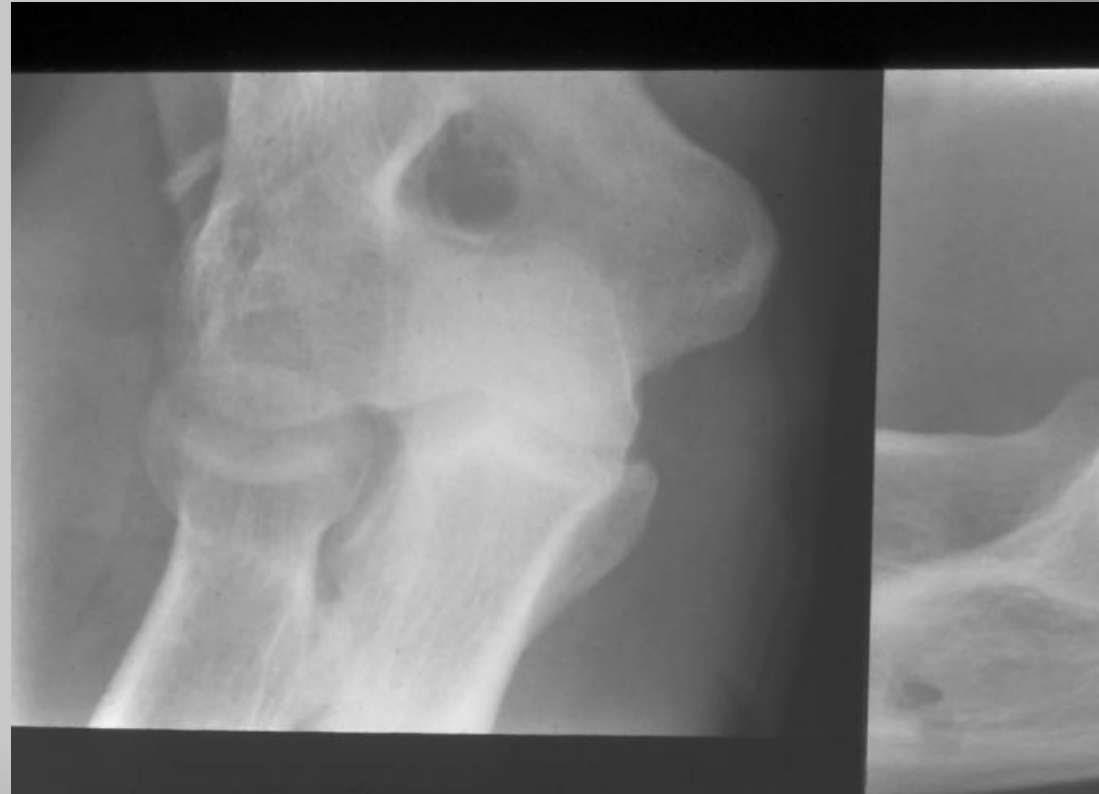
Thank You



ARTHROSCOPY of the ELBOW

Osteochondritis Dissecans

SUMMARY

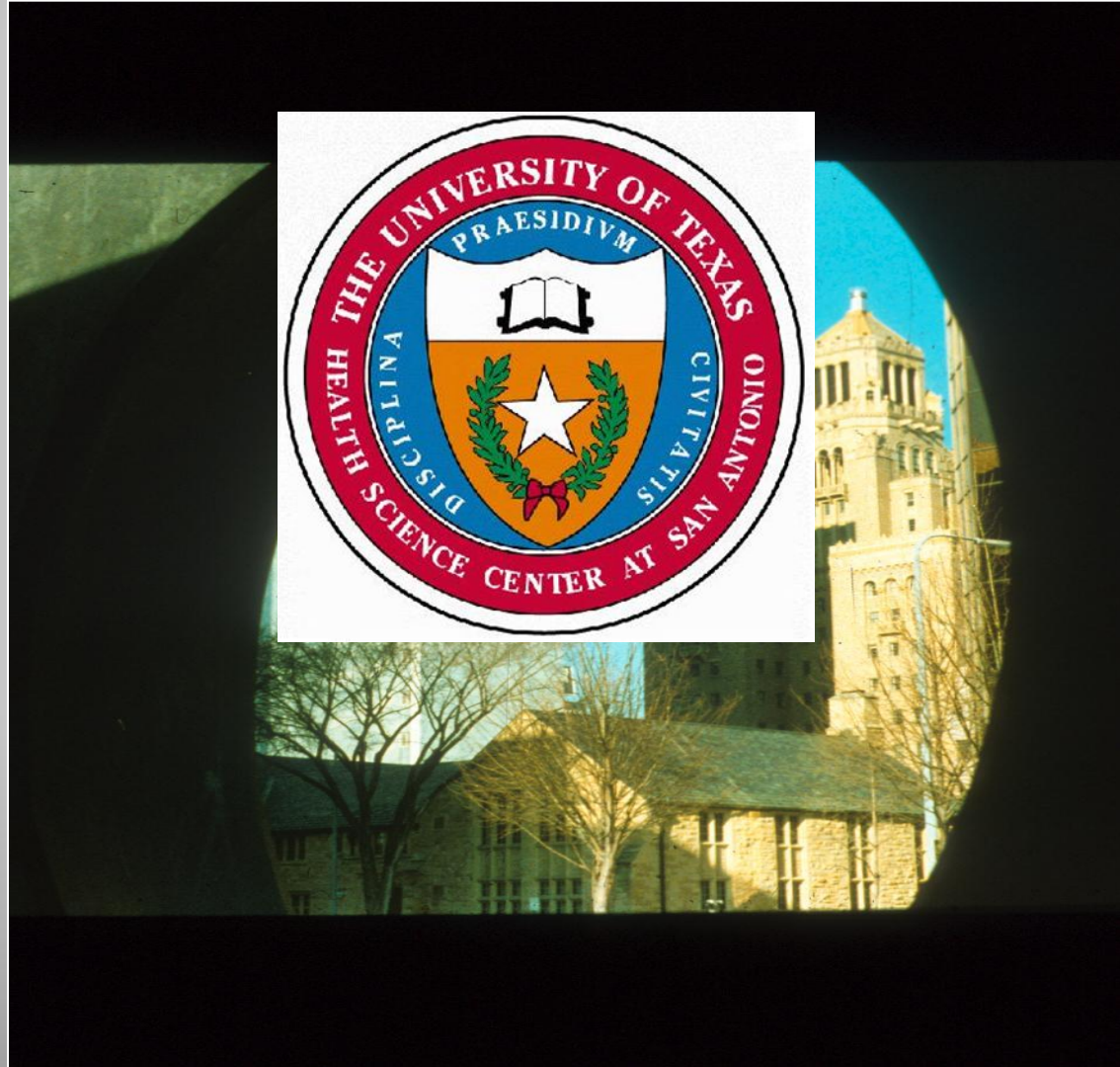


Collateral Ligaments and Elbow Instability

Considerations

- **Repair vs reconstruction:**
 - If tissue adequate – repair**
 - Use #5 non-absorbable suture**

THANK YOU



ARTHROSCOPY of the ELBOW

Osteochondritis Dissecans

TREATMENT

- **Type I: stable = Rest**
- **Type II -**
 - **Loose body, smooth bed: excise**
 - **Detached, rough bed: debride**



TENDONOPATHY at the ELBOW

Rationale for this Treatment/Study

Ultra sound Dx/Rx

- **Accurate diagnosis, localization**
 - Improves with experience
- **Intervention - Indications**
 - Alternate to steroid injection
 - Alternate to surgical intervention
- **Unique attribute**
 - **Major advance – if safe and cost effective**



Epicondylitis: Where are we, really?

Tx1

- **Results – cost effectiveness ?**
 - **Worker's compensation analysis**
 - **Tx1 vs Surgery**
 - **Earlier return to work**
 - **Less expensive than surgery**
 - **Saving for definitive surgery ~ \$16,000**