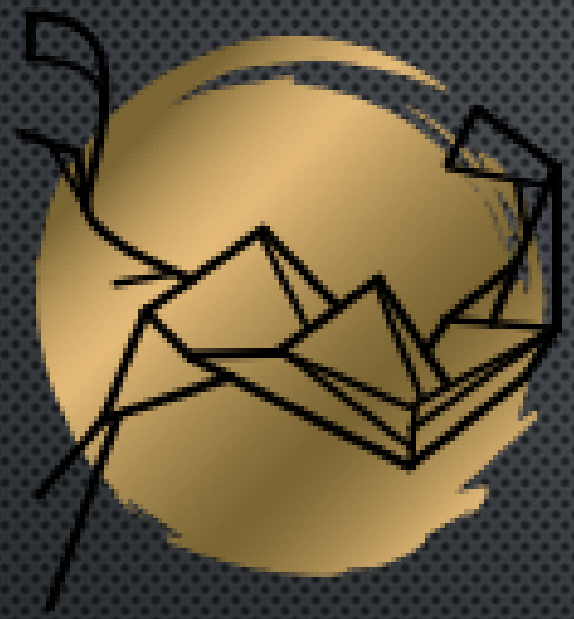


Southwest Shoulder & Orthopedics

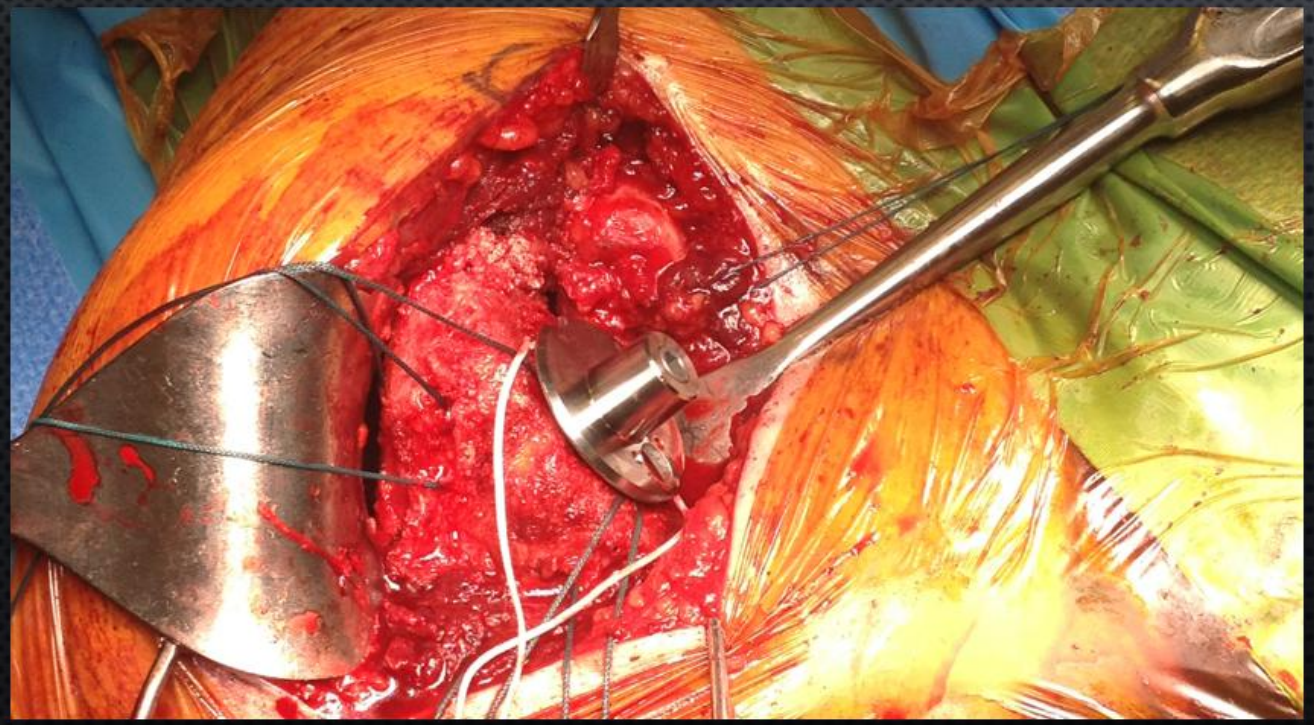
Kelly Fitzpatrick, DO

Orthopaedic Surgeon

Shoulder & Elbow Specialist

ABOUT ME

DALLAS, TX



JOURNEY


WELCOME TO
FORT CAMPBELL, KY
Best Soldier & Family Experience
U.S.ARMY
AIRBORNE


12 STRONG
THE DECLASSIFIED TRUE STORY OF THE HORSE SOLDIERS
OFFICIAL TRAILER

We Need the Sun

SCHOLASTIC

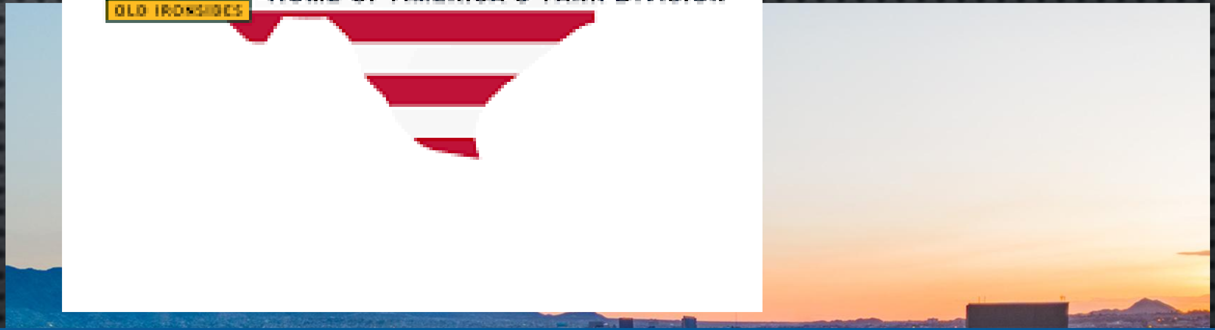
South lder

& s

FORT BLISS, TX

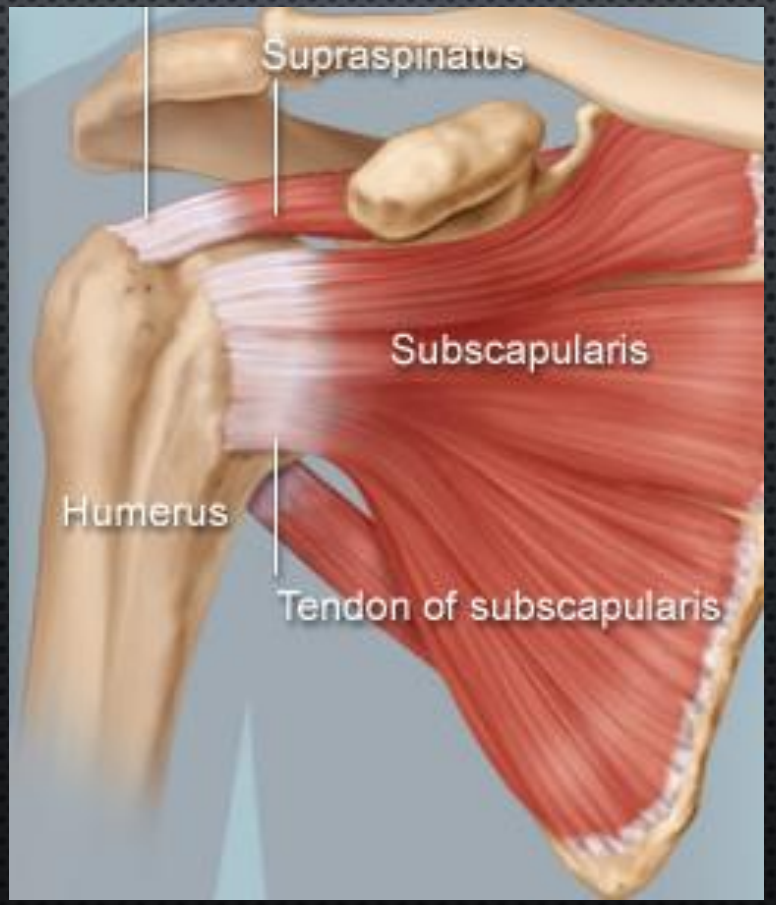
-HOME OF AMERICA'S TANK DIVISION-

OLD IRONSIDES

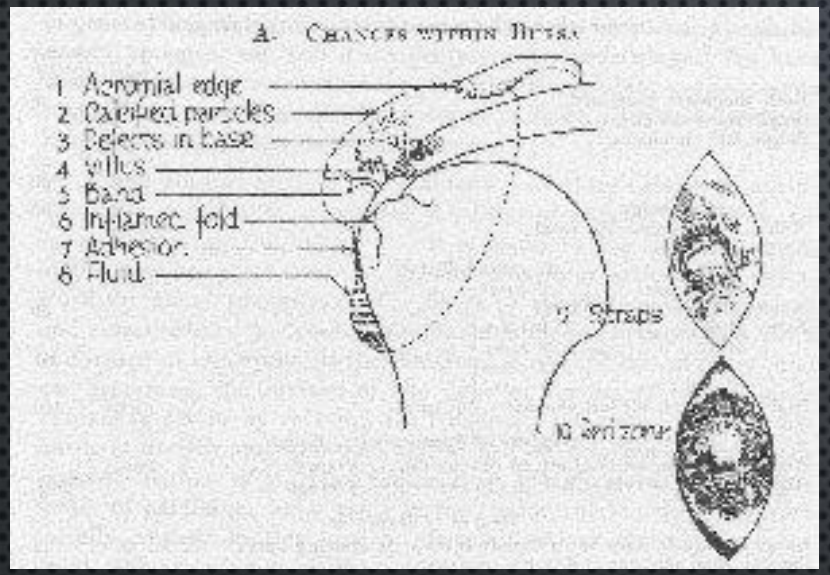


TREATMENT OF ROTATOR CUFF TEARS

PHILOSOPHY BASED ON EVIDENCE & THEORY

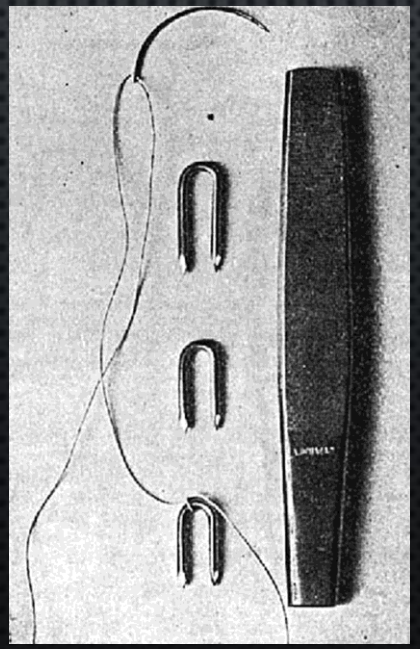


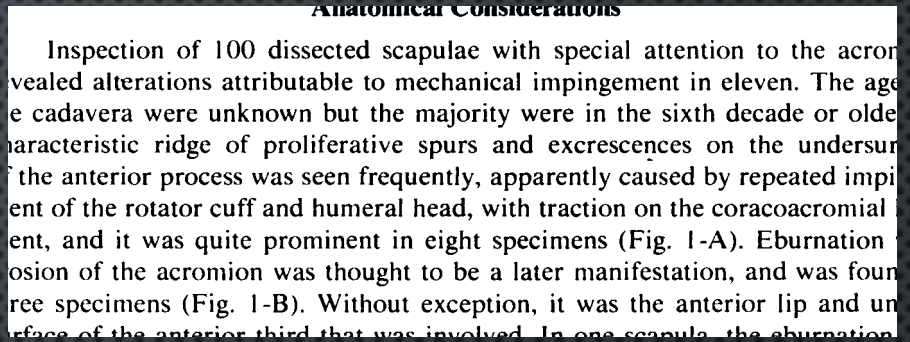
HISTORY



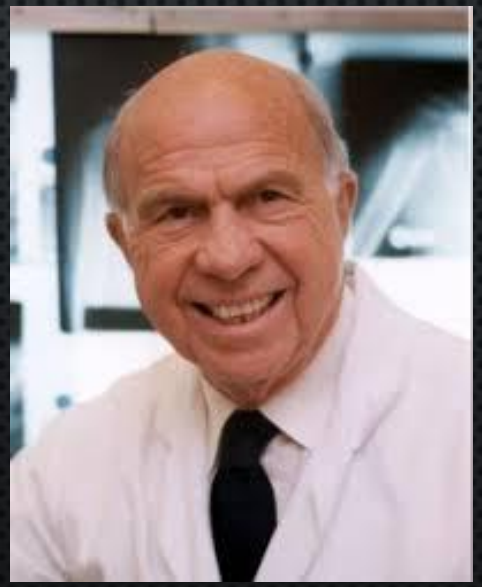
Codman – "The Shoulder" 1934

Perthes 1906



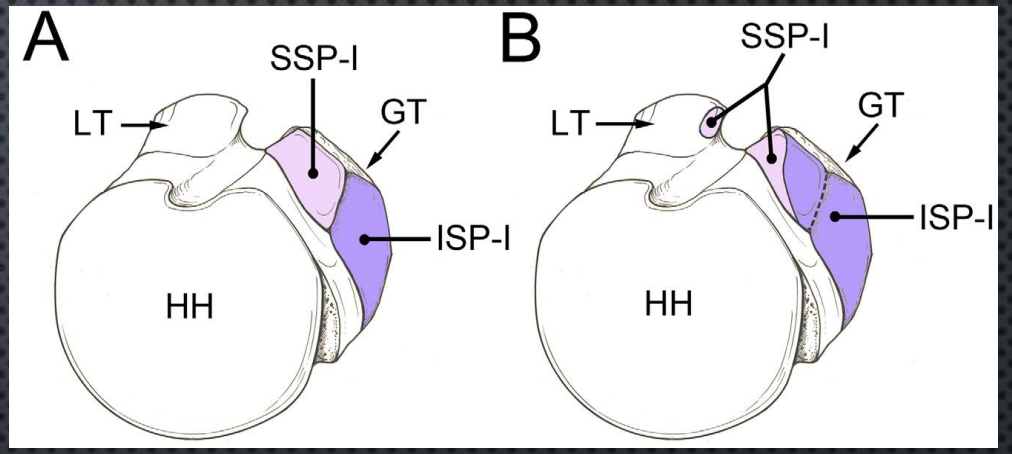


Neer 1972

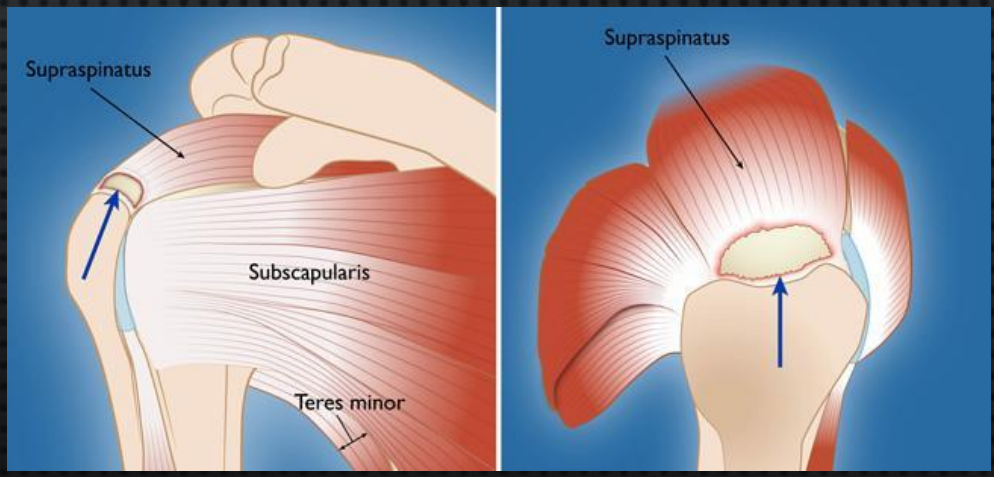


WHAT IS THE ROTATOR CUFF?

- CONFLUENCE OF 4 TENDONS FROM 4 MUSCLES
  - SUPRASPINATUS
  - INFRASPINATUS
  - TERES MINOR
  - SUBSCAPULARIS



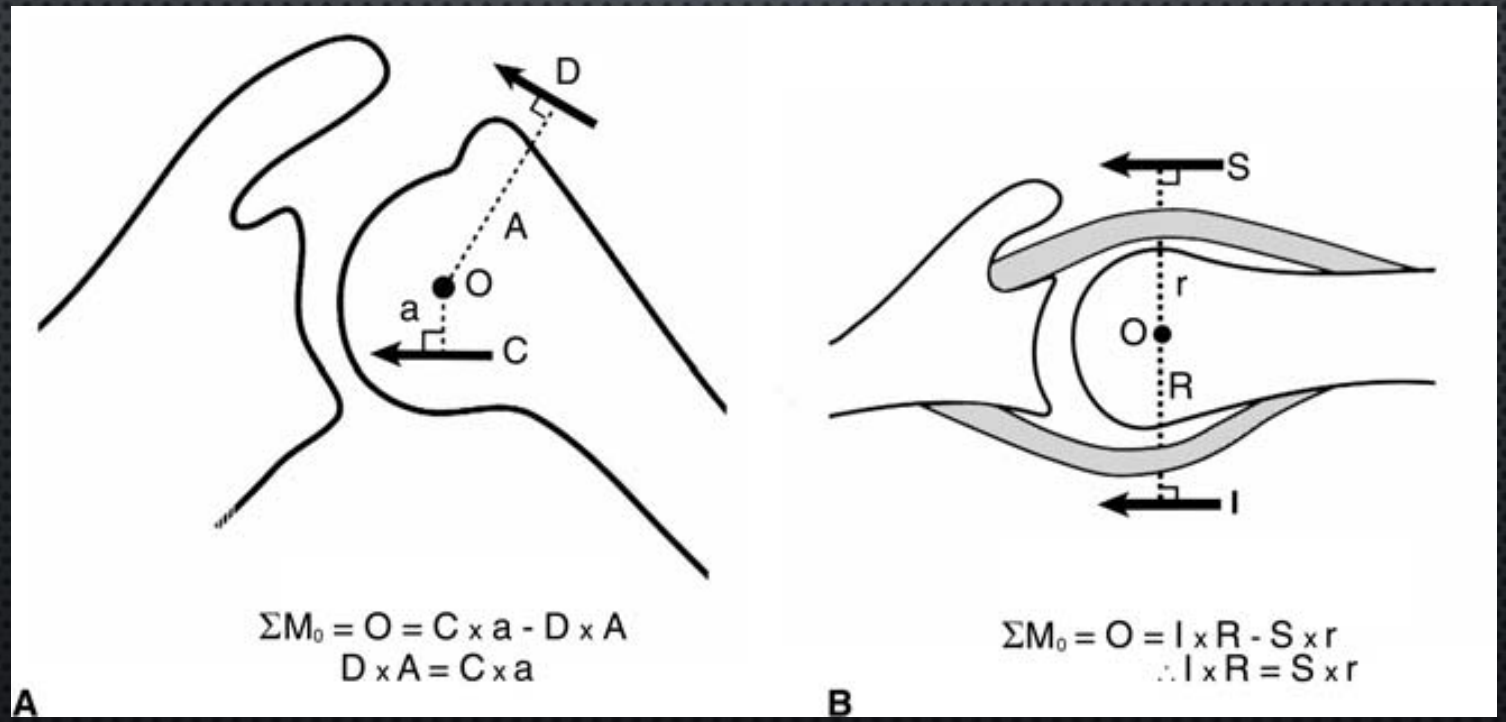
- **THESE TENDONS WRAP AROUND HUMERAL HEAD AND SERVE SEVERAL FUNCTIONS**
  1) DYNAMIC STABILIZER OF G-H JOINT (MAIN FUNCTION)
  2) FORCE COUPLE



ROTATOR CUFF BIOMECHANICS

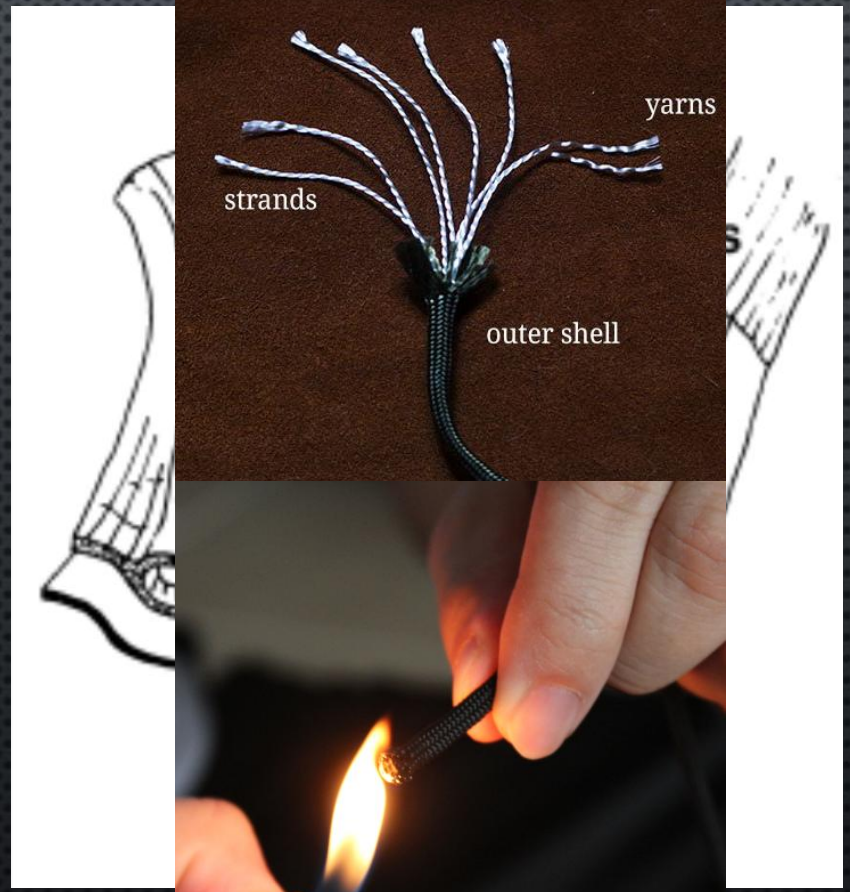
Force Couple:

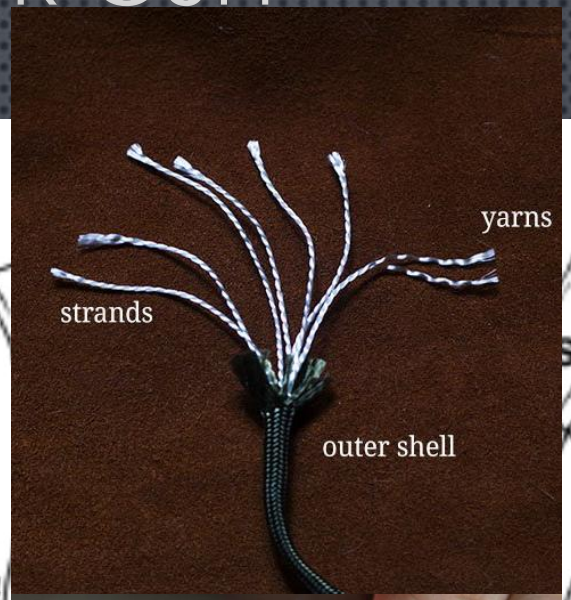
Two forces which act in opposite directions on an object (not through the same point) which results in a rotation effect.

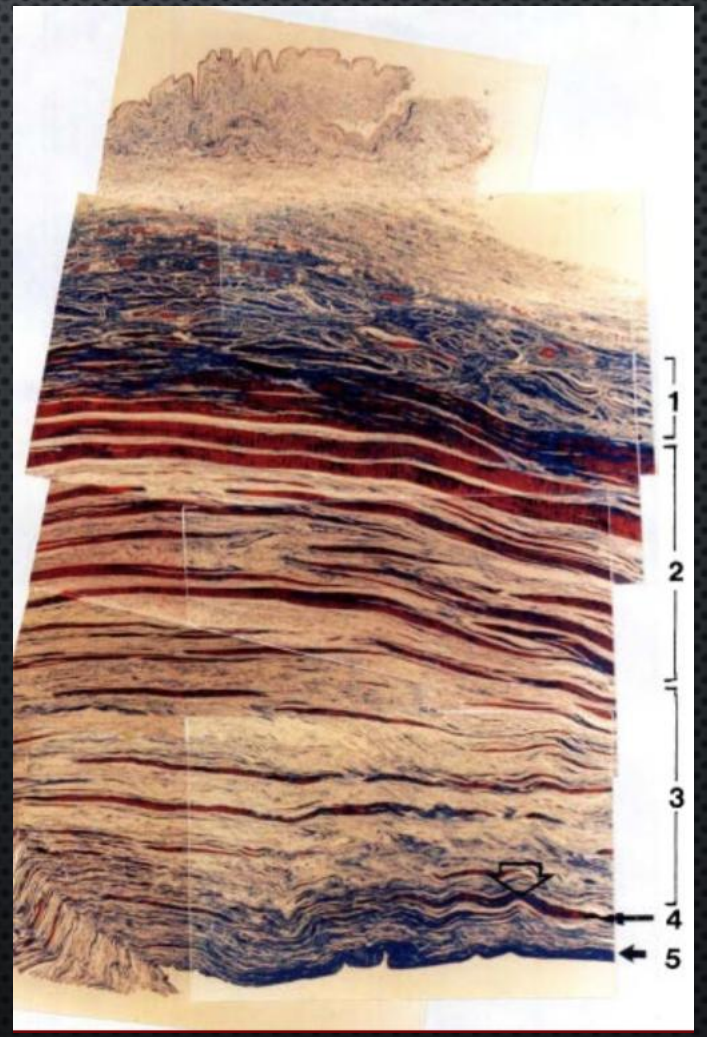


LAYERS OF THE ROTATOR CUFF

- LAYER 1
  - CORACOHUMERAL LIGAMENT
- LAYER 2
  - TENDON FIBERS; 3-4MM
- LAYER 3
  - 45 DEG TENDON FIBERS; 3MM
- LAYER 4
  - THIN CONNECTIVE TISSUE
- LAYER 5
  - CAPSULAR LAYER







INCIDENCE OF ROTATOR CUFF TEARS

Abnormal Findings on Magnetic Resonance Images of Asymptomatic Shoulders*

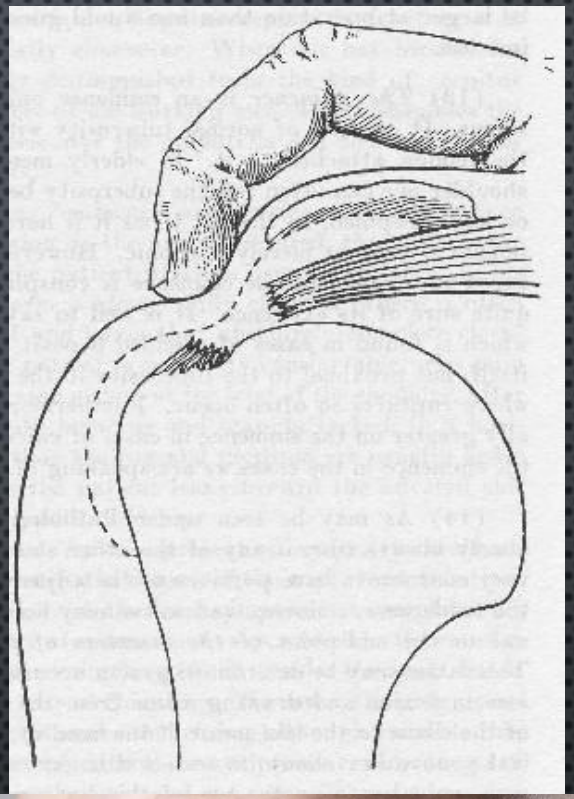
BY JERRY S. SHER, M.D.†, JOHN W. URIBE, M.D.†, ALEJANDRO POSADA, M.D.†, BRIAN J. MURPHY, M.D.‡, AND MICHAEL B. ZLATKIN, M.D.§, MIAMI, FLORIDA

Investigation performed at the Division of Sports Medicine, Department of Orthopaedics and Rehabilitation, University of Miami, Miami

- PATIENTS > 60 YEARS OF AGE
  - 54% WITH ROTATOR CUFF TEAR
    - 28% FULL THICKNESS
    - 26% PARTIAL THICKNESS
- PATIENTS 40-60 YEARS OF AGE
  - 28% WITH ROTATOR CUFF TEAR
    - 4% FULL THICKNESS
    - 24% PARTIAL THICKNESS
- < 40 YEARS OF AGE
  - 0% FULL THICKNESS
  - 4% PARTIAL THICKNESS

PRESENTATION

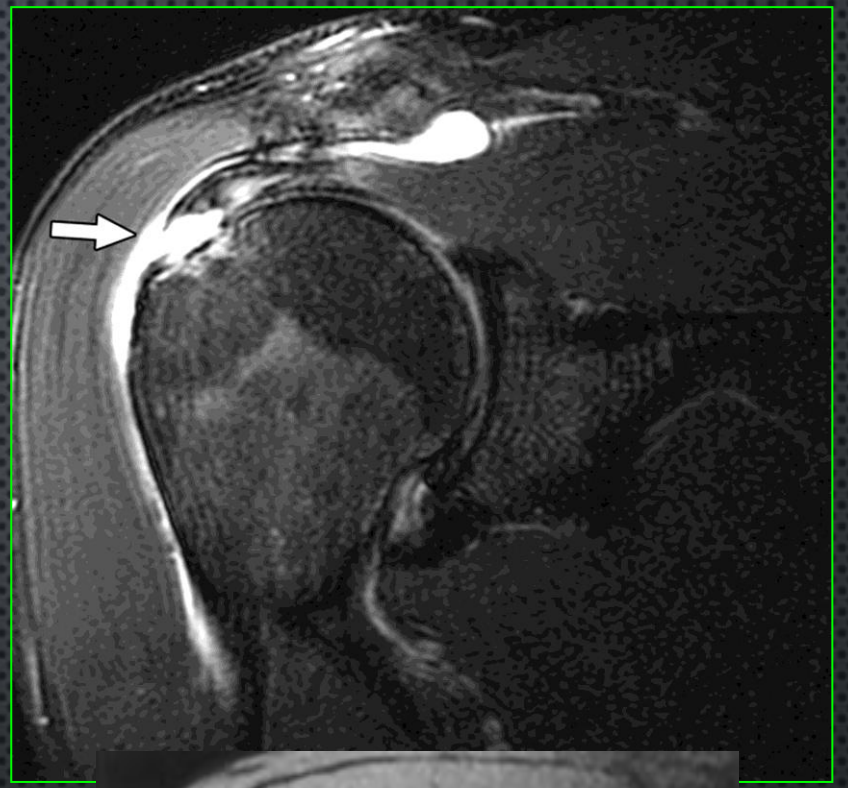
- Pain
- Weakness
- Subacromial Bursa

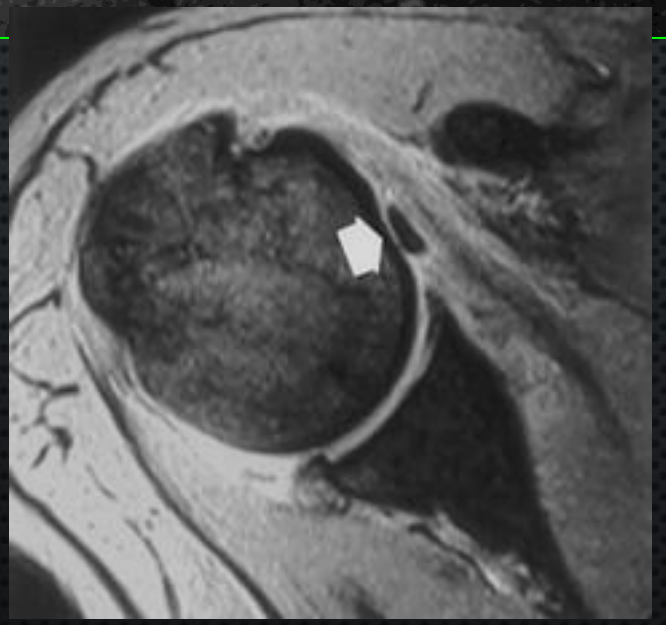


- Traumatic
- Degenerative

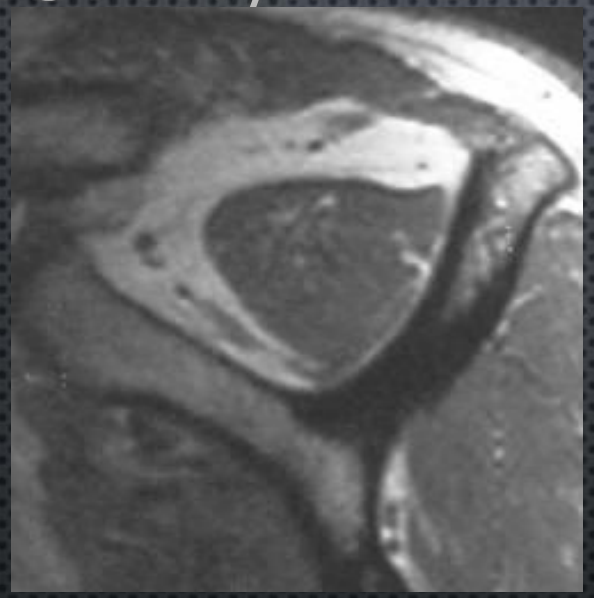
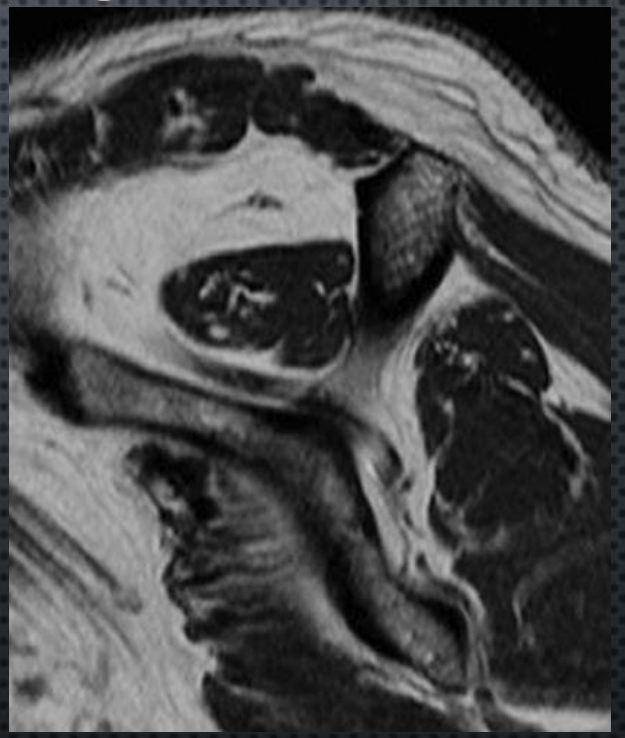
MRI FINDINGS

- Most reliable study





FATTY ATROPHY/INFILTRATION

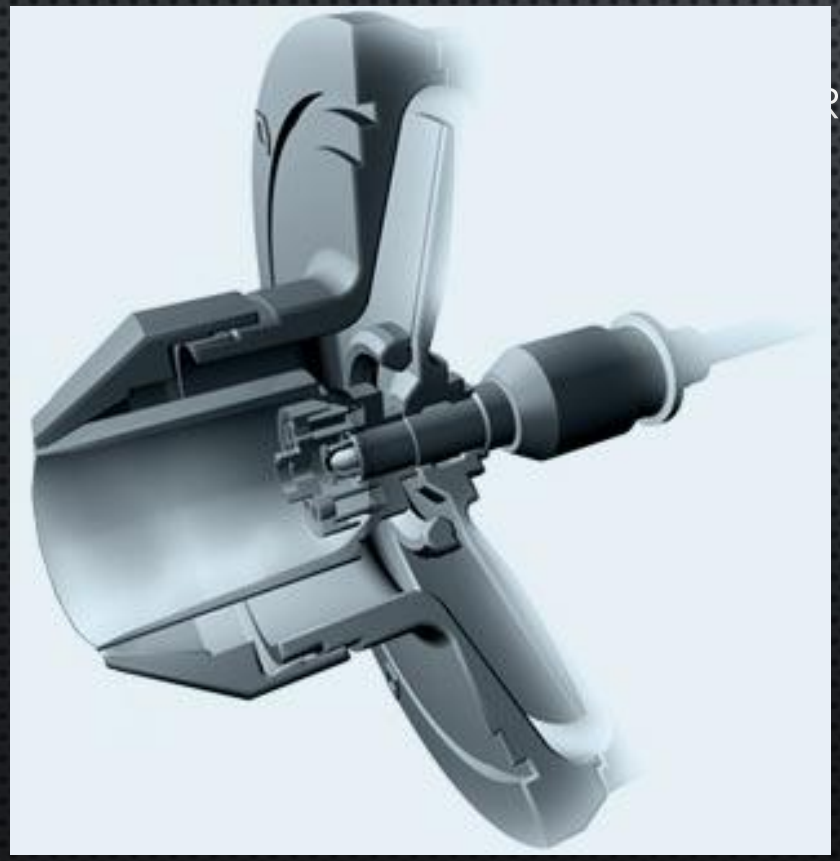





FACTORS AFFECTING HEALING OF THE CUFF

- DIABETES
- HYPERCHOLESTEROLEMIA
- SMOKING
- METABOLIC/OTHER DISORDERS

- ROLE PLAYERS IN SURGICAL DECISIONS

“MY ROTARY CUP IS TORN….FIX IT DOC!”



RS?

NONOPERATIVE MANAGEMENT

J Shoulder Elbow Surg (2013) 22, 1371-1379

ELSEVIER

Journal of Shoulder and Elbow Surgery

www.elsevier.com/locate/ymse

Effectiveness of physical therapy in treating atraumatic full-thickness rotator cuff tears: a multicenter prospective cohort study

John E. Kuhn, MD, MS*, Warren R. Dunn, MD, MPH, Rosemary Sanders, BA, Qi An, MS, Keith M. Baumgarten, MD, Julie Y. Bishop, MD, Robert H. Brophy, MD, James L. Carey, MD, MPH, Brian G. Holloway, MD, Grant L. Jones, MD, C. Benjamin Ma, MD, Robert G. Marx, MD, MS, Eric C. McCarty, MD, Sourav K. Poddar, MD, Matthew V. Smith, MD, Edwin E. Spencer, MD, Armando F. Vidal, MD, Brian R. Wolf, MD, MS, Rick W. Wright, MD, for the MOON Shoulder Group

Results: The cohort consists of 452 patients. Patient-reported outcomes improved significantly at 6 and 12 weeks. Patients elected to undergo surgery less than 25% of the time. Patients who decided to have surgery generally did so between 6 and 12 weeks, and few had surgery between 3 and 24 months.
Conclusion: Nonoperative treatment using this physical therapy protocol is effective for treating atraumatic full-thickness rotator cuff tears in approximately 75% of patients followed up for 2 years.

Clinical Practice Guidelines

Explore AAOS Published Clinical Practice Guidelines

Full Thickness Tears and Asymptomatic Patients

1. In the absence of reliable evidence, it is the opinion of the work group that surgery not be performed for asymptomatic, full thickness rotator cuff tears.

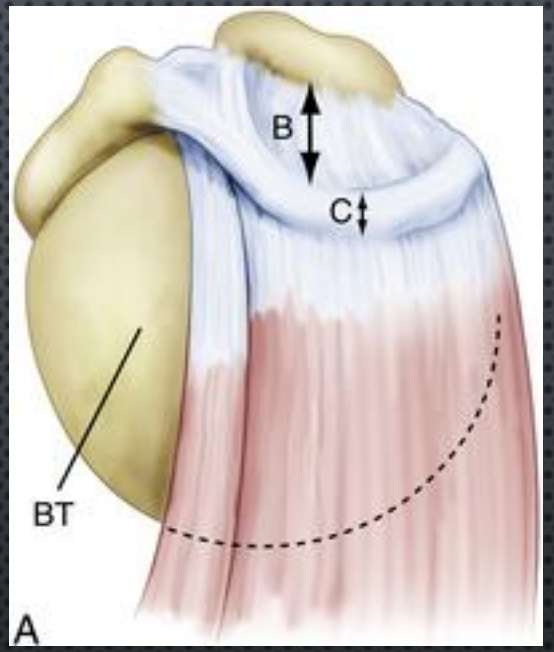
   Strength of Recommendation: Consensus ***Based on expert opinion, no clear evidence***

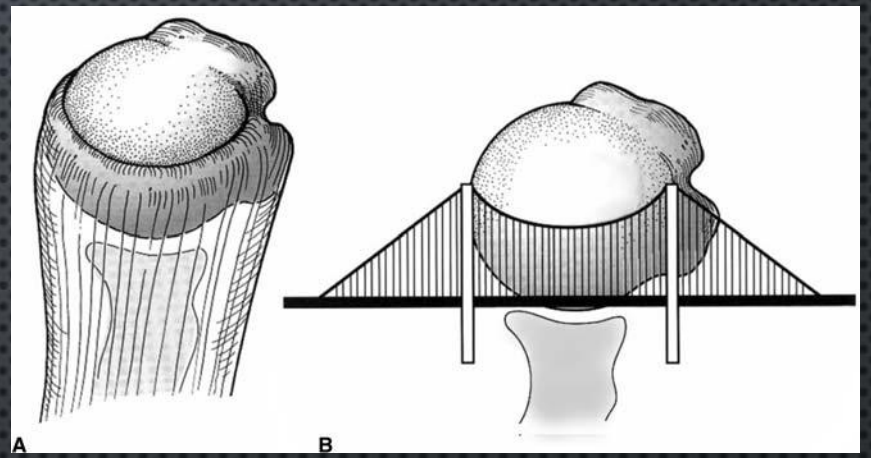
Implications: Practitioners should be flexible in deciding whether to follow a recommendation classified as **Consensus,** although they may give it preference over alternatives. Patient preference should have a substantial influencing role.

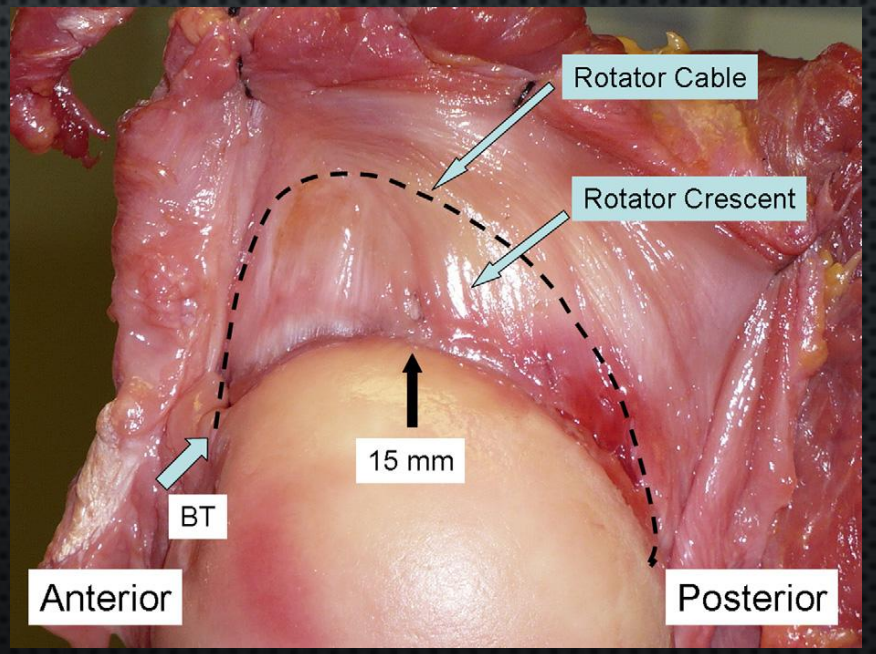
I FIX TO PREVENT TEAR PROGRESSION

IN THE SYMPTOMATIC PATIENT

- PATHOMECHANICS
  - THERE IS A POINT OF NO RETURN IN WHICH LOSS OF CORONAL AND AXIAL PLANE FORCE COUPLES NO LONGER CAN KEEP THE HEAD CENTERED IN THE GLENOID.
    - BURKHART "MINIMAL SURFACE AREA" 1993
    - HANSEN ET AL JBJS 2008







Does a Critical Rotator Cuff Tear Stage Exist?

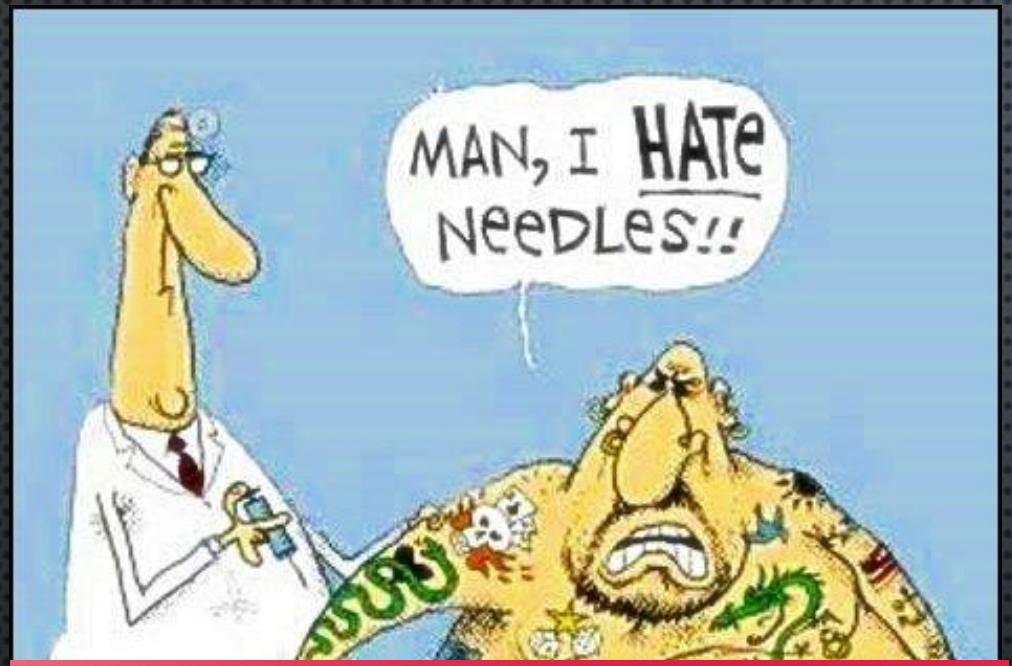
A Biomechanical Study of Rotator Cuff Tear Progression in Human Cadaver Shoulders

Joo Han Oh, MD, PhD, Bong Jae Jun, PhD, Michelle H. McGarry, MS, and Thay Q. Lee, PhD

Investigation performed at the Orthopaedic Biomechanics Laboratory, VA Long Beach Healthcare System, Long Beach, and the University of California, Irvine, California

Progression to infraspinatus has detrimental change to humeral head kinematics

CAN I GET SHOT INSTEAD?



Clinical Practice Guidelines

Explore AAOS Published Clinical Practice Guidelines

Rotator Cuff Tears and Corticosteroid Injections

3. b. We cannot recommend for or against subacromial injections for patients with rotator cuff tears.

Strength of Recommendation: Inconclusive

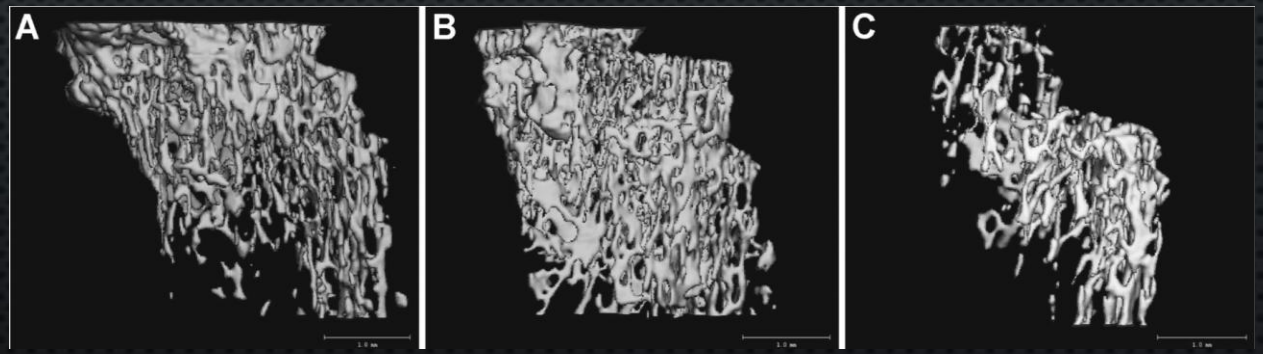
AJSM Vol. 44, No. 1, 2016

Detrimental Effect of Repeated and Single Subacromial Corticosteroid Injections on the Intact and Injured Rotator Cuff

A Biomechanical and Imaging Study in Rats

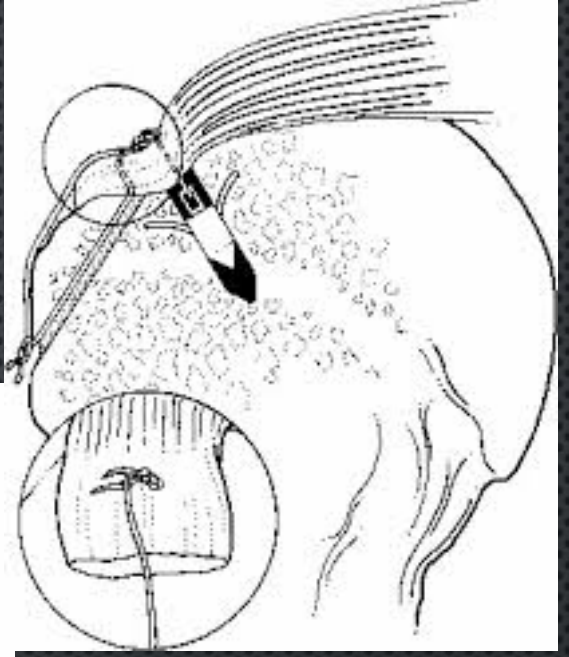
Eran Maman,* MD, Chaim Yehuda,* MD, Tamir Pritsch,* MD, Guy Morag,* MD, Tamar Brosh,† PhD, Zachary Sharfman,* MS, and Oleg Dolkart,*‡ PhD
Investigation performed at Shoulder Unit, Division of Orthopaedic Surgery, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel

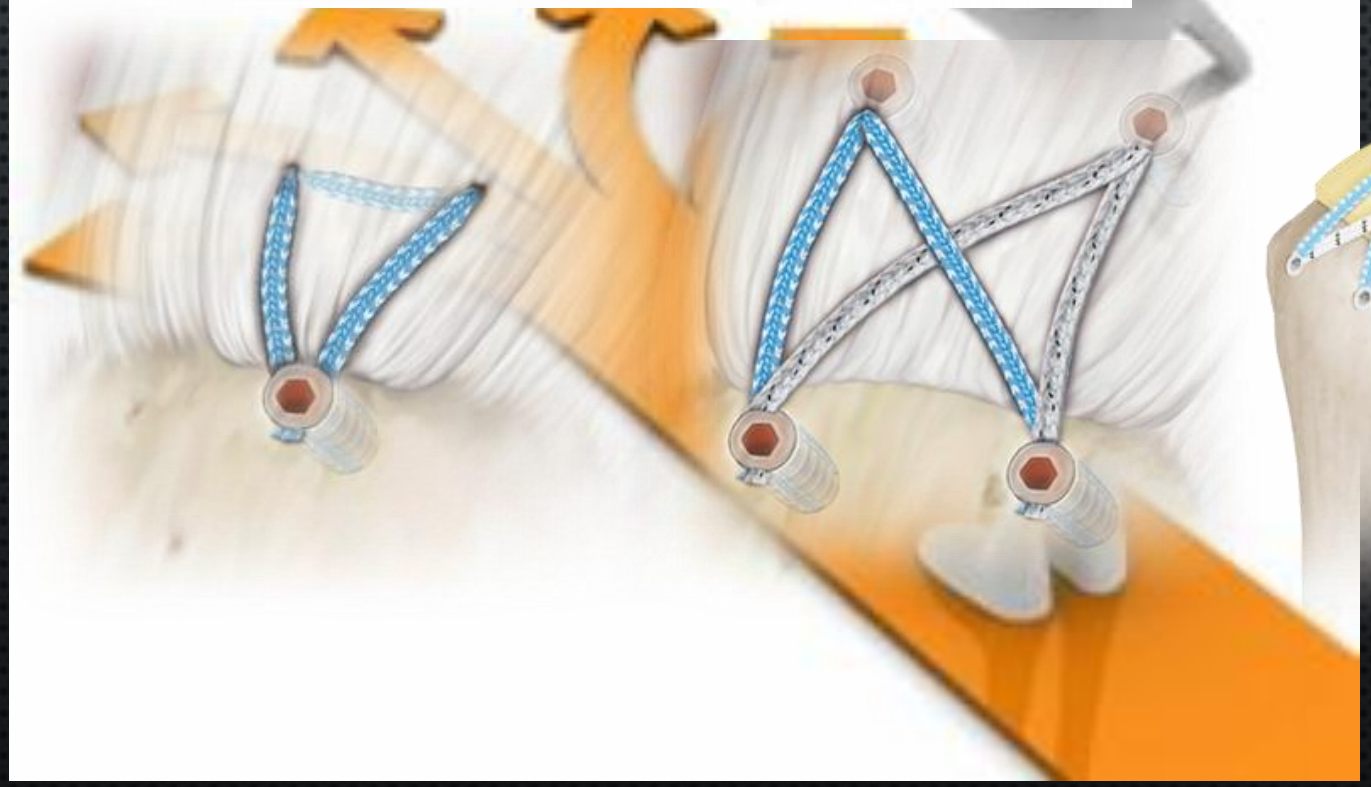
Conclusion: The study results clearly showed that repeated doses of corticosteroids significantly weaken rat RC and negatively affect bone quality in addition to possibly causing deterioration of the osteotendinous junction. However, data retrieved from animals must be scrupulously analyzed before extrapolation to humans. As such, the potential benefits and harms of subacromial corticosteroid treatment must be considered before administration.

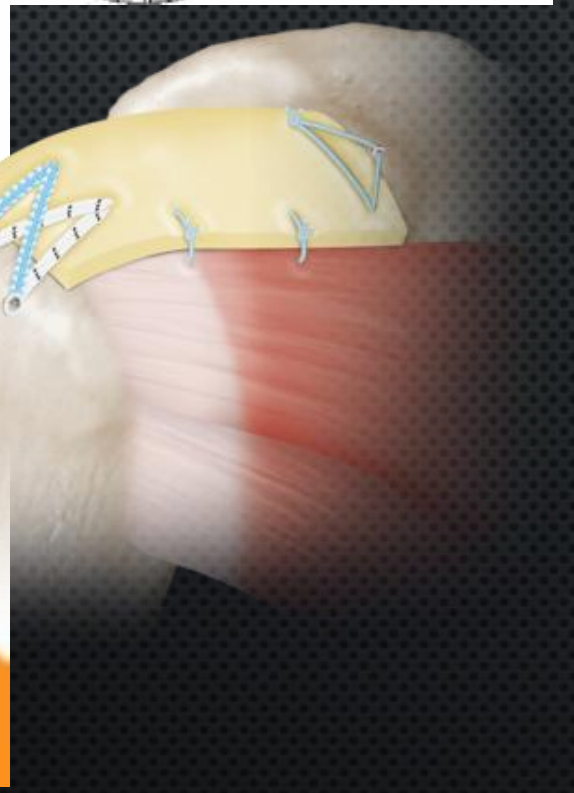


control 1 injection 3 injections

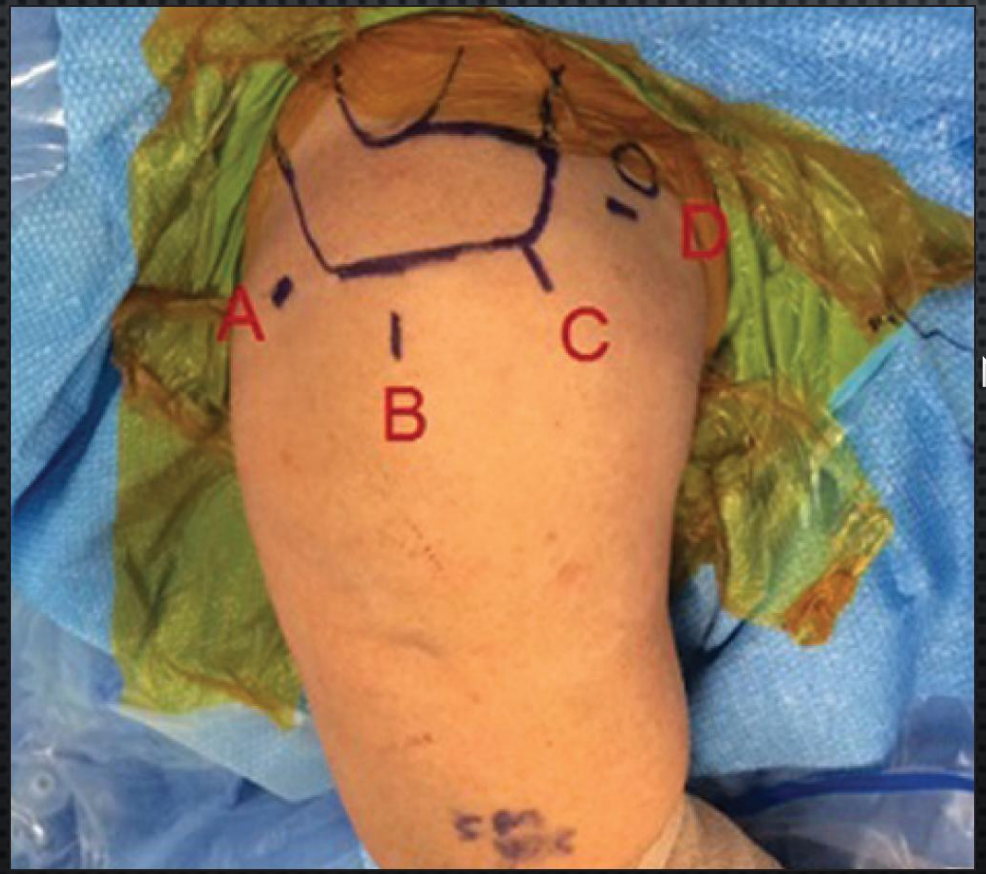
LET'S FIX IT!



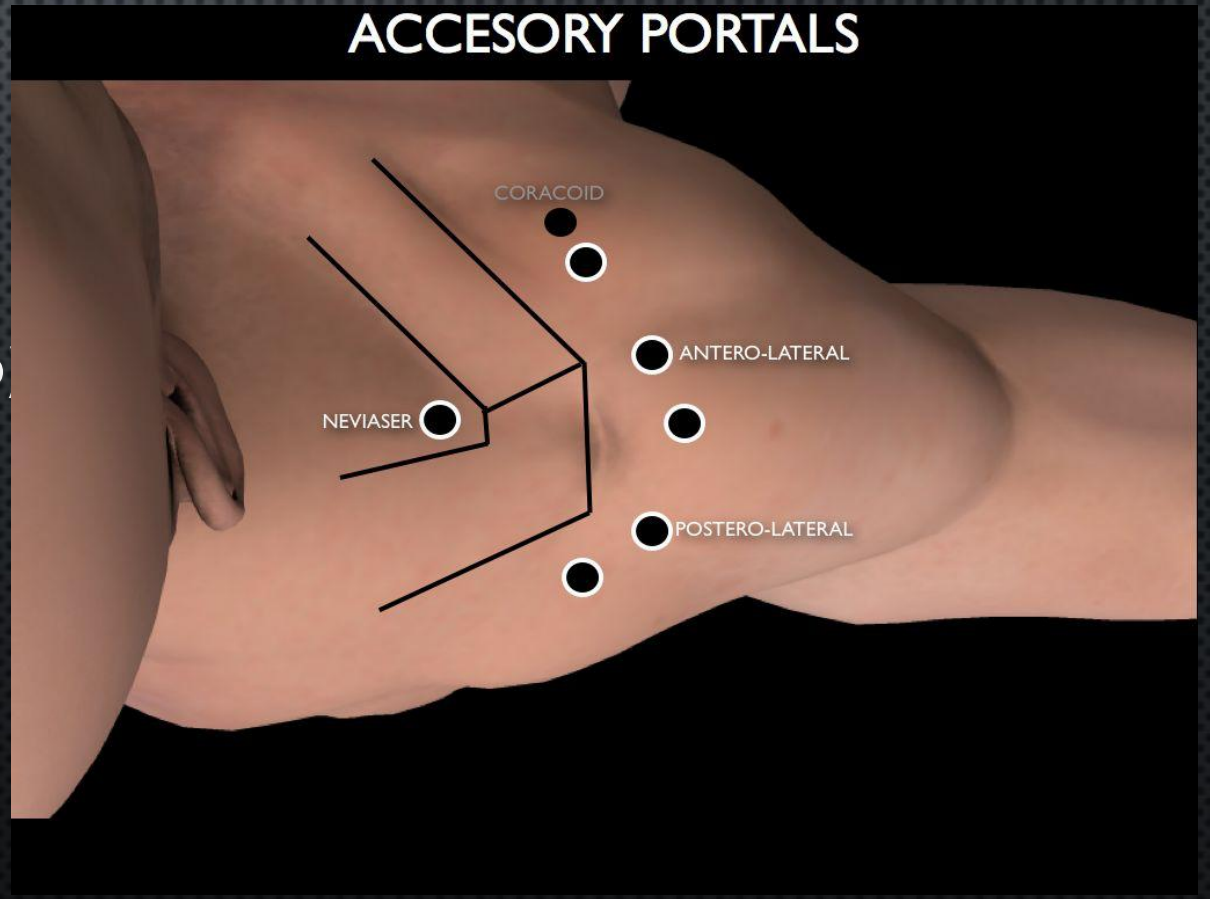




ARTHROSCOPIC TECHNIQUE



NEED

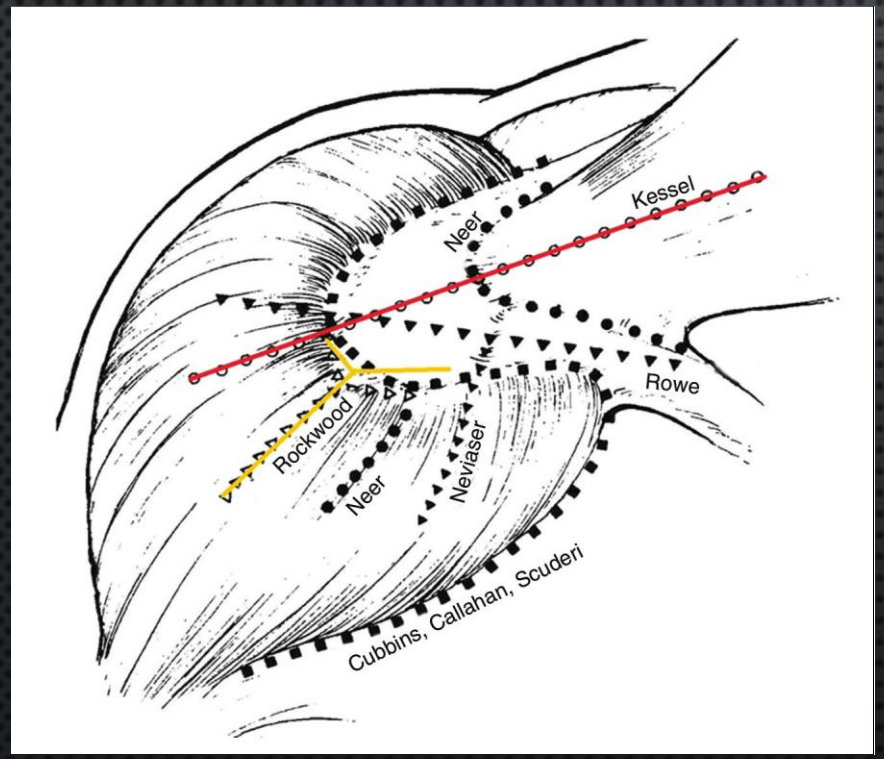


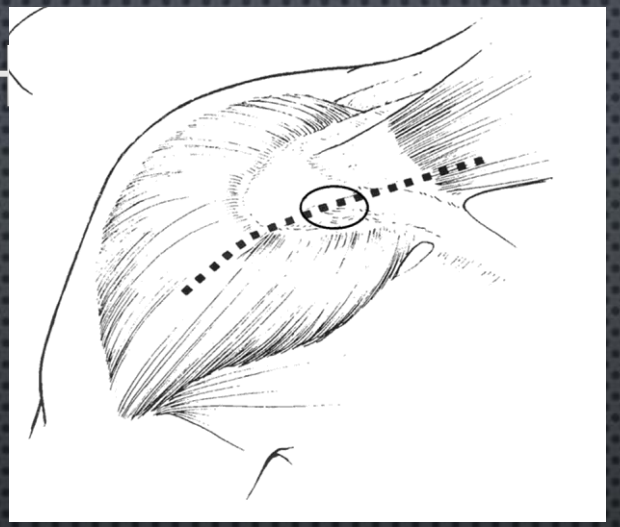
OPEN OR MINI-OPEN

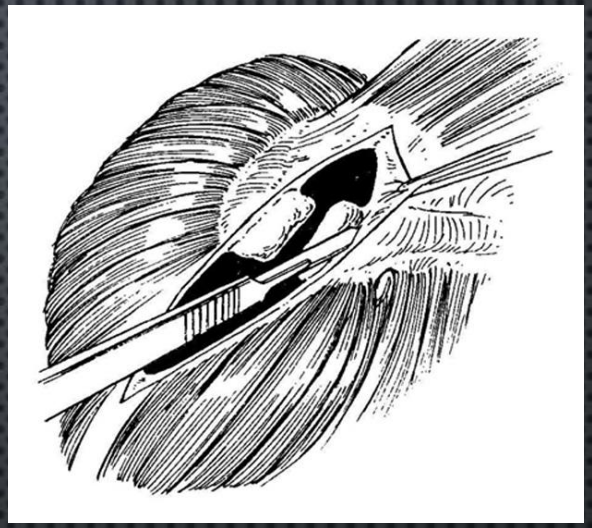
- CAN'T DO IT ARTHROSCOPICALLY
- USE THE SCOPE AS A TOOL, NOT A GOAL

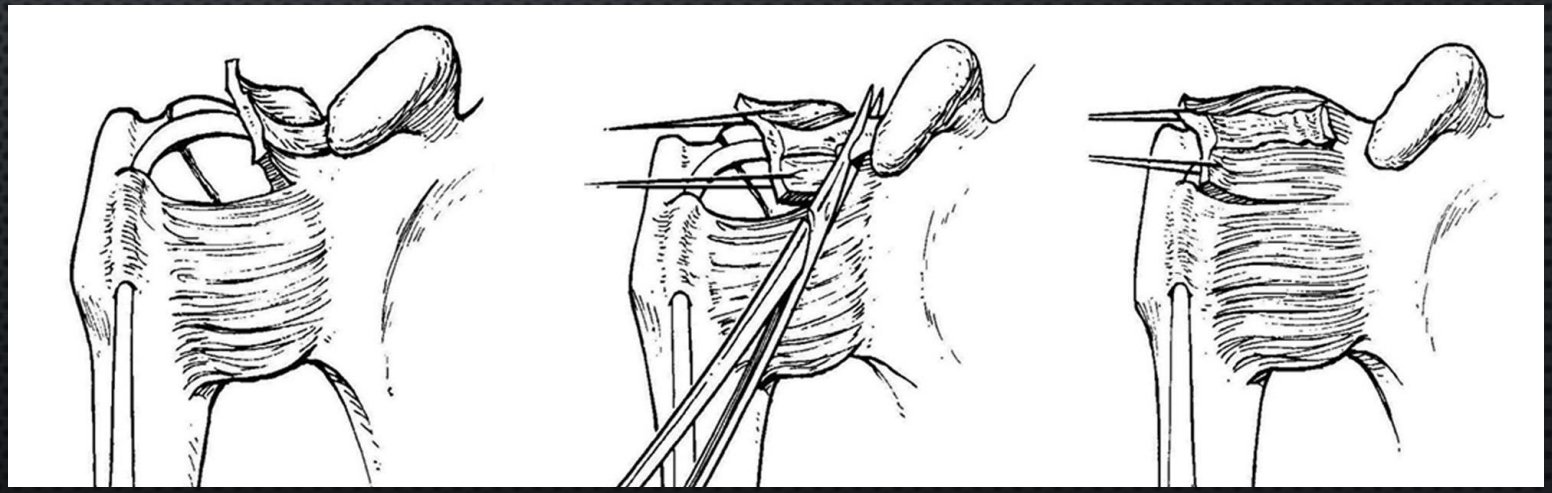
- ***PHILOSOPHY***:
  - THE EXPANDING BURSA
  - START THE CLOCK, THE BURSA WILL BLIND YOU
  - TAKES TIME TO DEVELOP YOUR ARTHROSCOPIC SKILL

HOW DO I GET TH

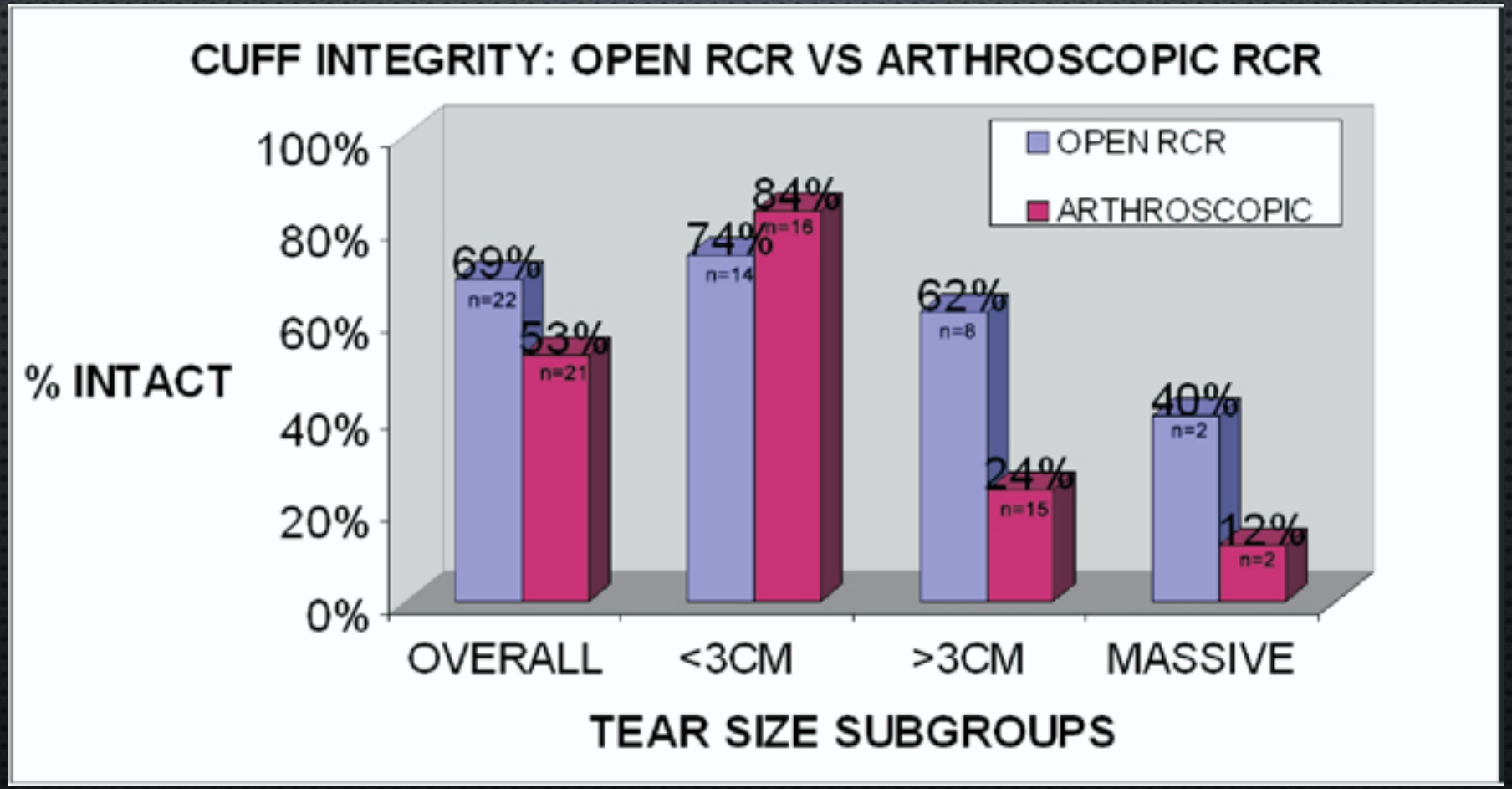








BISHOP J, KLEPPS S, LO IK, BIRD J, GLADSTONE JN, FLATOW EL. CUFF INTEGRITY AFTER ARTHROSCOPIC VERSUS OPEN ROTATOR CUFF REPAIR: A PROSPECTIVE STUDY.
J SHOULDER ELBOW SURG. 2006 MAY-JUN;15(3):290-9. PUBMED PMID: 16679227.



THE IRREPARABLE CUFF

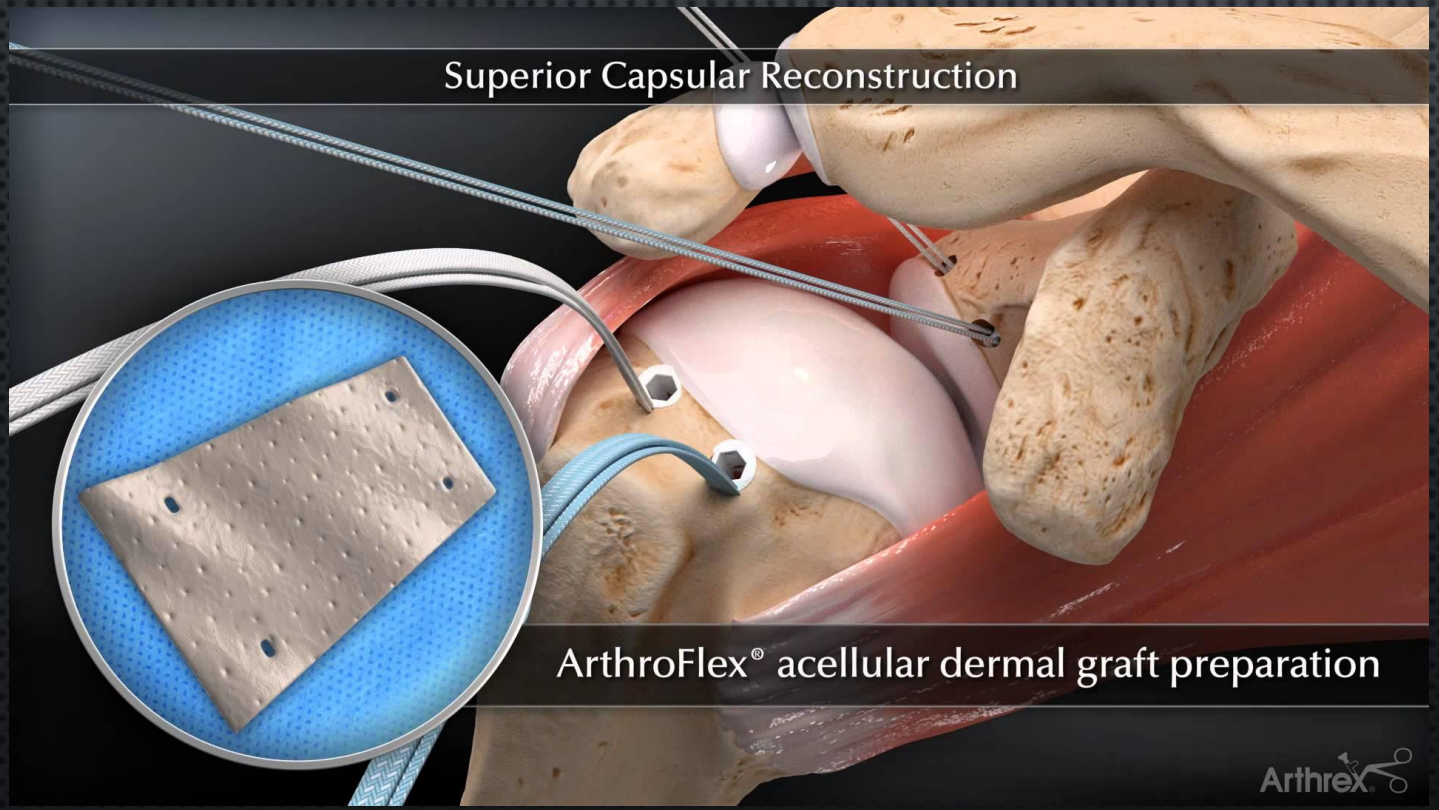
- "THE IRREPARABLE ROTATOR CUFF IS LIKE THE UNDRINKABLE BEER…YOU GOT TO GIVE IT A TRY BEFORE IT BECOMES ONE." – WAYNE "BUZ" BURKHEAD 2008

SUPERIOR CAPSULAR RECONSTRUCTION

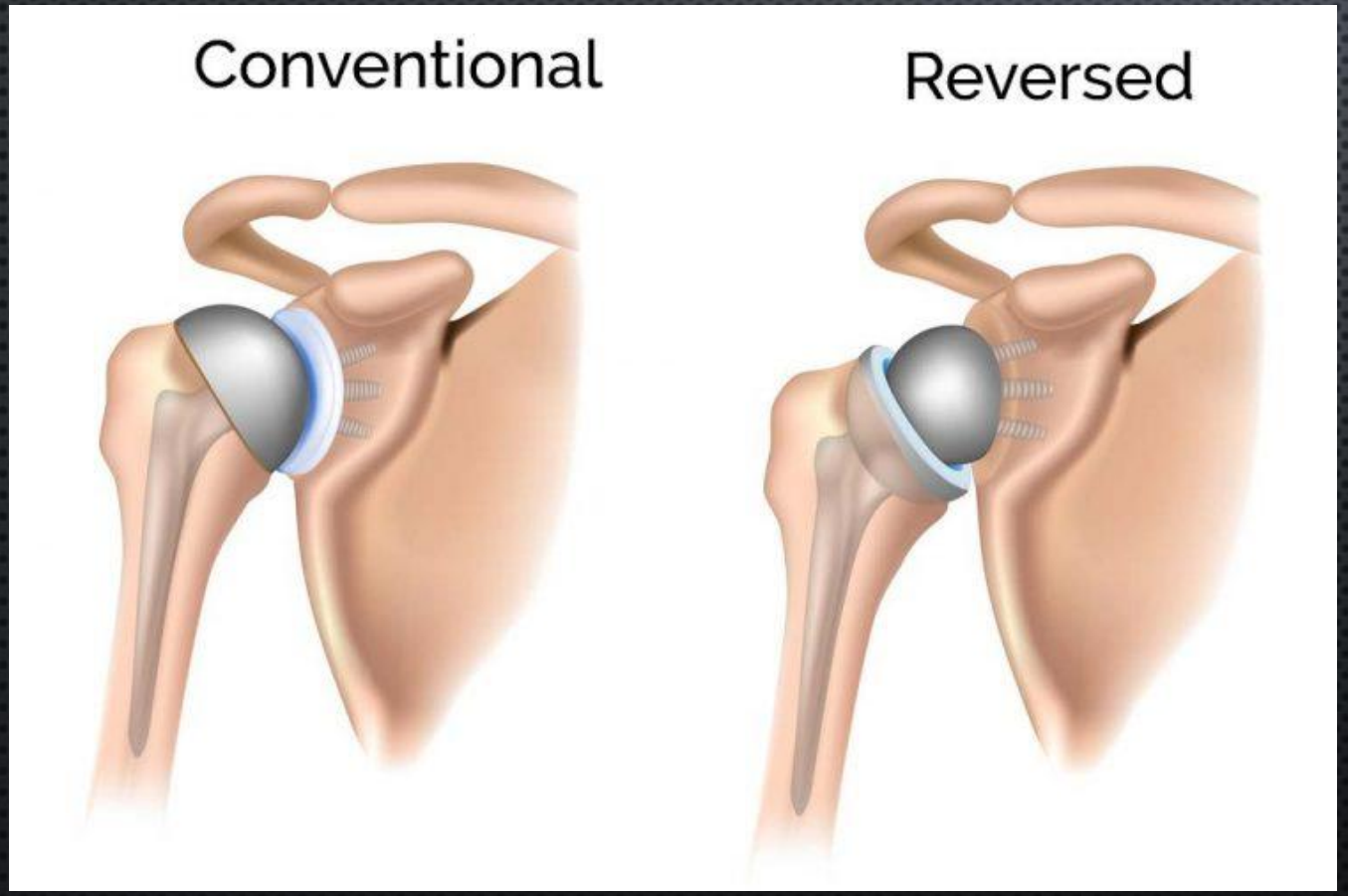
Clinical Results of Arthroscopic Superior Capsule Reconstruction for Irreparable Rotator Cuff Tears

Teruhisa Mihata, M.D., Ph.D., Thay Q. Lee, Ph.D., Chisato Watanabe, M.D., Ph.D., Kunimoto Fukunishi, M.D., Mutsumi Ohue, M.D., Tomoyuki Tsujimura, M.D., and Mitsuo Kinoshita, M.D., Ph.D.

Arthroscopy: The Journal of Arthroscopic and Related Surgery, Vol 29, No 3 (March), 2013: pp 459-470

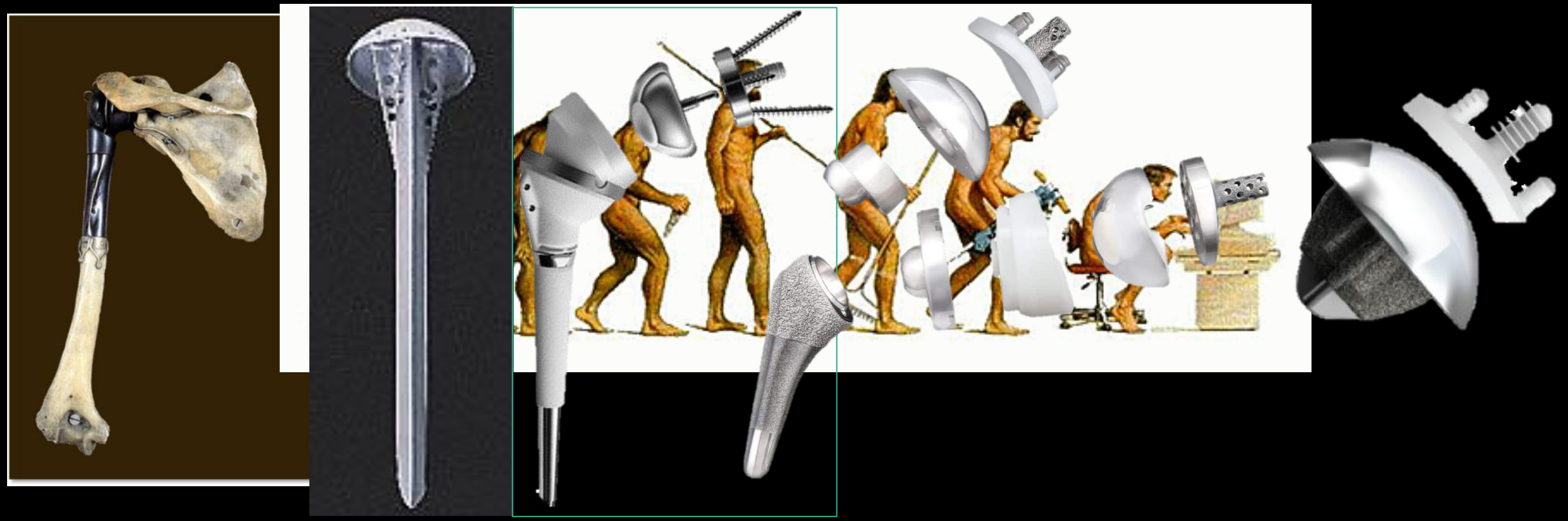


REVERSE TOTAL SHOULDER REPLACEMENT



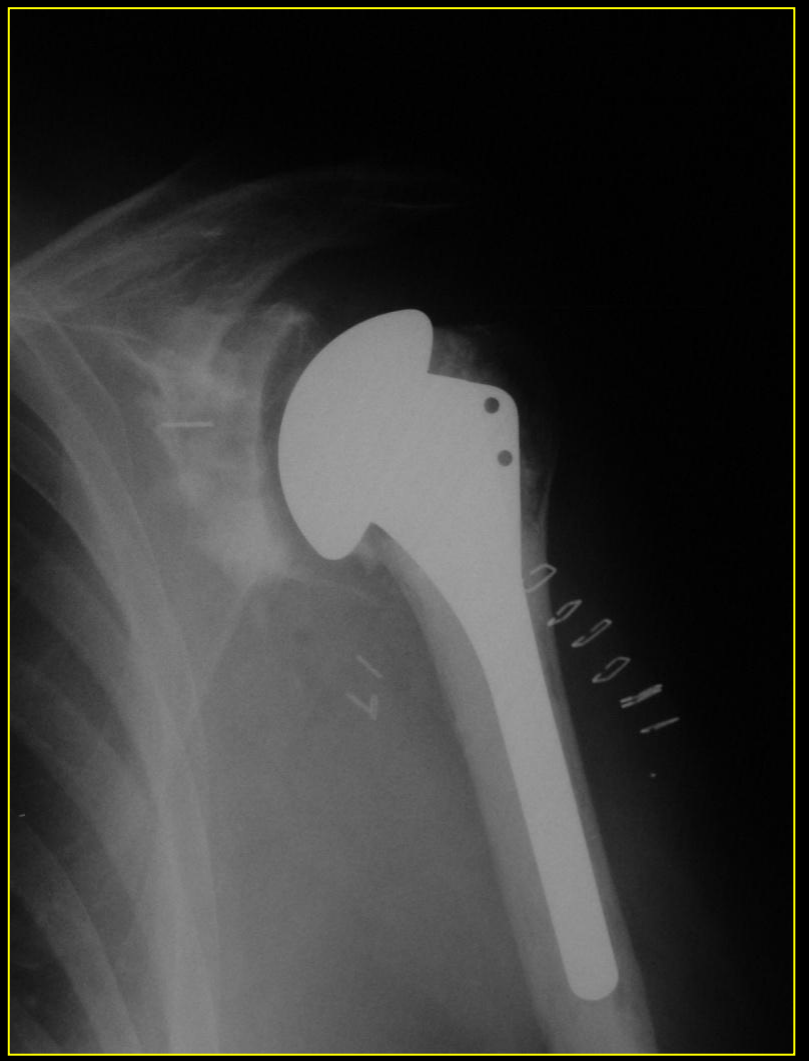
The Evolution of Shoulder Arthroplasty

Kelly Fitzpatrick, DO, FAAOS

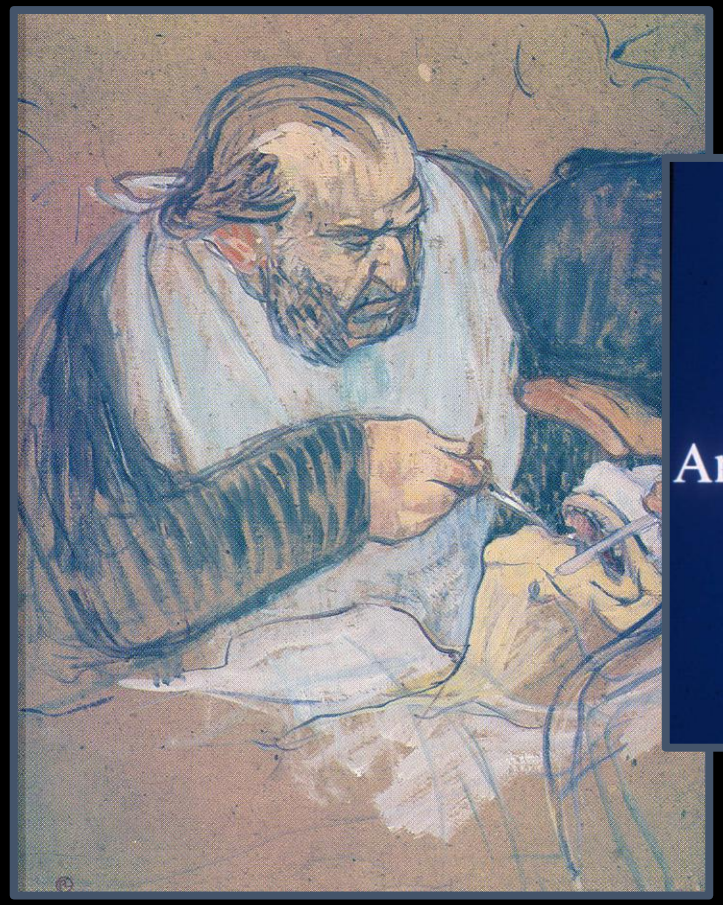


Total Shoulder Replacement
Where Did We Begin?

- FIRST Total Knee Replacement
  - 1968
- FIRST Total Hip Replacement
  - 1960
- FIRST Total Shoulder Replacement ???



The First Shoulder Arthroplasty



French surgeon E. J. Péan

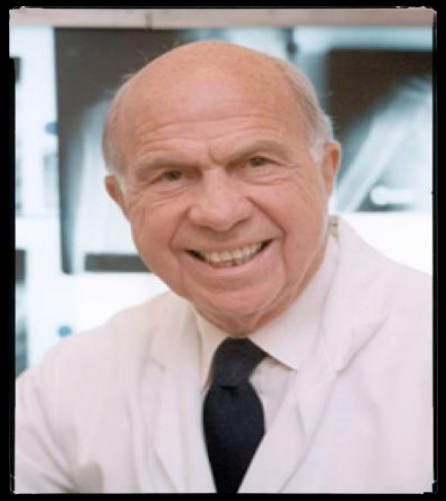
SECTION II

GENERAL ORTHOPAEDICS

Artificial Shoulder Joint by Péan (1893)

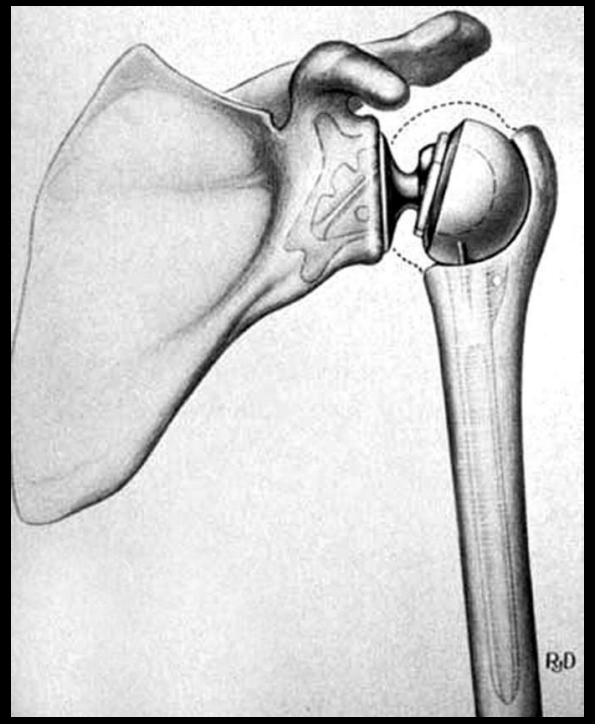
The Facts of an Exceptional Intervention
and the Prosthetic Method

TOMASO LUGLI, M.D.



1951

circa 1972-78



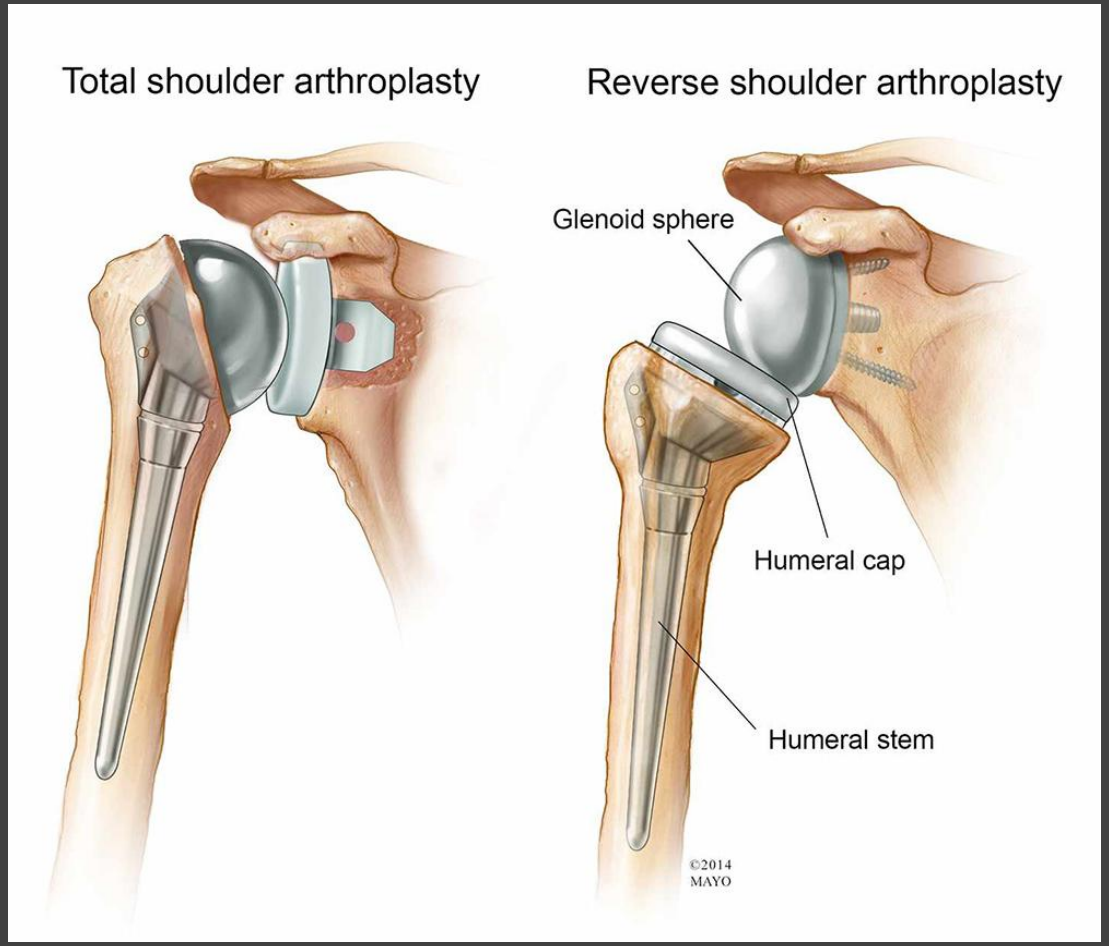
1985

2004

The Basics

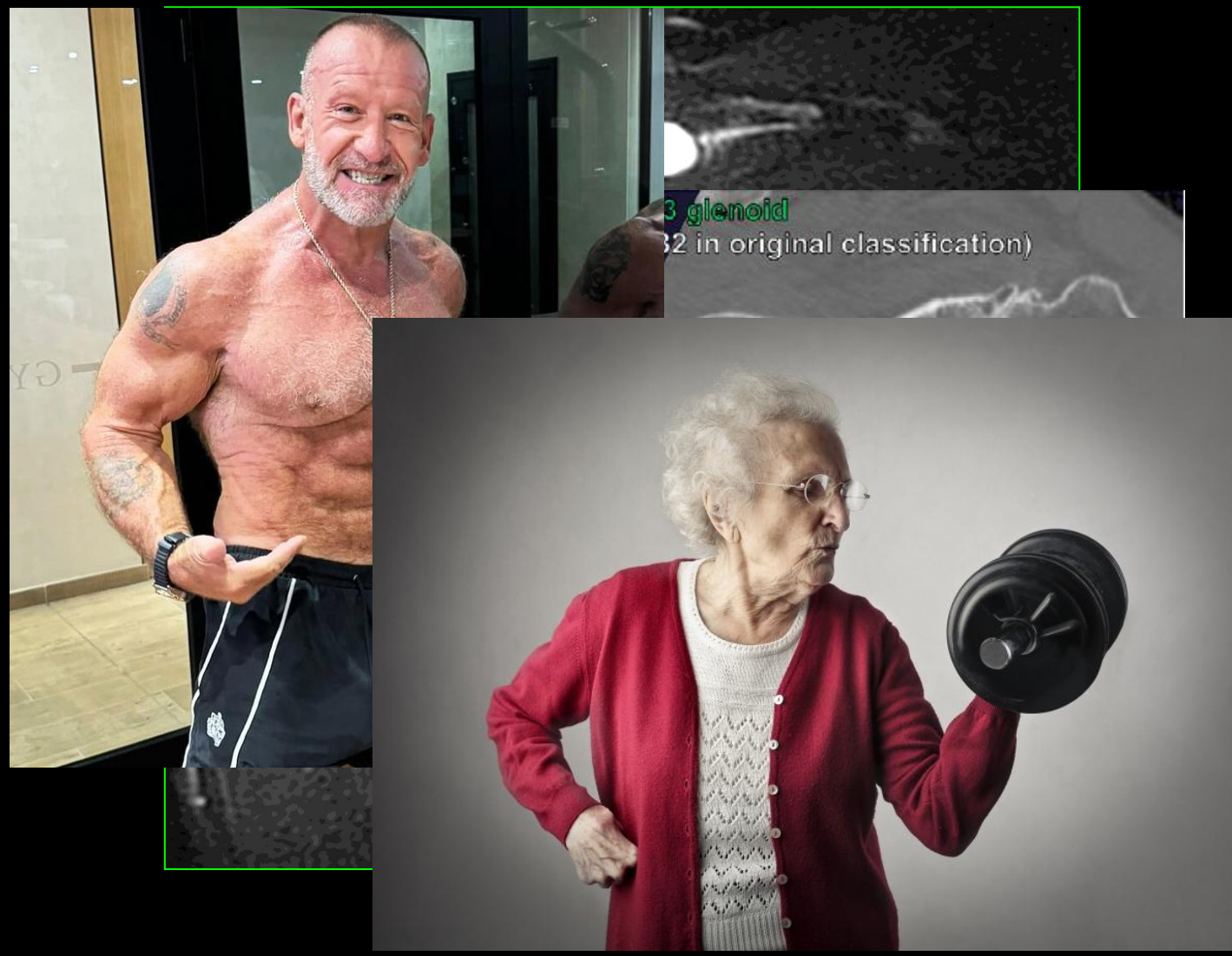
- Anatomic: Recreate the anatomy as closely as possible and respect the Rotator Cuff

- Reverse: Medialization of center of rotation to facilitate deltoid leverage



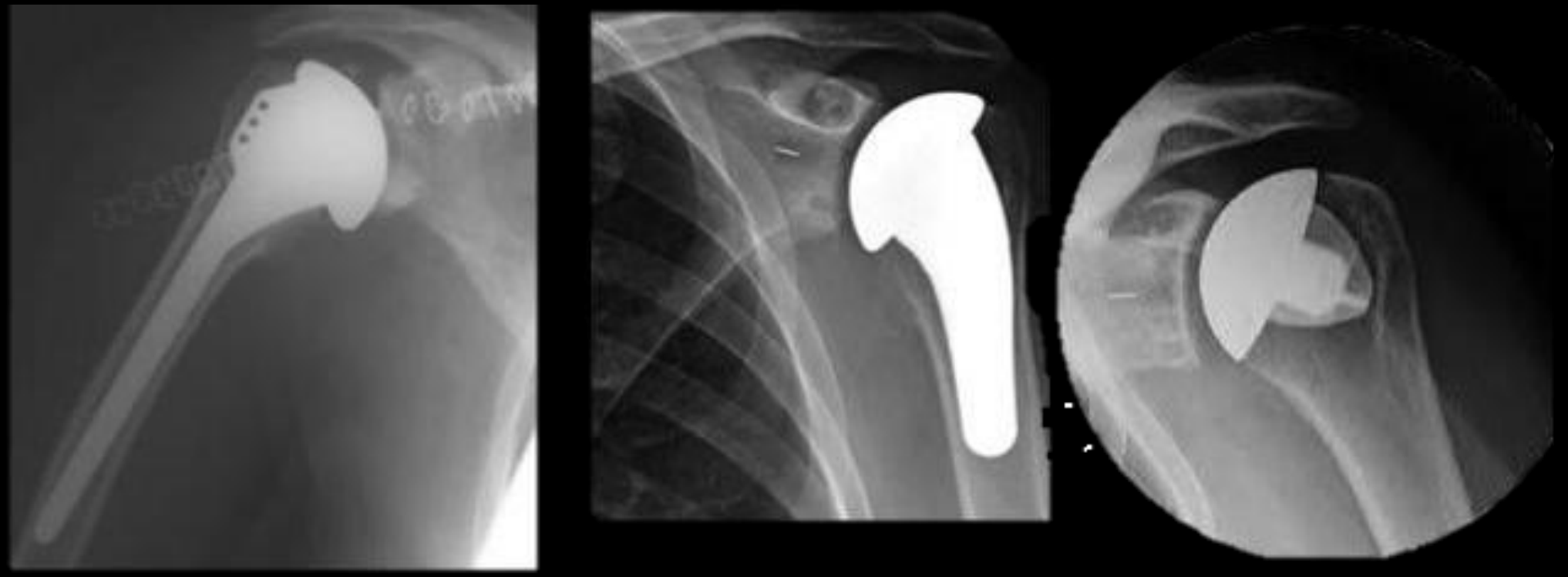
Reverse vs Anatomic

- Rotator cuff intact
  - MRI on all shoulder pain
- Bone stock
- Demographics



Convertible Platforms

Long Stem to Short Stem to No Stem



Easier to Restore True Anatomy

Seminars in Arthroplasty: JSES

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Stemless and stemmed total shoulder arthroplasty: a comparison of short-term clinical and radiographic outcomes

Keith M. Baumgarten MD [a b]

Conclusions

There were no differences in patient-determined outcomes between the groups at 2-year follow-up. Restoration of proximal humeral anatomy was either better or equivalent with the stemless prosthesis compared to the stemmed one. Radiographic evidence of stress shielding was found in the stemmed prosthesis but not in the stemless prosthesis at 1-year follow-up.

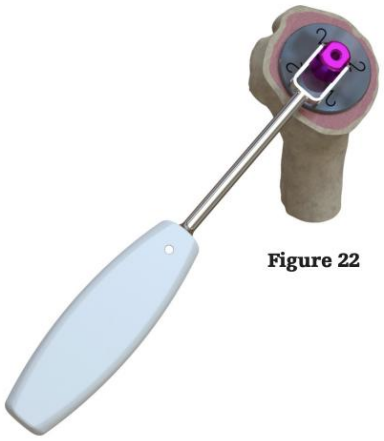
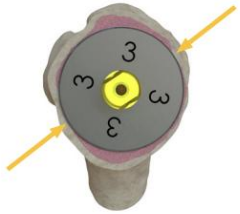


Figure 22

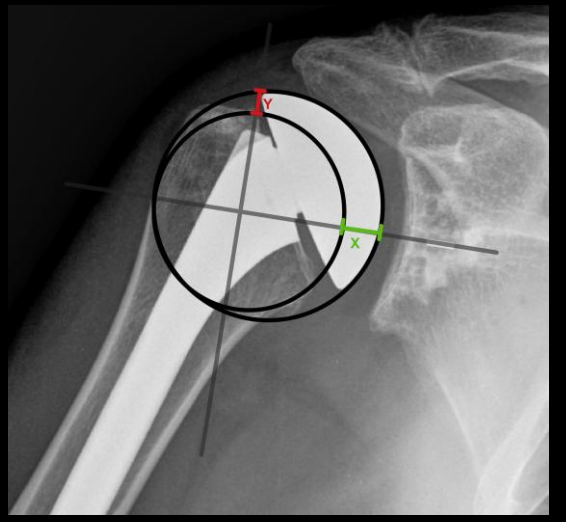
Correct

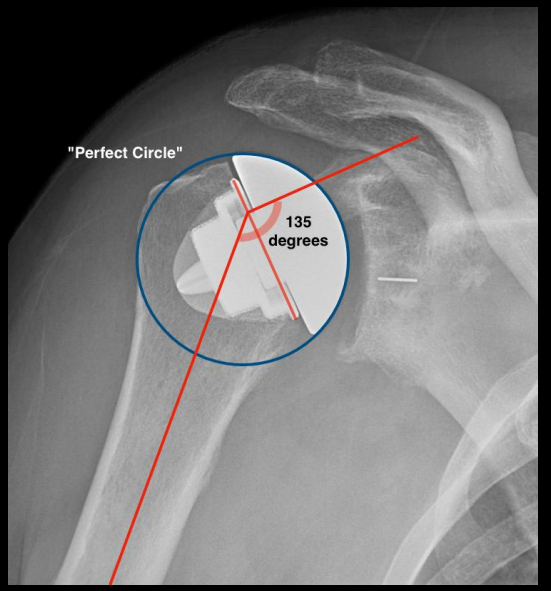
Figure 23



Incorrect

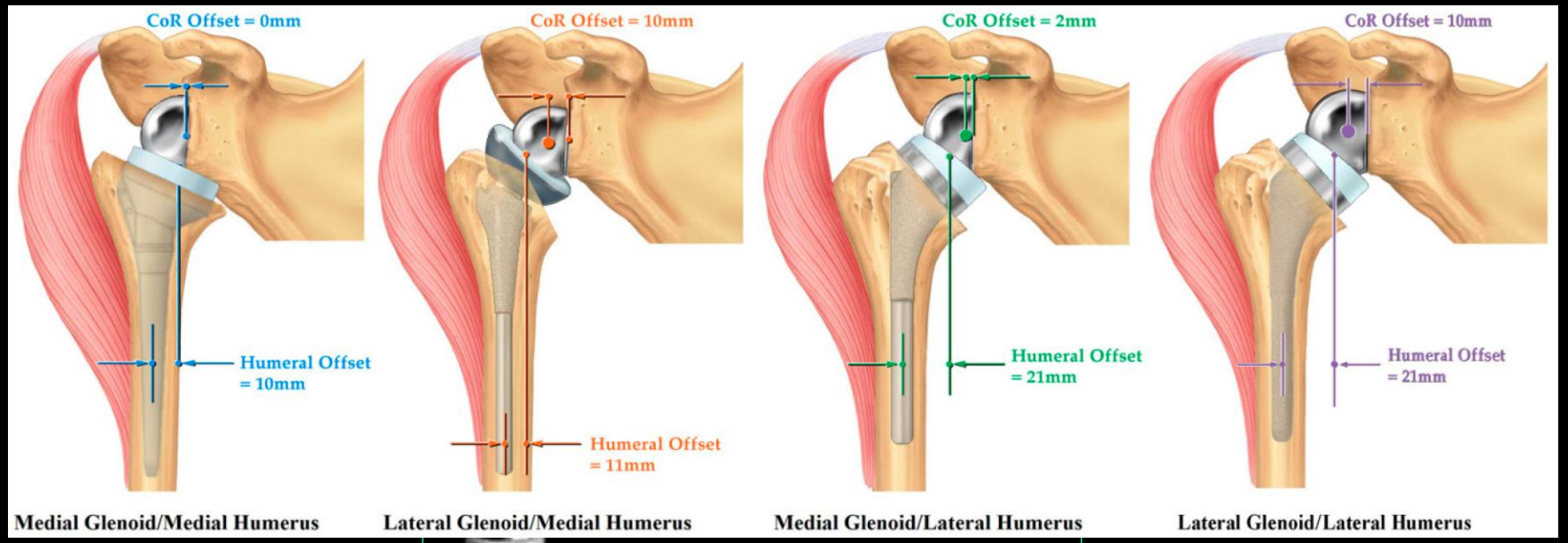
Figure 24

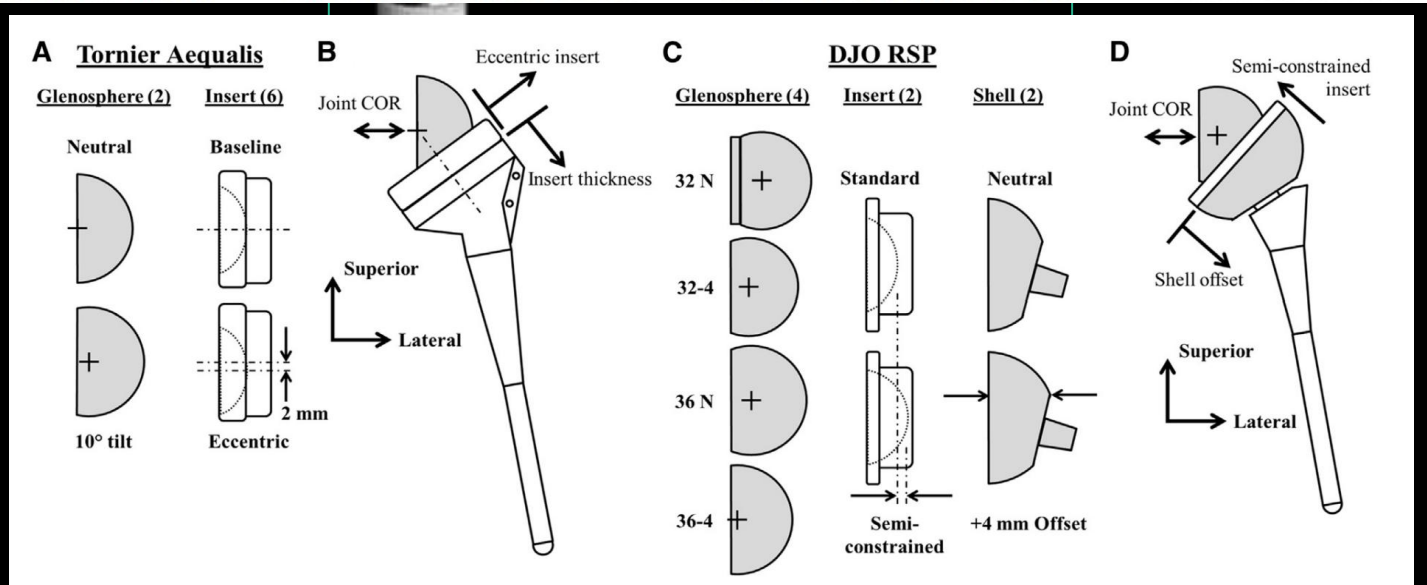


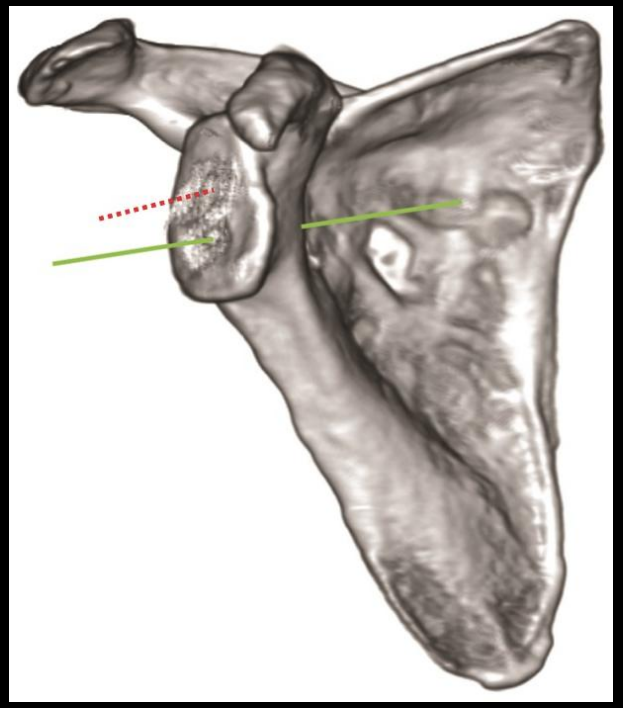


Need for Revisions

Reverse Total Shoulder Arthroplasty

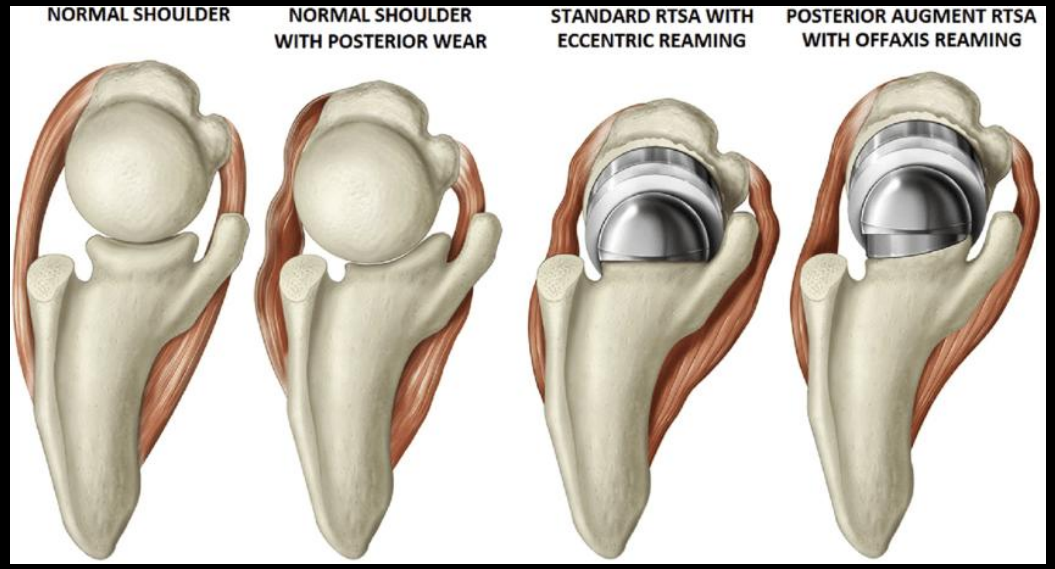






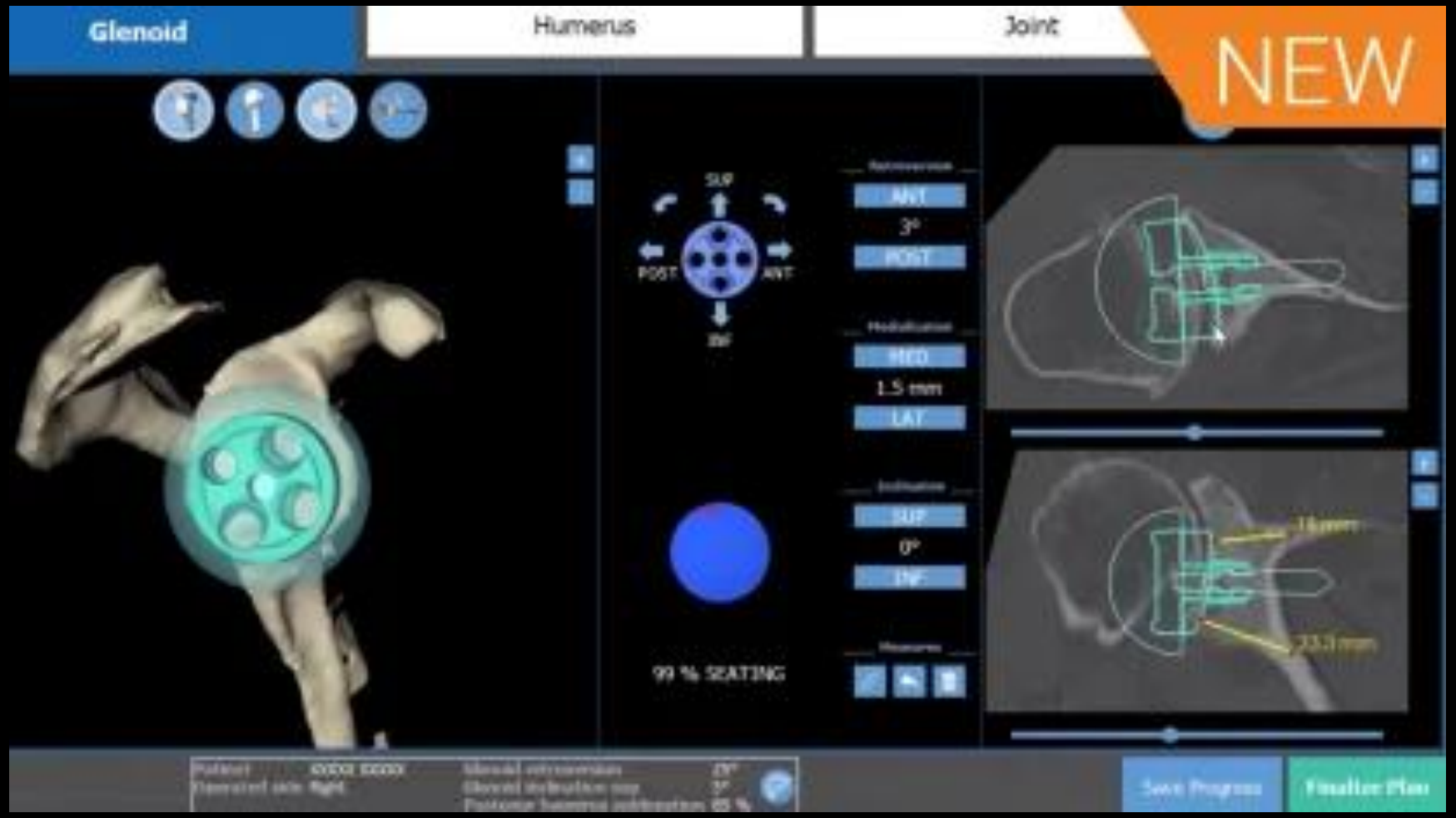
Techniques to address osseous deficiencies include:

- eccentric reaming
- augmented glenoid components (see below)
- bone grafting techniques
  - Humeral head
  - Femoral head/neck allograft

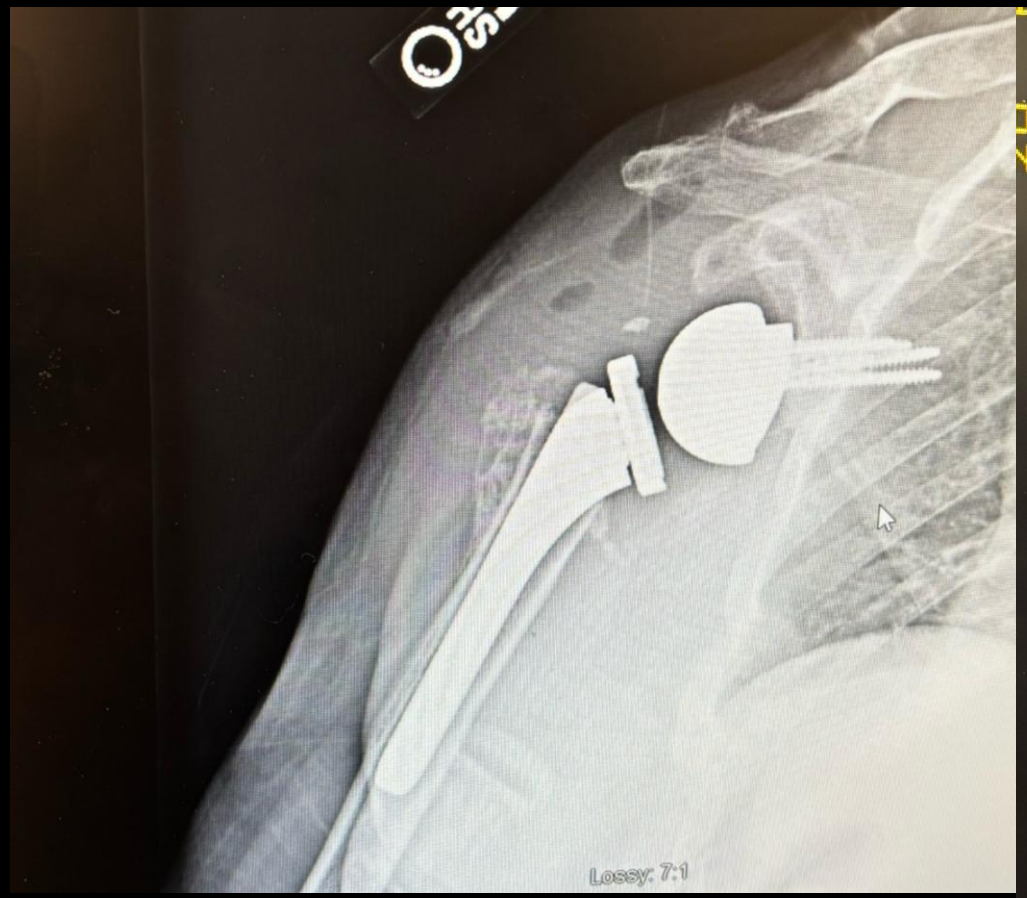


Glenoid Erosion

- CT guidance
- Templating
- Augments



Glenoid Insufficiency



Navigation and 3D printing

Vault Reconstruction

Future Directions

- Augmented Reality
- Robot Navigation

Thank you