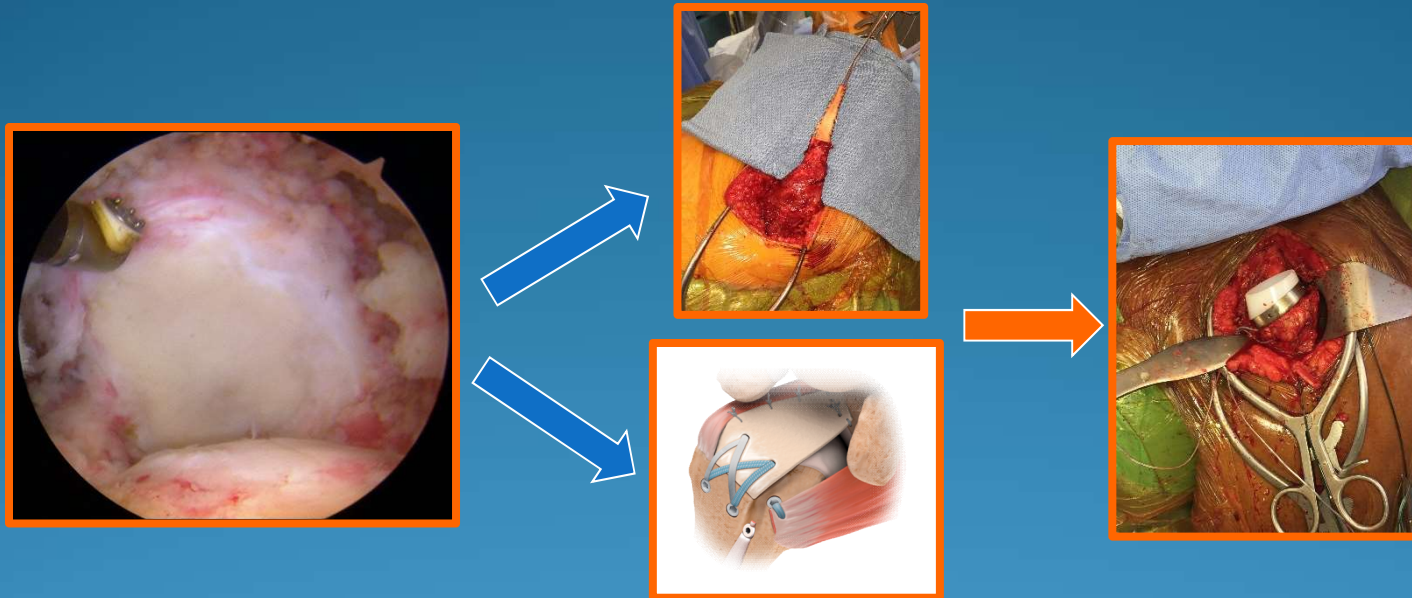


Options for Massive Rotator Cuff Tears



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Boston University School of Medicine – Boston Medical Center

Team Physician – Boston University Athletics



***Work Related Injuries Workshop
May 1st & 2nd, 2017***

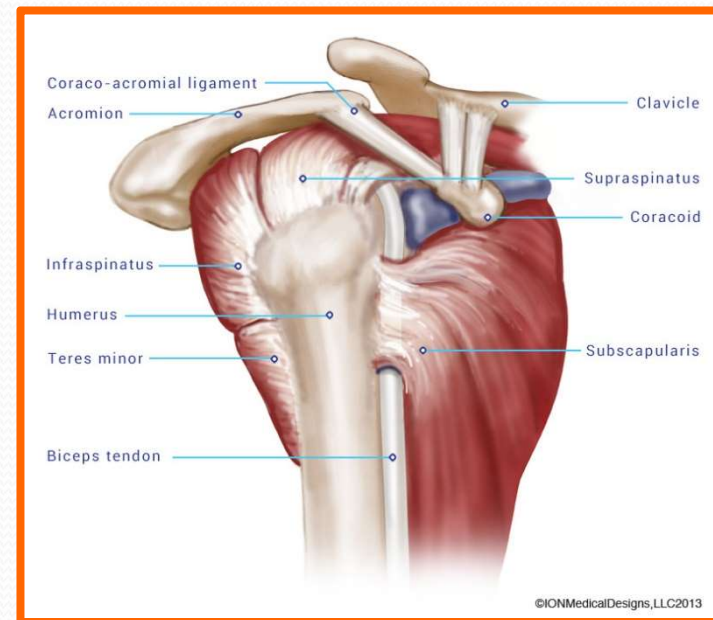
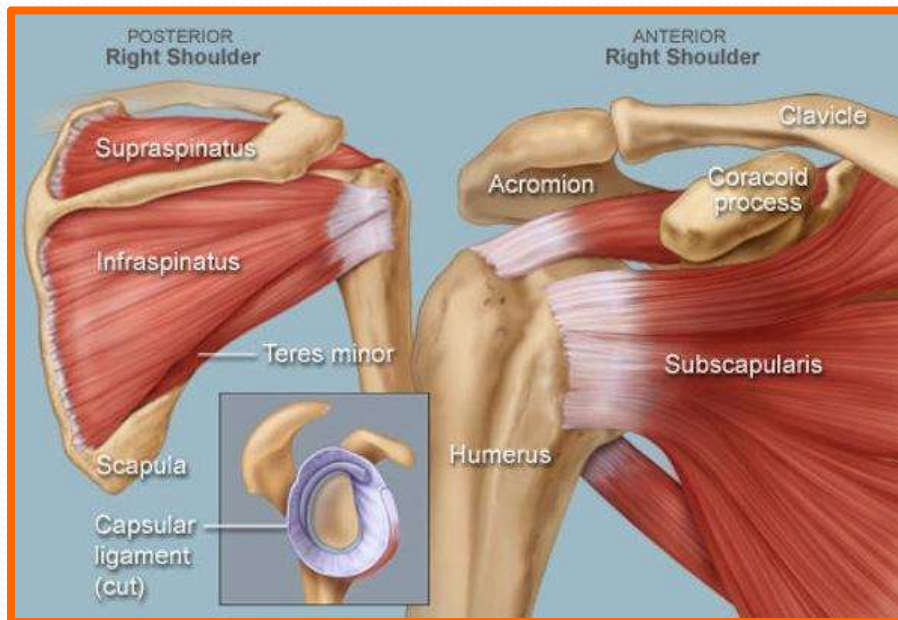
Disclosures

- Associate Editor
 - Journal of Bone and Joint Surgery (JBJS)
 - Sports Medicine
- Editorial Board Member
 - American Journal of Sports Medicine (AJSM)
 - Orthopedic Reviews
 - World Journal of Orthopaedic
 - Journal of Medical Insight (JOMI) – Equity
- Research Funding
 - OREF
- Equity
 - JOMI
- **Reviewer Panel**
 - American Journal of Sports Medicine (AJSM)
 - Journal of Shoulder and Elbow Surgery (JSES)
 - Orthopedics
 - Journal of Orthopaedic Research (JOR)
 - Orthopedic Reviews
 - KSSTA
- **OREF Grant Reviewing Committee**
- **AAOS Clinical Practice Guideline Committee Member – Rotator Cuff Tears**

Outline

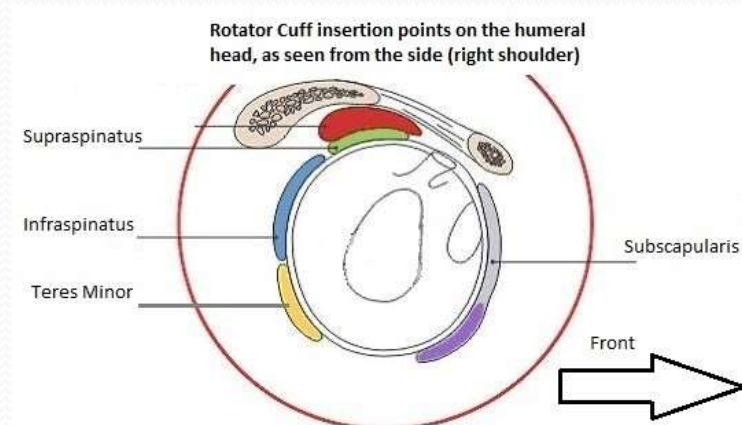
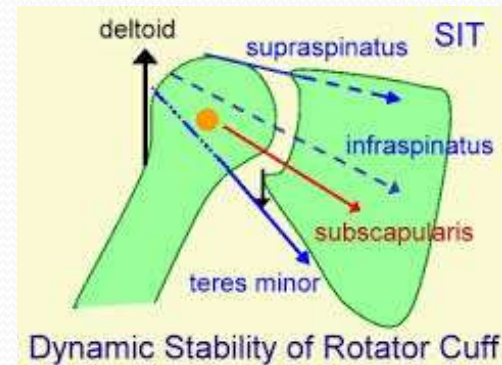
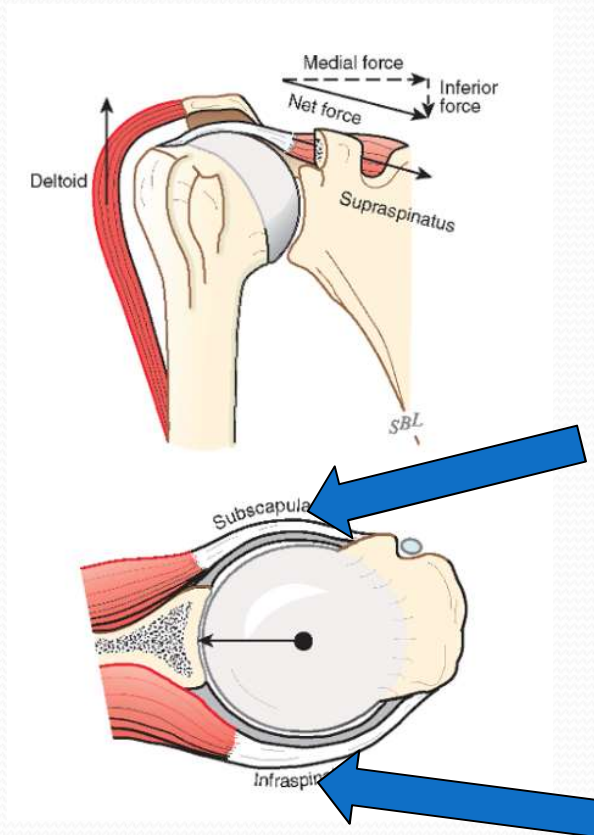
- Anatomy
- What is a Massive Irreparable Cuff Tear?
- Indications
- Treatment Options
- Cases

Anatomy

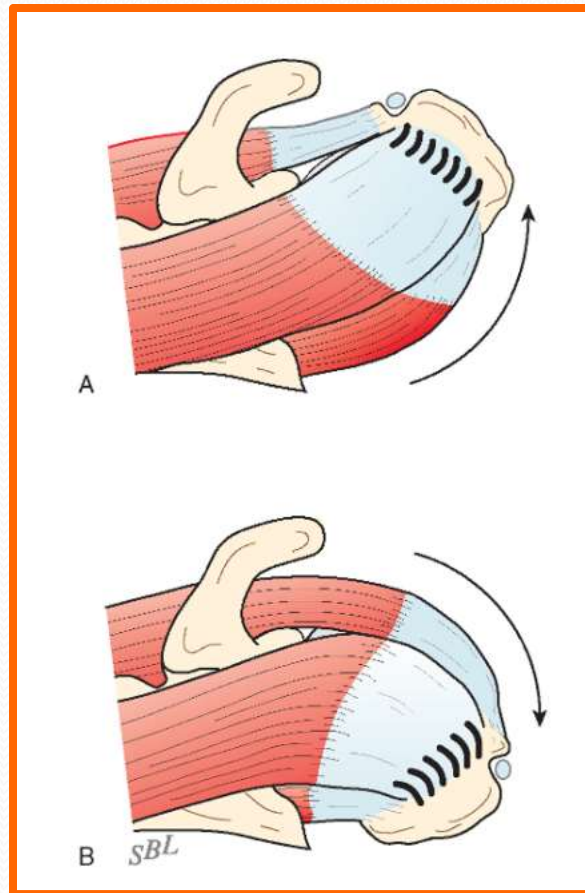


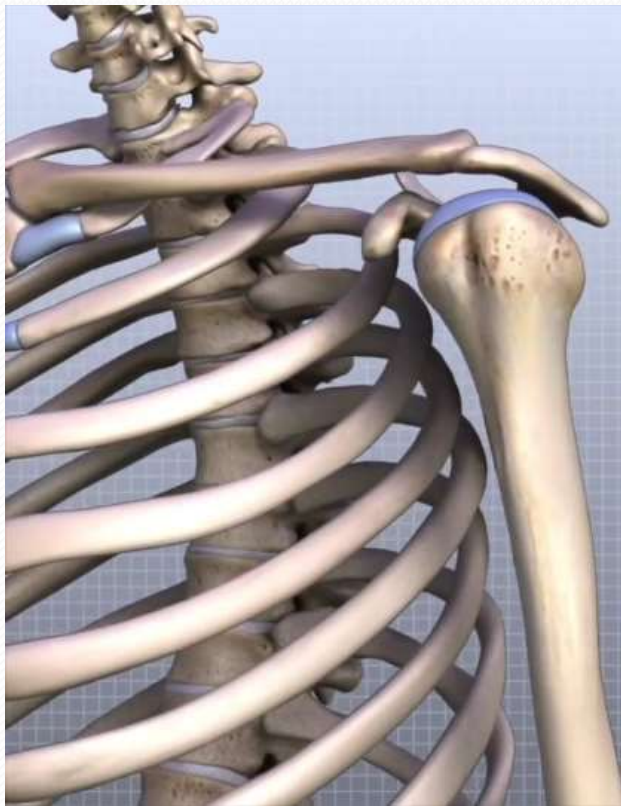
Mechanics

Cavity compression



Mechanics – Bending loads



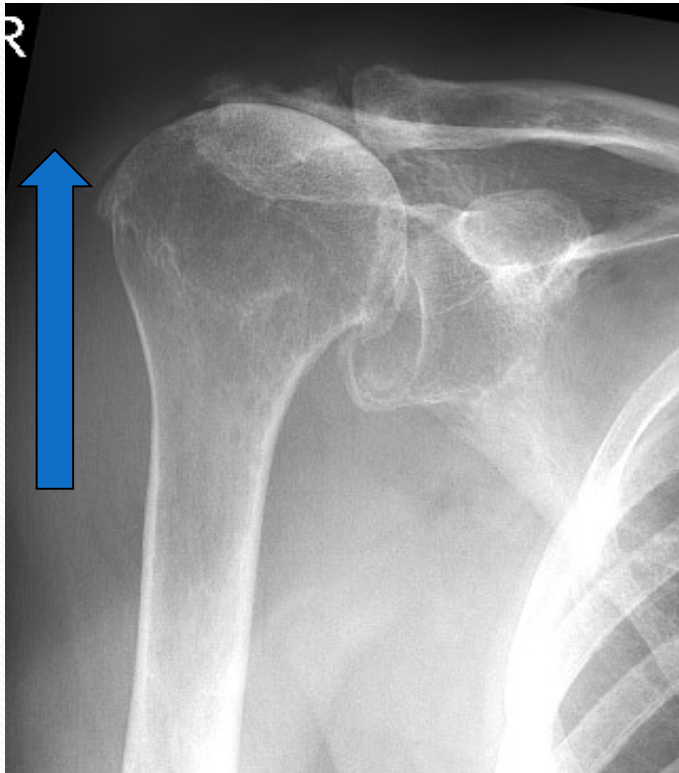


Muscles and Tendons of the Rotator Cuff

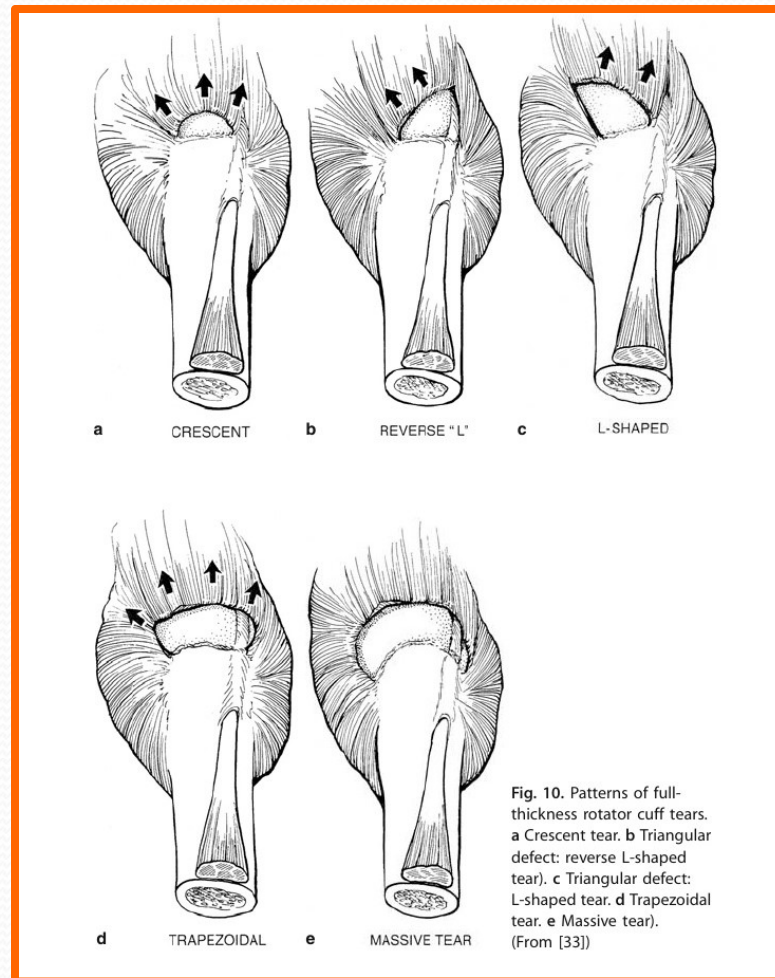
eOrthopod.com
© MMG 2011

Massive Cuff Tear

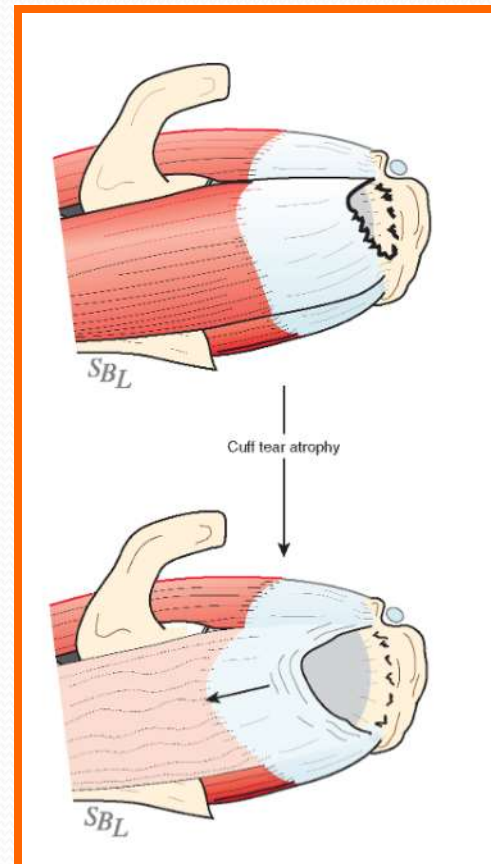
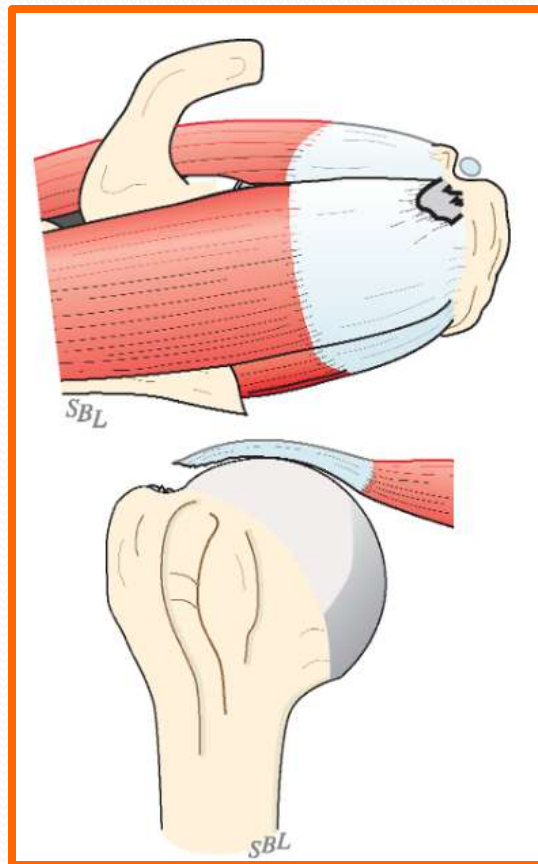
Loss of Cavity Compression



Rotator Cuff Tears - Patterns

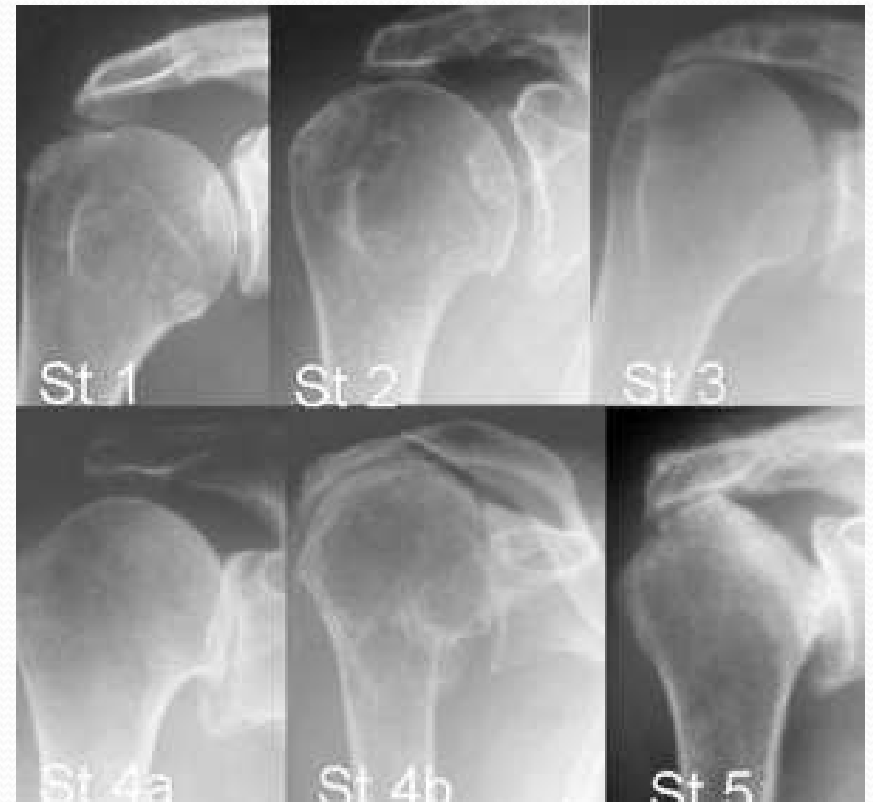
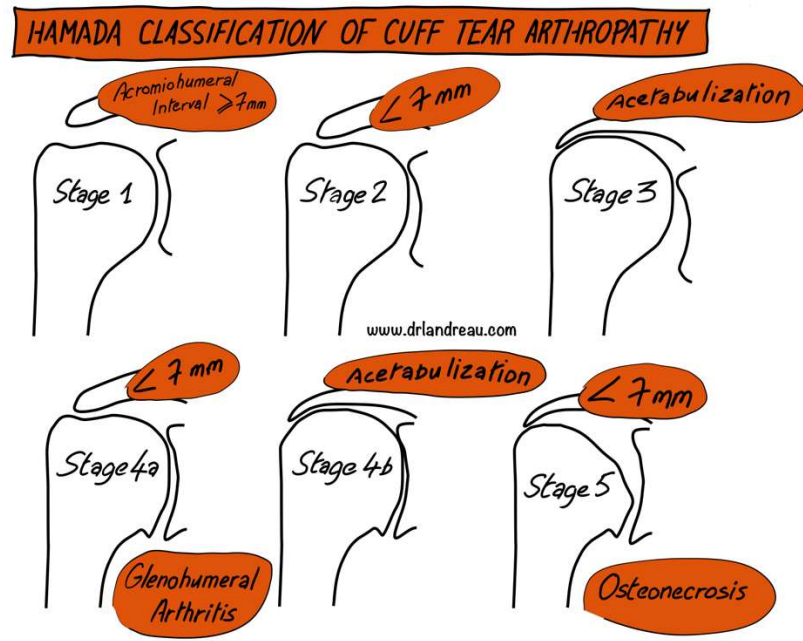


Rotator Cuff Tears



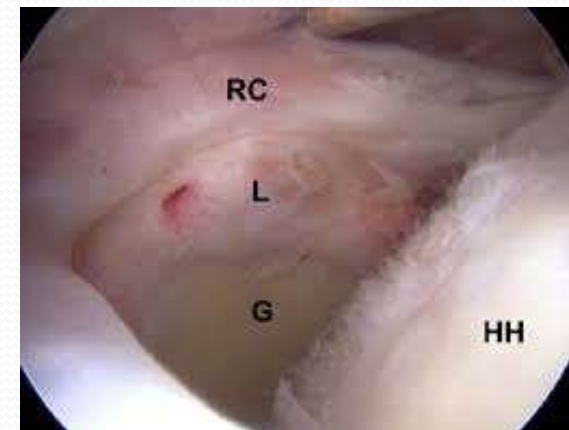
Cuff Tear Arthropathy

Hamada Classification



Massive Irreparable Cuff Tear

- Definition?
- Massive Cuff Tear
 - >5cm (A to P or M to L)
 - Involves at least 2 tendons (Supra and Infra)
 - Extends into Subscap and/or Teres Minor Muscle

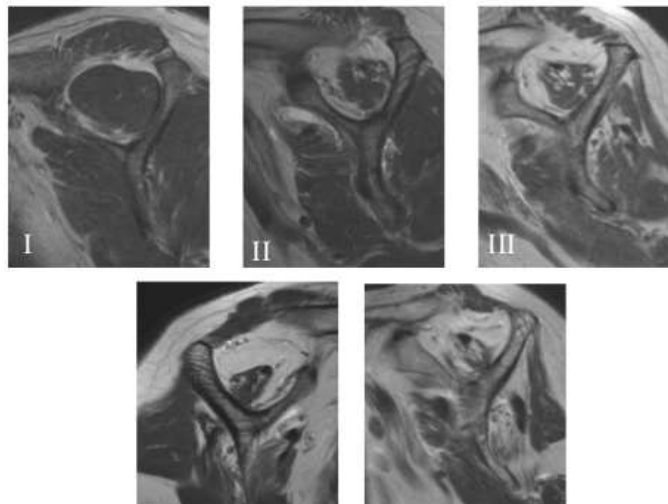


Irreparable Cuff Tear

- May or May NOT be Massive in Size
- “The inability to achieve a direct repair of the native tendon to the humerus despite mobilizing the soft tissues” (Warner)
 - Chronicity of the Tear
- Fatty degeneration of the Muscle (Goutallier)
 - Severe Fatty Degeneration with Large Retraction
 - Chronic Tear

Goutallier Classification

Goutallier Classification



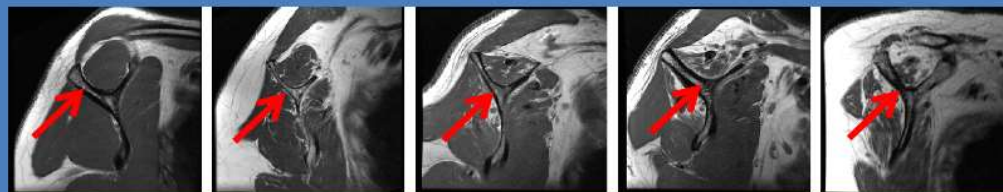
Grade 0
Normal

Grade 1
Streaks of fat

Grade 2
More muscle
than fat

Grade 3
Equal muscle
and fat

Grade 4
More fat
than muscle

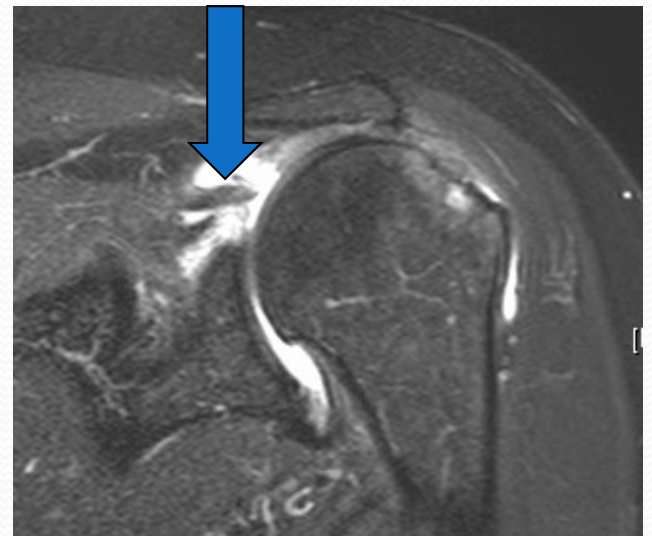
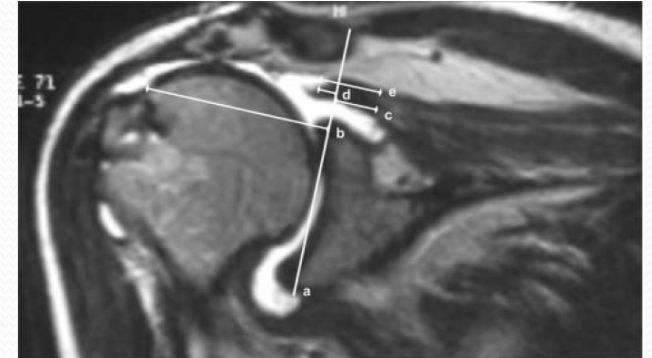


Pre-Op Tendon Length

Retraction of Supraspinatus Muscle and Tendon as Predictors of Success of Rotator Cuff Repair

Dominik C. Meyer,* MD, Karl Wieser,*[†] MD, Mazda Farshad,* MD, MPH,
and Christian Gerber,* MD, FRCS
Investigation performed at Balgrist University Hospital, Zurich, Switzerland

- 33 Patients
- Goutallier Grade 2 to 3 with <15mm of supraspinatus tendon length
 - **92% Failure Rate – MRI at 2 years**
- With tendon length >15mm and No Fatty Degeneration = **<25% failure rate.**



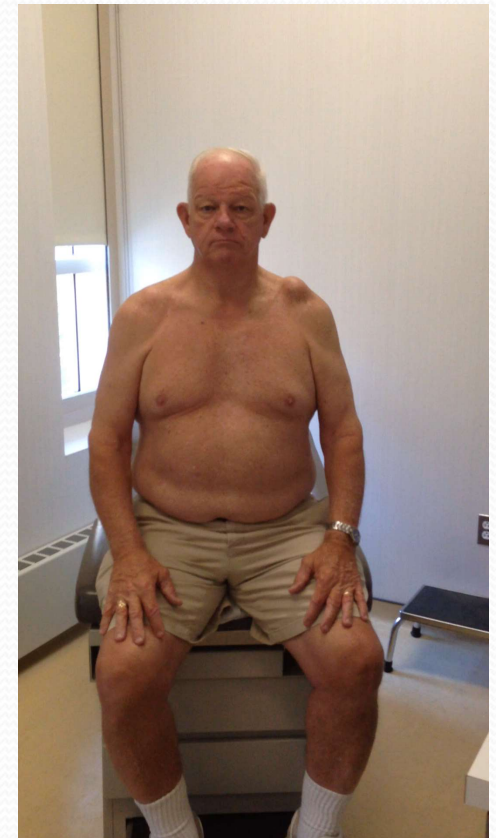
Irreparable Cuff Tears

- Chronicity
- Fatty Infiltration and Degeneration
- Pre Op MRI tendon Length
- Severe Retraction
- Large to Massive Rotator Cuff Tear (3 to 5cm?)
 - Involvement >2 tendons

Massive AND Irreparable Tears

Treatment Options

- Not everyone needs surgery!
- Injections
- NSAIDs
- PT
 - Levy's Reading Shoulder Program – Massive Cuff Tears
 - www.tigerortho.com



Surgery Options Arthritis?

- Arthritis or Cuff Tear Arthropathy
 - Reverse Shoulder Arthroplasty
- Without Arthritis
 - Young vs Old
 - >70 years old = Reverse Shoulder Arthroplasty



- American
Clinical

- Dr.
- Pa
- M

- WEA

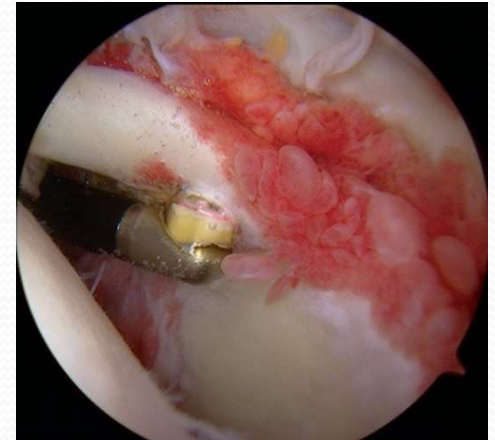
- Not



(MAOS)

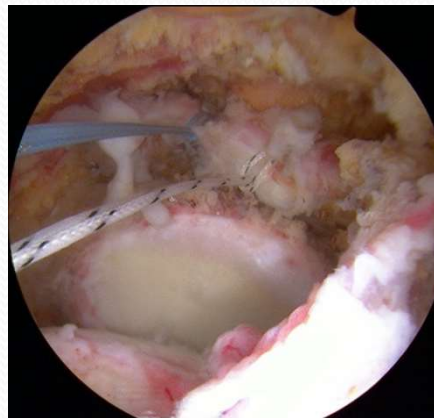
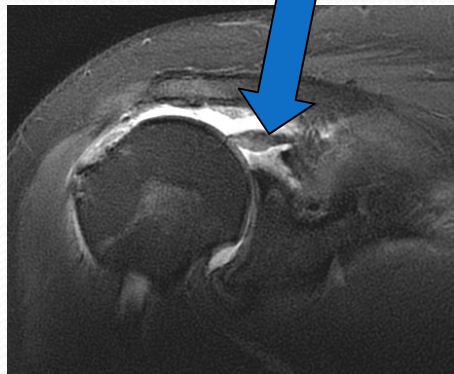
Debridement and Biceps Release

- May help Alleviate Pain
- Short Term
- Does NOT improvement Function!
- Biceps Tentomy
 - Walch and Boileau
 - 75% patients satisfied at final follow-up.
 - Better with pre op preserved active ROM.



Partial Repair

- Repair if Possible!
 - Infrapinatus Tendon to Balance the shoulder





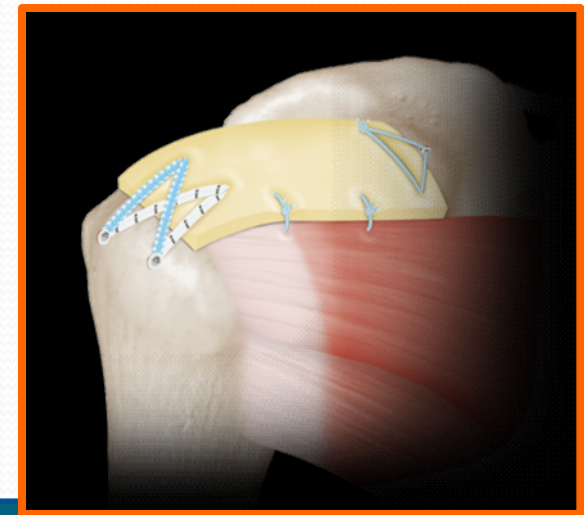
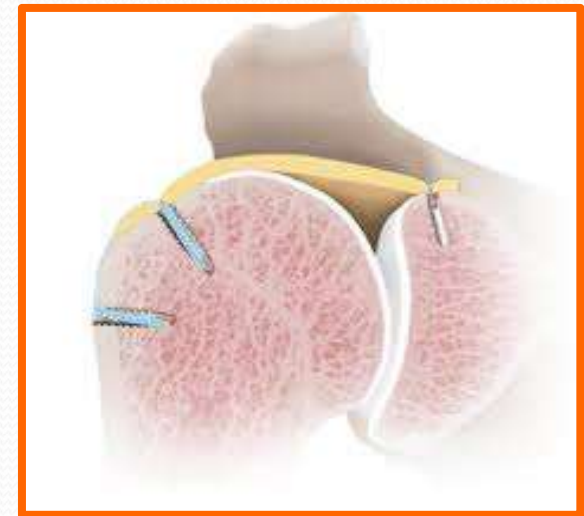




Other Surgical Options

- Superior Capsule Reconstruction
- Scaffold – Graftjacket Bridging
- Muscle Transfers
 - Lattissmus Dorsi
 - Lower Trapezius
 - Pectoralis Major for Subscapularis Tears
 - Combined
- Reverse Shoulder

Superior Capsule Reconstruction

- Started In Japan
 - Teruhisa Mihata et al.
 - Fascia Lata Graft
 - Good to Excellent Results
 - 2 to 4 years from surgery



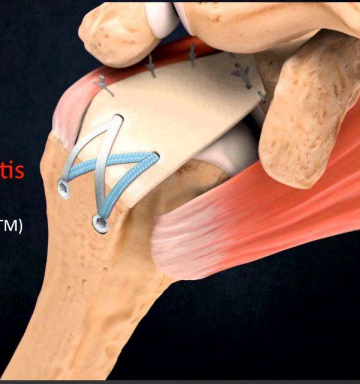


PRESENTATION
Chris Adams, MD

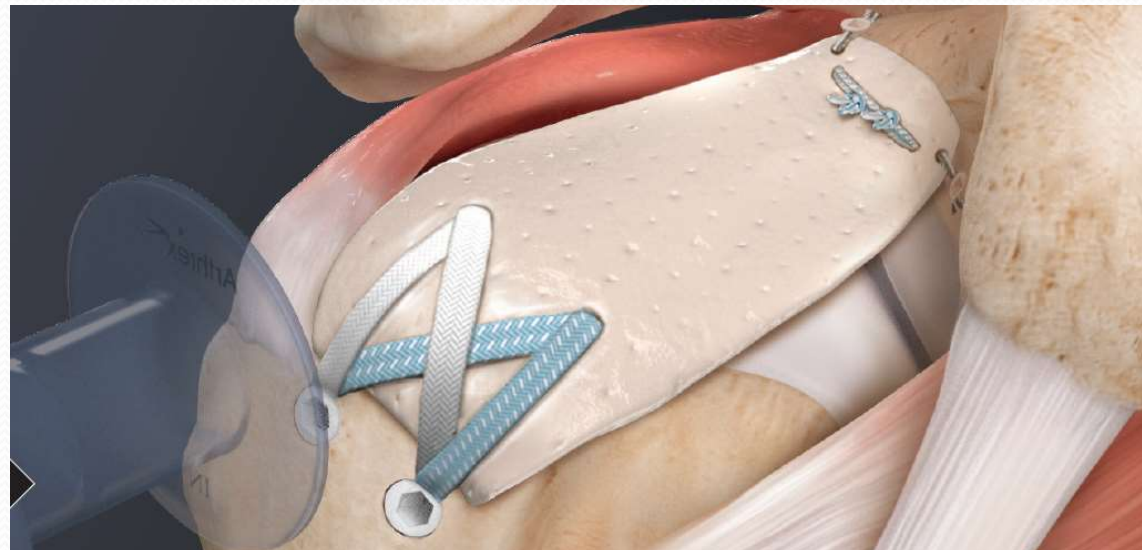
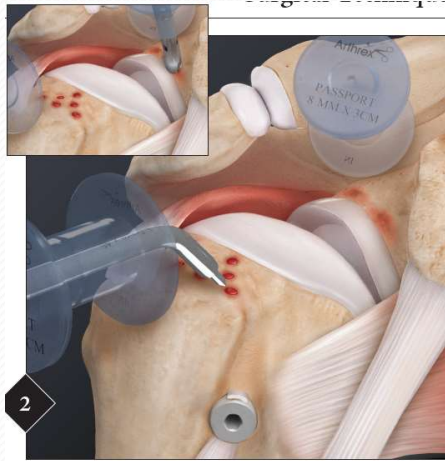
Superior Capsular
Reconstruction

SCR Indications

- Symptomatic RCT
- Large, Irreparable SS or SS/IS RCT
- Minimal to No Glenohumeral Arthritis
- Balanced Transverse Plane Force Couples (e.g. Sub and TM)
- Active Function of Larger Muscles (e.g. Deltoid)
- No Significant Bone Loss



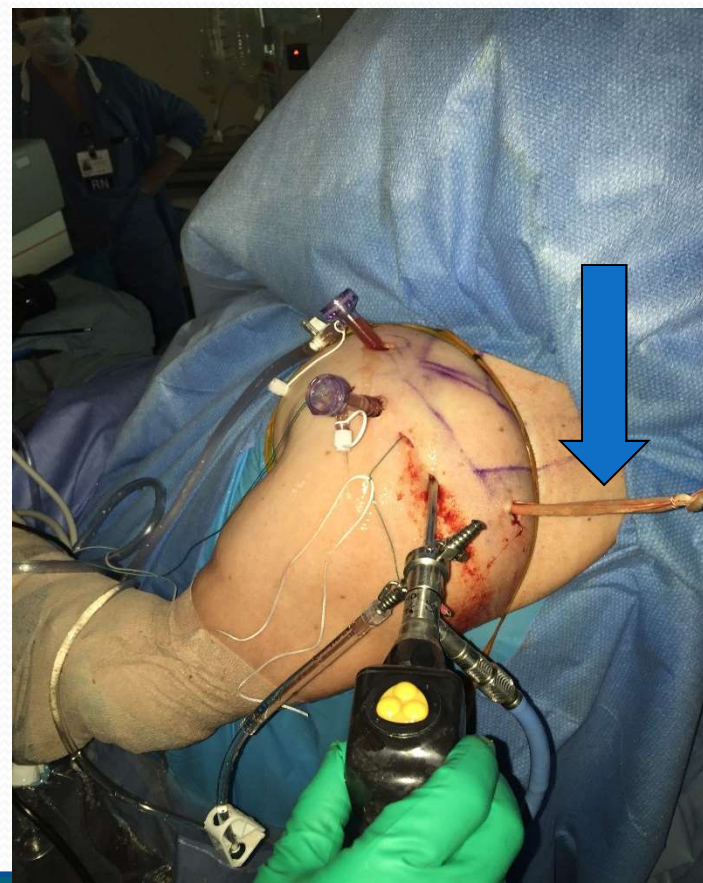
Technique

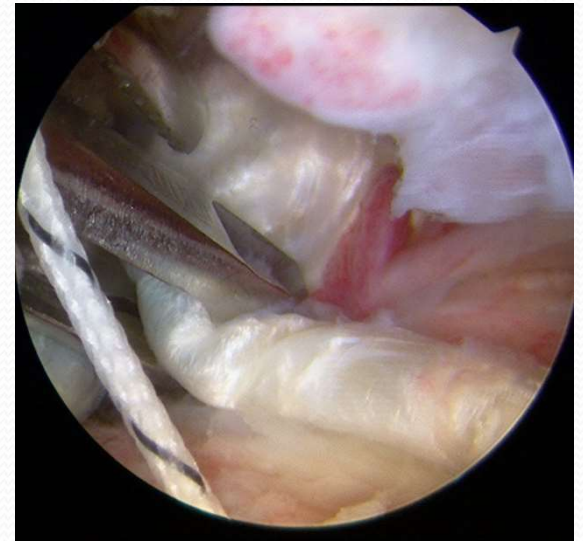
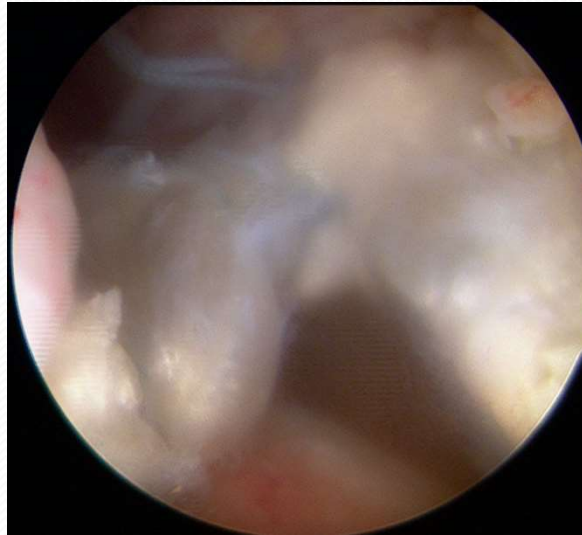
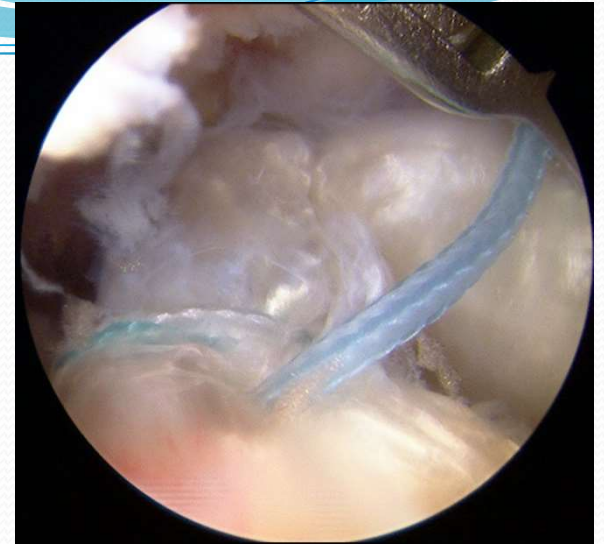
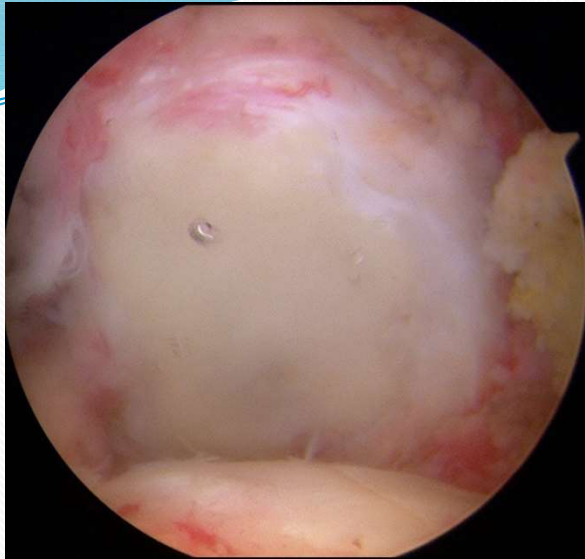


My Experience at BMC

N = 2

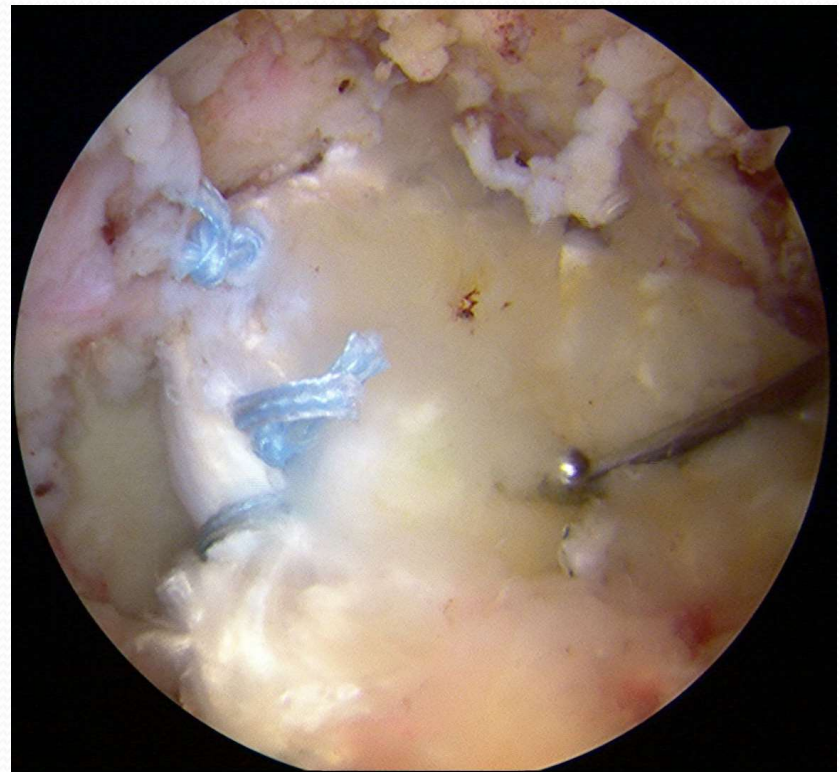
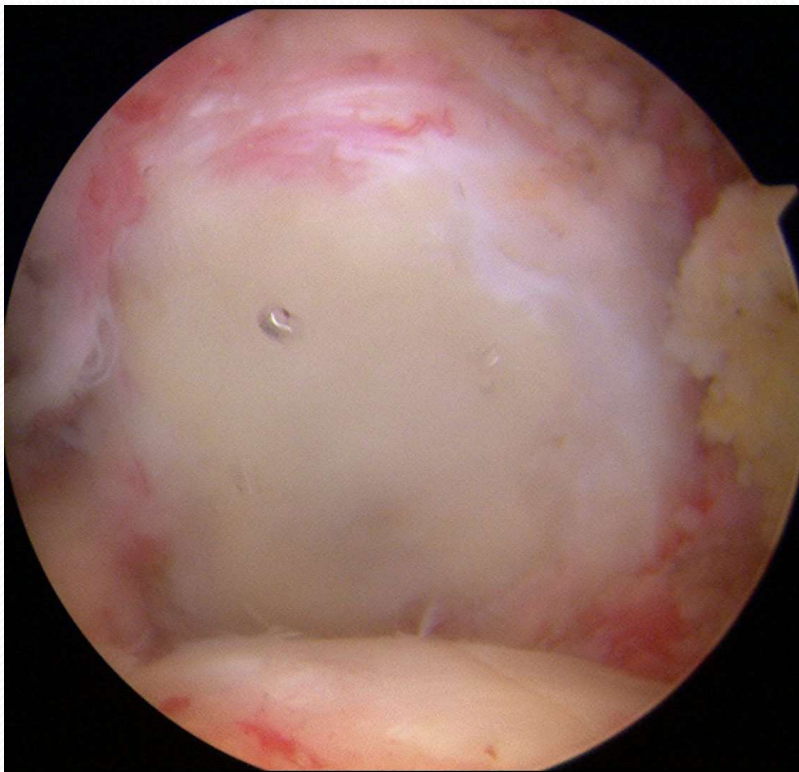
- Achilles Tendon Allograft for my SCR





Final Construct

SCR with Achilles Allograft

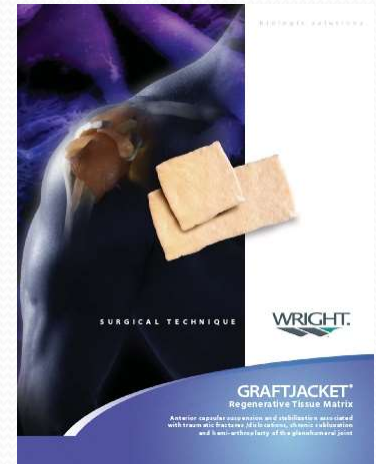
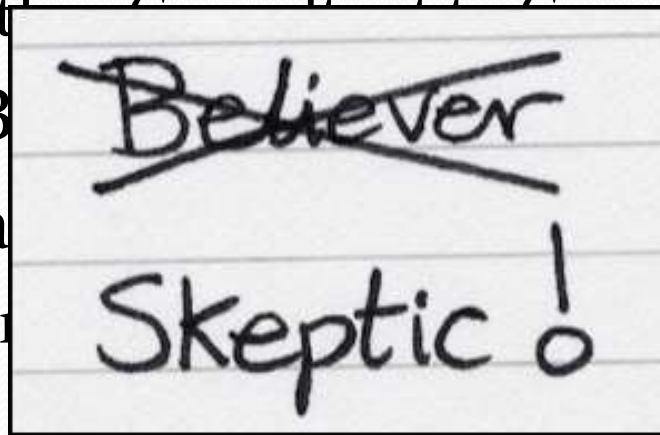


2 Months Post Op



GraftJacket Augment

- +/- Evidence to Support
- Papers with Good to Excellent Outcomes
 - Senior Authors from GraftJacket Companies.
 - Toth, B
- AAOS Rotational Malignancy Committee
 - Recommended (Pig Mucosa)
- Current Available dermal graft is Human based.



Tendon Transfer

- **Latissimus Dorsi Tendon Transfer**
 - Posterosuperior irreparable cuff tear
 - Subscap is intact
 - Young and active patient
 - No glenohumeral arthritis
 - Can only get back one grade of strength
 - Must have preserved motion!
- **Lower Trapezius Transfer**
 - Better for loss of ER with posterior cuff tear
 - Subscap must be intact
- **Pectoralis Major Transfer** for Chronic Subscapularis tear
 - Results is unpredictable
 - Patient with anterior superior escape is NOT a candidate.

Latissimus Dorsi Transfer

Latissimus Dorsi Tendon Transfer with Acromion Osteotomy for Massive Irreparable Rotator Cuff Tear



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Sports Medicine and Shoulder Surgery

Boston University School of Medicine – Boston Medical Center

Team Physician – Boston University Athletics



Massive Cuff Tear and Arthritis

- Reverse Shoulder Arthroplasty
- Outcome is predictable
- Final Motion
 - FF 140 to 160
 - ER up to 30
 - IR is limited
 - Strength depends on the size of the deltoid
- Recovery is 4 to 6 months from surgery





THANKS