PRIMARY CARE: perspectives on rotator cuff tear

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PANAM CLINIC

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DISCLOSURE

- Peter Nemeth MD
- Relationships with commercial interest:
  - Advisory board: N/A
  - Grants/research support: N/A
  - Speaker's bureau/honoraria: honorarium organizing body
  - Consulting fees: N/A
  - Other: N/A
- Potential for conflict of interest: N/A
- Mitigation of bias: N/A

Objectives

- Understand the primary care perspectives on rotator cuff pathology
  - Function of the rotator cuff
  - Traumatic versus degenerative pathology
  - Relevant clinical features
  - Primary treatment goals: pain management, Rehab
  - Injections?
  - Indications for imaging
  - Specialist/surgical referral indications?

Case: B

- RHD 66yo retired: Seen Apr 27/16
- L shoulder pain/weakness
- Crash water skiing Mid Feb/16
- Poor sleep difficulty reaching
- No prior shoulder problems
- Getting worse in past 2-3 weeks
- No meds. Otherwise healthy

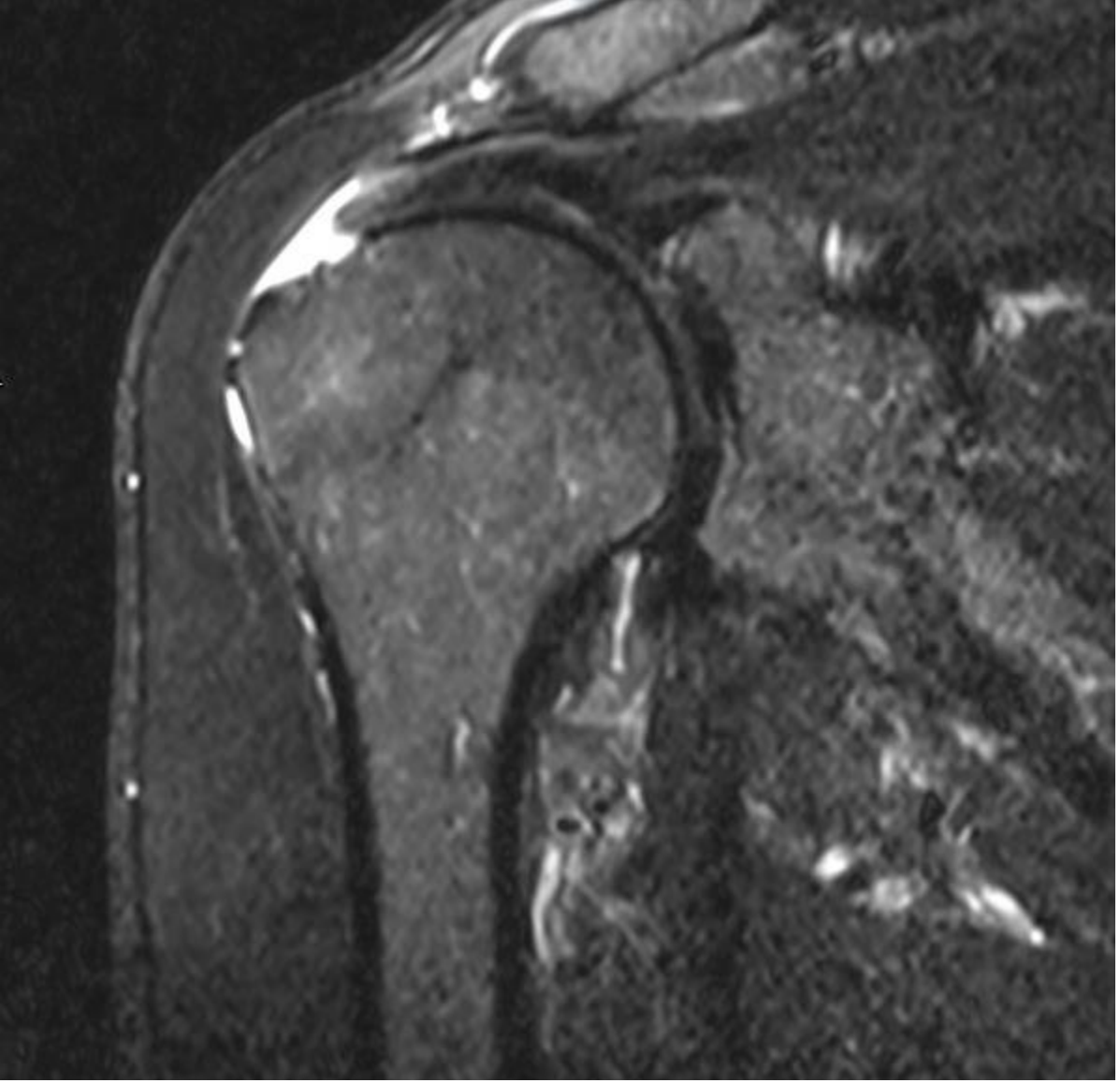
Exam: B

- No wasting. ROM: 170-35-L2
- painful arc. Scapular assymetry.
- Weak external rotation. ER lag 15°.
- tender SS footprint.
- Positive Jobes, Hawkins

- Radiographs: normal

- Impression: cuff tear. Traumatic. Mix SS/IS

- Plan:
  - Rehab routine
  - urgent MRI




A
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IPL

MRI & clinical f/u

- May 19/16. Positional pain/Weakness. Night pain resolved.
- Arc pain resolved. Still weak external rotation, but lag resolved.

- MRI discussed: repair versus conservative.
- Surgery: sling 6 weeks. 6 months to ski again.

- May 25/16. Sees shoulder surgeon. Elects conservative treatment. Defer repair unless worse. (Didn't want to stop skiing)

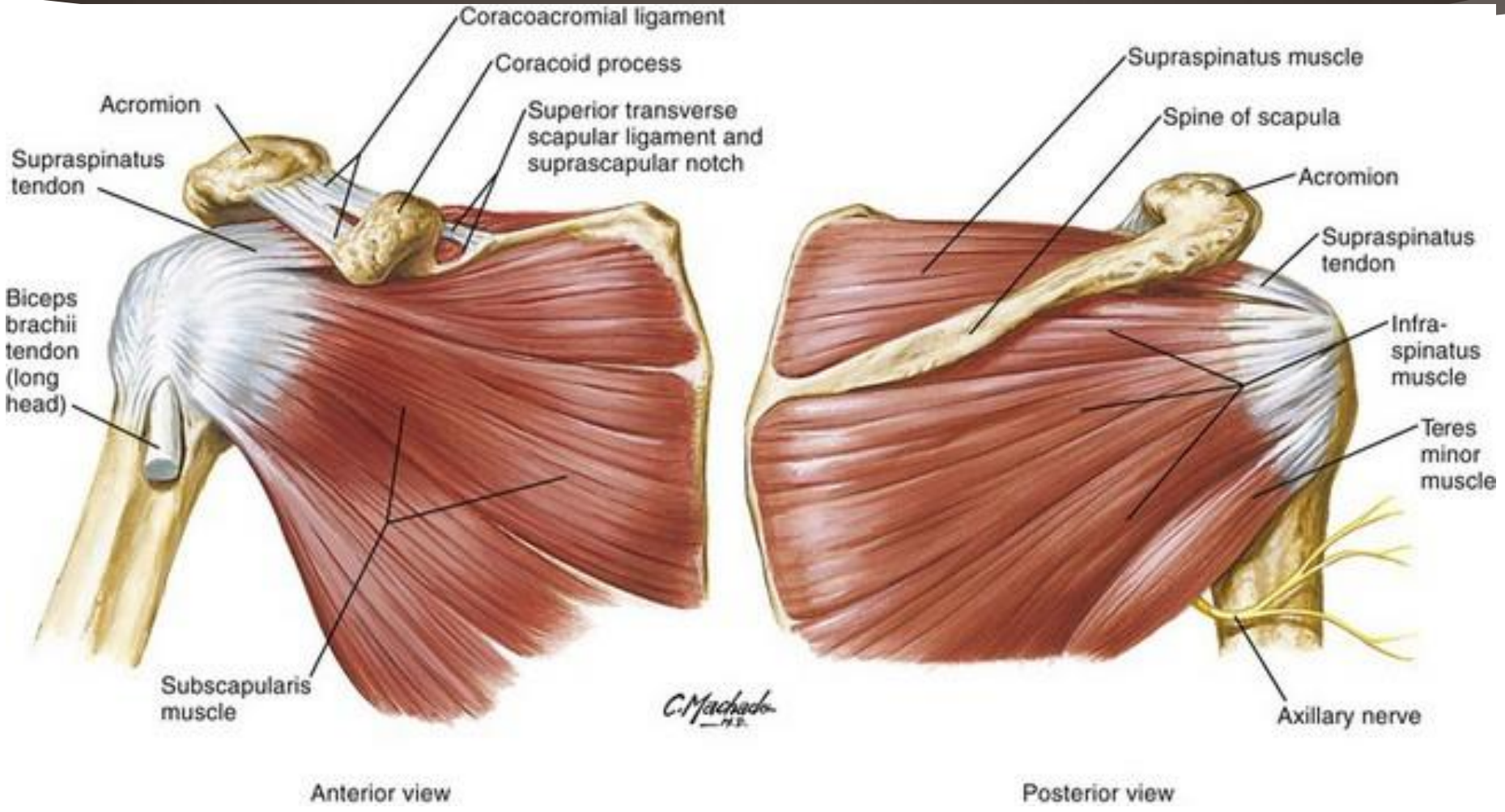
- Now: Feels best when skiing! Sore with other activity. Shoulder gets more sore in the shoulder season!

Questions/lessons

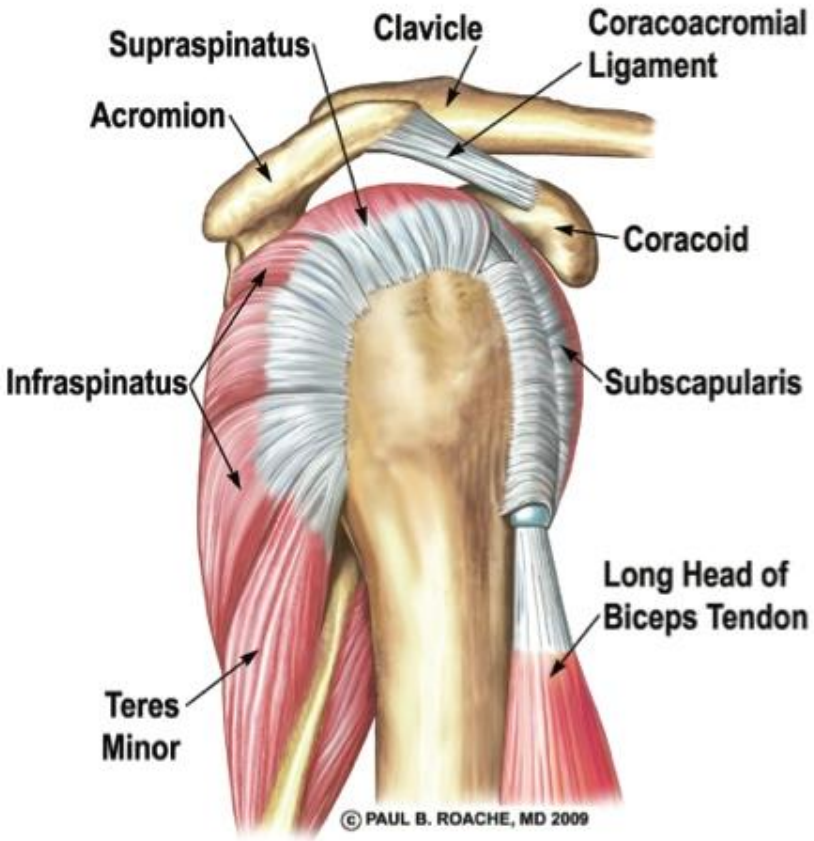
- Does anybody need their cuff repaired?
- Does everybody need their cuff repaired?
- Does age and demand make a difference?
- MRI: helpful? Misleading? Nocebo? When to order?
- Rehab: what does that mean? What's important?
- Surgery: who? Timing? Post-op: what's in store?
- Symptoms: how to manage?

- Is B just an outlier? Why is he ok with a hole in cuff?
- He's 66! Why did I get excited?

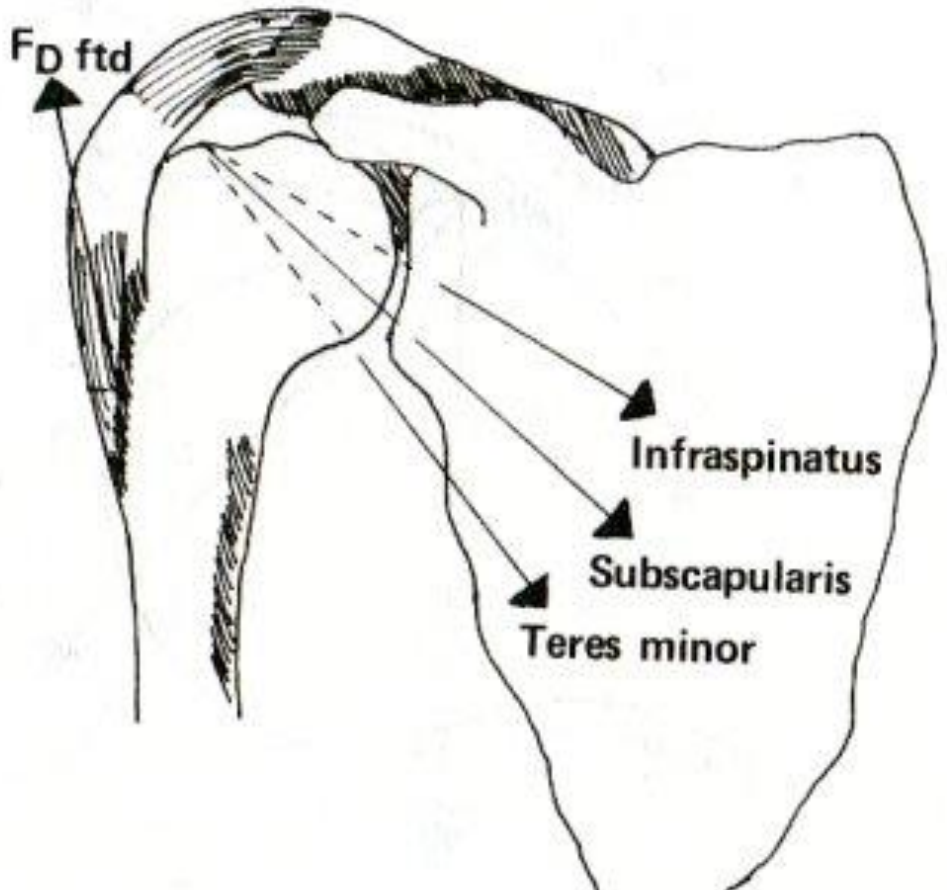
Rotator cuff



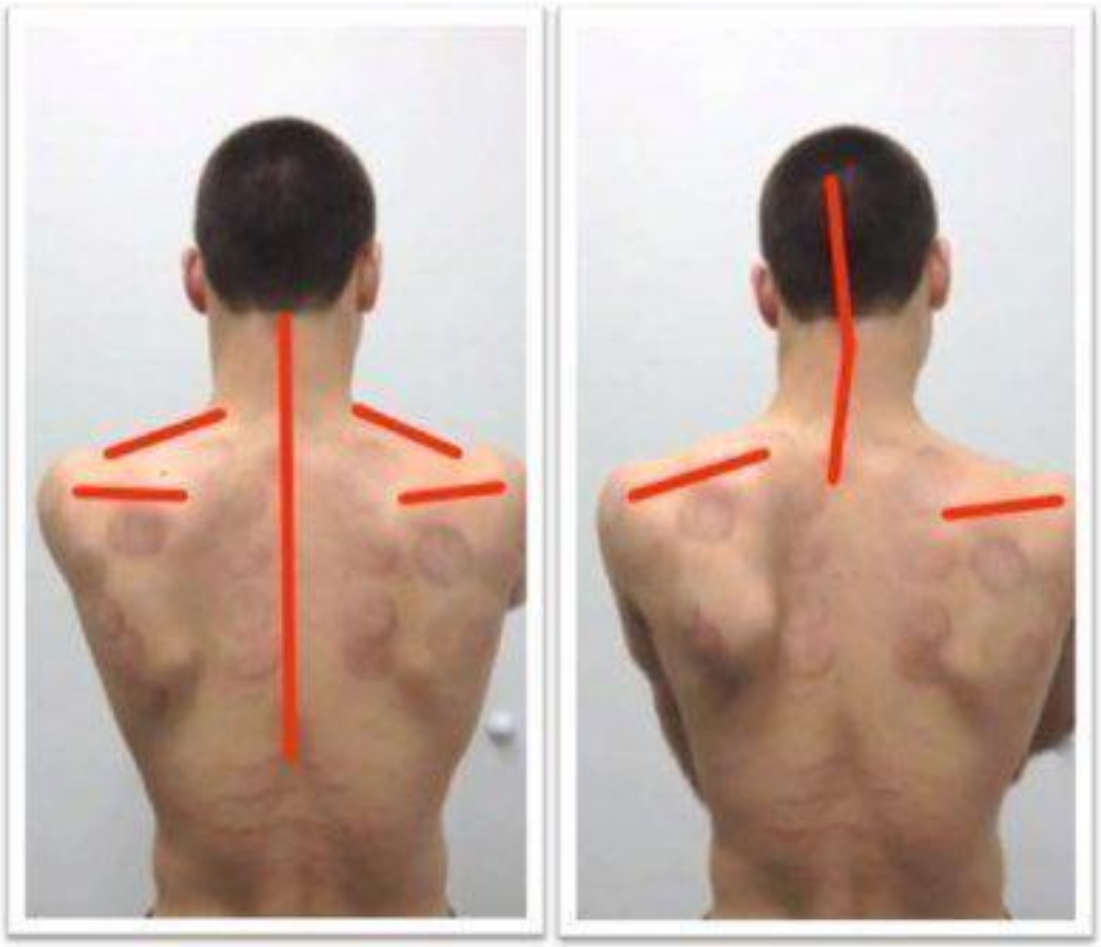
Rotator cuff



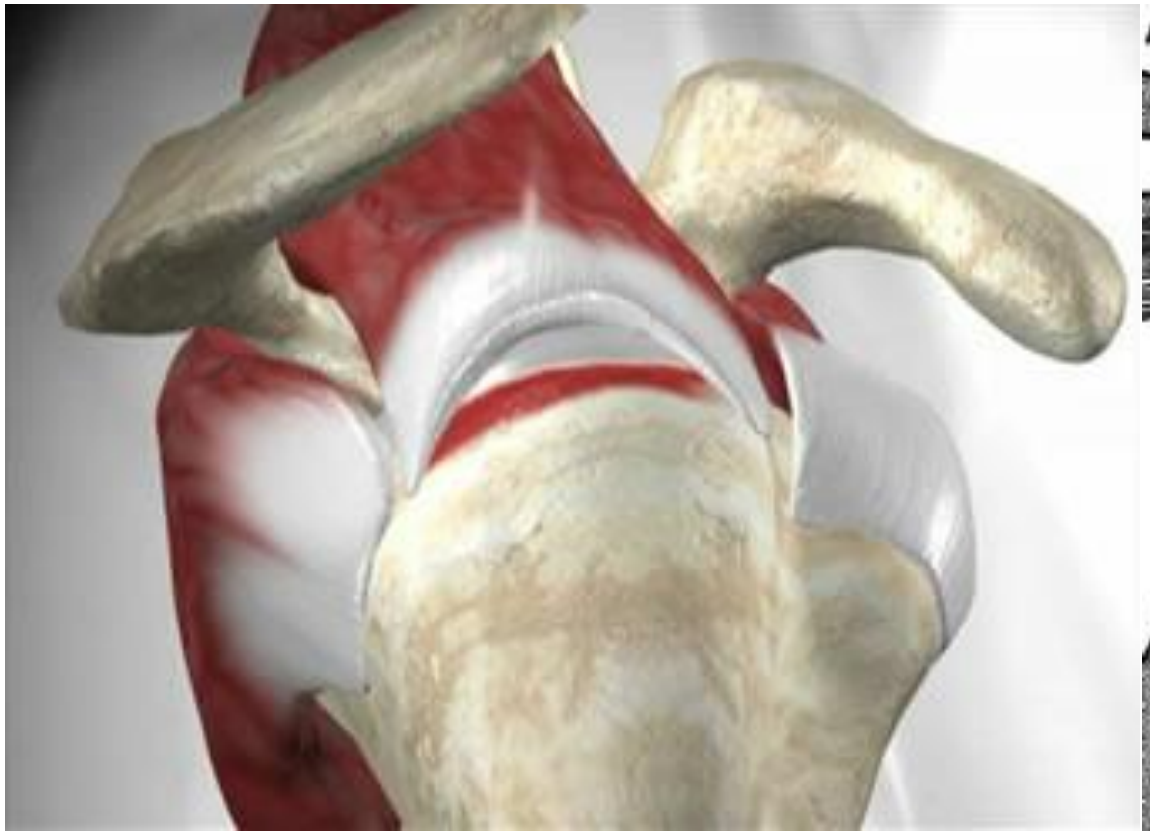
Force couples

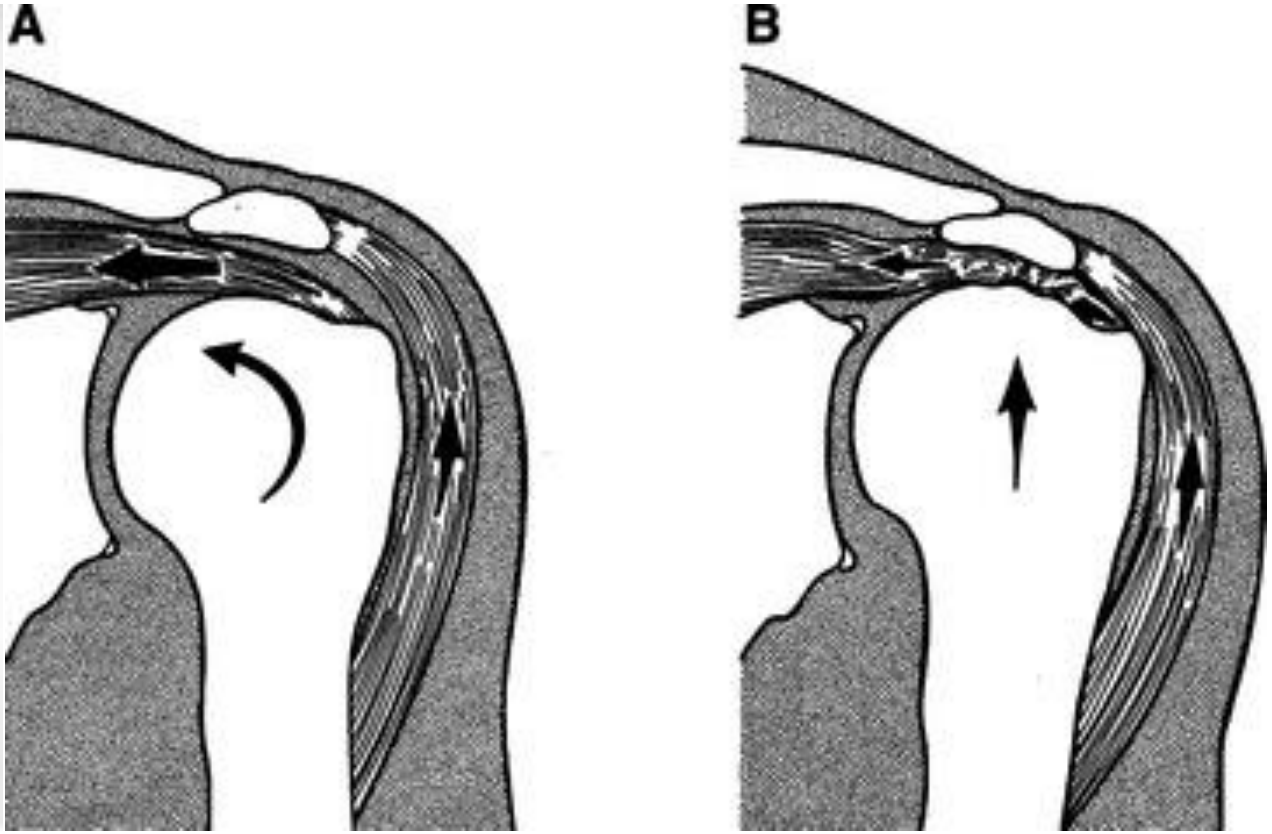


Scapula



Cuff Tear





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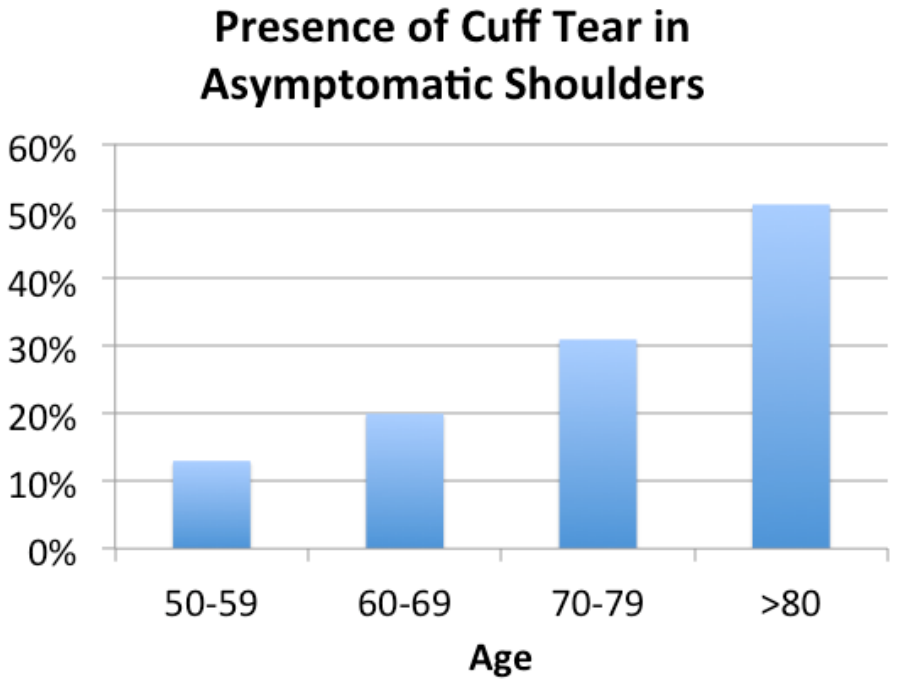


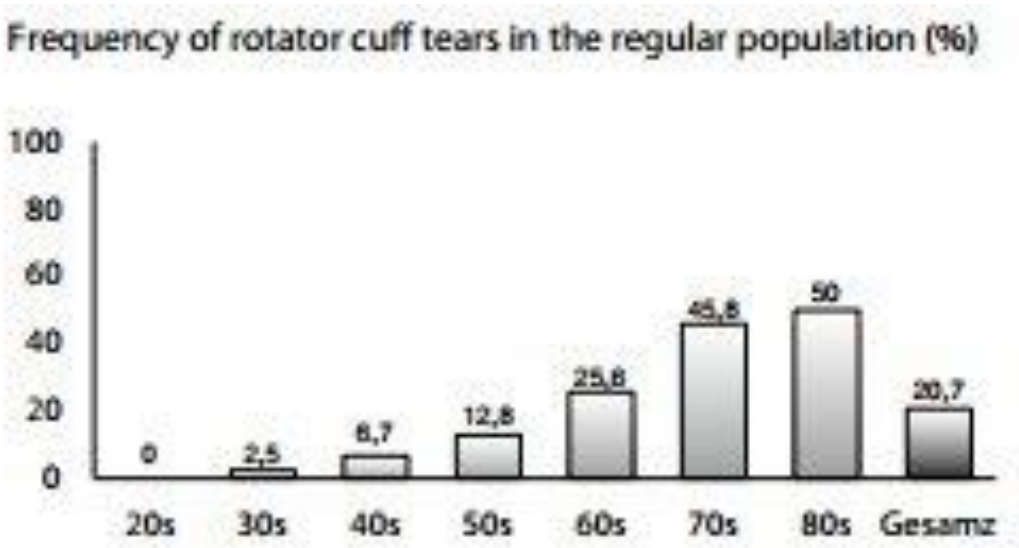


Fig. 1: Yamamoto with age-related distribution of rotator cuff rupture.

SYMPTOMS?

J B&J S The Journal of Bone and Joint Surgery

J Bone Joint Surg Am. 2014 May 21; 96(10): 793–800.
Published online 2014 May 21. doi: 10.2106/JBJS.L.01304

PMCID: PMC4018774
PMID: 24875019

Symptoms of Pain Do Not Correlate with Rotator Cuff Tear Severity

A Cross-Sectional Study of 393 Patients with a Symptomatic Atraumatic Full-Thickness Rotator Cuff Tear

CONCLUSIONS: Anatomic features defining the severity of atraumatic rotator cuff tears are not associated with the pain level. Factors associated with pain are comorbidities, lower education level, and race.

Australian Journal of Physiotherapy
Volume 54, Issue 3, 2008, Pages 159-170

Most clinical tests cannot accurately diagnose rotator cuff pathology: a systematic review

Phillip C. Hughes, Nicholas F. Taylor, Rod A. Green

CONCLUSION: Overall, most tests for rotator cuff pathology were inaccurate and cannot be recommended for clinical use. At best, suspicion of a rotator cuff tear may be heightened by a positive palpation, combined Hawkins/painful arc/infraspinatus test, Napoleon test, lift-off test, belly-press test, or drop-arm test, and it may be reduced by a negative palpation, empty can test or Hawkins-Kennedy test.

Cuff pathology

Test	Range of Diagnostic Values (%)	References
Subscapularis		
Life-off test (and lag sign)	Sensitivity: 17–100 Specificity: 60–98	10,12,14,19,23,56
Belly press test	Sensitivity: 40–43 Specificity:93–98	10,57
Belly-off sign	Sensitivity: 14–86 Specificity: 91–95	23,57,58
Bear hug test	Sensitivity: 60 Specificity: 92	10
Supraspinatus and Infraspinatus		
External rotation lag sign	Sensitivity: 46–98 Specificity: 72–98	14,19,38
Jobe's test	Sensitivity: 53–89 Specificity: 65–82	22,57,59,60
Drop arm test	Sensitivity: 10–73 Specificity: 77–98	19,22,57,61
Teres Minor		
Hornblower's sign	Sensitivity: 100 Specificity: 93	38
Biceps Tendon		
Speed's test	Sensitivity: 53 Specificity: 67	62
Impingement Signs		
Neer's sign	Sensitivity: 68–89 Specificity: 49–98	17,22,56
Hawkin's sign	Sensitivity: 72–92 Specificity: 44–78	17,22,56

MRI

- Accessibility: better order it early!
- Patients want it. Why not: every athlete gets one!
- It is accurate: sensitive and specific
- Consultant wants it
- Clinical concordance?

- MRI is done! Now what!
  - nocebo
  - ?Go to Pan Am

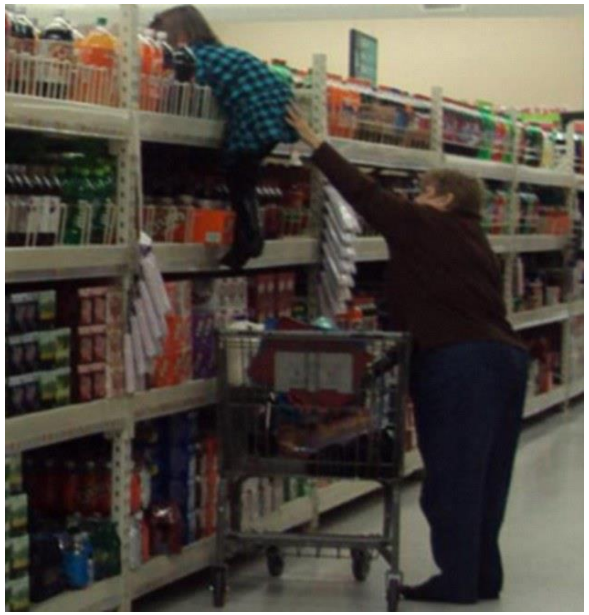
- What about x-ray
  - Trauma: fractures. Nondisplaced GT fracture.
  - Calcific tendinopathy
  - AC, acromion
  - Head (A-H)
  - GH pathology

ULTRASOUND

- Well recognized as accurate and sensitive. Operator dependant.
- Dynamic
- MRI ineligible
- Point of care vs diagnostic

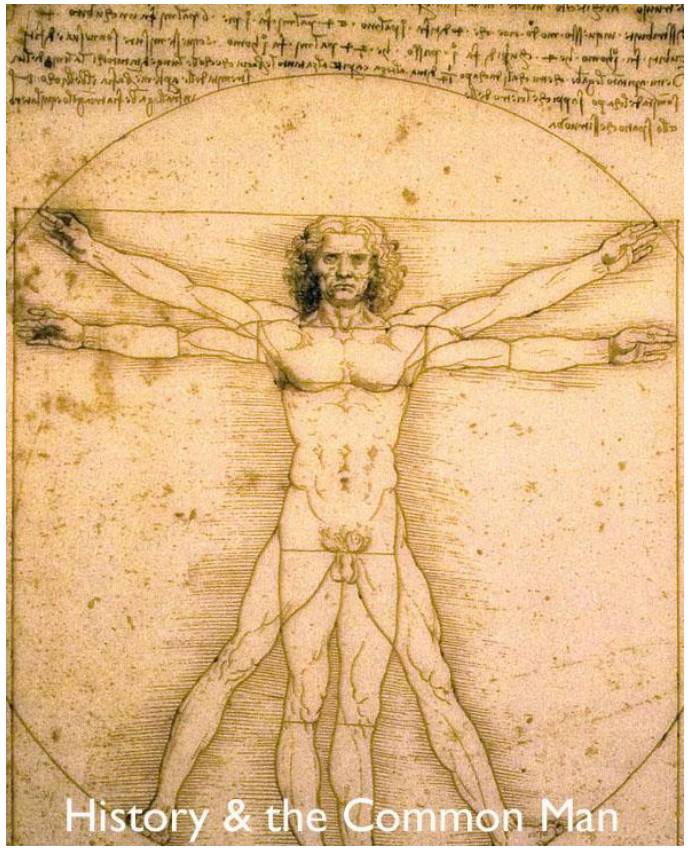
Cuff tear: common presentations

- High energy injury
- Low energy injury
- Positions of impingement



History

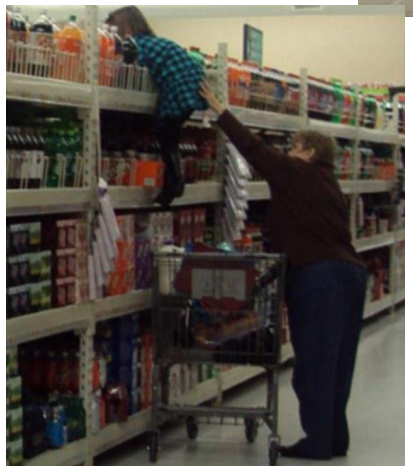
- Who: Age. Dominant arm. Vocational/non-vocational activity.
- MOI: High energy vs low energy.
- Symptoms: pain-rest/activity. Functional impairment.
- Shoulder/MSK past history
- Prior treatment if any
- Medical comorbidities. Medications. Allergies
- Smoker



History

- Acute traumatic tear:
  - Healthy shoulder with acute significant traumatic event

- Pre-existing chronic tear:
  - Event creating decompensation



Am J Sports Med. 2018 Aug 21:363546518789691. doi: 10.1177/0363546518789691. [Epub ahead of print]

Effect of Smoking on Healing Failure After Rotator Cuff Repair.

Park JH[1], Oh KS[1], Kim TM[1], Kim J[2], Yoon JP[3], Kim JY[4], Chung SW[1].

CONCLUSION: Smoking affected healing failure after arthroscopic rotator cuff repair. Attention should be paid to smokers, especially current heavy smokers, in cases of rotator cuff repair surgery.



EXAMINATION

- Observation/inspection: movement/undressing. Wasting.
- Active Range: elevation-external rotation-internal rotation.
- Scapula: ?dyskinetic
- Passive range: patient assisted. Examiner assisted.
- Palpation: gentle-firm. GT/SSp. Bicep. LT/SSc.IS.
- Strength: Asymmetry
  - Supraspinatus: Abduction
  - Infraspinatus: external rotation
  - Subscapularis: internal rotation
  - Teres minor: external rotation at 90° abduction
  - PAIN: Confuses strength evaluation
- Special tests

Special tests: 25!

Test	Range of Diagnostic Values (%)	References
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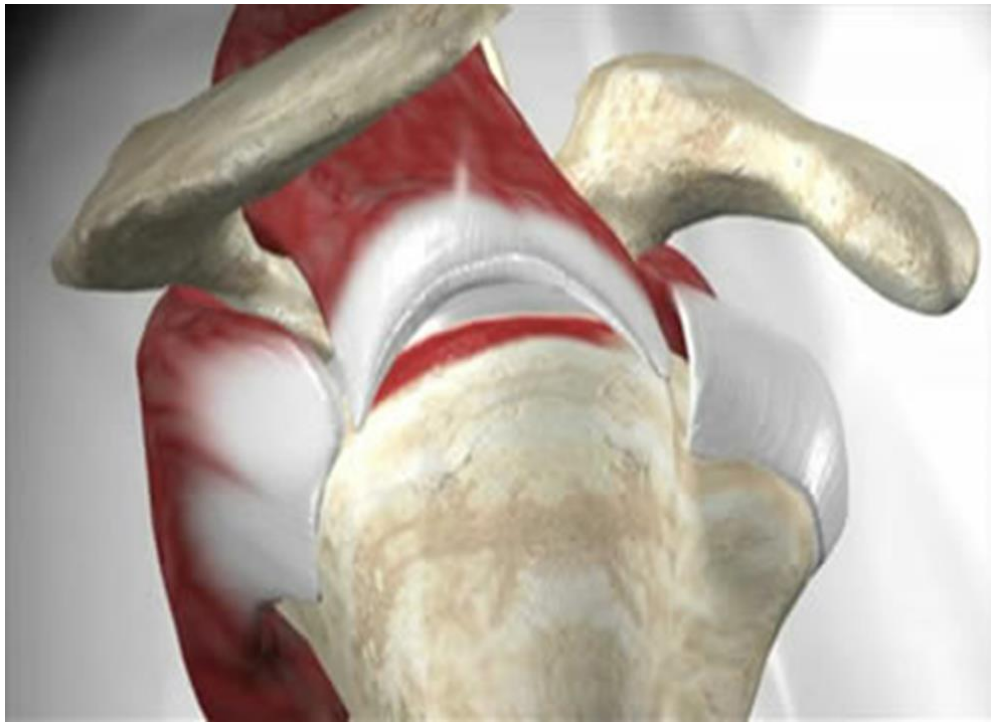
Muscle-Tendon-Bone

- Pain
- Weakness
- Lag
- Kinesis



URGENT VERSUS NONURGENT

URGENT

- Trauma
- Younger: <40
- Clinical findings: full-thickness cuff tear
  - Lag signs
  - True weakness
  - Drop arm
  - Pain may confound clinical
    - Ablation injection
- Early imaging/MRI and surgical consultation

NONURGENT

- Everyone else??
- Pain management as necessary
- Rehab: Home exercise versus clinic
- Injections
- Imaging/MRI: Failure to progress
- Surgical referral after adequate conservative treatment with concordant imaging.

Imaging/MRI

Choosing wisely? Will MRI make a difference in my treatment?

Clinical cuff tear: yes, no, maybe? Could it be something else: neuropathic?

SURGERY: is the patient interested in surgery? Are they a candidate medically?

Define cuff pathology: size, location, dimensions, thickness, muscle condition, associated pathology. Is it repairable?

Does the MRI match the patient clinically? Concordance?

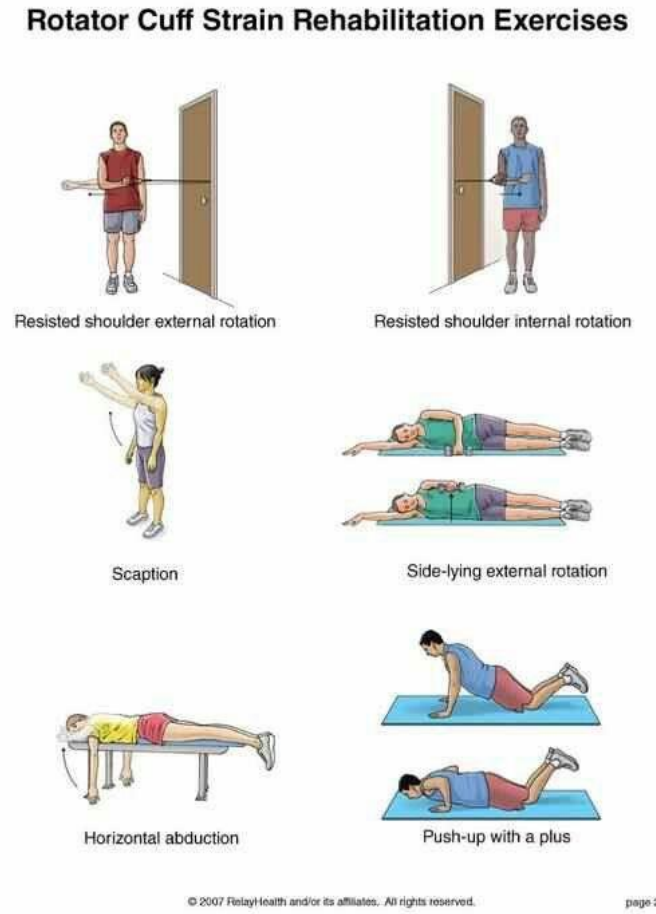
Subacromial ablation injection

- Local anaesthetic
  - Diagnostic
- Corticosteroid/local anaesthetic
  - Diagnostic, ? therapeutic
  - Avoid if considering early surgery
- Biologics

REHABILITATION

- Pain significantly limits function and movement
- Discomfort versus pain: VAS 3-4
- Clinic vs home
- Education/teaching vs coaching

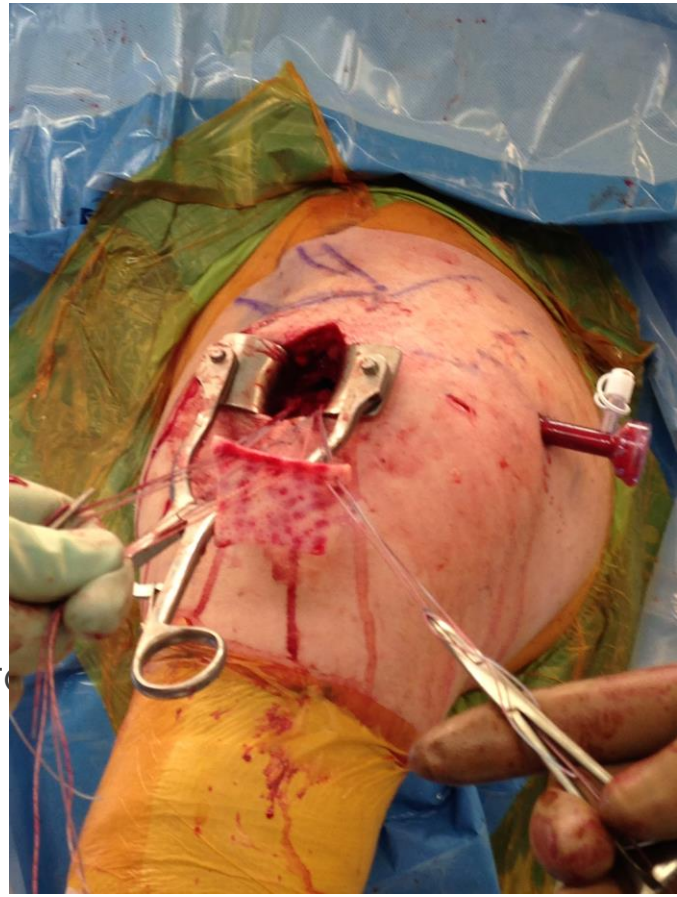
- Posture and scapular positioning/kinesis
- Mobility maintenance
- Maintenance of cuff activation
- Strengthening when pain settles
  - Away from the pain



Surgical referral

ROTATOR CUFF SURGERY IS ELECTIVE!

- Does the patient want surgery?
- Adequate trial of conservative treatment? Degenerative!
- Is the imaging and clinical concordant?
- Medical fitness: comorbidities, smoking
- Expectations: pain, movement, strength? Risks/complications.
- Postoperative: sling six weeks, limited activity six months. Commitment t rehab.



What about the bicep?

- Long head bicep pathology often associated with cuff tears: subscapularis
- Tendinopathy, subluxation, tears
- Anterior pain and tenderness
- Bicep tension tests: speed's, yergason's
- Usually conservative Tx

Clinical course

- Acute assessment: traumatic versus degenerative. Xray?
  - Pain management. Activity advice: vocational. Mobility maintenance. Posture/scapula.
- 2 weeks: reassess. Any change in clinical impression? Progress?
  - Progress rehabilitation. Formal referral versus home exercise. Injection? Imaging?
- 6 weeks: Clinical course (pain,function,ROM,strength). Progress?
  - Progress rehab. Injection? Imaging? Surgery: traumatic?
- 3 months: Clinical course. Progress?
  - Rehab/home routine: what are they actually doing?. Injection? Imaging?
- 6 months, or post imaging: Clinical course. Progress?
  - Maintenance rehabilitation. Injection? Surgery?
- 6 months +: maintenance rehabilitation, repeat injection?, Decompensation:? Surgery.

Does anybody need their cuff repaired?

Operative versus nonoperative treatment for full-thickness rotator cuff tears

Study Type: **Meta-analysis/Systematic Review**	OE Level Evidence: **1**	Journal Level of Evidence: **2**

Operative versus nonoperative treatment for the management of full-thickness rotator cuff tears: a systematic review and meta-analysis

J Shoulder Elbow Surg. 2018 Mar;27(3):572-576

In the management of full-thickness rotator cuff tears, operative treatment was associated with statistically significantly greater improvements in pain and function when compared to nonoperative treatment, though the differences failed to exceed MCID thresholds.

Summary

- Understand the cuff and what happens when the cuff tears
- Clinical evaluation: Good history. Cuff weakness versus pain
- Traumatic versus degenerative cuff tear: clinical relevance
- Treatment goals: pain, mobility maintenance, rehabilitation
- Injections: diagnostic versus therapeutic
- Imaging indications: acute versus degenerative
- Imaging concordance with clinical
- Surgical referral indications

Questions/discussion

- Peter Nemeth MD
- Pan Am clinic