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Surgical Treatment of Shoulder Stiffness



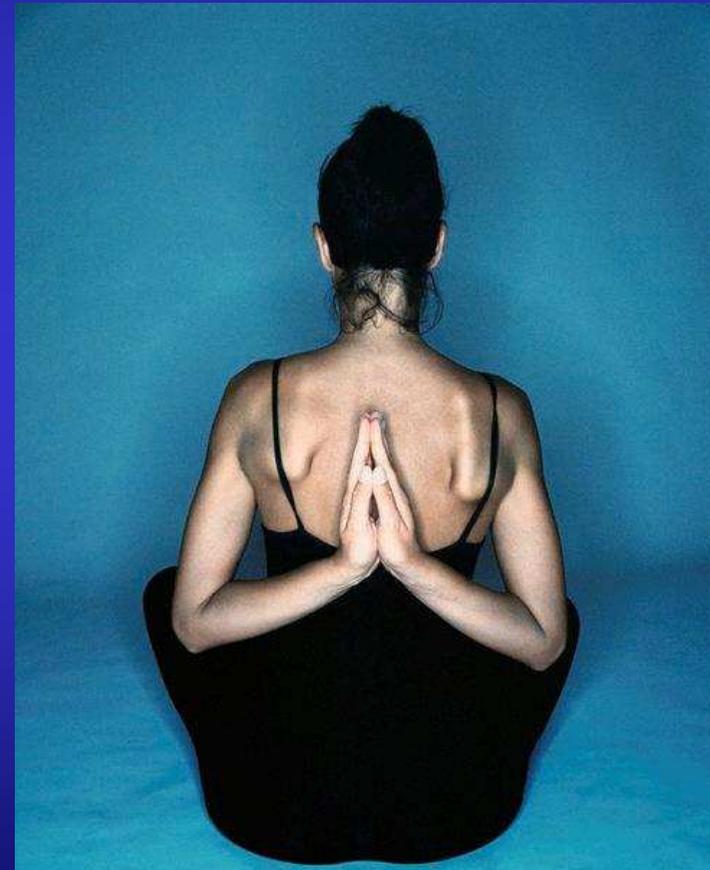
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Topics to Cover

- Surgical Treatment of Adhesive Capsulitis
- Surgical Treatment of the stiff shoulder with OA.
- Stiffness after Shoulder Surgery



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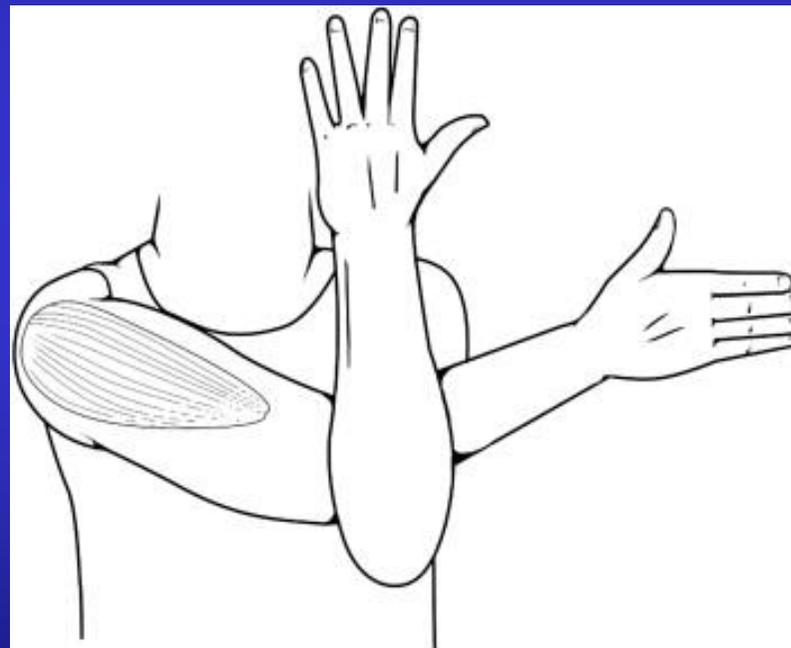


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Surgical Treatment of the Idiopathic Stiff Shoulder

- Non-operative treatment works for 90% of patients
- Pain resolution
- Restore range of motion, but usually some residual loss of motion



Surgical Treatment of Frozen Shoulder

- Manipulation under anaesthesia
- Arthroscopic Release with manipulation



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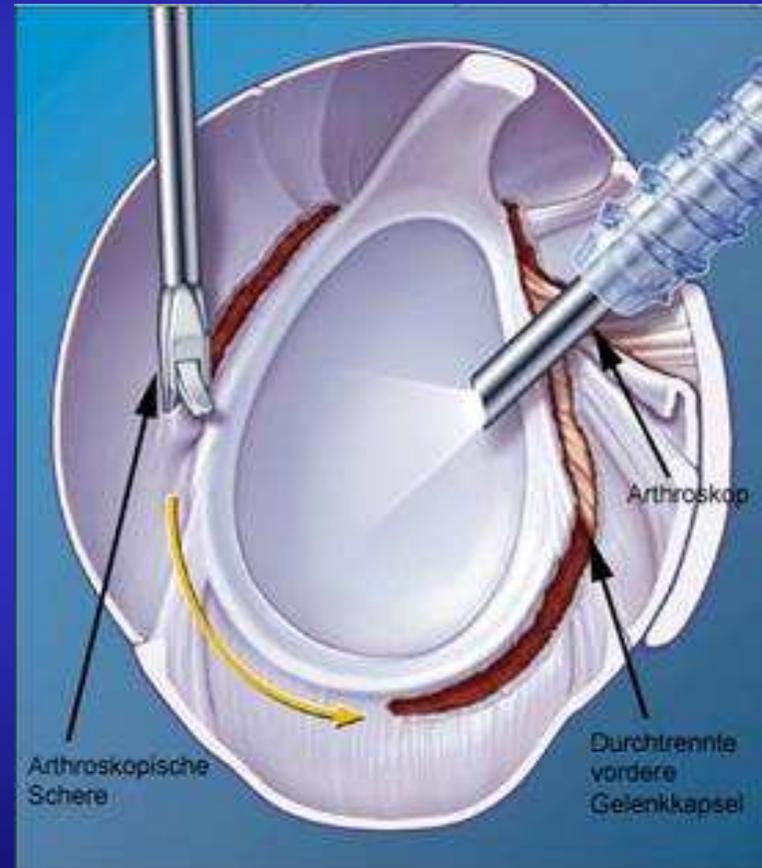
Manipulation under Anaesthesia

- Potentially more traumatic
- May result in humerus fracture
- Uncontrolled tear of capsule
- Gauar et al. Prospective randomised MUA vs scope equal results



Arthroscopic Release

- Release rotator interval and around subscapularis
- Release anterior, posterior, and inferior capsule
- Perform manipulation to release muscles
- Subacromial space



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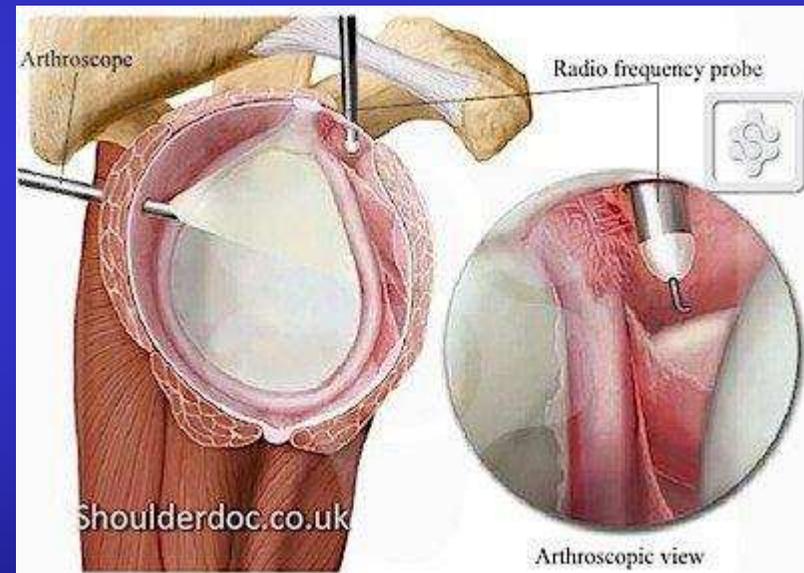


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Results of Arthroscopic Release

- Studies have shown long term improvements in pain and function
- Generally recommended in cold phases, 9 months, no rest pain.



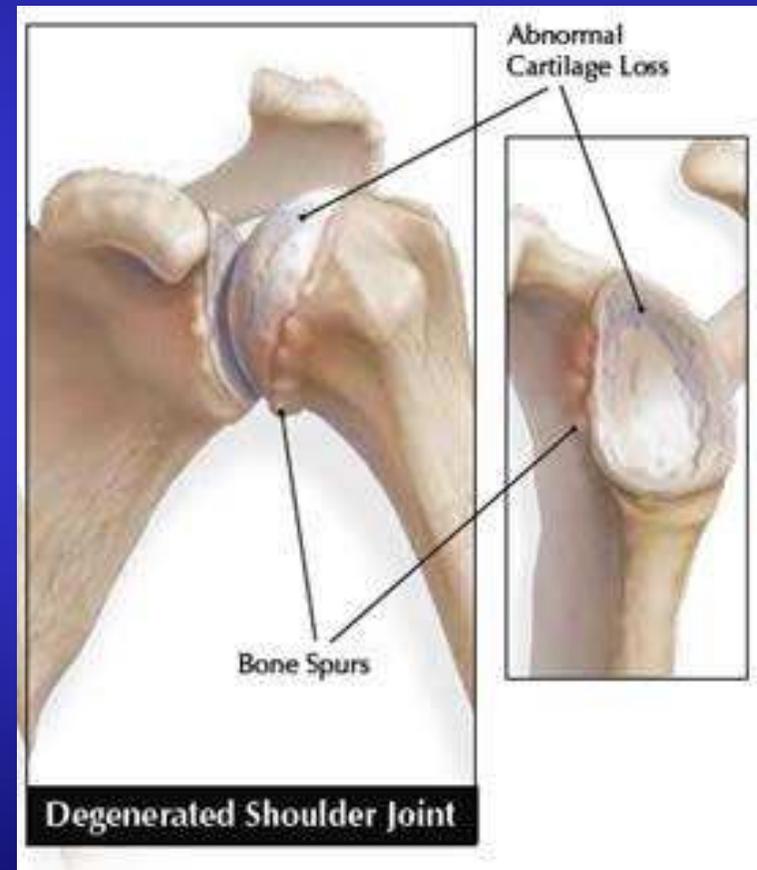
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Stiffness in OA

- Due to inferior osteophytes
- Tight capsule, usually anterior
- Compression of axillary nerve



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Arthroscopy in OA

- Reserved for young active patients
- High demands
- Expect short term benefit only
- TSA is not an option



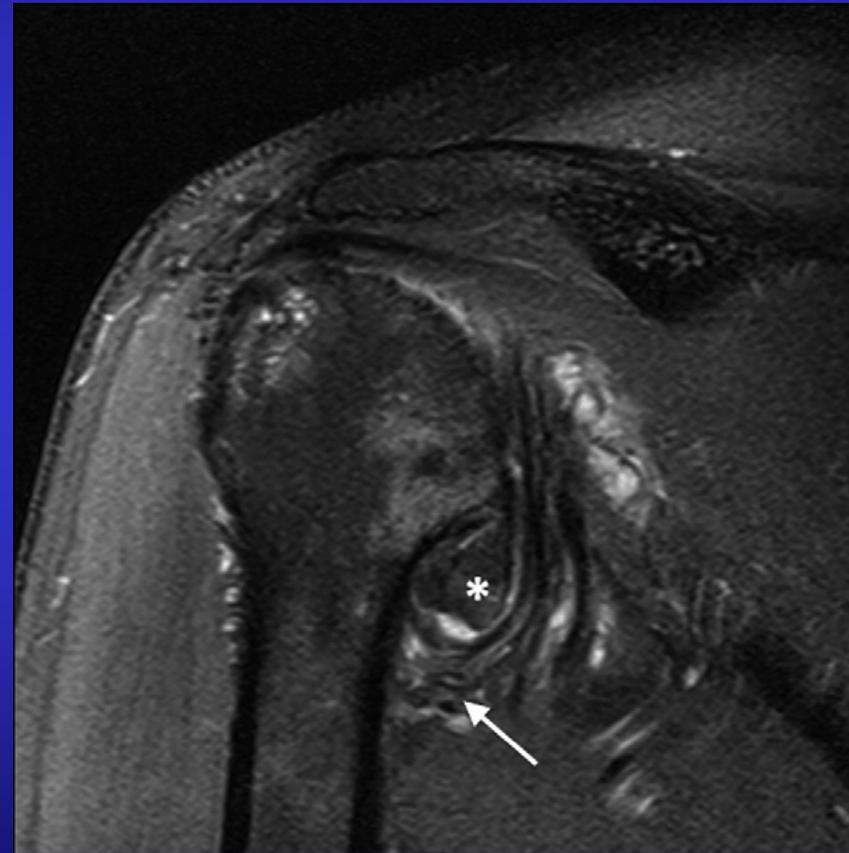
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OA and stiffness

- Osteophytes are intra articular
- Possible compression of nerve



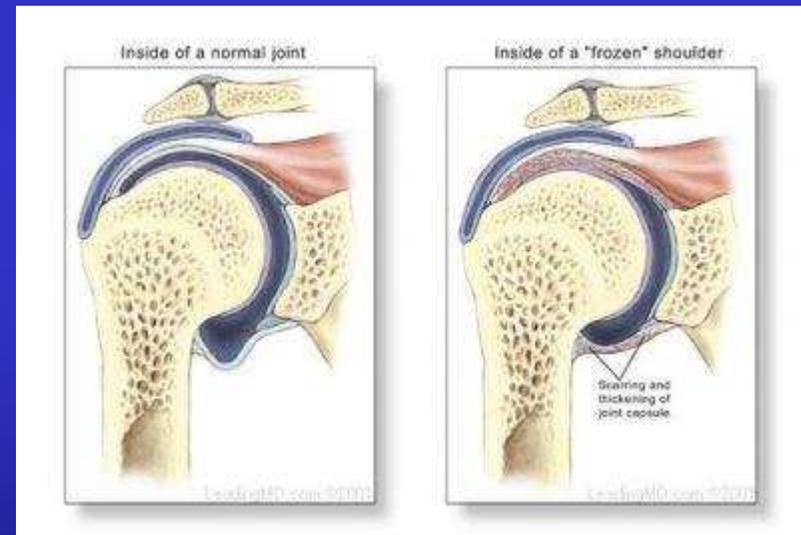
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Procedure

- Debridement
- Osteoplasty
- Capsular release
- Manipulation under anaesthesia
- Biceps tenotomy/tenodesis
- decompression

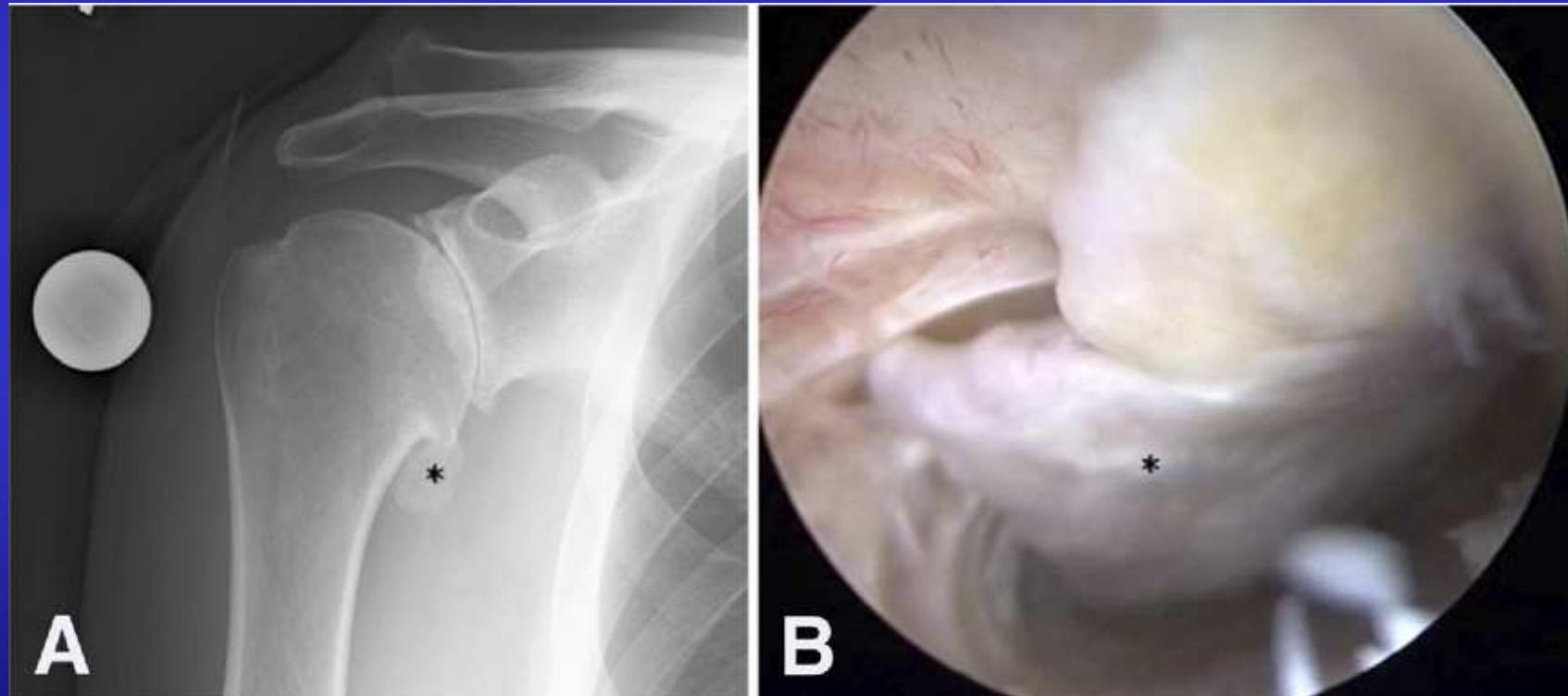


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Arthroscopic Osteoplasty, capsular release



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Outcomes of arthroscopic management of OA

- Mixed Results
- Namdari, et al. Systemic Review
 - Lack of good evidence
 - Short term pain relief
- Millett et al. 2011
 - Less than two years
 - High satisfaction



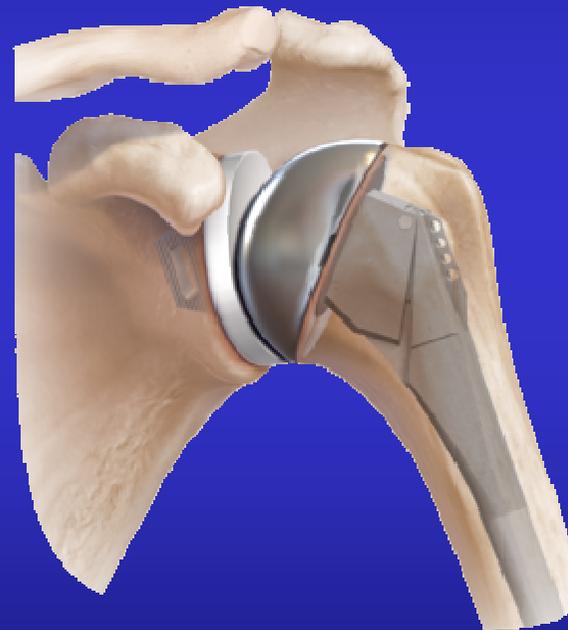
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Management of OA

- Most reliable long term is Total Shoulder Replacement
- Restrictions on activity level



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Stiffness after RCR surgery

Background

- Rotator Cuff Healing requires immobilisation
- Movement after surgery to prevent stiffness



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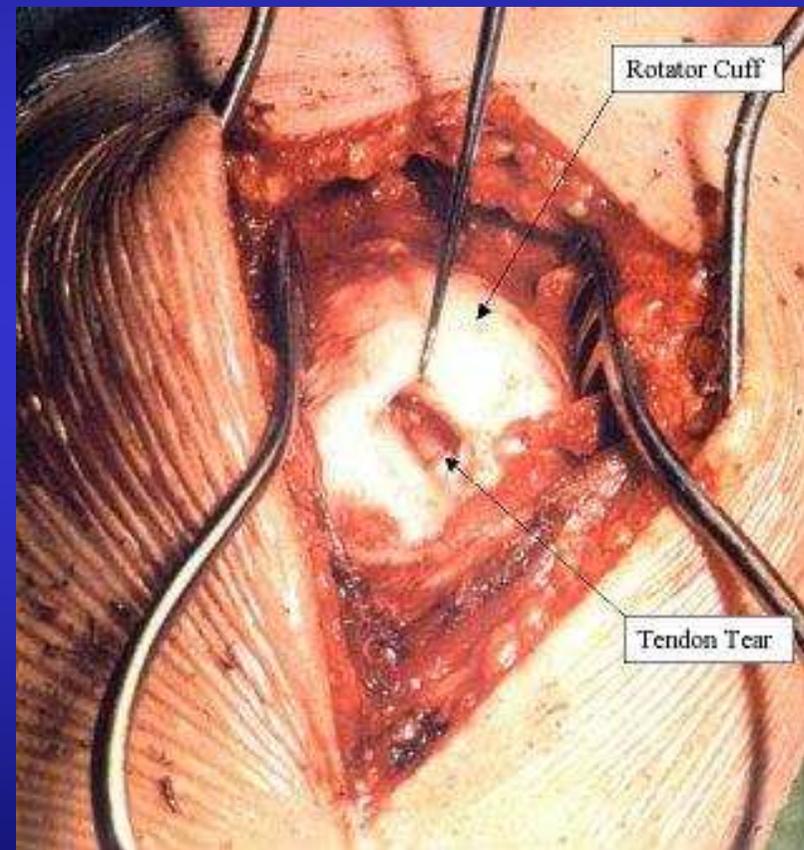
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Stiffness after RCR surgery

Background

- Stiffness after open RCR surgery was dreaded complication
- Treatment if stiffness difficult- MUA
- Early immediate passive range of motion recommended



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History of Rotator Cuff Repair

- 1985 Statement by Cofield: “The use of physiotherapy is no longer controversial. Early passive range of motion exercises of the shoulder both prevent adhesions and protect the repair.”



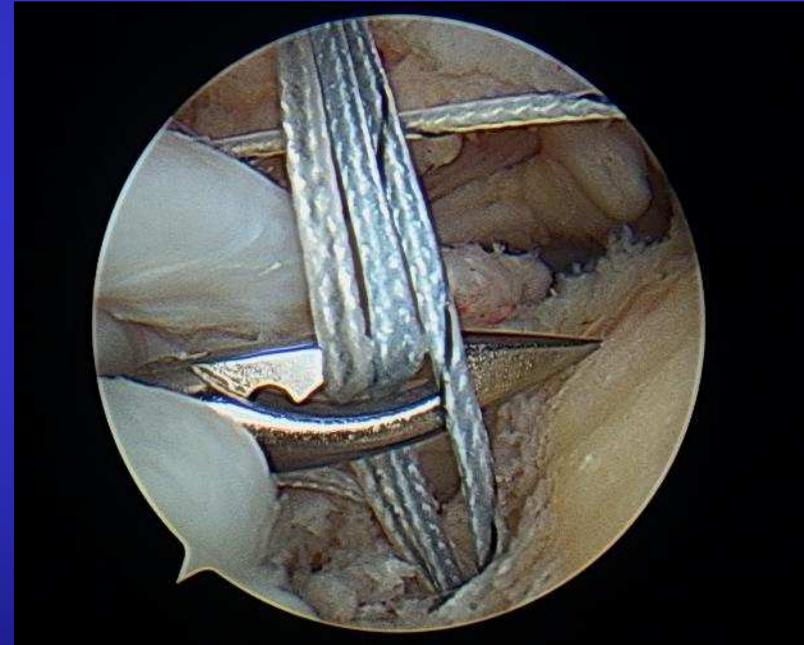
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Paradigm shift on stiffness

- Stiffness is manageable arthroscopically
- Passive ROM may increase post op adhesions
- Arthroscopic repair may result in less inflammation than



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Inflammation after RCR

- Shinoda et al
 - Open vs arthroscopic RCR
 - 3-fold increase in IL-6 levels on open group
- Franceschi et al
 - 3-fold increase in substance P levels in those with stiffness
- Suggests a role of inflammation in causing stiffness



Range of Motion affecting stiffness AND healing

- Peltz et al- immediate passive ROM led to increased stiffness.
- Gimbel et al- immobilisation led to enhanced mechanical properties in rat rotator cuff tendons
- Immobilisation is beneficial to healing and to combat stiffness



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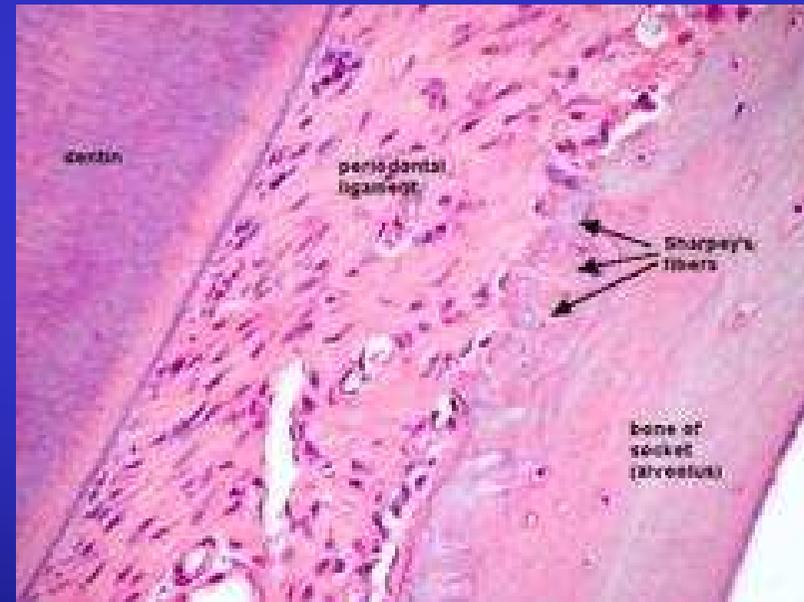


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Rotator Cuff Healing

- Sonnabend et al. JBJS 2010
 - Studied healing of rotator cuff repair in baboon
 - Sharpey's fiber's develop at 12-15 weeks, maturation
 - Limit strengthening until this time.



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Does no rehab make a difference?

- Parsons et al.
 - All patients underwent sling immobilisation for 6 weeks
 - 23% considered stiff at 6 weeks.
 - At one year, those that were stiff restored motion and there was no difference in outcome
- MRIs revealed better healing rates in stiff group.



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Studies comparing limited ROM to more aggressive

- Riboh et al, 2014
- Lee et al, 2012
- Compared early aggressive ROM to limited rehab
- No difference in ROM at 12 months
- Better for RC healing



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Limited Rehab Protocol

- Huberty et al, 2009
- Reviewed 500 RCR
- 5% incidence of stiffness overall

Incidence and Treatment of Postoperative Stiffness Following Arthroscopic Rotator Cuff Repair

David P. Huberty, M.D., John D. Schoolfield, M.S., Paul C. Brady, M.D., Antonio P. Vadala, M.D., Paolo Arrigoni, M.D., and Stephen S. Burkhart, M.D.

Purpose: The purpose of this study was to determine the incidence of clinically significant postoperative stiffness following arthroscopic rotator cuff repair. This study also sought to determine the clinical and surgical factors that were associated with higher rates of postoperative stiffness. Finally, we analyzed the result of arthroscopic lysis of adhesions and capsular release for treatment of patients who developed refractory postoperative stiffness 4 to 19 months (median, 8 months).



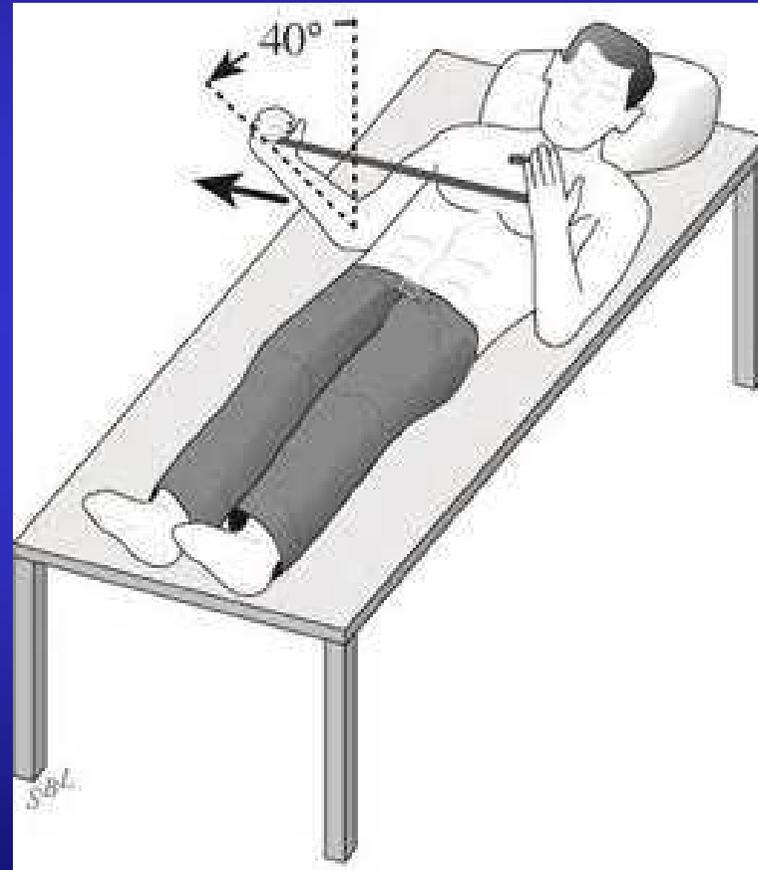
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Limited Rehab Protocol

- 0-6 weeks- Sling only, Passive ER, no FF
- 6-12 weeks- full passive ROM, no strength, active to shoulder
- 12 weeks begin strength, therabands
- 6 months- full activity



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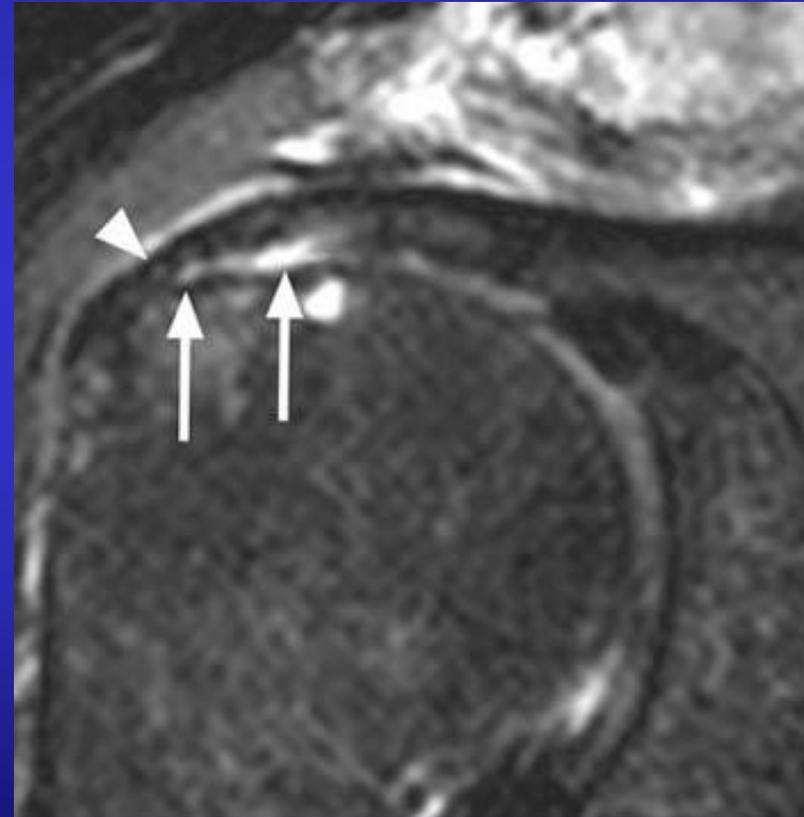


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Group Resulting in Increased Stiffness

- Younger than 50- 8%
- WC- 8%
- Adhesive capsulitis- 15%
- Calcific tendonitis- 15%
- Small/partial tears- 13%



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2nd look arthroscopy

- Arthroscopy for stiffness in 24 patients
- Found complete healing of RCR in 23 of 24 patients
- All patients in this group regained motion after release
- Stiffness helps healing



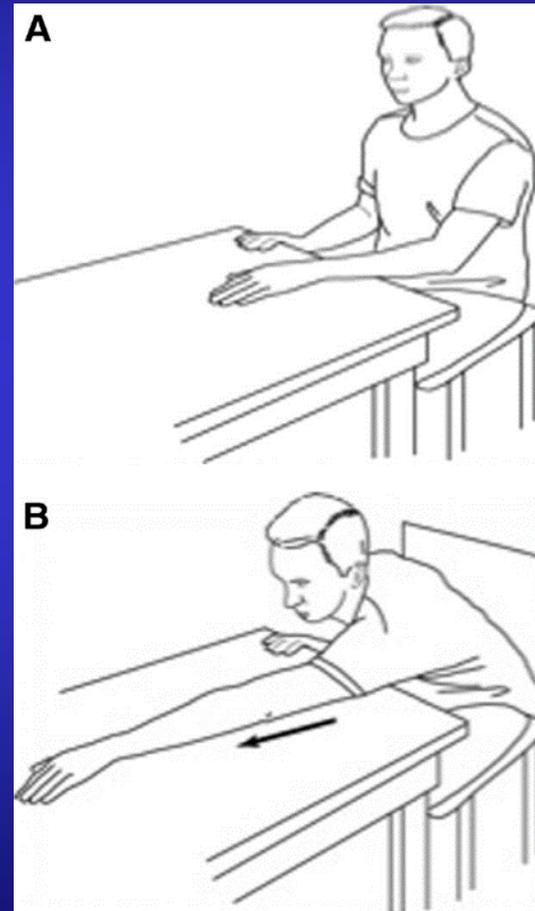
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Adding Table Slides

- 150 patients
- Closed chain table slides for high risk patients on day 1.
- Results- no stiffness in low risk or high risk groups.



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Summary

- Arthroscopic release successful
- Adhesive Capsulitis, consider release after 9 months
- Shoulder OA- consider arthroscopic release in young patients



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Summary

- Limited rehab is beneficial after RCR
 - Better for ROM
 - Better for healing
- Altered rehab for those with small/partial tears, calcific tendinitis, or labral tears



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Thank You



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