

Rotator Cuff Tear Treatment

A rotary cuff tear is a common injury that affects the shoulder joint. It occurs when one or more of the tendons in the rotary cuff, which are responsible for connecting the muscles to the bones, become torn. This can happen due to various reasons such as repetitive overhead motions, sudden impact or trauma to the shoulder.

Treatment recommendations

Below are recommendations from the American Academy of Orthopaedic Surgeons (2019) for rotary cuff tears:

Summary of recommendations

Management of small to medium tears

Strong evidence supports that both physical therapy and operative treatment result in significant improvement in patient-reported outcomes for patients with symptomatic small to medium full-thickness rotator cuff tears.

- **Strength of recommendation:** Strong ★★★★★
- **Description:** Evidence from two or more “High” quality studies with consistent findings for recommending for or against the intervention.

Long term non-operative management

Strong evidence supports that patient reported outcomes (PRO) improve with physical therapy in symptomatic patients with full thickness rotator cuff tears. However, the rotator cuff tear size, muscle atrophy, and fatty infiltration may progress over 5 to 10 years with non operative management.

- **Strength of recommendation:** Strong ★★★★★
- **Description:** Evidence from two or more “High” quality studies with consistent findings for recommending for or against the intervention

Operative management

Moderate evidence supports that healed rotator cuff repairs show improved patient reported and functional outcomes compared to physical therapy and unhealed rotator cuff repairs

- **Strength of recommendation:** Moderate ★★★★★
- **Description:** Evidence from two or more “Moderate” quality studies with consistent findings, or evidence from a single “High” quality study for recommending for or against the intervention.

Acromioplasty and rotator cuff repair

Moderate strength evidence does not support the routine use of acromioplasty as a concomitant treatment as compared to arthroscopic repair alone for patients with small to medium sized full-thickness rotator cuff tears.

- **Strength of recommendation:** Moderate ★★★★★
- **Description:** Evidence from two or more “Moderate” quality studies with consistent findings, or evidence from a single “High” quality study for recommending for or against the intervention.

Diagnosis (imaging)

Strong evidence supports that MRI, MRA, and ultrasound are useful adjuncts to a clinical exam for identifying rotator cuff tears.

- **Strength of recommendation:** Strong ★★★★★
- **Description:** Evidence from two or more “High” quality studies with consistent findings for recommending for or against the intervention.

Diagnosis (clinical examination)

Strong evidence supports that clinical examination can be useful to diagnose or stratify patients with rotator cuff tears; however, a combination of tests will increase diagnostic accuracy.

- **Strength of recommendation:** Strong ★★★★★
- **Description:** Evidence from two or more “High” quality studies with consistent findings for recommending for or against the intervention.

Distal clavicle resection

Moderate strength evidence supports the use of distal clavicle resection as a concomitant treatment to arthroscopic repair for patients with full-thickness rotator cuff tears and symptomatic acromioclavicular joints.

- **Strength of recommendation:** Moderate ★★★★★
- **Description:** Evidence from two or more “Moderate” quality studies with consistent findings, or evidence from a single “High” quality study for recommending for or against the intervention.

Post-op mobilization timing

Strong evidence suggests similar postoperative clinical and patient-reported outcomes for small to medium sized full-thickness rotator cuff tears between early mobilization and delayed mobilization up to 8 weeks for patients who have undergone arthroscopic rotator cuff repair.

- **Strength of recommendation:** Strong ★★★★★
- **Description:** Evidence from two or more “High” quality studies with consistent findings for recommending for or against the intervention.

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Corticosteroid injections for rotator cuff tears

Moderate evidence supports the use of a single injection of corticosteroids with local anesthetic for short-term improvement in both pain and function for patients with shoulder pain.

- **Strength of recommendation:** Moderate ★★★★★
 - **Description:** Evidence from two or more “Moderate” quality studies with consistent findings, or evidence from a single “High” quality study for recommending for or against the intervention.
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Hyaluronic acid injections for rotator cuff tears

Limited evidence supports the use of hyaluronic acid injections in the non-operative management of patients with rotator cuff pathology.

- **Strength of recommendation:** Limited ★★★★★
 - **Description:** Evidence from two or more “Low” quality studies with consistent findings or evidence from a single “Moderate” quality study recommending for against the intervention or diagnostic or the evidence is insufficient or conflicting and does not allow a recommendation for or against the intervention.
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Platelet Rich Plasma (PRP) injection in partial-thickness tears

Limited evidence does not support the routine use of platelet rich plasma for the treatment of rotator cuff tendinopathy or partial tears.

- **Strength of recommendation:** Limited ★★★★★
 - **Description:** Evidence from two or more “Low” quality studies with consistent findings or evidence from a single “Moderate” quality study recommending for against the intervention or diagnostic or the evidence is insufficient or conflicting and does not allow a recommendation for or against the intervention.
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Prognostic factors (age)

Strong evidence supports that older age is associated with higher failure rates and poorer patient reported outcomes after rotator cuff repair.

- **Strength of recommendation:** Strong ★★★★★
 - **Description:** Evidence from two or more “High” quality studies with consistent findings for recommending for or against the intervention.
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Prognostic factors (worker’s compensation)

Strong evidence supports the presence of a worker’s compensation claim is associated with poorer patient reported outcomes after rotator cuff repair.

- **Strength of recommendation:** Strong ★★★★★
 - **Description:** Evidence from two or more “High” quality studies with consistent findings for recommending for or against the intervention.
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Prognostic factors (comorbidities)

Moderate evidence supports the association of poorer patient reported outcomes in patient with more comorbidities

- **Strength of recommendation:** Moderate ★★★★★
 - **Description:** Evidence from two or more “Moderate” quality studies with consistent findings, or evidence from a single “High” quality study for recommending for or against the intervention.
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Prognostic factors (diabetes)

Moderate evidence suggests that patients with diabetes will have higher re-tear rates and poorer quality of life and patient reported outcome scores after rotator cuff repair.

- **Strength of recommendation:** Moderate ★★★★★
 - **Description:** Evidence from two or more “Moderate” quality studies with consistent findings, or evidence from a single “High” quality study for recommending for or against the intervention.
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Prognostic factors (higher BMI)

Moderate evidence supports that higher BMI is correlated with higher re-tear rates after rotator cuff repair surgery; however, strong evidence supports that there is no correlation between higher BMI and worse patient-reported outcomes following rotator cuff repair.

- **Strength of recommendation:** Moderate ★★★★★
 - **Description:** Evidence from two or more “Moderate” quality studies with consistent findings, or evidence from a single “High” quality study for recommending for or against the intervention.
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Prognostic factors (patient expectations)

Moderate evidence correlates higher preoperative patient expectations for surgery with higher patient reported outcomes after rotator cuff repair.

- **Strength of recommendation:** Moderate ★★★★★
 - **Description:** Evidence from two or more “Moderate” quality studies with consistent findings, or evidence from a single “High” quality study for recommending for or against the intervention.
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High-grade partial thickness rotator cuff tears

Strong evidence supports the use of either conversion to full-thickness or transtendinous/in-situ repair in patients that failed conservative management with high-grade partial thickness rotator cuff tears.

- **Strength of recommendation:** Strong ★★★★★
 - **Description:** Evidence from two or more “High” quality studies with consistent findings for recommending for or against the intervention.
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Biological augmentation with platelet derived products

Strong evidence does not support biological augmentation of rotator cuff repair with platelet-derived products on improving patient reported outcomes; however, limited evidence supports the use of liquid platelet rich plasma in the context of decreasing re-tear rates.

- **Strength of recommendation:** Strong ★★★★★
 - **Description:** Evidence from two or more “Moderate” quality studies with consistent findings, or evidence from a single “High” quality study for recommending for or against the intervention.
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Single-row vs double-row repair

Strong evidence does not support double row rotator cuff repair constructs on improving patient-reported outcomes compared to single row vertical mattress repair constructs.

- **Strength of recommendation:** Strong ★★★★★
 - **Description:** Evidence from two or more “High” quality studies with consistent findings for recommending for or against the intervention.
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Single-row vs double-row repair re-tears

Strong evidence supports lower re-tear rates after double row repair compared to single row vertical mattress repair when evaluating for both partial and full thickness retears after primary repair; however, when evaluating the data for only full thickness retears, limited evidence does not support lower re-tear rates after double row primary repair.

- **Strength of recommendation:** Strong ★★★★★
 - **Description:** Evidence from two or more “High” quality studies with consistent findings for recommending for or against the intervention.
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Postoperative pain management

Moderate strength evidence supports the use of multimodal programs or non-opioid individual modalities to provide added benefit for postoperative pain management following rotator cuff repair.

- **Strength of recommendation:** Moderate ★★★★★
 - **Description:** Evidence from two or more “Moderate” quality studies with consistent findings, or evidence from a single “High” quality study for recommending for or against the intervention.
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Xenografts

Limited evidence does not support the use of xenografts to augment the repair of large and massive rotator cuff tears.

- **Strength of recommendation:** Limited ★★★★★
- **Description:** Evidence from two or more “Low” quality studies with consistent findings or evidence from a single “Moderate” quality study recommending for against the intervention or diagnostic or the evidence is insufficient or conflicting and does not allow a recommendation for or against the intervention.

Dermal allografts

Limited evidence supports the use of dermal allografts to augment the repair of large and massive rotator cuff tears to improve patient reported outcomes.

- **Strength of recommendation:** Limited ★★★★★
 - **Description:** Evidence from two or more “Low” quality studies with consistent findings or evidence from a single “Moderate” quality study recommending for against the intervention or diagnostic or the evidence is insufficient or conflicting and does not allow a recommendation for or against the intervention.
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Marrow stimulation

Limited evidence suggests that marrow stimulation at the time of rotator cuff repair does not improve patient-reported outcomes; however, this technique may decrease re-tear rates in patients with larger tear sizes.

- **Strength of recommendation:** Limited ★★★★★
 - **Description:** Evidence from two or more “Low” quality studies with consistent findings or evidence from a single “Moderate” quality study recommending for against the intervention or diagnostic or the evidence is insufficient or conflicting and does not allow a recommendation for or against the intervention.
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Open vs arthroscopic repair

Strong evidence supports no difference in long-term (> 1 year) patient-reported outcomes or cuff healing rates between open and arthroscopic repairs; however, arthroscopic-only technique is associated with better short-term improvement in post operative recovery of motion and decreased visual analog score (VAS) scores.

- **Strength of recommendation:** Strong ★★★★★
 - **Description:** Evidence from two or more “High” quality studies with consistent findings for recommending for or against the intervention.
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Summary of consensus statements

There is no or conflicting supporting evidence. In the absence of reliable evidence, the systematic literature review development group is making a recommendation based on their clinical opinion.

Supervised exercise vs unsupervised exercise

In the absence of reliable evidence, it is the opinion of the work group that supervised physical therapy is more appropriate than unsupervised home exercise for some patients following rotator cuff repair.

- **Strength of recommendation:** Consensus ★★★★★.
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Multiple steroid injections for rotator cuff tears

In the absence of reliable evidence, it is the opinion of the work group that multiple steroid injections may compromise the integrity of the rotator cuff, which may affect attempts at subsequent repair.

- **Strength of recommendation:** Consensus ★★★★★
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Platelet Rich Plasma (PRP) injection in full-thickness tears

In the absence of reliable evidence, it is the consensus of the work group that we do not recommend the routine use of platelet rich plasma in the non-operative management of full-thickness rotator cuff tears.

- **Strength of recommendation:** Consensus ★★★★★
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Partial rotator cuff tear

In the absence of reliable evidence, the work group is unable to define a preference for the choice of debridement versus repair of high-grade partial-thickness cuff tears that have failed physical therapy, however repair of high grade partial tears could improve outcomes.

- **Strength of recommendation:** Consensus ★★★★★
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Unrepairable tears without arthropathy (biologic procedures)

In the absence of reliable evidence, it is the opinion of the work group that physical therapy, biceps tenotomy/tenodesis, partial repair, tendon transfer, superior capsular reconstruction, arthroscopic debridement, or allograft augmentation (nonporcine) can improve patient reported outcomes.

- **Strength of recommendation:** Consensus ★★★★★
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Massive, unrepairable rotator cuff tear (reverse arthroplasty)

In the absence of reliable evidence, it is the opinion of the work group that in patients with massive, unrepairable rotator cuff tears and pseudoparalysis who have failed other treatments, reverse arthroplasty can improve patient reported outcomes.

- **Strength of recommendation:** Consensus ★★★★★
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Unrepairable tears with arthropathy

In the absence of reliable evidence, it is the opinion of the workgroup that after failure of conservative treatment, reverse shoulder arthroplasty for unrepairable tears with glenohumeral joint arthritis can improve patient reported outcomes.

- **Strength of recommendation:** Consensus ★★★★★
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Reference

American Academy of Orthopaedic Surgeons. (2019). *Management of rotator cuff injuries: Evidence-Based clinical practice guideline*. <https://www.aaos.org/globalassets/quality-and-practice-resources/rotator-cuff/rotator-cuff-cpg-final-12-20-19.pdf>