

# AAOS Guideline on Optimizing the Management of Rotator Cuff Problems

## Summary of Recommendations

The following is a summary of the recommendations in the AAOS' clinical practice guideline, Optimizing the Management of Rotator Cuff Problems. This summary does not contain rationales that explain how and why these recommendations were developed nor does it contain the evidence supporting these recommendations. ***All readers of this summary are strongly urged to consult the full guideline and evidence report for this information.*** We are confident that those who read the full guideline and evidence report will see that the recommendations were developed using systematic evidence-based processes designed to combat bias, enhance transparency, and promote reproducibility. This summary of recommendations is not intended to stand alone. Treatment decisions should be made in light of all circumstances presented by the patient. Treatments and procedures applicable to the individual patient rely on mutual communication between patient and physician.

### 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

Description: The supporting evidence is lacking and requires the work group to make a recommendation based on expert opinion by considering the known potential harm and benefits associated with the treatment. A **Consensus** recommendation means that expert opinion supports the guideline recommendation even though there is no available empirical evidence that meets the inclusion criteria of the guideline's systematic review.

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.

### Full Thickness Tears and Symptomatic Patients

2. Rotator cuff repair is an option for patients with chronic, symptomatic full thickness tears.

Strength of Recommendation: Limited

Description: Evidence from two or more "Low" strength studies with consistent findings, or evidence from a single "Moderate" quality study recommending for or against the intervention or diagnostic. A **Limited** recommendation means the quality of the supporting evidence that exists is unconvincing, or that well-conducted studies show little clear advantage to one approach versus another.

Implications: Practitioners should exercise clinical judgment when following a recommendation classified as **Limited**, and should be alert to emerging evidence that might negate the current findings. Patient preference should have a substantial influencing role.

Rotator Cuff Tears and Exercise

3. a. We cannot recommend for or against exercise programs (supervised or unsupervised) for patients with rotator cuff tears.

Strength of Recommendation: Inconclusive

Description: Evidence from a single low quality study or conflicting findings that do not allow a recommendation for or against the intervention. An **Inconclusive** recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm.

Implications: Practitioners should feel little constraint in following a recommendation labeled as **Inconclusive**, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

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

Description: Evidence from a single low quality study or conflicting findings that do not allow a recommendation for or against the intervention. An **Inconclusive** recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm.

Implications: Practitioners should feel little constraint in following a recommendation labeled as **Inconclusive**, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Rotator Cuff Tears and NSAIDs, Activity Modification, Ice, Heat, Iontophoresis, Massage, T.E.N.S., PEMF, and Phonophoresis

3. c. We cannot recommend for or against the use of NSAIDs, activity modification, ice, heat, iontophoresis, massage, Transcutaneous Electrical Nerve Stimulation (TENS), Pulsed Electromagnetic Field (PEMF), or phonophoresis (ultrasound) for nonoperative management of rotator cuff tears.

Strength of Recommendation: Inconclusive

Description: Evidence from a single low quality study or conflicting findings that do not allow a recommendation for or against the intervention. An **Inconclusive** recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm.

Implications: Practitioners should feel little constraint in following a recommendation labeled as **Inconclusive**, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

*Rotator Cuff Related Symptoms and Exercise or Nonsteroidal Anti-Inflammatory Medication*

4. a. We suggest that patients who have rotator cuff-related symptoms in the absence of a full thickness tear be initially treated non-operatively using exercise and/or non-steroidal anti-inflammatory drugs.

Strength of Recommendation: Moderate

Description: Evidence from two or more “Moderate” strength studies with consistent findings, or evidence from a single “High” quality study for recommending for or against the intervention. A **Moderate** recommendation means that the benefits exceed the potential harm (or that the potential harm clearly exceeds the benefits in the case of a negative recommendation), but the strength of the supporting evidence is not as strong.

Implications: Practitioners should generally follow a **Moderate** recommendation but remain alert to new information and be sensitive to patient preferences.

*Rotator Cuff Related Symptoms and Corticosteroid Injections or PEMF*

4. b. We cannot recommend for or against subacromial corticosteroid injection or Pulsed Electromagnetic Field (PEMF) in the treatment of rotator cuff-related symptoms in the absence of a full thickness tear.

Strength of Recommendation: Inconclusive

Description: Evidence from a single low quality study or conflicting findings that do not allow a recommendation for or against the intervention. An **Inconclusive** recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm.

Implications: Practitioners should feel little constraint in following a recommendation labeled as **Inconclusive**, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

*Rotator Cuff Related Symptoms and Iontophoresis, Phonophoresis, Transcutaneous electrical nerve stimulation (TENS), ice, heat, massage or activity modification*

4. c. We cannot recommend for or against the use of iontophoresis, phonophoresis, transcutaneous Electrical Nerve Stimulation (TENS), ice, heat, massage, or activity modification for patients who have rotator cuff related symptoms in the absence of a full thickness tear.

Strength of Recommendation: Inconclusive

Description: Evidence from a single low quality study or conflicting findings that do not allow a recommendation for or against the intervention. An **Inconclusive** recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm.

Implications: Practitioners should feel little constraint in following a recommendation labeled as **Inconclusive**, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Acute Traumatic Rotator Cuff Tears and Surgery

5. Early surgical repair after acute injury is an option for patients with a rotator cuff tear.

Strength of Recommendation: Limited

Description: Evidence from two or more “Low” strength studies with consistent findings, or evidence from a single “Moderate” quality study recommending for or against the intervention or diagnostic. A **Limited** recommendation means the quality of the supporting evidence that exists is unconvincing, or that well-conducted studies show little clear advantage to one approach versus another.

Implications: Practitioners should exercise clinical judgment when following a recommendation classified as **Limited**, and should be alert to emerging evidence that might negate the current findings. Patient preference should have a substantial influencing role.

Perioperative Interventions –Corticosteroid Injections/NSAIDS

6. We cannot recommend for or against the use of perioperative subacromial corticosteroid injections or non-steroidal anti-inflammatory medications in patients undergoing rotator cuff surgery.

Strength of Recommendation: Inconclusive

Description: Evidence from a single low quality study or conflicting findings that do not allow a recommendation for or against the intervention. An **Inconclusive** recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm.

Implications: Practitioners should feel little constraint in following a recommendation labeled as **Inconclusive**, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Confounding factors – Age, Atrophy/Fatty Degeneration and Worker’s Compensation Status

7. a. It is an option for physicians to advise patients that the following factors correlate with less favorable outcomes after rotator cuff surgery:

- Increasing Age
- MRI Tear Characteristics
- Worker’s Compensation Status

Strength of Recommendation:

Increasing Age: Limited

Description: Evidence from two or more “Low” strength studies with consistent findings, or evidence from a single “Moderate” quality study recommending for or against the intervention or diagnostic. A **Limited** recommendation means the quality of the supporting evidence that exists is unconvincing, or that well-conducted studies show little clear advantage to one approach versus another.

Implications: Practitioners should exercise clinical judgment when following a recommendation classified as **Limited**, and should be alert to emerging evidence that might negate the current findings. Patient preference should have a substantial influencing role.

## MRI Tear Characteristics: Limited

Description: Evidence from two or more “Low” strength studies with consistent findings, or evidence from a single “Moderate” quality study recommending for or against the intervention or diagnostic. A **Limited** recommendation means the quality of the supporting evidence that exists is unconvincing, or that well-conducted studies show little clear advantage to one approach versus another.

Implications: Practitioners should exercise clinical judgment when following a recommendation classified as **Limited**, and should be alert to emerging evidence that might negate the current findings. Patient preference should have a substantial influencing role.

## Worker’s Compensation Status: Moderate

Description: Evidence from two or more “Moderate” strength studies with consistent findings, or evidence from a single “High” quality study for recommending for or against the intervention. A **Moderate** recommendation means that the benefits exceed the potential harm (or that the potential harm clearly exceeds the benefits in the case of a negative recommendation), but the strength of the supporting evidence is not as strong.

Implications: Practitioners should generally follow a **Moderate** recommendation but remain alert to new information and be sensitive to patient preferences.

### Confounding Factors - Diabetes, Co-morbidities, Smoking, Infection, and Cervical Disease

7. b. We cannot recommend for or against advising patients in regard to the following factors related to rotator cuff surgery:

- Diabetes
- Co-morbidities
- Smoking
- Prior Shoulder Infection
- Cervical Disease

<b>Confounding Factor</b>	<b>Strength of Recommendation</b>
Diabetes	Inconclusive
Co-morbidities	Inconclusive
Smoking	Inconclusive
Infection	Inconclusive
Cervical Disease	Inconclusive

## Strength of Recommendation: Inconclusive

Description: Evidence from a single low quality study or conflicting findings that do not allow a recommendation for or against the intervention. An **Inconclusive** recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm.

Implications: Practitioners should feel little constraint in following a recommendation labeled as **Inconclusive**, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

### Surgery - Acromioplasty

8. We suggest that routine acromioplasty is not required at the time of rotator cuff repair.

Strength of Recommendation: Moderate

Description: Evidence from two or more “Moderate” strength studies with consistent findings, or evidence from a single “High” quality study for recommending for or against the intervention. A **Moderate** recommendation means that the benefits exceed the potential harm (or that the potential harm clearly exceeds the benefits in the case of a negative recommendation), but the strength of the supporting evidence is not as strong.

Implications: Practitioners should generally follow a **Moderate** recommendation but remain alert to new information and be sensitive to patient preferences.

### Surgery – Partial Rotator Cuff Repair, Debridement, or muscle transfers for patients with irreparable rotator cuff tears when surgery is indicated.

9. It is an option to perform partial rotator cuff repair, debridement, or muscle transfers for patients with irreparable rotator cuff tears when surgery is indicated.

Strength of recommendation: Limited

Description: Evidence from two or more “Low” strength studies with consistent findings, or evidence from a single “Moderate” quality study recommending for or against the intervention or diagnostic. A **Limited** recommendation means the quality of the supporting evidence that exists is unconvincing, or that well-conducted studies show little clear advantage to one approach versus another.

Implications: Practitioners should exercise clinical judgment when following a recommendation classified as **Limited**, and should be alert to emerging evidence that might negate the current findings. Patient preference should have a substantial influencing role.

### Surgery – Tendon to Bone Healing

10. a. It is an option for surgeons to attempt to achieve tendon to bone healing of the cuff in all patients undergoing rotator cuff repair.

Strength of Recommendation: Limited

Description: Evidence from two or more “Low” strength studies with consistent findings, or evidence from a single “Moderate” quality study recommending for or against the intervention or diagnostic. A **Limited** recommendation means the quality of the supporting evidence that exists is unconvincing, or that well-conducted studies show little clear advantage to one approach versus another.

Implications: Practitioners should exercise clinical judgment when following a recommendation classified as **Limited**, and should be alert to emerging evidence that might negate the current findings. Patient preference should have a substantial influencing role.

Surgery - Suture Anchors and Bone Tunnels

10. b. We cannot recommend for or against the preferential use of suture anchors versus bone tunnels for repair of full thickness rotator cuff tears.

Strength of Recommendation: Inconclusive

Description: Evidence from a single low quality study or conflicting findings that do not allow a recommendation for or against the intervention. An **Inconclusive** recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm.

Implications: Practitioners should feel little constraint in following a recommendation labeled as **Inconclusive**, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Surgery – Arthroscopic, Open, Mini-Open

10. c. We cannot recommend for or against a specific technique (arthroscopic, mini-open or open repair) when surgery is indicated for full thickness rotator cuff tears.

Strength of Recommendation: Inconclusive

Description: Evidence from a single low quality study or conflicting findings that do not allow a recommendation for or against the intervention. An **Inconclusive** recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm.

Implications: Practitioners should feel little constraint in following a recommendation labeled as **Inconclusive**, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Surgery - Non-Crosslinked, Porcine Small Intestine Submucosal Xenografts

11. a. We suggest surgeons not use a non-crosslinked, porcine small intestine submucosal xenograft patch to treat patients with rotator cuff tears.

Strength of Recommendation: Moderate

Description: Evidence from two or more “Moderate” strength studies with consistent findings, or evidence from a single “High” quality study for recommending for or against the intervention. A **Moderate** recommendation means that the benefits exceed the potential harm (or that the potential harm clearly exceeds the benefits in the case of a negative recommendation), but the strength of the supporting evidence is not as strong.

Implications: Practitioners should generally follow a **Moderate** recommendation but remain alert to new information and be sensitive to patient preferences.

Surgery - Allografts and Xenografts

11. b. We cannot recommend for or against the use of soft tissue allografts or other xenografts to treat patients with rotator cuff tears.

Strength of Recommendation: Inconclusive

Description: Evidence from a single low quality study or conflicting findings that do not allow a recommendation for or against the intervention. An **Inconclusive** recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm.

Implications: Practitioners should feel little constraint in following a recommendation labeled as **Inconclusive**, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Post-Operative Treatment - Cold Therapy

12. In the absence of reliable evidence, it is the opinion of the work group that local cold therapy is beneficial to relieve pain after rotator cuff surgery.

Strength of Recommendation: Consensus

Description: The supporting evidence is lacking and requires the work group to make a recommendation based on expert opinion by considering the known potential harm and benefits associated with the treatment. A **Consensus** recommendation means that expert opinion supports the guideline recommendation even though there is no available empirical evidence that meets the inclusion criteria of the guideline's systematic review.

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.

Post-Operative – sling, shoulder immobilizer, abduction pillow, or abduction brace

13. a. We cannot recommend for or against the preferential use of an abduction pillow versus a standard sling after rotator cuff repair.

Strength of Recommendation: Inconclusive

Description: Evidence from a single low quality study or conflicting findings that do not allow a recommendation for or against the intervention. An **Inconclusive** recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm.

Implications: Practitioners should feel little constraint in following a recommendation labeled as **Inconclusive**, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.



Post-Operative Rehabilitation – Range of Motion Exercises

13. b. We cannot recommend for or against a specific time frame of shoulder immobilization without range of motion exercises after rotator cuff repair.

Strength of Recommendation: Inconclusive

Description: Evidence from a single low quality study or conflicting findings that do not allow a recommendation for or against the intervention. An **Inconclusive** recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm.

Implications: Practitioners should feel little constraint in following a recommendation labeled as **Inconclusive**, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Post-Operative Rehabilitation – Active Resistance Exercises

13. c. We cannot recommend for or against a specific time interval prior to initiation of active resistance exercises after rotator cuff repair.

Strength of Recommendation: Inconclusive

Description: Evidence from a single low quality study or conflicting findings that do not allow a recommendation for or against the intervention. An **Inconclusive** recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm.

Implications: Practitioners should feel little constraint in following a recommendation labeled as **Inconclusive**, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Post-Operative Rehabilitation – Home Based Exercise and Facility Based Rehabilitation

13. d. We cannot recommend for or against home-based exercise programs versus facility-based rehabilitation after rotator cuff surgery.

Strength of Recommendation: Inconclusive

Description: Evidence from a single low quality study or conflicting findings that do not allow a recommendation for or against the intervention. An **Inconclusive** recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm.

Implications: Practitioners should feel little constraint in following a recommendation labeled as **Inconclusive**, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.

Post-Operative - Infusion Catheters

14. We cannot recommend for or against the use of an indwelling subacromial infusion catheter for pain management after rotator cuff repair.

Strength of Recommendation: Inconclusive

Description: Evidence from a single low quality study or conflicting findings that do not allow a recommendation for or against the intervention. An **Inconclusive** recommendation means that there is a lack of compelling evidence resulting in an unclear balance between benefits and potential harm.

Implications: Practitioners should feel little constraint in following a recommendation labeled as **Inconclusive**, exercise clinical judgment, and be alert for emerging evidence that clarifies or helps to determine the balance between benefits and potential harm. Patient preference should have a substantial influencing role.