

Rotator Cuff Repair Protocol

General Guidelines

This purpose of this protocol is to discuss the safe rehab management of rotator cuff repairs involving the supraspinatus, infraspinatus, teres minor and subscapularis tendons. Rotator cuff tears are classified into one of 4 categories; (1) Small, (2) Medium, (3) Large/Massive, and (4) Subscapularis based on size and location. These categories were established as each is unique in their ability to withstand specific loads, and tissue quality and healing potential. Rationale and a brief review of these principles is discussed below.

Rotator Cuff Loading & Failed Repairs

Failure rates of rotator cuff repairs are relatively high in comparison to other tendon repair procedures. These failure rates are likely attributable to the tendons' low vascularity, decreased healing potential and early/aggressive rehabilitation. Furthermore, the consequences of failed rotator cuff repair can be extremely devastating as the patients' only remaining surgical options are salvage procedures (i.e. reverse total shoulder arthroplasty), which have higher morbidity rates. Therefore, we need to get it right the first time!

Basic Science of Tendon Healing

Study shows that Sharpey's fibers are not present at the tendon repair site until approximately 12 weeks after surgery, and not fully matured until up to 1-year post-surgery. As a result, the tendons ability to withstand loading during these time frames is severely limited and largely dependent upon the suture construct for stability. In light of these time-frames, resisted activities should not be initiated until after the 12-week time-point and should also progress within a graded manner.

Take Home

Do not exceed the boundaries of this protocol unless directed by the patients' surgeon. Movements and stretching should never be aggressive - particularly prior to 12-weeks. The rotator cuff is not highly innervated, thus, pain is not a guide for exercise intensity. No active motion should be allowed for the 1st 6-weeks. Minor deficits may exist at end range of motion and should not be forced to gain perfect symmetry! Patients will continue to gain motion up to 1-year.

Rotator Cuff Repair Protocol

PHASE 1 - PROTECTION & GENTLE PASSIVE MOTION (0-6 weeks)

The *PROTECTION & HEALING PHASE* is intended to:

- 1. PROTECT REPAIR & DECREASE PAIN AND MUSCLE GUARDING**
- 2. INITIATE GENTLE GRADED PASSIVE RANGE OF MOTION**

Sling Use: For 6-weeks or as directed by surgeon

Precautions: (1) No active motion (2) No pulley use (3) No shoulder extension past mid-axillary line (4) No aggressive stretching

Exercises: Active elbow wrist & hand; Counter walk-backs/pendulums; Passive ROM; Scapular retractions

Functional Goals & Outcome Measures: ASES Score > 30/100; Pain < 5/10 at Worst

2 Week ROM Goals*

TEAR SIZE	Scaption	External Rotation	Internal Rotation
SMALL	90°	30°	As tolerated - FULL
MEDIUM	70°	20°	As tolerated - FULL
LARGE	60°	10°	20°
SUBSCAPULARIS	90°	0°	30°

6 Week ROM Goals*

TEAR SIZE	Scaption	External Rotation	Internal Rotation
SMALL	140°	45°	FULL
MEDIUM	120°	45°	FULL
LARGE	90°	30°	45°
SUBSCAPULARIS	140°	30°	FULL

*External/Internal rotation should be measured in 30 degrees of scaption. All forward elevation should be measured within scapular plane. Do not aggressively stretch terminal motion: 5-10 deg deficits are normal.

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PHASE 2 - PROTECTION & ACTIVE-ASSISTED MOTION (6-12 weeks)

The *PROTECTION & ACTIVE ASSISTED MOTION PHASE* is intended to;

- 1. CONTINUE PROTECTING HEALING TISSUE**
- 2. INITIATE ACTIVE RANGE OF MOTION**

Sling Use: Discharge or as direct by MD. Large tears may remain in sling until 8 weeks.

Precautions: (1) No Resisted Activity (2) Avoid Coronal Plane Activities (3) No Aggressive Stretching or Movements

Exercises: Sub-max isometrics (ER/IR). Lawn-Chair Progression & Proprioception. Side-lying: ER. Prone: Rows, I's and T's. Standing scapular retraction & ER.

Functional Goals & Outcome Measures: ASES Score > 50/100; Pain < 3/10 at Worst

9 Week ROM Goals

TEAR SIZE	Scaption	External Rotation	Internal Rotation	Active Elevation
SMALL	155°	FULL	FULL	120°
MEDIUM	145°	FULL	FULL	90°
LARGE	130°	45°	45°	HOLD
SUBSCAPULARIS	FULL	45°	45°	90°

12 Week ROM Goals

TEAR SIZE	Scaption	External Rotation	Internal Rotation	Active Motion
SMALL	FULL	FULL	FULL	FULL
MEDIUM	FULL	FULL	FULL	130°
LARGE	145°	FULL	FULL	90°
SUBSCAPULARIS	FULL	FULL	FULL	FULL

*External/Internal rotation should be measured in 30 degrees of scaption. All forward elevation should be measured within scapular plane. Do not aggressively stretch terminal motion: 5-10 deg deficits are normal.

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PHASE 3 - ACTIVE & RESISTED MOTION (12-18 weeks)

The *ACTIVE & RESISTED MOTION PHASE* is intended to;

1. FULL ROM & INITIATE RESISTED ACTIVITY

2. BEGIN ACTIVE MOTION FOR LARGE TEARS & RESISTED AFTER

18 Week ROM Goals: FULL PASSIVE ROM FOR ALL TEARS

Precautions:

1. No Heavy Weight Training
2. Avoid Coronal Plane Activities
3. No Aggressive Stretching or Movements

Exercises:

- Continue Active Motion – Focus of Symmetry without substitution
- Resisted Thera-Band Activities - Rows, ER, IR, Scapular Punches
- Scapular stability exercises – I's, T's & Y's

Functional Goals & Outcome Measures:

- ASES Score > 70/100
 - Pain < 2/10 at Worst
 - Achieve ROM goals
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PHASE 4 - RESISTED MOTION & FUNCTIONAL EXERCISE (18-26+ weeks)

The *RESISTED MOTION & FUNCTIONAL EXERCISE PHASE* is intended to;

1. PROGRESS STRENGTH TO WITHIN NORMAL LIMITS

2. FACILITATE RETURN TO ACTIVITY AFTER 26 WEEKS

18-26+ Week ROM Goals: FULL ROM FOR ALL TEARS

Stretching: As needed - Not Aggressively

Precautions: (1) Weight Training at Surgeons' Discretion (2) Caution with Plyometrics

Exercises:

- Continue increasing loads to exercise in phase 3
- Add prone Y's and U's
- Initiate Plyometrics
- Interval Throwing Progression at 26 weeks

Functional Goals & Outcome Measures:

- ASES Score > 80/100
- Pain < 2/10 at Worst

Recommended Return to Play:

- 26 weeks after Surgery
- MD or PT Approval
- ER/IR Ratio approximately 60%
- Within 90% Symmetry ER, IR, and Scaption