



Sports & Orthopaedic Specialists

Conservative Massive Rotator Cuff Tear Protocol

This protocol provides appropriate guidelines for the rehabilitation of patients with a massive rotator cuff tear. The protocol draws evidence from the current literature and accounts for preferences of the surgeons at Sports & Orthopaedic Specialists. The program may be modified by the referring provider for an individual patient. If questions arise regarding the utilization of the protocol or the progress of the patient, contact Sports & Orthopaedic Specialists:

Main line: (952) 946-9777

Physical therapy: (952) 914-8631

Rehab Principles & Overview

-Focus on active engagement of the patient through patient education and therapeutic exercise. Establish a home exercise program that can be progressed as symptoms decline.

-Home program should result in minimal to no symptom exacerbation. Max pain of 3/10 during and after exercise. Differentiate pain from fatigue. The patient should call the PT for recommendations if pain increases during or after exercise.

-The main goal of physical therapy is to develop functional strength via improved neural recruitment and motor control of shoulder girdle musculature.

-Consider local tissue irritability (Table 1) in decision making when determining intervention. Use caution to avoid post-treatment tissue inflammation and associated pain.

TABLE 1. Local Tissue Irritability. Patients must meet 3+/5 criteria to be categorized appropriately.

High	Moderate	Low
High levels of pain ($\geq 7/10$)	Moderate levels of pain (4-6/10)	Low levels of pain ($\leq 3/10$)
Consistent pain at rest and/or at night	Intermittent pain at rest and/or at night	No rest or night pain
Pain before end range	Pain at end range	Minimal pain with overpressure
AROM is significantly less than PROM due to pain	AROM is similar to PROM	AROM is equal to PROM
High disability on standardized outcome measure	Moderate disability on standardized outcome measure	Low disability on standardized outcome measure



THERAPEUTIC EXERCISE AND NEUROMUSCULAR RE-EDUCATION

There is no intervention more effective than therapeutic exercise for painful shoulder conditions. Exercise has a clinically significant effect on reducing pain and improving function in patients with massive rotator cuff tears. However, there is no consensus on the ideal exercise program to treat patients with massive rotator cuff tears, therefore preferences from Sports & Orthopaedic Specialists providers are below:

-Four to six physical therapy visits over 6-12 weeks. Recommend clinic visits in PT every other week to allow sufficient time for neural adaptation between visits.

-Start with basic exercises and progress to more challenging exercises as symptoms decline. Intensity of exercises should be determined by local tissue irritability level.

-Initially prescribe HEP 5-7x/week when the clinical focus is activation and neural recruitment.

-Transition to 3x/week as the exercise focus shifts to strength and conditioning.

-Discharge from formal physical therapy to 2x/week indefinitely for ongoing maintenance.

-Body Weight and Free Weights: Use only body weight resistance for patients with moderate to high local tissue irritability. Progress from gravity reduced to gravity resisted. **See page 3 for weight maximums for specific exercises.**

-Exercise Band: DO NOT USE

Yellow Theraband[®] results in 1.1 pounds of resistance when elongated by 25% and 2.9 pounds when elongated by 100%. Yellow is the lightest band in the progression from yellow-red-green-blue-black. Due to the SAOS provider recommendation of one pound maximum for resistance to the rotator cuff and the resistance provided by the band that exceeds one pound, exercise band is not recommended. One study reports the undesirable trend of increased downward rotation of the scapula with use of exercise band. In addition, length-tension principles of muscle function do not align with exercise band properties; the muscle is asked to provide maximum force at a shortened and inefficient length.

-Pulleys: DO NOT USE

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The following is a list of exercises that may be beneficial in treating patients with massive rotator cuff tears and are preferred by providers at Sports & Orthopaedic Specialists.

Recommended max of 6 exercises for home exercise program. Select a well-rounded program that targets each area of insufficiency identified during physical exam.

Page numbers below reference the THERAPEUTIC EXERCISE HANDOUT. The PDF for the TherEx Handout file containing instructions and pictures for each exercise can be printed from the Sports & Orthopaedic Specialists website: www.sportsandortho.com/minneapolis/rehabilitation-center.htm

	<u>Page</u>	<u>Tissue Irritability</u>	<u>Dose Goal</u>	<u>Notes</u>
1) Pendulum	3	High	10-20	Ok to do with active arm swing
2) Ceiling punch	20	High	2x10-20	Active assisted
		Moderate	2x20-50	Active
		Low	2x20-50	8 ounces to <u>max</u> 2 pounds
3) Reverse codman	22	High	10-20	Active assisted
		Moderate	20	Active
		Low	20	8 ounces to <u>max</u> 2 pounds
4) Anterior deltoid isometric	11	High/Mod	20x3 seconds	Gentle/submaximal contraction
		Low	20x3 seconds	Moderate pressure against wall
5) Middle deltoid isometric	11	High/Mod	20x3 seconds	Gentle/submaximal contraction
		Low	20x3 seconds	Moderate pressure against wall
6) Adduction isometric	20	High/Mod	20x3 seconds	Use for compensatory shoulder hiking
7) Seated ER	17	High	2x30	To neutral ER. Not for +ER lag sign
		Mod/Low	2x30-50	Pain free range of motion
8) Wings	18	High	2x20	Unaffected hand over the affected
		Mod/Low	2x20	No assistance from unaffected hand
9) Supine protraction	12	Moderate	2x20	For serratus ant recruitment. No wt.
		Low	2x20	8 ounces to <u>max</u> 2 pounds
10) Table press	13	Mod/Low	20x3 seconds	For lower trapezius recruitment
11) Thoracic extension	26	All	Up to 3 minutes	For thoracic mobility



THERAPEUTIC ACTIVITY AND PATIENT EDUCATION

-Patient education is very important in getting the patient to take an active role in therapy and recovery. Educate the patient at the appropriate level regarding:

-Anatomy of the shoulder girdle

-Shoulder girdle mechanics: Typical and pathomechanical

-The inhibitory effect of pain on the rotator cuff

-Avoidance of pain provoking activities

-Effect of posture on shoulder girdle mechanics

-Ergonomics for typing, carrying, lifting, etc

-Preferred positioning of the shoulder during sleep

-Prognosis. Longer duration of pain, higher pain severity at presentation, and lower baseline function at evaluation are associated with a less positive outcome

-Sports and activities: Refrain from activities that directly involve the shoulder until cleared for participation by referring physician. Ok for activities such as recumbent stationary bike (no weight bearing through shoulders), elliptical using stationary hand holds, walking on the treadmill.

-Weight lifting: Refrain initially. Return initially to biceps curls, triceps press, seated row once pain free with ADL and rotator cuff strength is pain free and symmetrical. Discuss additional exercises with physician at recheck. In the short term, ok for core (without weight bearing through the shoulders), cardio, and legs.

-Ongoing completion of home program 2x/week for long term self-management of shoulder dysfunction.



MANUAL THERAPY

TABLE 2. Summary of evidence and Sports & Orthopaedic Specialists provider preferences regarding manual therapy use with massive rotator cuff tears. Complete a maximum of 10 minutes of manual therapy.

Manual Therapy Technique	Summary of Evidence	SAOS Provider Preference
Glenohumeral Accessory Mobilization	Moderate evidence suggests that manual techniques to increase the mobility of the posterior shoulder and inferior capsule may benefit patients with massive rotator cuff tears when supplementing an exercise program. Manual therapy for a max of 10-15 minutes.	Use sparingly as an adjunct to therapeutic exercise in patients with low local tissue irritability. Focus on posterior shoulder mobility. Grade I to III only.
Thoracic Mobilization	Moderate to strong evidence suggests that thoracic mobilization (grade III-V) is beneficial in short term improvements in shoulder pain function. Maximum of two attempts for grade V thrust mobilizations.	Ok for use as an adjunct to therapeutic exercise in patients with low to moderate localized tissue irritability. Avoid methods of mobilization that require positioning of shoulders externally rotated and hands behind head or other pain provoking positions.
Soft Tissue Mobilization	Conflicting evidence. Use as adjunct to exercise.	Use sparingly. Transverse friction massage and trigger point release (pectoralis minor, subscapularis) may be appropriate and must not exacerbate symptoms.
Physiologic (Long Arc) Passive Range of Motion	No evidence	Do not use



MODALITIES

Across the literature, there is moderate evidence that passive intervention with modalities is **NOT** justified in treating massive rotator cuff tears. See Table 3 for a summary of evidence and Sports & Orthopaedic Specialists provider preferences regarding modality use in massive rotator cuff tears.

TABLE 3

Modality	Summary of Evidence	SAOS Provider Preference
Cold Therapy / Ice	Limited evidence regarding the effect of cold therapy on rotator cuff syndrome. Strong evidence supports the use of ice for localized pain control.	Encourage patient use. Daily for patients with moderate or high local tissue irritability. As needed for patients with low tissue irritability. 10-15 minutes. Ice pack not placed directly on skin.
Scapular Taping	Conflicting evidence for the effect of taping on shoulder pain and function. Use sparingly as an adjunct to active physical therapy.	Do not use
Ultrasound	Strong evidence of <u>no</u> benefit in rotator cuff syndrome.	Do not use
Infrared Laser	Conflicting evidence.	Do not use
Electrical Stimulation (NMES/TENS)	No evidence	Do not use
Iontophoresis	No evidence	Do not use
Heat therapy	No evidence	Ok for use for chronic painful shoulder if concurrent diagnosis of osteoarthritis or rotator cuff arthropathy