SUMMIT ORTHOPEDICS

POSTERIOR INSTABILITY PROTOCOL

This protocol provides appropriate guidelines for the rehabilitation of patients with posterior instability. The protocol draws evidence from the current literature and accounts for preferences of the providers at Summit Orthopedics. 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 Summit Orthopedics: **(651) 968–5200**

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 (>7/10)	Moderate levels of pain (4–6/10)	Low levels of pain (<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 & 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 anterior instability. However, there is no consensus on the ideal exercise program for these patients, therefore preferences from Summit Orthopedics 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. For additional weight, use age guidelines below:
        - **For patients over 60 years old:**
          No external weights for rotator cuff strength/conditioning.
          (Examples: Side lying external rotation, full can.)
        - **For patients aged 40–60:**
          When tissue irritability is low, progress from 2 ounces to 4, then a max of 8 ounces for rotator cuff strength/conditioning.
        - **For patients under 40 years old:**
          When tissue irritability is low, progress from 2 ounces to 4, then 8 ounces ounces. A max of 16 ounces can be used for rotator cuff strength/conditioning.
- **Eccentric Exercise:** Ensure minimal to no symptom exacerbation. Evidence is conflicting regarding the clinical benefit of eccentric loading on rotator cuff disease.
- **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

The following is a list of exercises that may be beneficial in treating patients with posterior instability and are preferred by providers at Summit Orthopedics. Patients with instability often present with secondary impingement syndrome. Therefore treat instability similarly with a stronger focus on proprioception.

For each muscle group, exercises are listed in progressive order from gentle to challenging. Notations are made relating exercises to an appropriate level of local tissue irritability for introduction. Dose recommendations accompany each exercise.

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 Therapeutic Exercise Handout file containing instructions and pictures for each exercise can be printed from the Summit Orthopedics website: **www.summitortho.com/provider/michael-q-freehill-m-d/**

STRETCH	PAGE	TISSUE IRRITABILITY	DOSE GOAL	NOTES
Scapular Stability				
Serratus Anterior				
1) Supine Protraction	7	High	2x20	
2) Wall Protraction	7	Moderate	2x20	
3) Push-up Plus	7	Low	2x20	
Lower Trapezius				
1) Table Press	8	High	20x3 sec	
2) Lower Trap Retraining	8	Moderate	20	Focus on eccentric control
3) Prone I	8	Moderate	20	
4) Prone W, Superman	9	Low	2x20	Floor or ball
5) Prone T, Prone Y	9, 10	Low	2x20	Floor or ball
Rotator Cuff				
Infraspinatus/Teres Minor				
1) Seated ER	10	High	2x30	Pain-free range of motion
2) Side Lying ER	10	Moderate	2x30–50	See page 2 for age-specific weight guidelines
3) Ball L	11	Low	2x30–50	Most appropriate for overhead athletes
Subscapularis				
1) Wings	11	High	2x20	
2) Bear Hug	11	Moderate	20x3 sec	Progress from gentle to moderate resistance
3) Belly Press	11	Low	20x3 sec	Progress from gentle to moderate resistance
Supraspinatus				
1) Ceiling Punch	12	High	2x20	
2) Full Can, Flexion	12	Low	2x30	Only if scap mechanics are excellent
Posterior Shoulder Mobility				
1) Golfer Stretch	3	Moderate	3x30 sec	
2) Sleeper Stretch	3	Low	3x30 sec	Gentle

STRETCH	PAGE	TISSUE IRRITABILITY	DOSE GOAL	NOTES
Proprioception				
1) Reverse Codman	13	High	20	
2) Table Circles	13	High	20	
3) Wall Circles	13	Moderate	20	Progress from towel to ball
4) Overhead Wall Bounce	13	Low	3x30 sec	Progress from two- to one-handed
Core				
1) Dead Bug	14	Moderate-Low	2x20	
2) Bird Dog	14	Low	2x30–60 sec	Only if no apprehension. Focus: scap stability
Anterior Shoulder and Thoracic Mobility				
1) Thoracic Ext. (Towel)	15	High	Up to 3 min	
2) Thoracic Ext. (Roller)	15	Moderate	Up to 3 min	
3) Thoracic Ext. (Tennis Balls)	15	Low	Up to 3 min	
Miscellaneous				
1) Upper Trap Stretch	15	Moderate	2x30 sec	
2) Levator Scap Stretch	16	Moderate	2x30 sec	

THERAPEUTIC ACTIVITY & 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 positions and activities that may result in pain, apprehension, and/or instability. Avoid cross-body reaching, pushing activities, weight flexion, weight-bearing.
- Effect of posture on shoulder pain and mechanics.
- Ergonomics for typing, carrying, lifting, etc.
- Preferred positioning of the shoulder during sleep.
- **Prognosis:** Younger patients more likely to experience subsequent episodes of instability.
- **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 handholds, walking on the treadmill.
- **Weight lifting:** Refrain during shoulder pain. 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.

MANUAL THERAPY

TABLE 2. Summary of evidence and Summit Orthopedics provider preferences regarding manual therapy use in posterior instability. Complete a maximum of 10 minutes of manual therapy.

MANUAL THERAPY TECHNIQUE	SUMMARY OF EVIDENCE	SAOS PROVIDER PREFERENCE
Glenohumeral Accessory Mobilization	No evidence	Use only if specifically ordered by physician as an adjunct to therapeutic exercise in patients with low to moderate local tissue irritability. *NO posterior glides or posterior shoulder stretching techniques.*
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- or apprehension-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 posterior instability. See Table 3 for a summary of evidence and Summit Orthopedics provider preferences regarding modality use in multidirectional instability.

TABLE 3.

MODALITY	SUMMARY OF EVIDENCE	SAOS PROVIDER PREFERENCE
Cold Therapy/Ice	Limited evidence regarding the effect of cold therapy on anterior instability	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 or use sparingly (1–2 times) accompanied by substantial patient education.
Ultrasound	Conflicting evidence	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