Sports & Orthopaedic Specialists

Anterior Instability Protocol

This protocol provides appropriate guidelines for the rehabilitation of patients with anterior instability. 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 range of motion improves and symptoms decline.

-Home program should result in minimal to no symptom exacerbation. Max pain of 3/10 during and after exercise. 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 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 anterior instability. However, there is no consensus on the ideal exercise program for these patients, 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. 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 two ounces to four, then a max of eight ounces for rotator cuff strength/conditioning.

For patients under 40 years old:
When tissue irritability is low, progress from two ounces to four, then of eight 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

Anterior Instability Protocol

The following is a list of exercises that may be beneficial in treating patients with anterior instability and are preferred by providers at Sports & Orthopaedic Specialists. 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 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**

	Page	Tissue Irritability	Dose Goal	Notes
Scapular Stability				
Serratus anterior				
1) Supine protraction	12	High	2x20	
2) Wall protraction	12	Moderate	2x20	
3) Push up+	13	Low	2x20	
Lower trapezius				
1) Table press	13	High	20x3”	
2) Lower trap retraining	14	Moderate	20	Focus on eccentric control
3) Prone I	14	Moderate	20	
4) Prone W, superman	15	Low	2x20	Floor or ball
5) Prone T, Prone Y	16	Low	2x20	Floor or ball
Rotator Cuff				
Infraspinatus/Teres Minor				
1) Seated ER	17	High	2x30	Pain free range of motion
2) Side lying ER	17	Moderate	2x30-50	See page 2 for weight guidelines.
3) Ball L	18	Low	2x30-50	Most appropriate for overhead athletes
Subscapularis				
1) Wings	18	High	2x20	
2) Bear hug	19	Moderate	20x3”	Progress from gentle to moderate resistance
3) Belly press	19	Low	20x3”	Progress from gentle to moderate resistance
Supraspinatus				
1) Ceiling punch	20	High	2x20	
2) Full can, Flexion	21	Low	2x30	Only if scap mechanics are excellent.
Posterior Shoulder Mobility				
1) Golfer stretch	4	Moderate	3x30”	
2) Sleeper stretch	4	Low	3x30”	Gentle.

	Page	Tissue Irritability	Dose Goal	Notes
Proprioception				
1) Reverse codman	22	High	20	
2) Table circles	22	High	20	
3) Wall circles	23	Moderate	20	Progress from towel to ball
4) Overhead bounce on wall	23	Low	3x30"	Progress from two to one handed
Core				
-Bird dog	24	Low	2x30-60"	Focus on scapular stability
-Front plank	25	Low	2x30-60"	Protracted for scapular stability
-Side plank	25	Low	2x30-60"	Focus on scapular stability
Anterior Shoulder and Thoracic Mobility				
1) Thoracic extension (towel)	26	High	Up to 3 min	
2) Thoracic extension (roller)	26	Moderate	Up to 3 min	
3) Thoracic ext (tennis balls)	26	Low	Up to 3 min	
Miscellaneous				
-Upper trap stretch	27	Moderate	2x30"	
-Levator scap stretch	27	Moderate	2x30"	

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 positions and activities that may result in pain, apprehension, and/or instability. Avoid end range ER and extension.

-Effect of posture on shoulder girdle 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 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.

MANUAL THERAPY

TABLE 2. Summary of evidence and Sports & Orthopaedic Specialists provider preferences regarding manual therapy use in anterior 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. Focus on posterior shoulder mobility. ***NO anterior glides.***
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 anterior instability. See Table 3 for a summary of evidence and Sports & Orthopaedic Specialists provider preferences regarding modality use in anterior instability.

TABLE 3

Modality	Summary of Evidence	SAOS Provider Preference
Cold Therapy / Ice	Limited evidence regarding the effect of cold therapy on anterior instability. 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 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