AQUATIC/LAND CLINICAL PROTOCOL FOR IMPINGEMENT SYNDROME REHABILITATION

Responsibility of the physician to notify physical therapist whether patient has mechanical impingement and any evidence of instability.

**FREQUENCY:** 1 to 3 times per week.

**DURATION:** 2-6 weeks based on Physical Therapy evaluation findings. Continued formal treatment beyond meeting Self-Management Criteria will be allowed when:
1. Patient out of work or to hasten return to work full duty.
2. Athlete needs to return to organized athletic program.

**DOCUMENTATION:** Progress Note to physician at each follow-up appointment. Follow treatment calendar for daily requirements. Discharge Summary within two weeks of discharge.

**INITIAL EVALUATION (VISIT 1)**

**GOALS:**
1. Comprehensive evaluation to identify:
   - source/location of impingement.
   - capsular restrictions/instability.
   - muscular imbalances of shoulder girdle complex.
2. Initiate home exercise program.
3. Oriented to pool program and given information packet.

- If patient presents with the following SELF-MANAGEMENT CRITERIA:
  - Minimal to no limitation in active range of motion.
  - Minimal to no capsular restrictions (posterior, inferior, and anterior).
  - Minimal aberrant scapulothoracic rhythm.
  - Minimal to no winging of scapula with wall push with hands below waist.
  - 4/5 strength of rotator cuff, parascapular musculature, and deltoid.
  - No gross shoulder instability.
  - Minimal to no pain at rest and with use of arm below shoulder height.

then patient can be instructed in either home exercise program or program to be performed at a local health club with follow-up appointments every 1-2 weeks until DISCHARGE CRITERIA has been met.

- If patient does not meet above criteria, then a course of formal rehabilitation will be initiated 2-3 times per week until above criteria has been met. Frequency of weekly appointments will depend on patient’s availability, working status, choice/interest, and return to athletic competition.
DISCHARGE CRITERIA
- Symmetrical shoulder, elbow, forearm, and wrist active range of motion.
- Symmetrical scapulothoracic rhythm.
- Minimal to no limitations in cervical active range of motion.
- No effusion.
- Minimal to no pain with use of upper extremity above shoulder height.
- 4+/5 strength of rotator cuff/parascapular musculature/deltoid (anterior/middle) if non-athlete.
- Negative impingement testing.
- Failure to progress.
- Failure to comply.

--TREATMENT GUIDELINES--

VISITS 2 TO 3
GOALS:
1. The patient demonstrates proper home exercise program techniques.
2. Pain-free active elevation to at least 90° Visit #2, 120° Visit #3.

LAND COMPONENT:
- Modalities as indicated to reduce pain/inflammation.
- Patient education instructed to avoid reaching/lifting objects held away from body or overhead and use of arm above shoulder height if produces pain.
- Postural education/exercises to address forward head and/or rounded shoulders.
- Joint mobilization emphasizing posterior and inferior glides. Initiate with Grades I and II and progress to Grades III and IV as dictated by patient's tolerance. Joint mobilization of AC and SC joints and scapulothoracic junction if indicated.
- The patient to be performing home exercise program for flexibility and isotonic/Theraband strengthening.

WATER COMPONENT

Shallow Water:
- Warm-up: Walking forward/backward/sideways with semi-squats with modified arm movement to tolerance. (If able to lift arms past horizontal without difficulty during sideways walking, may add buoyancy for increased range of motion.)
- Standing arm circles with waterproof wrist weights to increase traction on shoulder for inferior glide.
- Walking in chest deep water with arm across body to increase posterior capsule stretch (may add web glove or hand paddle for increased resistance).
- Trailing forward with web glove/foam/kickboard with modified hand position to lengthen long head of biceps. Walking backward in trailing position to increase strength of posterior shoulder musculature.
- Clap behind with emphasis on increased pectoral stretching.
- Cervical spine range of motion exercises as well as chin tucks with sternal lift.
- Scapular stabilization against pool wall, shoulder retraction, shoulder extension, supine horizontal adduction.
- Initiate strengthening program: Shoulder internal rotation/external rotation in plane of scapula, shrugs, shoulder flexion with palm up returning with straight arm pull down with palm down (may add web gloves/foam/paddles to tolerance).
- Kickboard exercises: Kickboard pulls without push, scapular depressions, modified push-up in semi-prone position.
VISITS 2 TO 3 (continued)

ADDENDUM: If isotonic strengthening is too painful, may substitute isometrics with web glove while walking forward/backward/sideways.

Deep Water:
- Mask and snorkel (may add foam/kickboard/single arm to tolerance): Serratus punches, supraspinatus with thumb up to tolerance, rowing, gentle rhythmic stabilization in neutral position adding increased buoyancy to tolerance.
- Bobbing for flexion/abduction to tolerance.
- Cardiovascular conditioning with wet vest/ski belt as not to stress shoulder.

VISITS 4 TO 5

GOALS:
1. Pain-free active elevation to at least 140 degrees.
2. Progress home exercise program as indicated.
3. 4/5 strength of rotator cuff/parascapular musculature.
4. Evaluate/Analyze swim stroke, if appropriate.

LAND COMPONENT:
- Continue with treatment as indicated Visits 2 to 3.
- Continue with joint mobilization as indicated. Mobilize glenohumeral joint in range of motion where restriction(s) noted.
- Continue progressing home exercise program. Initiate anterior/middle deltoid strengthening; initially DO NOT exceed 90° of elevation.

WATER COMPONENT
- Begin to slowly increase overhead activities in supine position in water (i.e. overhead barbell passes, angels in the snow).
- Begin sport simulation activities in water, if appropriate.

Shallow Water:
- Continue warm-up. May add increased resistance/buoyancy for increased strengthening.
- Continue with joint mobilization/posterior capsule stretching, if indicated.
- Continue with range of motion exercises and add D1/D2 patterns to tolerance.
- Continue with shoulder stabilization exercises with kickboard/barbell. May add 1-3 kg medicine ball exercises (i.e. ball toss/chest pass/one or two-handed ball push) to increase stabilization/proprioception. Rhythmic stabilization (i.e. dribbling, walking with kickboard in bullfighter position).
- Continue strengthening. May add straight arm kickboard push downs to increase latissimus dorsi strength.

Deep Water:
- Continue with mask and snorkel exercises. Add shoulder flexion/extension, horizontal abduction/adduction, D1/D2 patterns for deltoid musculature. Add shoulder flexion with palms up for long head of biceps and straight arm pull downs for latissimus dorsi.
- Continue with rhythmic stabilization with kickboard by using rapid movements in neutral position adding buoyancy as patient tolerates. Progress to single arm for increased resistance.
- Continue with bobbing adding 180’s and 360’s.
- Sculling forward/backward while sitting/standing on barbell/kickboard.
- Initiate swimming if pain-free.
- Continue with cardiovascular strengthening.
VISITS 6 TO DISCHARGE

GOALS:  
1. Demonstrate good understanding of home exercise program.  
2. Meet DISCHARGE CRITERIA.

LAND/WATER COMPONENT:
- Continue with previous treatment as indicated for water and land.  
- Home exercise program/Gym program to include strengthening of all major muscle groups of upper extremity.  
- Education regarding early warning signs of impingement.  
- At discharge, the patient should be independent with home exercise program, program to be performed at local health club, at Rehab 3, or at another rehabilitation facility. Therapist's discretion whether patient should return for follow-up appointment in 4-6 weeks.

For advanced exercises, please refer to Advanced Upper Extremity Aquatic Exercise Protocols.

RM/aoc
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