

Shoulder Impingement Rehabilitation Recommendations

The following protocol can be utilized for conservative care of shoulder impingement as well as post-operative subacromial decompression (SAD) surgery. With SAD surgery, scope sites must be well healed or protected when entering the water. Additionally if the patient presents with secondary impingement due to instability eliminate the joint mobilization and capsule stretching techniques.

Acute Inflammatory phase

Treatment goals

1. Reduce pain and inflammation
2. Restore pain-free PROM
3. Improve joint capsule mobility PRN
4. Improve thoracic spine mobility
5. Improve postural awareness

Land based activities:

1. Modalities PRN for pain and inflammation
2. Manual therapy for soft tissue restrictions, trigger points PRN
3. Codman's/ pendulum exercise (home program)
4. Closed chain passive flexion (home program)
5. PROM- AAROM (provide additional home PROM as needed)
6. Thoracic spine and GH joint mobilizations PRN
7. Initiate scapula-thoracic mobility
8. Scapula muscle re-education including closed chain isometrics
9. Patient education on postural alignment, ADL modifications and pain management.
Limit activities that cause pain.

Aquatic Based activities:

1. Warm up with shoulder rolls, Codman's/ pendulum exercise
2. Backward walking for posture, spine extensor strengthening, add arms out to side various degrees of abduction for isometric scapular stabilization and extensor work
3. PROM to buoyancy assisted range of motion all directions
4. Arms in and low for trunk/ thoracic spine rotations
5. Head nods/ OA release for posture
6. Sub threshold pecotrals stretching
7. Clavicular rocking, scapulothoracic mobilizations in sitting neck deep

Sub- Acute phase

Treatment goals

1. Restore joint arthrokinematics and scapulohumeral rhythm
2. Strengthen scapular stabilizers and rotator cuff muscles
3. Normalize muscle flexibility
4. Restore pain-free AROM

Land based Activities

1. Active elevation
2. Initiate shoulder and arm strengthening below 90 degrees
3. Initiate resisted rotator cuff and scapular stabilizing exercise
4. Initiate core strengthening and cardiovascular training
5. Introduce closed chain and rhythmic stabilization exercise
6. Stretching of pectorals, subscapularis, latissimus, cervical muscles and posterior capsule PRN

Aquatic Based activities

1. Cervical, pectoral, latissimus dorsi and posterior capsule stretching pain free limits PRN
2. AROM all directions
3. Shoulder rhythmic stabilization with turbulent perturbations
4. Wall push up plus progress to arm and leg lift.
5. Scapular stabilizing and progressive rotator cuff strengthening below 90 degrees as tolerated. Focus on humeral head stability
6. Manual techniques to facilitate scapular mobility and inferior/ posterior glides of humerus on the glenoid.

Return to Function phase

Treatment goals

1. Whole body integration
2. Upper quadrant strengthening
3. Sport or work specific exercise

Land based Activities

1. Deceleration exercise with whole body movements
2. Push-push and pull-pull drills
3. Rotator cuff strengthening at 90 degrees
4. Full PNF
5. Sport/ work specific activities

Aquatic Based Activities

1. Integrated high level exercise
2. Strengthening with resistance paddles, gloves or hydrotone bells
3. Plank on noodle series forward and side
4. Introduce shoulder external rotation at 90 degrees with kickboard support in pool prior to introduction to land, ensure humeral head stability prior to adding increased deltoid forces.
5. Swim strokes if appropriate

SLAP Repair Postoperative Rehabilitation Guidelines

It is important to remember every patient is different and each surgical procedure may vary depending on type of SLAP lesion, quality/ health of underlying tissue and surgeon's preference for technique and suture material utilized. Close communication with the surgeon regarding exact surgical procedure and restrictions are crucial for safe and effective rehabilitation. In comparing land-based protocols, restrictions and time frames vary so again clear communication with the physician is essential. Understanding the tissues involved and how they were repaired will allow the therapist to understand the reasoning for the restrictions early on and apply them to the rehabilitation program.

The following Aquatic based protocol was developed based on the land- based protocol from Beth Israel Deaconess Medical Center. Land –based protocol available at:

<http://www.bidmc.org/CentersandDepartments/Departments/OrthopaedicSurgery/ServicesandPrograms/SportsMedicine/ForPatients/~media/Files/CentersandDepartments/Orthopaedic/Sports%20Medicine/Rehab%20Protocols/SLAP%20Repair%20Guidelines.ashx>

Please note the major precautions to this rehabilitation program:

- No resisted biceps activity allowed for first 2 months to protect healing of the biceps anchor. If biceps is repaired no resisted biceps activity is allowed for at least 3 months.
- Limited external rotation motion in early stages is to minimize the strain to the labrum from the peel back mechanism.

Phase I: Immediate Motion Phase (0-3 weeks)

Goals: Allow healing of soft tissue, provide early protected ROM, reduce pain and inflammation, and retard muscle atrophy

Precautions:

1. Sling for 6 weeks, removed 2-3 times per day to perform exercises
2. No shoulder ER past neutral
3. No isolated biceps contraction
4. No flexion above 90 degrees (week 1 60°, week 2 75°, week 3 90°)
5. Passive abduction to 30 degrees

Aquatic Exercise Phase I

Precautions specific to water:

1. Support arm in front of body when walking to avoid drag force of water pulling on arm.
2. Women may not be able to don normal bathing suit straps without assistance
3. Do not use involved arm to get into or out of pool.

Mobility:

Chest to neck deep water PROM/ AAROM shoulder flexion to 60 degrees first week, 75 degrees week 2 and 90 by week 3. Control ROM by depth of water.

Passive ER with arm at side to neutral (therapist manually moves arm or patient is taught to use other hand) Can progress to AAROM must move slowly.

In plane of scapula (supported by therapist or patient) IR PROM/ AAROM to tolerance

Chest deep in water or supine passive abduction to 30 degrees

Gentle cervical stretches (if performed supine, arm must be protected from unwanted movements)

Retard Muscle Atrophy

Submaximal pain-free isometric holds can be done manually by therapist or use drag force of the water:

Shoulder extension and triceps: walk backwards holding arm down at side elbow straight

Shoulder IR/ ER: holding arm at side elbow flexed 90 degrees hold position and rotate in a circle, then reverse.

Criteria required to move into phase II = minimal pain and inflammation, stable shoulder

Phase II: Intermediate Phase (3-6 weeks)

Goals: gradual increase in ROM, improve strength, control pain and inflammation.

Precautions:

1. High reps with low resistance for any exercise that affects G-H joint or might fire biceps. No isolated biceps resistance
2. No posterior shoulder stretch until week 6
3. ER limited to 50 degrees (30-40 week 4, 40 week 5, 50 week 6)
4. Flexion to 145 degrees (120-130 week 4, 130-140 week 5, 145 week 6)

Aquatic Exercise Phase II

Mobility:

Progress PROM/ AAROM forward flexion up to 145 degrees week 6 (see precautions above for weekly progression) Patient will have to lean forward to utilize the buoyancy of the water.

Progress PROM/ AAROM of shoulder IR in plane of scapula to full motion by week 6

Initiate PROM/ AAROM shoulder ER in the plane of the scapula (see precautions above for weekly progressions)

Cervical and gentle pec minor stretches as tolerated

Pendulum exercise

Grade I and II G-H joint mobilization for pain PRN, clavicle rocking and SC joint mobilizations PRN

Improve strength:

Continue isometric exercise from phase one.

Begin basic rhythmic stabilization within allowed ROM using light manual or turbulent perturbations, begin with slow reversals and resistance at elbow for manual or shorten lever arm with turbulent perturbations.

Begin active and light resistance (moving slow to medium speed) for IR/ER arm at side, forward flexion and scaption, staying within the ROM restrictions

Begin triceps strengthening: buoyancy cuff on wrist elbow extension (this is nice since it provides assist to elbow flexion avoiding biceps resistance.

Scapular strengthening: shrugs, scapular retraction/ protraction arm supported on noodle

Criteria to progress = minimal pain and nearly complete ROM

Phase III: Strengthening Phase (6-12 weeks)

Goals: Normalize ROM, improve strength, improve neuromuscular control, normalize Arthrokinematics.

Precautions:

1. Bicep resistance light beginning at 10 weeks (no greater than 1 pound)

Aquatic Exercise Phase III

Mobility:

Progress ROM in all directions, full ROM achieved by 10-12 weeks.

Begin light posterior capsule stretches can become more aggressive over time.

Strengthening

Progress phase II exercises

Light biceps: elbow flexion and extension at medium speed.

Scapular stabilization exercise progression within tolerance

Initiate D2 PNF pattern: active standing in chest deep water to progress increase speed or add resistance gloves. Towards end of phase when ready to work of quick reversal perform manual resistance to pattern in supine (remember the patient moves away from the therapist in the pool and must control end range and reversal).

Push up plus and plank on pool wall progress to noodle and arm and leg lift at weeks 8-10.

Criteria to progress: full painless ROM, muscle strength that is adequate for work and sport, satisfactory clinical exam.

Phase IV: Return to Activity Phase IV (3 months on)

Goals: return to work or sport activity

Precautions: If discomfort after exercise lasts longer than one hour, exercise intensity should be decreased. If night pain increases decrease program intensity

Aquatic Exercise Phase IV

Advance biceps strengthening to include higher level of resistance and D1 PNF

Utilize pool for initiation of higher sport activities and or swimming strokes, cardiovascular cross training and conditioning however many sports require eccentric/ deceleration control more of the rehabilitation is now land based.

Adhesive Capsulitis Treatment Approach/ Protocol

*Note it is recommended a combination of land and aquatic treatments be utilized at each phase of rehabilitation. The following are recommendations for aquatic treatments however each patient is different and programs should be designed to meet individual needs.

Phase One = Painful, “freezing” phase (initial weeks to first few months)

Treatment goals for this phase:

1. Pain management
2. Attempt to maintain range of motion within pain-free tolerance
3. Encourage scapular stabilization
4. Patient education

Aquatic Exercise Program for Phase One:

Warm up Exercise: shoulder rolls, pendulums, walk forward and backward with natural arm swing as tolerated.

Manual Therapy: Cervical stretches, gentle pec minor stretch, trigger point release and AquaStretch™ (intuitive movement only no facilitator overpressure), clavicle rocking, grade I and II joint mobilization in open packed position.

AAROM for elevation of arm: buoyancy cuff at wrist perform flexion and abduction, begin in plane of the scapula. Supine shoulder bilateral shoulder abduction (snow angles) palms to surface of the pool if tolerated. Arm supported on kickboard horizontal abduction/ adduction neutral rotation (thumb up), encourage relaxation of upper trapezius and combine with thoracic/ trunk rotation. Arm on pool side passive external rotation (gentle)

Thoracic mobility exercise: seated thoracic rotation with side flexion (arms at chest), lateral apical breathing can be combined with side flexion in standing or supine.

Scapular stabilization: manual scapular PNF, protraction/ retraction with arm supported on kickboard at 90 degrees of flexion (if tolerated)

Cool down: walk forward and backward with natural arm swing if tolerated, pendulums and shoulder rolls. Also can perform awareness through movement relaxed shoulder series.

Phase Two = Adhesive “stiff” phase (4-12 months)

Treatment goals for this phase

1. End range joint mobilization and capsular stretching
2. Shoulder joint distraction
3. Stretching
4. Patient education

Aquatic Exercise Program for Phase Two

Warm up: walk forward and backward with exaggerated arm swing or breaststroke motion with the arms, shoulder rolls and pendulums, AAROM as in phase one progress to AROM in all directions as tolerated. Warm up should last 15 to 20 minutes to increase blood flow to the tissues prior to stretching.

Shoulder joint distraction: pendulums with 1-2 pound on wrist if tolerated, manual lateral distraction in sitting (sustained holds 30-60 seconds as tolerated)

Manual Therapy: AquaStretch for facilitator accentuated movement as tolerated, grade III and IV GH joint mobilizations sustained holds (focus on posterior and inferior glides) if tolerated perform at end of available range, trigger point release of upper trapezius and subscapularis,

Thoracic Mobility: continue as in phase one, add windmill series if arm tolerates pressure from water.

Stretching: cervical stretches, pectoralis minor and major manual and self-stretches, latissimus dorsi stretching if tolerated. End shoulder range of motion stretching all directions.

Strengthening: following manual therapy and stretching exercise with active and light resistive shoulder motions and scapular stabilization progressions to help maintain new motion achieved.

Cool down: relaxed shoulders series, 10 reps of slow flexion to 90 in plane of scapula.

Phase Three = Resolution “thawing” phase (5-26 months)

Treatment goals for this phase

1. Improve range of motion more vigorous joint mobilization
2. Advancement of active exercise
3. Gradually progress strengthening as tolerated

Aquatic Exercise for Phase Three

Warm up: active and light resistive exercise within comfortable range, ensure proper form again 15-20 minutes required to warm up tissues before stretching

Manual therapy: end range stretching and joint mobilization (grade III and IV) prolonged holds up to 60 seconds, utilize contract relax techniques at end ranges.

Stretching: continue with upper quadrant stretching as needed

Strengthening: progress upper quadrant and scapular stabilization strengthening as required; continue to encourage correct form and work to break “bad habits” that were developed in the early stages.

Cool Down: pendulums with weight at wrists, relaxed shoulder series, walking