Arthroscopic SLAP Repair Rehabilitation Protocol

Dr. Pradeep Kodali

General Principles of Arthroscopic SLAP Repair Rehabilitation

SLAP (Super Labrum Anterior-to-Posterior) repair rehabilitation is a structured, phased process. Progress is determined by both time and individual clinical milestones such as soft tissue healing, pain levels, and range of motion. This guide outlines a general framework; individual protocols may vary based on factors like tear size, tissue quality, and whether the injury is acute, chronic, or a revision.

General Rehabilitation Considerations

- Individualized Approach: Each patient's rehabilitation should be tailored based on pre-operative condition, surgical findings, and rate of recovery.
- Tear Size & Tissue Quality: Smaller tears and younger patients with good tissue quality may progress more quickly. Larger or massive tears require slower rehabilitation due to increased failure risk and motion limitations.
- Pain Monitoring: Pain should gradually decrease. Persistent or worsening pain may signal the need for modification in the rehab plan.
- Emphasis on Range of Motion (ROM): Early phases focus on restoring passive and active ROM before initiating strengthening.
- Quality of Movement: Exercise technique is critical. Avoid compensatory motions that can reinforce dysfunctional movement patterns.
- Tissue Healing Timeline: Healing of the tissue to bone takes approximately 12 weeks.
- Strengthening is generally delayed until this point to protect the repair.

Rehabilitation Protocol Phases

Phase I: Protection (Weeks 0-6)

- Goals for Weeks 0-6: Re-establish non-painful ROM, retrain muscle atrophy, improve neuromuscular control of the scapula in the neutral glenohumeral position, decrease pain and inflammation, and initiate cardiovascular conditioning and strength programs with modifications.
    - Weeks 1-2 (Phase I: Protection):
        - PROM: Elevation to 75º in the scapular plane, ER in scapular plane up to 15º, IR in scapular plane up to 45º.
        - Manual Therapy: Posterior joint mobilizations (grades I-II).
        - Other ROM: Elbow ROM (may be AROM/PROM – no resistance), full hand/wrist ROM, Pendulum Exercises.
        - Strength: Scapular stabilization (scapular clock and manual resisted scapular PNF patterns), Submaximal isometrics in neutral for shoulder and elbow (no elbow flexion).
        - Goals to Progress: Control pain and inflammation, gradual increase in ROM, promote healing of tissue, initiate muscle contraction.

        - Activities (Weeks 0-3): PROM within safe zone, manual resistance scapula, Codman's (in sling if necessary), isometrics, and initiation of cardiovascular program at 2 weeks post-op.
    - Weeks 3-4 (Phase I: Protection):
        - PROM: Elevation to 90°, abduction to 80°, ER in scapular plane up to 30°, IR in scapular plane up to 55°.
        - Other ROM: Pendulum Exercises.
        - AAROM: May begin with same restrictions as PROM.
        - Strength: Continue scapular stabilization, Rhythmic stabilization (side-lying neutral, hand on ball within ROM limitations, no strong ER contractions), Continue isometrics.
        - Goals to Progress: Achieve full PROM goals, reduce inflammation and pain, tolerate basic strengthening, postural awareness.
    - Weeks 5-6 (Phase I: Protection):
        - PROM and AAROM: Elevation to 145°, ER at 45° abduction to 50°, IR at 45° abduction to 60°, gentle IR and ER stretch at 90° abduction.
        - AROM: Full can WITHOUT weight, abduction as tolerated.
        - Strength: Initiate IR/ER at neutral (0º of abduction) with tubing (towel roll placed under arm), Prone exercises WITHOUT weight (Row, Horizontal abduction, Extension to neutral), Supine punches with light resistance, Scapular PNF Patterns, UBE with light resistance.
        - Goals to Progress: Achieve PROM and AAROM limitations, no exacerbations of pain, independent with HEP.
        - Activities (Weeks 4-6): Continue previous activities, slowly increase ROM within safe zone, A/AROM with wand, PREs for wrist, initiate strength program at 4 weeks post-op, no weights in hand with lunges.

Phase II: Intermediate Phase (Weeks 7-12)

- Goals for Weeks 7-9: Regain and improve upper extremity muscular strength, improve neuromuscular control, and normalize arthrokinematics of the shoulder.
- Criteria to Progress to Phase II: Full ROM and minimal pain and tenderness.
    - Weeks 7-9 (Phase II):
        - PROM and AAROM: Full flexion, full abduction, ER in neutral and 90° abduction: up to 90°, IR in neutral and 90° abduction: up to 70°, towel and side-lying internal rotation stretch.
        - Manual Therapy: Continue posterior and initiate inferior Grade III-IV mobilization at GH joint.
        - AROM: May begin AROM biceps at 8 weeks, continue to progress elevation and abduction AROM. *Note: This contrasts with the instruction of "No biceps work x 4 wks."*.
        - Strength: Initiate biceps strengthening at 8 weeks with elbow flexed and neutral abduction, continue isotonic strengthening, initiate Thrower’s 10 Program, PNF patterns with tubing, progress rhythmic stabilization.

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        - Goals to Progress: Achieve full AROM by 9 weeks (except ER if thrower), NO substitution patterns, low pain scores.
        - Activities (Weeks 7-9): PRE's (Jobe's/Hughston program), scapular stabilization/strengthening (rowing), neutral rotation rotator cuff strengthening, stretching all planes, rhythmic stabilization (progressively 30, 60, 90, 120 degrees), initiate isokinetics in neutral, scapular plane, high speeds at 6 weeks post-op, PNF patterns.
    - Weeks 10-12 (Phase II):
        - PROM and AAROM: Full in all planes, may progress throwers to beyond 90° ER.
        - AROM: Continue as necessary to sport and ADL demands.
        - Strength: Continue isotonic and scapular strengthening, begin ER/IR at 90° abduction, advance Thrower's 10 and CKC exercise as tolerated, progress biceps strengthening.
        - Goals to Progress: Maintain full AROM in all planes (beyond 90 ER if overhead athlete), 4+/5 shoulder strength in all planes, no reported pain, verbal confidence in initiation of return to sport progression.
        - Goals for Weeks 10-12: 90% rotator cuff strength, goal tolerance to rotator cuff and ballistic activity, prepare athlete for gradual return to functional activities, prepare athlete to begin to throw.
        - Criteria to Progress to Phase III: Full ROM and minimal pain and tenderness.
        - Activities (Weeks 10-12): Advance PRE's as tolerated (Thrower's Ten), advance rotator cuff strengthening to 90 - 90 shoulder work, initiate plyometric progression program (trunk rotation and Plyoball w/ mini tramp), Isokinetic Test at 12 weeks post-op.

Phase III: Advanced Phase (Weeks 12-16)

- ROM: Continue to progress AROM, PROM as needed for ADL and sport demands, ensure thoracic and cervical mobility.
- Strength: May begin resisted biceps and forearm supination, muscular endurance exercise, light plyometrics (begin with two hands and progress to one, wall ball dribbles/free throws with single hand).
- Activities: Light tossing – Single knee throwing 15 feet with emphasis on proper throwing mechanics and follow through (only if ROM has been normalized in all planes), progress eccentric strengthening of posterior cuff and scapular musculature, begin throwing progression at 4 months.
- Restricted Sport Activity: Light swimming, half golf swings, sport-specific activities.
- Precautions: No contact sports.
- Goal to Progress to Return to Sport Phase: Full throwing status at 6-8 months with successful completion of throwing program.
- Goals for Weeks 13-16: Progressively increase activities to prepare patient for full functional return.

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- Criteria to Progress to Return to Throwing: Full, non-painful ROM, 2 successful weeks of pain-free plyometrics / 90 - 90 shoulder work, satisfactory isokinetic evaluation, satisfactory clinic exam, and physician's approval.
- Activities (Weeks 13-16): Initiate Interval Throwing Program (ITP) (12 weeks post-op) – throw and train on same days, ITP (first, followed by rehab exercises, then strength/conditioning program), lower strength/ROM on opposite days, continue with plyometrics, continue with Thrower's Ten, continue with isokinetics, initiate hitting progression program after successfully completing 90 foot phase of ITP.

Phase IV: Return to Sport/Activity (Weeks 16-20)

- ROM: Terminal end ROM stretching, teach long term home stretching and mobility.
- Strength: Advance plyometrics to sport-specific, begin throwing program or other sport-specific program if all goals are met and physician has provided clearance, progress shoulder strengthening to include return to regular gym/team strengthening.

Criteria for Discharge from Rehabilitation

- Discharge from rehabilitation is generally met when the patient achieves:
    - ROM within appropriate ranges based on patient-specific needs.
    - Full muscle strength and endurance of shoulder and periscapular strength.
    - Consistently low pain scores.

Return to Sport Criteria

- **Return-to-Sport Considerations:**
    - The decision to return to sport should be individualized for recreational or competitive athletes.
    - Factors such as the level of demand on the upper extremity, whether it's a contact vs. non-contact sport, and the frequency of participation should be considered.
    - Close discussion with the referring surgeon is highly encouraged before advancing to a return-to-sport rehabilitation program.
- **To return to sport or activity, the following criteria should be met:**
    - ROM appropriate for sport or activity.
    - Strength of shoulder and scapular musculature tested at 5/5 MMT or isokinetics vs. uninvolved.
    - Completion of a closed chain functional measurement such as the Closed Kinetic Chain Upper Extremity Strength Test (CKCUEST).
    - Completion of progressive return to sport/throwing program.
    - No pain with activity.