



American
Society of
Shoulder &
Elbow
Therapists

CONSENSUS REHABILITATION GUIDELINES

Arthroscopic Anterior Stabilization with or without Bankart Repair

GENERAL INFORMATION

Surgical Procedure:

- Familiarity with the surgical procedure and understanding its effect on rehabilitation is vital.
- Arthroscopic Bankart repairs address shoulder instability by repairing an unstable labrum back to the glenoid through the use of sutures^{2,27,32} or suture anchors^{34,42}. Early procedures utilized staples to secure the labrum which resulted in high recurrence rates and post-operative complications.^{21,30} Historically many of the arthroscopic techniques did not adequately address concomitant capsular laxity leading to higher recurrence rates compared to the traditional open Bankart repairs.^{6,9,10,20,24,29,36}
- Currently, arthroscopic plications of the capsule are performed more readily during arthroscopic Bankart repair to take up redundancy in the glenohumeral joint capsule.^{1,4,8,15,16} The capsule can be folded onto itself and / or stabilized to the labrum.^{12,15,38}
- The addition of capsular plication to the arthroscopic Bankart repair has resulted in a reduction in recurrence rates of arthroscopic shoulder stabilization procedures.^{1,4,39} In many series, failure rates are now similar to open surgical procedures.^{7,17,19,22}
- Historically patients recovering from arthroscopic surgery have an easier time regaining P/AAROM than comparable open surgeries without significant long term ROM loss.^{7,13}
- Surgical procedures and indications are rapidly evolving.^{4,14,23,25,37}

Structures Which Require Protection During Rehabilitation:

- Due to the arthroscopic nature of these surgeries, the rotator cuff is not significantly disturbed. Therefore AROM, dynamic stability activities, and strengthening *does not* need to be delayed to protect the rotator cuff.
- However, sutures, anchors, capsule, ligaments, and labrum need *significant* protection from undue stress for a period of time (usually at least 6 weeks) to facilitate appropriate tissue healing.^{26,33} *Therefore close communication with the physician is vitally important* to discuss associated lesions, tissue quality, fixation method and position. Based upon this information, ROM and strengthening activities will be slowly increased during the initial post operative time period to ensure adequate healing

Critical Rehabilitation Principles

- Historically, 2-4 weeks of immobilization is common after arthroscopic instability repair.^{11,17,43} However, there is evidence that immediate staged ROM is safe and may provide an earlier return to functional activity and ROM although long term results are not significantly different¹⁸. Therefore, we advocate 0-4 weeks of immobilization dependent on factors such as the patient's specific injury / pathology, co-morbidities, amount of natural laxity, past surgical history, specific surgical technique (including type of fixation and arm position at the time of capsular plication), and physician philosophy.
- Balancing the speed of P/AAROM gains is vitally important to adequately protect the surgical repair and to assure ROM is not gained too quickly or too slowly. Gaining ROM too quickly (especially ER) is a more common problem and may result in recurrent laxity, while gaining ROM too slowly may result in residual stiffness.

- Balancing the speed of P/AAROM gains can be accomplished through the use of staged ROM goals.^{18,43} The optimal speed of P/AAROM gains is different for each patient and based on factors such as their specific injury / pathology, co-morbidities, amount of natural laxity, past surgical history, specific surgical technique (including type of fixation and arm position at the time of capsular plication), and physician philosophy.

- Staged ROM goals can be determined at least two ways:
 1. Physician preference based on the factors above.
 2. If guidance is not given by the physician, then the following table can be used as a general guideline:

*	Passive Forward Elevation in the scapular plane
&	Passive External Rotation
#	Active Forward Elevation in the scapular plane
abd	Abduction

	PFE*	PER& at 20° abd	PER at 90° abd	AFE#
POW 3	90°	10°-30°	contraindicated	NA
POW 6	135°	35°-50°	45°	115°
POW 9	155°	50°-65°	75°	145°
POW 12	WNL	WNL	WNL	WNL

- **PROM greater than the motions listed above should be avoided.**
- **Interventions should not be forceful or painful.**

Precautions/Contraindications:

- Adequate protection of the surgical repair for at least the first six weeks is vital. During this early time period *ROM / stretching into end range positions*, especially end range ER by the side and end range ER in abduction *should NOT be performed as these motions place tension on the anteroinferior shoulder capsule.*
- Because of the minimally invasive nature of these procedures, the pain that some patients experience is minimal allowing for greater use of their arm than is advisable. Therefore, extensive patient education is vital to convey the importance of protecting the surgical repair. *Heavy lifting and use of the arm in positions requiring end range ROM are not allowed in the early postoperative period (<POW 6).*

SPECIFIC REHABILITATION GUIDELINES

Phase 1 (POW 1 to ~ POW 6)

GOALS:

- Maximally protect the surgical repair (capsule, ligaments, labrum, sutures)
- Achieve staged ROM goals. **DO NOT** exceed them.
- Patient education in post-operative restrictions
- Minimize shoulder pain and inflammatory response
- Ensure adequate scapular function

INTERVENTIONS TO AVOID

- **Do not allow or perform ROM / stretching beyond staged ROM goals, especially ER by the side and end range ER in abduction.**
- **Do not allow the patient to use their arm for heavy lifting or any use of the arm which requires ROM greater than the staged ROM goals.**

SPECIFIC INTERVENTIONS

Activities of Primary Importance:

- 1) Patient education regarding limited use of the arm despite lack of pain or other symptoms
- 2) Protection of repair
- 3) Achieve staged ROM goals through gentle ROM activities
- 4) Minimize inflammation

Activities of Secondary Importance:

- 1) Normalize scapular position, mobility, and dynamic stability
- 2) ROM of uninvolved joints
- 3) Begin restoration of shoulder strength

Immobilization

- Strict sling immobilization of glenohumeral joint 0-4 weeks, followed by sling use when in the community or when the patient is up for long periods of time for the remainder of phase 1.
- Most commonly a standard sling (glenohumeral joint in IR and adduction) is used through a range of 2-4 weeks.

Patient Education

- Explain nature of the surgery
- Discuss precautions specific to the nature of the surgical repair (abduction/ ER stress the anterior inferior capsule)
 - Importance of meeting staged ROM goals (especially not gaining ROM too fast)
 - Importance of tissue healing
 - Proper sling use (assure sling provides upward support to the glenohumeral joint).
 - Limiting use of arm for ADL's

ROM

- Following the strict immobilization period begin:
 - Pendulums (unweighted)
 - Passive/ active assisted forward elevation in plane of scapula (PFE) to achieve staged ROM goals (ex: self assist-exercise wand/ opposite hand, family or therapist assist, rope and overhead pulley, table slides with involved arm on a towel on a table or countertop with assistance provided by the uninvolved arm). *ROM should not be forceful*
 - Passive / active assisted external rotation (PER) with the arm supported and shoulder in slight abduction to achieve staged ROM goals (ex: family or therapist assist, self assist with l-bar). *ROM should not be forceful*
 - Scapular clock exercises or alternately elevation, depression, protraction, retraction; progress to scapular strengthening as patient tolerates (Smith et al 2006).
- Submaximal rotator cuff isometrics as tolerated
- AROM of uninvolved joints
- Postural awareness/education

Pain Management

- Activity restriction
- Proper fitting of sling to support arm
- Scar management.
- Modalities PRN
- MD prescribed or OTC medications

MILESTONES TO PROGRESS TO PHASE II

- 1) Appropriate healing of the surgical repair by adhering to the precautions and immobilization guidelines.
- 2) Staged ROM goals met *but not significantly exceeded*.
- 3) Inflammation controlled (painless within the allowed ROM).

Phase 2 (~POW 6- ~ POW 12)

GOALS

- Achieve staged ROM goals to normalize PROM and AROM. DO NOT exceed them.
- Minimize shoulder pain
- Begin to increase strength and endurance
- Increase functional activities

INTERVENTIONS TO AVOID

- **Do not perform ROM / stretching beyond staged ROM goals.**
- **Do not perform any stretch to gain end range external rotation or external rotation w/ 90° of abduction unless significant tightness is present.**
- **Do not allow the patient to use their arm for heavy lifting or any activities which require ROM beyond the staged ROM goals**
- **Do not perform any strengthening exercises that place a large load on the shoulder in the position of horizontal abduction or the combined position of abduction with external rotation (ex: NO push-ups, pec flies). This places excessive load on anterior capsular structures during this timeframe.**
- **Do not perform scaption with internal rotation (empty can) at any stage of rehabilitation due to possibility of impingement.**

SPECIFIC INTERVENTIONS

Activities of Primary Importance:

- 1) Continued Patient Education
- 2) P/AAROM as needed to achieve staged ROM goals. DO NOT significantly exceed them.
- 3) Establish basic rotator cuff and scapular neuromuscular control within the allowed ROM

Activities of Secondary Importance:

- 1) Introduction of functional patterns of movement
- 2) Progressive endurance exercises.

Patience Education

- Counsel about using the upper extremity for appropriate ADL's in the painfree ROM (starting with waist level activities and progressing to shoulder level and finally to overhead activities over time).
- Continue education regarding avoidance of heavy lifting or quick sudden motions.
- Education to avoid positions of instability during ADL's such as end range external rotation, and combined abduction / external rotation.

ROM

- P/AAROM as needed to achieve staged ROM goals in all planes. Many times only light stretching or no stretching is needed.
- If ROM is significantly less than staged ROM goals, gentle joint mobilizations may be performed. However they should be done only into the limited directions and only until staged ROM goals are achieved.
- Address scapulothoracic and trunk mobility limitations. Ensure normal cervical spine ROM and thoracic spine extension to facilitate full upper extremity ROM.

Neuromuscular Re-education

- Address abnormal scapular alignment and mobility PRN
 - Strengthen scapular retractors and upward rotators (PRE's or manually resisted exercises)
 - Increase pectoralis minor flexibility if limited (manual stretching, towel mobilizations)
 - Biofeedback by auditory, visual, or tactile cues
 - Closed chain exercises may be helpful (quadruped position while working to maintain proper position of the scapula, quadruped w/ scapula protraction, progressing from quadruped to tripod position, *NO PUSH-UPS*)

- Address core stability deficits PRN
- Activities to improve neuromuscular control of the rotator cuff and shoulder girdle such as use of unstable surfaces, body blade, manual exercises (PNF).

Strength / Endurance

- Scapula and core strengthening (PRE's, manually resisted exercises, core stabilization exercises)
- Balanced rotator cuff strengthening to maintain the humeral head centered within the glenoid fossa during progressively more challenging activities.
 - Should be initially performed in a position of comfort with low stress to the glenohumeral joint such as < 45° elevation in the plane of the scapula (ex: elastic band or dumbbell external rotation, internal rotation, forward flexion, shoulder extension- not past the plane of the body).
 - Exercises should be progressive in terms of muscle demand / intensity. It is suggested to use activities that have documented EMG activity (Specific Guidelines References). Resisted activities should progress from assistive exercises (ex. rope/ overhead pulley and/ or finger ladder) to active exercises and finally the addition of external resistance (ex. elastic bands or 1-2 lbs. weight).
 - Exercises should also be progressive in terms of shoulder elevation (ex: start w/ exercises performed at waist level progressing to shoulder level and finally overhead activities).
 - Nearly full elevation in plane of the scapula should be achieved before progressing to elevation in other planes.
 - Exercises should be progressive in terms of adding incremental stress to the anterior capsule, gradually working towards a position of elevated external rotation in the coronal plane – the “90- 90” position.
 - Rehabilitation activities should be pain free and performed without substitutions or altered movement patterns.
 - Rehabilitation should include both closed (ex: quadruped to tripod) and open chain activities.
 - Rehabilitation should also include both isolated and complex movement patterns.
 - Depending upon the goals of the exercise (control vs. strengthening), rehabilitation activities can also be progressive in terms of speed once the athlete demonstrates proficiency at slower speeds.
 - The rotator cuff and scapula stabilizer strengthening program should emphasize high repetitions (about 30-50 reps) and relatively low resistance (about 1-3 lbs).
 - No heavy lifting or plyometrics should be performed during this stage.
 - Elbow flexion/ extension strengthening with arm at side (shoulder 0° elevation) can begin in this phase and progress as appropriate.

Pain Management

- Modalities PRN
- Ensure appropriate use of arm during ADL's
- Ensure appropriate level of therapeutic interventions
- Weaning from use of medications

MILESTONES TO PROGRESS TO PHASE III

- 1) Staged AROM goals met without pain or substitution patterns.
- 2) Appropriate scapular posture at rest and dynamic scapular control during ROM and strengthening exercises
- 3) Completion of current strengthening activities without pain or difficulty

Phase 3 (~POW 12 – ~POW 24)

GOALS

- Normalize strength, endurance, neuromuscular control, and power
- Gradual and planned build-up of stress to anterior capsule and labral tissues
- Gradual return to full ADL's, work, and recreational activities

INTERVENTIONS TO AVOID

- **Do not increase stress to the shoulder in a short period of time or in an uncontrolled manner.**
- **Do not perform advanced rehabilitation exercises (such as plyometrics or exercises at end range abduction/ ER) if the patient does not perform these activities during ADL's, work, or recreation.**
- **Do not progress into activity specific training until patient has nearly full ROM and strength.**
- **Do not perform weightlifting activities which place excessive stress on the anterior capsule. For instance, lat. pull downs and military press performed with the hands behind the head stress the anterior capsule with no additional benefit in terms of muscle activity. Similarly activities which encourage shoulder hyperextension such as dips should also be avoided.**

SPECIFIC INTERVENTIONS

Activities of Primary Importance:

- 1) Progressive strengthening and endurance exercises
- 2) Progressive neuromuscular control exercises
- 3) Activity specific progression- sport, work, hobbies

Activities of Secondary Importance:

- 1) Finalization of ROM
- 2) Finalization of specific deficits for core and scapular stability

Patient Education

- Counsel in importance of *gradually* increasing stress to the shoulder while returning to normal ADL's, work and recreational activities including heavy lifting, repetitive activities, and overhead sports.

ROM

- PROM / Stretching/Joint Mobilizations as needed to address any remaining deficits.

Neuromuscular Re-education

- Address any remaining deficits at the rotator cuff, scapular, or trunk.

Strength / Endurance / Power

- Continue shoulder strengthening program as initiated in Phase 2 with increasing emphasis on high speed, multi-planar activities which incorporate the entire kinetic chain.
- Gradually progress rehabilitation activities to replicate demanding ADL / work activities
- Progressive return to weight-lifting program emphasizing the larger, primary mover UE muscles (deltoid, latissimus dorsi, pectoralis major)
 - Start with relatively light weight and high repetitions (sets of 15-25 repetitions) and gradually decrease repetitions and increase weight over a several month period.
 - Suggested upper extremity exercises for early Phase 3
 - Biceps curls- shoulder adducted (added in Phase 2)
 - Triceps press downs or kick backs- shoulder adducted (added in Phase 2)
 - Shoulder shrugs
 - Rows(scapular retraction)- shoulder adducted
 - Lat bar pull downs w/ hands in front of the head
 - Dumbbell overhead shoulder press done with hands starting in front of the shoulders (not in the abducted / externally rotated position)
 - Push-ups as long as the elbows do not flex past 90°

- Suggested upper extremity exercises to be added in intermediate Phase 3
 - Isotonic pressing activities (ex. chest/ incline presses, dumbbell/ barbell bench)
 - Dumbbell shoulder raises to 90°
 - Rows (scapular retraction)- shoulders elevated
 - Machine / barbell shoulder presses which do not require end range abduction / external rotation
 - Prone rotator cuff/ scapular strengthening (prone horizontal abduction, Scapular MMT positions, “Hughston exercises”)
- Suggested upper extremity exercises to be added in late Phase 3
 - Any overhead press with shoulders in abducted/ ER position (military press)
 - Pectoralis major flys
 - Dead lift
 - Power cleans
- Upper extremity exercises that are not advisable for this patient population
 - Dips
 - Lat Pull Downs or military press with the bar behind head
- Plyometric program (as necessary)
 - Criteria to initiate plyometric program
 - Goals of returning to overhead athletics or other work or recreational activities requiring large amounts of upper extremity power
 - Adequate strength of entire shoulder girdle musculature
 - Pain free w/ basic ADL’s and current strengthening program
 - At least 3 weeks of tolerance to high speed multi-planar activities which progressively mimic functional demands.
- Parameters
 - Due to the explosive nature of this type of exercise, emphasis of plyometrics exercises should be on quality not quantity.
 - Perform a few times a week and utilize moderate repetitions (approximately 3-5 sets of 15-20 reps)
 - Begin with beach ball / tennis ball with progression to lightly weighted balls (plyoballs)
 - Sample activities:
 - 2-handed tosses – waist level
 - overhead
 - diagonal
 - 1-handed tosses (begin with arm at side and gradually increase the amount of shoulder abduction/ ER and gradually decrease UE support).
- Interval Sport Programs such as throwing programs, swimming, golf once approved by physician (usually POW 16 or longer).

MILESTONES TO RETURN TO SPORT, WORK, HOBBIES:

- Clearance from physician
- No complaints of pain nor instability
- Restoration of sufficient ROM for task completion
- Full strength (5/5) of rotator cuff and scapular musculature
- Adequate shoulder girdle endurance for desired activity
- Regular completion of an independent strengthening/ neuromuscular control program
- If the patient struggles with confidence or shoulder stability, a stabilizing brace may be considered for return to activity, but is most commonly used only for collision sports.

DISCLAIMER

These general rehabilitation guidelines were created by the membership of the American Society of Shoulder and Elbow Therapists for the rehabilitation of various shoulder and elbow pathologies. These documents are simply to be used as guidelines. This information is provided for informational and educational purposes only. The specific treatment of a patient should be based on individual needs and the medical care deemed necessary by the treating physician and rehabilitation professional. ASSET takes no responsibility or assumes no liability for improper use of these guidelines. We recommend you consult with your treating physician or rehabilitation professional for specific courses of treatment.

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