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## **ARTHROSCOPIC ANTERIOR SHOULDER STABILIZATION REHABILITATION PROTOCOL**

The intent of this protocol is to provide the clinician with a guideline of the post-operative rehabilitation course of a patient that has undergone a shoulder stabilization surgery. It is by no means intended to be a substitute for one's clinical decision making regarding the progression of a patient's post-operative course based on their physical exam/findings, individual progress, and/or the presence of post-operative complications. If a clinician requires assistance in the progression of a post-operative patient please consult with Dr Camilleri.

Please reference the exercise progression sheet for timelines and use the following precautions during your treatments. Thank you for progressing all patients appropriately and please fax all progress notes to Dr. Camilleri's office or hand deliver with the patient. Successful treatment requires a team approach and we value your care for the patient as well as your input. Please contact Dr. Camilleri at any time with your input on how to improve the therapy protocol.



## Phase I (General timeline: 0-6 weeks)

### GOALS

- Patient Education: posture, joint protection, positioning, hygiene, restrictions
- Immobilization to protect surgical procedure (capsule, ligaments, labrum, sutures)
- Minimize shoulder pain and inflammatory response
- Achieve staged ROM goals through gentle ROM activities
- Active ROM uninvolved joints (elbow, wrist, hand)
- Normalize scapular position, mobility and dynamic stability
- Maintain cardiovascular fitness and lower limb and trunk muscle condition

### PRECAUTIONS

- Weeks 0-4: Remain in sling (include sleeping), remove for showering, range of motion
- Weeks 5-6: Sling use when moving around for longer periods of time or out in public
- Limit ER and extension
- No lifting objects with operative shoulder or arm use beyond ROM restrictions

### EXERCISE SUGGESTIONS:

#### PROM & AAROM

- Elbow: Active & passive - flexion (if SLAP repair wait 6 wks) /extension/pronation/supination
- Wrist: Active & passive - flexion/extension/radial & ulnar deviation
- Neck: general ROM if needed
- Shoulder: use pulleys, cane, stick, opposite arm, finger ladder (all in scapular plane to maximize humeral head/glenoid congruency)
  - P/AAROM flexion: 45-70° (wks 1-2), 90° (wk 3), 135° (wk 6)
  - P/AAROM ER: 0-5° (wks 1-2), 10-30° (wk 3), 35-50° (wk 6)
  - P/AAROM IR: 15-20°, hand behind back: posterior belt line (wk 5-6)

#### Muscle Activation / Strength Maintenance

##### General:

- Ball squeezes
- Pendulums for pain control (use body sway to move extremity: forward/back, side/side)
- Posture awareness / exercises (scapular retraction, shoulder rolls)
- Scar management

##### Rotator Cuff:

- Week 2: (if pain free) Sub maximal isometrics in neutral as tolerated  
[\*caution with IR if open Bankart with subscapularis reattached]
- Week 4: Sidelying ER with towel – no weight

##### Scapula:

- Bilateral elevation /depression/protraction/retraction
- Supine serratus anterior protraction/retraction at 90° flexion → progress with small weights
- Rhythmic stabilization supine 90° flexion submaximal resistance on upper arm for all planes of movement
- Supine bent elbows barrel hug
- Scapular clock exercises and progress to scapular strengthening at tolerated



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## Proprioceptive Retraining

- Week 3: Upper extremity weight-bearing exercises for scapular movements at GH angles below 60 degrees elevation
  - i.e. Standing with swiss ball on floor – hand on ball with pressure forward/backward, side to side, circles,
  - Standing weight-bearing shifts with hands on bed/plinth → progress to single arm weight-bearing

## Modalities

- Ice 15 minutes every few hours for pain relief
- Interferential current therapy (pain relief)

## Cardiovascular Fitness

- Bicycle, elliptical, stairmaster, walking

## MILESTONES TO PROGRESS TO PHASE II

1. Appropriate tissue healing from surgery by following precautions and immobilization guidelines
2. ROM guidelines met but not significantly exceeded.
3. Pain control within allowed ROM

## Phase II (General timeline: 6-12 weeks)

### GOALS

- Continued patient education: ADL's in painfree range (waist level activities → progress to shoulder level → overhead activities), avoid heavy lifting or positions of instability during ADL's i.e. end range ER and combined abduction/ER
- P/AAROM to achieve staged ROM goals, may have ~10° loss of motion at ends of range from surgical procedure (esp. ER and flexion)
- Progression of exercise: passive (P) → active assisted (AA) → active (A) → addition of resistance (tubing or weights)
- Establish basic rotator cuff endurance and scapular neuromuscular control
- Later in phase, introduce functional patterns of movement

### PRECAUTIONS

- Avoid terminal stretches at end range ER or in 90/90 positions.
- (Most times only light stretching or no stretching is needed)
- Avoid exercises that load the anterior capsular structures in a position of horizontal abduction or combined abduction and ER (i.e. **NO** push-ups, pec flies) during this timeframe
- Avoid heavy lifting or plyometrics
- Avoid exercises that may cause impingement i.e. empty can
- Ensure exercises are performed pain free and without substitutions or altered movement patterns
- (Exercise quality)

### EXERCISE SUGGESTIONS:

#### PROM & AAROM

- Neck: general ROM if needed
- Thoracic spine: ensure proper extension to facilitate shoulder ROM
- Shoulder P/AAROM: Use pulleys, cane, stick, opposite arm.....
  - Flexion (scapular plane): 135° (wk 6), 155° (wk 9), near end range/160° (wk 12)
  - ER at 20° abduction (scapular plane): 35-50° (wk 6), 50-65° (wk 9), near end range/70° (wk 12)
  - ER at 90° abduction: 45° (wk 6), 75° (wk 9), near end range/80° (wk 12)



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- IR at 20° abduction (scapular plane): 30-60°
- IR stretches: towel/cane assisted hand behind back (combination of ext/IR/hor add), sidelying sleeper stretch, cross arm stretch
- If ROM is significantly less than goals, joint mobilizations may be performed into the limited direction
- Progress finger ladder in flexion and scaption terminal ranges
- Arm bike/ergometer no resistance

## *Muscle Strength & Endurance*

### *Rotator Cuff:*

- Light isotonic with emphasis on high repetitions (4 sets of 15-20 reps) and low resistance (1-2 lbs):
- Sidelying ER with towel → progress to 1lb
- Standing ER & IR with towel: pulleys or light resistance tubing
- Rhythmic stabilization techniques for rotator cuff strengthening (ER/IR at 45° abduction in scapular plane)

### *Scapula:*

- Continue with shoulder retractions, shoulder rolls
- Supine rhythmic stabilization 90-100° flexion / joint perturbations in randomized directions → progressions: eyes closed, holding medicine ball
- Closed kinetic chain rhythmic stabilization:
- Ball stabilization on wall
- Static holds in push-up position on ball
- Light resistance extension, adduction, forward flexion (not past plane of body)
- Progress closed chain scapulothoracic mobility to shoulder level and then to overhead i.e.:
- Quadruped scapular protraction/retraction 90° progress to 120°
- Quadruped to tripod (2 to 1 arm)
- Standing short lever (elbow flexed) slides up wall → long lever → no wall support
- Strengthen scapular retractors and upward rotators i.e.:
- Prone arm raises at 0° progress to 90° and 120°
- Prone or seated rows → progress with resistance or weight
- Strengthen serratus
- Forward punch
- Push up with plus progress from wall to floor, on knees to feet
- Supine protraction/retraction with heavier weights

### **Proprioceptive Retraining**

- Standing swiss ball on the wall at 90° flexion/scaption/abduction: circles, side to side, up and down, alphabet → progress 2 arms to 1 arm and ROM from 90° to 120°
- Therapist assisted joint/limb positioning with patient reproduction of position → mid ranges → end ranges → progress to eyes closed
- Weight-bearing activities on knees on unstable base i.e. Bosu, Wobble board, Airex pad, slider board
- Supine weighted ball drop at 90° shoulder flexion
- Supine weighted ball throw/catch → progress 2 arms to 1 arm
- Quadruped maintain proper scapula position
- Bodyblade: arm at side → 30, 90, 120, 160° in scaption and frontal plane → progress using PNF patterning
- Ball dribbles on wall

*To increase proprioceptive input and difficulty, progression of exercises can be performed with eyes closed*





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## Modalities

- Ice 15-25 minutes
- Biofeedback: auditory, visual, tactile or machine
- Muscle Stimulation for posterior rotator cuff

## Cardiovascular Fitness

- Bicycle, elliptical, stairmaster, treadmill jog→run, train specific to demand of sport

## MILESTONES TO PROGRESS TO PHASE III

1. AROM guidelines met without pain or substitution patterns.
2. Good resting scapular posture and dynamic scapular control with ROM and strengthening exercises.
3. Able to perform recommended strengthening exercises without pain or difficulty.

## Phase III (General timeline: 12-24 weeks)

### GOALS

- Ensure ROM requirements are met
- Progressive strengthening, endurance, power and neuromuscular control exercises
- Progressive exercises in terms of speed once proficiency is demonstrated at slower speeds
- Activity specific progression: sport, work, hobbies
- Gradual and planned increase in stress to anterior capsule and labral tissues
- Gradual return to full ADL's, work and recreational activities
- Suggested Guidelines:
  - 3-4 months: may begin golfing
  - 4 months+: Interval Sports Programs: throwing, swimming, tennis, volley ball, gymnastics (surgeon approval)

### PRECAUTIONS

- Avoid stress to the shoulder in a short period of time or in an uncontrolled manner
- Avoid advanced rehabilitation exercises (such as plyometrics or exercises at end range ER/Abd if the patient does not perform this activities during ADL's, work, or recreation
- Do not progress into activity specific training until the patient has nearly full ROM and strength
- Avoid weightlifting activities which place excessive stress on the anterior capsule i.e. lat pull downs and military press with hands behind the head and wide grip bench press. Exercises, such as dips, which encourage shoulder hyperextension, should be avoided. These exercises do not have any additional benefit in terms of muscle activity and other exercises can be substituted. Hand placement and depth on bench and incline press should be more narrow than normal to prevent stress on the anterior capsule when lowering weights. The elbow should not pass the plane of the body - be sure to "always see your elbows" = Elbow Rule.

### EXERCISE SUGGESTIONS:

#### ROM

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

#### Muscle Strength/Endurance/Power

##### Rotator Cuff:

- Progress ER/IR at side → to 45° → eventually to 90°
- Scapula:
- Rhythmic stabilization / joint perturbations in positions of function and vulnerability
- PNF diagonal patterns with bands/pulleys/manual resistance:



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- D1 extension (high back hand to down to hitch hike position)
- D1 flexion (hitch hike to high back hand position)
- D2 extension (carry tray to hand in opposite front pocket position)
- D2 flexion (hand in opposite front pocket to carry tray position)
- Continue with shoulder strengthening program as initiated in Phase II with emphasis on faster speed, multiplanar activities which incorporate the kinetic chain

## **Proprioceptive Retraining** (*open and closed kinetic chain*)

- Weight-bearing activities on toes on unstable base i.e. Bosu, Wobble board, Airex pad, slider board
- Swiss ball prone walk out
- U/E wobble board stability → progress to small push-up on board

## **Strength / Endurance / Power**

- Replicate ADL / work activities / sport requirements
- Progressive return to weight-lifting program for larger upper extremity muscles (i.e. deltoid, lat dorsi, pec major): start with light weight / high reps (20-30 reps) → gradually increase weight and decrease repetitions.  
Suggestions for **early in Phase III** (3-4 months):
  - Biceps/Triceps (arm at side)
  - Shoulder shrugs
  - Rows (scapular retraction)
  - Lat pull downs (hands in front)
  - Shoulder press with hands in front of shoulders (not abducted/externally rotated)
  - Push-up (only to 90° elbow flexion)

### Suggestions to add for **intermediate Phase III** (4-5 months):

- Chest press / incline
- Machine / Barbell shoulder press (no end range abduction/external rotation)
- Prone horizontal abduction
- Prone ER at 90° abduction → progress weight as able

### Suggestions to add for **late in Phase III** (5-6+ months):

- Military Press
- Flys / Reverse Flys
- Dead Lifts
- Power Cleans

## **Plyometric Program (if needed)**

- Initiate in intermediate to late phase III (5-6+ months):  
Suggestions/ideas:
  - Tubing plyometrics for ER/IR at 90° abduction with varying speeds
  - 2 handed tosses: waist/chest level → overhead → diagonal
  - 1 handed tosses: begin throw with shoulder flexion and mostly elbow extension → progress by increasing the amount of shoulder abduction/ER
    - Begin with towel, beach ball, kid's ball, tennis ball → progression to lightly weighted balls (plyoballs)

## **Cardiovascular Fitness**

- Train specific to demand of sport (aerobic, anaerobic)



## MILESTONES TO RETURN TO SPORT, WORK, HOBBIES

1. Therapist/Physician clearance
2. No complaints of pain or instability
3. Sufficient ROM to meet task demands
4. Good/Full strength and endurance of rotator cuff and scapular muscles for desired activities including adequate neuromuscular control

### Shoulder Stabilization: Guidelines for Manual Therapy and Exercise

	Phase I	Phase II	Phase III
<b><u>Range of Motion:</u></b>			
Neck, elbow, wrist exercises	●		
Pendulums (body sway forward/back, side/side)	●		
Pulleys	●		
Cane/Stick	●		
Finger ladder	●	●	
IR stretches: towel/cane assisted hand behind back, sidelying sleeper stretch, cross arm stretch		●	
Joint mobilizations (only if needed in the limited direction)		●	
<b><u>Muscle Strength &amp; Endurance</u></b>			
<b><u>General:</u></b>			
Ball squeezes	●		
Bilateral scapular retraction, shoulder rotations...	●		
Posture Awareness	●		
<b><u>Rotator Cuff:</u></b>			
Sub max isometrics in neutral (initiate week 2)	●		
Side lying ER (initiate week 4 in available range)	●		
Side lying ER with towel → progress to 1lb		●	
Standing ER & IR with towel: pulleys or light resistance tubing		●	
Rhythmic stabilization techniques for rotator cuff strengthening (ER/IR at 45° abduction in scapular plane)		●	
ER/IR at 45° → progress to 90° (weights, pulleys, tubing)			●
<b><u>Scapula:</u></b>			
Scapular clock	●		
Supine SA protraction/retraction at 90° flexion	●		
Supine bent elbows barrel hug	●		
Supine rhythmic stabilization 90-100° flexion / joint perturbations in randomized directions → progressions: eyes closed, holding medicine ball, positions of function and vulnerability		●	●
Closed kinetic chain rhythmic stabilization: ball stabilization on wall, static holds in push-up position on ball		●	●
Light resistance extension, adduction, forward flexion		●	●
Quadruped scapular protraction/retraction 90° progressions: ROM to 120°, quadruped to tripod (2 to 1 arm)		●	●
Standing short lever (elbow flexed) slides up wall → long lever → no wall support		●	●
Prone arm raises at 0° progress to 90° and 120°		●	●



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	Phase I	Phase II	Phase III
Prone or seated rows → progress with resistance or weight		●	●
Forward punch		●	●
Push up+ progress from wall to floor, on knees to feet		●	●
Supine protraction/retraction with heavier weights		●	●
PNF diagonal patterns: bands/pulleys/manual resistance			●
<b>Proprioception</b>			
Weight-bearing (<60° elevation)	●		
Weight shifting	●		
Quadruped maintain proper scapula position		●	
Swiss ball on the wall at 90° flexion/scaption/abduction: circles, side to side, up and down, alphabet → progress 2 arms to 1 arm <i>and</i> ROM from 90° to 120°		●	
Ball dribbles on wall		●	
Joint/limb positioning with patient reproduction of position → mid ranges → end ranges → progress to eyes closed		●	●
Bodyblade: arm at side → 30, 90, 120, 160° in scaption and frontal plane → progress using PNF patterning		●	●
Supine weighted ball drop at 90° shoulder flexion		●	●
Supine weighted ball throw/catch → progress 2 arms to 1 arm		●	●
Weight-bearing activities on knees on unstable base i.e. Bosu, Wobble board, Airex pad, slider board → progress from activities on knees to toes...		●	●
Swiss ball prone walk out			●
U/E wobble board stability → progress to small push-up on board			●
<b>Strength/Power/Endurance (Gym Program)</b>			
<b>Early in Phase III (3-4 months):</b>			
Biceps/Triceps			●
Shrugs			●
Rows			●
Lat Pull Downs (hands in front)			●
Shoulder press with light weight (hands in front of shoulders)			●
Push-up (only to 90° elbow flexion)			●
<b>Intermediate Phase III (4-5 months):</b>			
Chest press/incline			●
Machine/Barbell shoulder press (no end range abd/ER)			●
Prone horizontal abduction			●
Prone ER at 90° abduction → progress weight as able			●
<b>Late in Phase III (5-6+ months):</b>			
Military Press			●
Flys/Reverse Flys			●
Deadlifts			●
Power Cleans			●
Plyometrics (if needed): Tubing ER/IR at 90° abduction with varying speeds 2 handed tosses: waist/chest level → overhead → diagonal 1 handed toss → progress by increasing the amount of shoulder abduction/ER			●