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Arthroscopic Rotator Cuff Repair Accelerated Protocol

This rehabilitation protocol has been developed for the patient following a rotator cuff surgical procedure. This protocol is for smaller tears with mechanically robust repairs in people without risk factors for delayed healing. The protocol will vary in length and aggressiveness depending on factors such as:

- Size and location of tear
- Quality of the repaired rotator cuff tissue
- Presence of additional procedures such as biceps tenodesis
- Degree of shoulder instability/laxity prior to surgery
- Acute versus chronic condition
- Length of time immobilized
- Strength/pain/swelling/range of motion status
- Rehabilitation goals and expectations

Early passive range of motion is highly beneficial to enhance circulation within the joint to promote healing. The protocol is divided into phases. Each phase is adaptable based on the individual and special circumstances. The **overall goals** of the surgical procedure and rehabilitation are to:

- Control pain, inflammation, and effusion
- Regain normal upper extremity strength and endurance
- Regain normal shoulder range of motion
- Achieve the level of function based on the orthopedic and patient goals

Initiation of this protocol may be delayed up to 4 weeks post-op. The supervised rehabilitation program is to be supplemented by a home fitness program where the patient performs the given exercises at home or at a gym facility. **Important post-op signs** to monitor:

- Swelling of the shoulder and surrounding soft tissue
- Abnormal pain response, hypersensitivity, increasing night pain
- Severe range of motion limitations
- Weakness in the upper extremity musculature
- Improper mechanics or scapular dyskinesia
- Core and peri-scapular strength deficits

Return to activity requires both time and clinical evaluation. To safely and most efficiently return to normal or high level functional activity, the patient requires adequate strength, flexibility, and endurance. Functional evaluation including strength and range of motion testing is one method of
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evaluating a patient's readiness return to activity. Return to intense activities following a rotator cuff repair require both a strenuous strengthening and range of motion program along with a period of

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time to allow for tissue healing. Symptoms such as pain, swelling, or instability should be closely monitored by the patient and therapist. Specific exercises may be added, substituted, or modified where clinically appropriate by experienced sports/shoulder therapists or trainers who have expertise in the care of post-operative rotator cuff rehabilitation. While patients may be "cleared" to resume full activities at 6+ months following surgery, additional time spent in full activity or sport participation is often necessary to achieve maximal recovery.

Suggestions during rehab:

1. The RC gets a better blood supply when the shoulder is slightly away from the body; in addition, higher EMG activity is elicited at the posterior cuff when the arm is in a slightly abducted position vs by the side; therefore, we advocate the use of a towel roll under the arm when in a resting position or when performing isometric/isotonic RC TB exercises.
2. The RC muscles are very small; therefore, we use lower intensities to isolate each muscle without recruitment from surrounding larger muscles. Focus on hypertrophy initially by high volume ($V = \text{Reps} \times \text{intensity/weight}$). Following the hypertrophy phase, strength is the focus with lower reps and higher intensities/weight.
3. Closed chain rotator cuff exercises facilitate cuff strength and shoulder proprioception. Like closed chain exercises for the knee, these can be safely initiated early in the post op course.

PHASE 1: Early Postop Week 1-3

GOALS OF PHASE 1

Promote healing of repaired tissue
Control pain and inflammation
Gradual increase of ROM
Independent in HEP

BRACE/SLING

To be worn at for 4-6 weeks per Dr Shybut (default is 4 weeks)
Brace to be worn while sleeping
Can be removed for exercises only

PRECAUTIONS

No Active shoulder ROM / No shoulder AAROM for 2 weeks

ROM: Gradual \uparrow Passive ROM in scapular plane
Avoid excessive adduction and IR
* No active IR if subscapularis repair

EXERCISES

Passive Pendulum exercises – keep circles very small, monitor and teach proper technique
ER with cane (not to exceed 30° of ER at 45° abduction)
AA flexion supine
Gentle posterior capsular stretch (week 3)
Seated and/or supine scapular retractions – perform every hour
Shoulder shrugs
Active elbow ROM all planes as tolerated
Grip strengthening using ball or putty

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MANUAL

STM to decrease pain and muscle spasm
PROM all planes except extension adhering to limitations

MODALITIES

Moist heat 10-15 min prior to exercise
Ice 10-15 min following exercise and as needed
E-stim/TENS for pain as needed
US as needed

CRITERIA TO PROGRESS

90 degrees shoulder PROM forward elevation
20 degrees of shoulder PROM ER in the scapular plane
0 degrees of shoulder PROM IR in the scapular plane
Palpable muscle contraction felt in scapular and shoulder musculature
No complications with Phase I

PHASE 2: WEEK 3-4

GOALS OF PHASE

Control pain and inflammation
Initiate light RC muscle contraction
Gradual increase in ROM / Minimize substitution patterns with AAROM
Initiate light scapular stabilizer contraction
Continue to protect surgical repair
Patient education

BRACE/SLING

Per MD discretion (usually d/c at week 4)

PRECAUTIONS

No lifting of objects
No supporting of body weight with hands

ROM

Pendulum exercise
AA Flexion supine – gradually progress
ER with cane
Posterior capsule stretch
Initiate towel IR stretching
Rope/Pulley (flex/scaption)
* No abduction past 90 deg if subscapularis repair

STRENGTH

Continue grip strengthening as needed

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Initiate submaximal pain-free isometrics week 4
Supine Active flexion without resistance with elbow flexed progress to elbow extended
Rows and shrugs with theraband
Row on physioball, extension on physioball
Washcloth press
Supine protraction
Supine and side-lying rhythmic stabilization
Initiate TB IR/ER week 6
Standing flexion and scaption – only if good scapulo-humeral rhythm
Side-lying ER AROM progress to dumbbell
Initiate UBE without resistance at week 4
Body blade with elbow flexed, arm by side moving into IR/ER
Prone rows
* If biceps tenodesis, no light resistive biceps exercises until week 8
* NO resisted IR until week 6 if subscapularis repair

MANUAL THERAPY

STM as needed
Continue PROM
Initiate Grade I-II joint mobilization

MODALITIES

Moist heat 10-15 min prior to exercise
Ice 10-15 min following exercise and as needed
E-stim/TENS for pain as needed
US as needed

CRITERIA TO PROGRESS

90 degrees shoulder PROM forward elevation
20 degrees shoulder PROM ER in scapular plane
0 degrees of shoulder PROM IR in the scapular plane
Minimal substitution patterns with AAROM
Pain < 4/10
No complications with Phase II

PHASE 3: WEEK 5-6

GOALS OF PHASE

Do not overstress healing tissue
Reduce swelling, minimize pain
Gradually increase shoulder PROM/AAROM
Initiate shoulder AROM
Improve scapular muscle activation
Patient education

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PRECAUTIONS

No lifting of heavy objects (>10 lbs)

ROM

PROM: ER<30 scapular plane, Forward elevation <120

AAROM: seated shoulder elevation with cane, seated incline table slides, ball roll on wall

AROM: elevation < 120, supine flexion, salutes, supine punch, wall climbs

STRENGTH

Continue grip strengthening as needed

Continue Phase II exercises

Periscapular: Resistance band shoulder extension, resistance band seated rows, rowing, lawn mowers, robbery, serratus punches

Initiate scapular retraction/depression/protraction with subscapularis and teres minor repair

Elbow: Biceps curl, resistance band bicep curls and triceps

* If biceps tenodesis, no light resistive biceps exercises until week 8

* NO resisted IR until week 6 if subscapularis repair

MANUAL THERAPY

STM as needed

Continue PROM

Initiate Grade I-II joint mobilization

MODALITIES

Moist heat 10-15 min prior to exercise

Ice 10-15 min following exercise and as needed

E-stim/TENS for pain as needed

US as needed

CRITERIA TO PROGRESS

120 degrees shoulder PROM forward elevation

30 degrees shoulder PROM ER and IR in scapular plane

Minimal substitution patterns with AROM

Pain < 4/10

PHASE 4: Week 6-8

GOALS OF PHASE

Do not overstress healing tissue

Gradual increase shoulder PROM / AAROM / AROM to full

Improve dynamic shoulder stability

Progress periscapular strength

Gradual return to functional ADLs

ROM

Gradual progression to full PROM -> AAROM -> AROM

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STRENGTH

Continue with all strengthening from previous phases increasing resistance and repetition
Manual rhythmic stabilization exercises in standing at 90° flex/scapation
Supine punches with resistance
Prone shoulder extension
Prone scaption
Prone ER with abduction
Initiate D1/D2 PNF patterns in standing
Push-up progression – start at week 8 on wall
UBE for endurance training
Bicep/Tricep work
Body blade – multi-planar
Continue earlier phase interventions / exercises

MANUAL

Initiate Grade II-IV joint mobs as needed
Continue to gradually progress PROM
Continue STM as needed

MODALITIES

MHP as needed
Ice 10-15 minutes
Ultrasound as needed

CRITERIA TO PROGRESS

Full pain-free PROM / AROM
Minimal to no substitution patterns w shoulder AROM
Perform all exercises with symmetric scapular mechanics
Pain < 2/10

PHASE 5: WEEK 8-12

GOALS OF PHASE

Maintain pain free ROM
Initiate RTC strengthening (with clearance from surgeon)
Initiate motor control exercise
Enhance functional use of UE

STRENGTH

ER/IR isometrics, side-lying ER
Standing ER vs resistance band, standing IR vs resistance band; IR, ER, sidling ABD -> standing ABD
Periscapular T and Y; W exercise, resistance band Ws, dynamic hug, resistance band dynamic hug

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IR and ER in scaption and flex 90-125 rhythmic stabilization
Continue push up progressions
Quadruped alternating isometrics and ball stabilization on wall
PNF D1 diagonal lifts -> D2 diagonal lifts
Field goals

CRITERIA TO PROGRESS

Full pain-free PROM and AROM
ER/IR strength minimum 85% uninjured arm
ER/IR ratio 60% or more
Negative impingement and instability signs
Performs all exercises demonstrating symmetric scapular mechanics

PHASE 6: Weeks 13-24+

GOALS OF PHASE

Maintain pain-free ROM
Continue strengthening and motor control development
Enhance functional use of upper extremity
Maximize upper extremity strength and endurance
Maximize neuromuscular control
Optimize shoulder mechanics/kinematics
Optimize core stability
Gradual return to strenuous work / sporting activities
Initiate sports specific training/functional training

STRENGTH:

Progress strengthening program with increase in resistance and high speed repetition
UBE high resistance for endurance
IR/ER exercises at 90° abduction
Progress rhythmic stabilization activities to include standing PNF patterns with tubing
Initiate single arm plyotoss (ball toss, ball on wall)
Eccentric RC strengthening
Initiate military press, bench press, flys, lat pulldowns week 16+ (do NOT let elbow extend past plane of thorax)
Initiate sport specific drills and functional activities
Initiate interval throwing program week 16-20 – consult with Dr. Shybut first*
Initiate light upper body plyometric program week 16-20
Progress isokinetics to 90° abduction at high speeds

MANUAL

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Grade III-IV joint mobs as needed for full ROM

Full PROM



MODALITIES

MHP as needed

Ice 10-15 minutes

Ultrasound as needed

CRITERIA TO PROGRESS

For athletes and people performing strenuous manual tasks, return-to-sport or return-to-activity decision making should be individualized and based upon factors including level of demand on the upper extremity, contact / collision vs non contact sport, frequency and intensity of participation, etc. We encourage close discussion with the patient and surgeon and physical therapist prior to advancing return to sport progressions.