TOA

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ROTATOR CUFF REPAIR PROTOCOL

This rehabilitation protocol has been developed for the patient following a rotator cuff surgical procedure. This protocol is based on slower progressions, typically **for larger or massive tears and/or revision repairs**. 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 6 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 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 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= Reps X 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.

ROTATOR CUFF REPAIR - LARGE/MASSIVE/REVISION
PHASE 1: WEEK 1-4

HEALING

- Inflammatory Phase (Day 1-7): Weak fibrin clot forms
- Proliferative Phase (Week 2-3): Granulation tissue forms and the clot is replaced with weak and poorly organized type III collagen
- Maturation Phase (Week 3-): Type I collagen slowly replaces type III collagen and aligns to increase tensile strength; may take 12-16 weeks to reach maximum tensile strength

BRACE/SLING

- To be worn for 6 weeks even while sleeping
- Can be removed for exercises only

PRECAUTIONS

- **Shoulder PROM only, NO ACTIVE ROM**
- ROM: Gradual ↑ Passive ROM in scapular plane
- No excessive IR/adduction

EXERCISES

- Pendulum exercises – keep circles very small
- Initiate passive ER wand exercise week 4 (not to exceed 30° of ER at 45° abduction)
- AA flexion supine – initiate week 4 limit to 90°
- Seated and/or supine scapular retractions – perform every hour
- Active elbow ROM all planes as tolerated
- Grip strengthening using ball or putty

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

GOALS OF PHASE 1

- Promote healing of repaired tissue
- Control pain and inflammation
- Gradual increase of ROM
- Independent in HEP
- Delay muscle atrophy

PHASE 2: WEEK 4-8

BRACE/SLING

- Continue to wear at all times except during exercises
- D/C brace week 6

ROM

- Pendulum exercise
- Elbow (flex/ext) range of motion, begin passive elbow ROM if necessary to gain full range
- AA Flexion supine – gradually progress
- ER with cane: 30° by week 6
- Initiate gentle posterior capsule stretching
- Initiate gentle IR stretching
- Rope/Pulley (flex/scaption) – INITIATE WEEK 6

STRENGTH

- Continue grip strengthening as needed
- Initiate submaximal pain-free isometrics at week 6
- Initiate supine AROM exercises without resistance at week 6 – begin with elbow flexed
- Scapular retraction seated and prone with arm off edge of table
- Supine protraction
- Shrugs
- Initiate UBE without resistance at week 6
- *If biceps tenodesis, no light resistive biceps exercises until week 6

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

GOALS OF PHASE

- Control pain and inflammation
- Initiate light RC muscle contraction
- Gradual increase in ROM
- Initiate light scapular stabilizer contraction

PHASE 3: WEEK 8-16

ROM

- Goal is to be at full AAROM wk 12, full AROM week 16+
- Continue/progress all ROM work from previous phases
- Posterior capsule stretching
- Rope/Pulley (flex, abd, scaption)
- Towel stretching
- Wand activities in all planes

STRENGTH

- Continue with all strengthening from previous phases increasing resistance and repetition
- Manual rhythmic stabilization exercises at 90° flex - initiate supine and SL and progress to standing
- Shoulder shrugs with theraband resistance
- Rows/scapular retraction with theraband/resistance
- Supine punches with resistance
- IR/ER with theraband
- ER isometrics step outs with theraband
- Initiate standing Flexion and Scaption progress to dumbbells if good scapulo-humeral rhythm
- Sidelying ER
- Prone shoulder extension
- Prone rowing
- Prone ER with abduction
- Initiate D1/D2 PNF patterns supine then standing
- Push-up progression – start at week 10-12 on wall
- UBE for endurance training
- Bicep/Tricep work

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

GOALS OF PHASE

- Minimize pain and swelling
- Reach full ROM
- Improve upper extremity strength and endurance
- Enhance neuromuscular control
- Normalize kinematics

PHASE 4: WEEK 16-36

ROM

- Continue with all ROM activities from previous phases
- Posterior capsule stretching
- Sleeper stretch
- Hands behind head ER/IR stretch
- Towel stretching

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. Crook first*
- Initiate light upper body plyometric program week 16-20
- Progress isokinetics to 90° abduction at high speeds

MANUAL

- Grade III-IV joint mobs as needed for full ROM
- Full PROM

MODALITIES

- MHP as needed
- Ice 10-15 minutes
- Ultrasound as needed

GOALS OF PHASE

- Full painless ROM
- Maximize upper extremity strength and endurance
- Maximize neuromuscular control
- Optimize shoulder mechanics/kinematics
- Optimize core stability
- Initiate sports specific training/functional training