

## Post-Operative Guidelines -

### Rotator Cuff Repair – Large tears (>3cm)

#### Mr.Hannan Mullett ,Consultant Shoulder Surgeon

Treatment note: Directly following the repair, integrity relies essentially on the structural construct. The conservative post-operative protocol is characterized by either a delay in the initiating of and / or restriction of passive range of motion (PROM). Remodeling repaired tissue does not reach maximal tensile strength for 12-16 weeks post repair. No formal strengthening should be performed until 12 weeks.

The risk of re-tear is greatest in the first 12 weeks post-surgery. Groups with greater risk of re-tear include older patients, smokers, diabetics, those with minimal postoperative symptoms and those with >3 cm tears.

The risk of stiffness is greatest in younger patients (<50 yrs.), those with PASTA type rotator cuff tears (Partial articular supraspinatus tension avulsion), those having an associated labral repair and single tendon repairs.

Timescales are guidelines and are dependent on individual factors and pre-operative status. Factors that may affect progression rate:

- Pre-operative stiffness
- Age
- Tissue quality
- Associated procedures

### **Acute protective phase (0-6 weeks)**

#### **Histology**

Peak collagen deposition and growth factors 10 days post op with plateau at 28-56 days. Requires gentle stress to guide fibre orientation but no strain by limiting active motion.

#### **Goals**

1. Patient education
2. Protect surgical repair and optimize tissue healing
3. Diminish pain and inflammation
4. Prevent post-operative adhesions
5. Minimise muscle inhibition

## **Immobilisation**

- Patients generally wear a sling for 6 weeks for comfort and to avoid stressing the repair. The sling is removed to allow axillary hygiene and when patient is performing their exercises

## **Rehabilitation**

- **Avoid** active assisted or passive mobilization past 80° elevation in scapula plane, 50% of ER (compared to opposite side) respecting pain and movement pattern.
- Cryotherapy as needed
- Elbow, wrist and hand exercises.
- Simple scapula exercises e.g. shoulder shrug
- Active assisted / supported movement within the safe zone and limits of pain
- Encourage use of hand in sling for light unloaded, pain-free activities. Patients that use the hand of the operated arm during the immobilization phase have better outcomes in terms of pain and function.
- Closed kinetic chain exercises – low load on the shoulder and ensuring congruency scapula on thorax; e.g. table slides, walking away from the table.
- Submaximal isometrics (<30% MVC) rotator cuff
- Active scapula exercises e.g. shoulder shrug

## **Intermediate phase (6-12 weeks)**

### **Histology**

Inflammatory and repair phase has passed and healing progressed to remodelling phase.

The application of low-level force during this time frame aids in orientation of fibres within collagen matrix and enhances tensile strength of repair.

### **Goals**

1. Preserve integrity of repair.
2. Improve functional range of movement including full elevation
3. Re-educate cuff recruitment and scapula control through range
4. Improve neuromuscular control by re-educating sensorimotor / proprioceptive function
5. Emphasize normal patterns of movement

## **Rehabilitation**

- Avoid forced passive stretching into combined abduction / external rotation. Active movement into this position is allowed as long as pain free and good control.
- Avoid forced end range stretches / mobilization especially ER with arm by side
- Avoid lifting / loading until 12 weeks
- Avoid weightbearing through operated arm e.g. getting out of a chair
- Avoid force hand behind back / extension
- Gentle mobilization of capsular restriction if necessary (respect restrictions)
- Progress cuff and scapula recruitment through range. Any exercise prescription should emphasis on good cuff and scapula control. Active assisted exercises progressing to active exercises-utilise short lever, supine and closed kinetic chain. Avoid long lever open chain exercises until 12 weeks
- Progress kinetic chain integration
- Increase function, emphasis on correct movement pattern
- Closed kinetic chain work to enhance co-contraction

## **Late stage (12 weeks to 6 months)**

### **Histology**

Tendon to bone healing should be able to endure the initiation of strengthening exercises. However, the addition of specific strengthening should be guided by preoperative findings in terms of tissue quality, patient age and whether primary or revision surgery. Careful progression of loading is essential to avoid compromise to the repair.

### **Goals**

1. Restore full active range of movement
2. Establish optimal neuromuscular control
3. Restore optimal cuff and scapula control through range and under load
4. Optimise functional upper limb strength and endurance
5. Return to full work / sport and recreational activities

## **Rehabilitation**

- Regain optimal range of motion including combined positions

- Strengthening and endurance exercises for rotator cuff and scapular stabilisers
- Enhance neuromuscular control through range
- Closed kinetic chain exercises with increased load
- Functional strengthening and endurance exercises

## **Phase 4 – advanced strengthening (6 months +)**

### **Histology**

Remodeling phase is close to completion at 4 months and the repaired rotator cuff tissue is relatively mature, therefore able to withstand greater stresses.

### **Goal**

Patients returning to sport or with high functional demands may require more advanced strengthening to ensure they regain maximal tensile strength and functional endurance.

### **Rehabilitation**

- Progression of strength training with optimal control and movement pattern
- Sport specific training
- Endurance training
- Promote concept of prevention

### **Functional Milestones**

- Driving -depends on side and whether automatic generally after 8 weeks when patient has adequate control
- Swimming 16 weeks
- Golf 16 weeks

### **Reference**

Oliver A van der Meijden et al (2012) Rehabilitation after arthroscopic rotator cuff repair: Current concepts review and evidence-based guidelines. International Journal of Sports Physical Therapy 7(2): 197-218