

# Shoulder Arthroplasty – Dr. Haverstock

## Rehabilitation Protocol (Information for Physiotherapists)

### 1. General Guidelines

- This is a GENERAL rehabilitation protocol. Any SPECIFIC instructions that differ from this protocol should be followed (see below). For revision (redo) surgery, this protocol will often be delayed.
- Timelines are approximate. If the physiotherapist feels the patient is not ready for progression (due to pain, swelling, inadequate ROM or strength), the time line should be extended to suit the patient.
- In general, regaining ROM is the first (and most important) priority, followed by strengthening.
- Supervised physiotherapy begins 1-2 weeks post-op and continues for 3-6 months, as necessary, depending on patient's progress, activity level and goals.
- Patients are to be discharged after completion of all appropriate functional progressions and adequate performance on strength and functional tests.
- In addition to formal physiotherapy, patients should be encouraged to exercise independently 3-5 times/day during Phases I and II and 3-5 times per week during Phases III and IV.
- Functional Milestones – common functional activities the patient is expected to perform during each rehabilitation phase.
- Advancement Criteria – objective criteria used to judge whether or not a patient is ready for progression to the next phase of rehabilitation (see Rehabilitation Progression below).

### 2. Shoulder Arthroplasty - General Precautions

- No forward elevation beyond 90° or external rotation beyond 20° (may vary depending on subscapularis tendon repair) – for 6 weeks.
- No resisted internal rotation – for 12 weeks, to protect the subscapularis repair.
- No pushing, pulling, or lifting for at least 6 weeks.
- Long term: Limit forceful, jerking movements (i.e. starting outboard motor) and repetitive impact loading (i.e. chopping wood).
- Surgery Specific Precautions:
  - Subscapularis Repair: Avoid External Rotation beyond 20° degrees for 6 weeks.
  - Revision Surgery: Delay entire protocol 4 weeks (i.e. NO shoulder PT until 4 weeks post-op).

### 3. Rehabilitation Progression

- Progression is based on achieving advancement criteria for the next phase of rehabilitation and should take into account the patient's status and the surgeon's advisement.
- If the patient achieves the advancement criteria early, the physiotherapist may choose to advance the patient only AFTER 6 weeks post-op.
- If the patient does NOT meet the advancement criteria, extend the time in the current phase.
- If there is ANY uncertainty concerning the patient, please contact the surgeon.

### 4. Anatomic versus Reverse shoulder arthroplasty considerations

- Anatomic arthroplasty is undertaken for shoulder pathology with an intact rotator cuff and minimal bone erosion.

- Anatomic arthroplasty needs a healed subscapularis tendon to function well, and the subscapularis repair (healing takes 3 months) is the limiting factor to rehabilitation progress.
  - IR and ER may improve to near normal range in anatomic arthroplasty, with a well functioning cuff.
  - Patients with anatomic arthroplasty can resume light sporting activities and heavier household tasks after six months
- Reverse shoulder arthroplasty provides more predictable benefit in shoulders that have rotator cuff tears, instability or bone loss
    - Reverse arthroplasty does not depend on intact rotator cuff for a predictable result.
    - In cases of ER lag signs, or defective infraspinatus / teres minor, a latissimus dorsi transfer may be used to provide some ER strength, this will be noted explicitly for therapy.
    - Due to the semi-constrained nature of the reverse, sporting activities and heavier work IS NOT recommended after reverse shoulder arthroplasty.
    - Early dislocations can occur with shoulder adduction, extension and ER, and so patients are asked to avoid this position (lateral traction on the upper arm, and avoid pushing out of chairs with the surgical arm “see your elbow while getting out of chairs” )
    - Elevation depends on good deltoid function, and so deltoid activation exercises and biofeedback is recommended.

## **PHASE I: Immediate Post-Op → 2 Weeks Post-Op**

### **1. Objectives**

- Protect the shoulder, most notably the subscapularis repair.
- Decrease post-op pain and swelling (can utilize Cryo-cuff for 8-12 hours/day).
- Begin general activities of daily living (ADL's) (i.e. feeding, bathing, and dressing).
- Increase shoulder ROM with passive and active-assisted ROM exercises.
- Educate patient on rehabilitation progression.

### **2. Sling**

- Should be worn at all times, except when under the supervision of the physiotherapist and when bathing.
- Patient to be taught proper removal and reapplication of sling, dressing with a sore shoulder.

### **3. Therapeutic Exercises**

- Ice after exercise program x 15 min.
- Pendulum shoulder ROM exercises
- Begin passive and active-assisted ROM exercises (i.e. supine, pulleys, wall crawls, and cane exercises) – limits of forward elevation of 90° and external rotation of 20° (may vary depending on subscapularis tendon repair).

- *NOTE: PROM should be considered motion that is provided by a therapist or instructed family member with the intent of gaining ROM with placing stress on either soft tissue structures or the surgical repair.*
- Wrist/elbow ROM.

#### 4. Functional Milestones

- Proper removal and reapplication of sling.
- No pain with pendulum exercises.
- Forward elevation of 90° and external rotation of 20° (may vary depending on subscapularis tendon repair) (these are BOTH goals and limits).

#### 5. Advancement Criteria for Phase II

- No active signs of inflammation.

### PHASE II: 2 Weeks Post Op → 6 Weeks Post-Op

#### 1. Objectives

- Protect the shoulder repair.
- For **reverse arthroplasty**: Begin gentle deltoid activation and isometrics.
- Achieve active ROM in all planes.
- Begin cross-training to maintain general fitness.
- Return to work: modified duties (no lifting or overhead activity).

#### 2. Sling

- May discontinue when sitting with arm at the side.
- Otherwise, should be worn at all times, except when under the supervision of the physiotherapist and when bathing.
- Should be worn for sleeping.

#### 3. Therapeutic Exercises

- Begin active ROM and continue passive and active-assisted ROM exercises in all planes as necessary to achieve full ROM – limits of forward elevation of 90° and external rotation of 20° (may vary depending on subscapularis tendon repair).
- Begin GENTLE isometric strengthening exercises (except IR).
  - For **reverse arthroplasty**, focus on deltoid activation and ER strength.
- Begin manual glenohumeral and scapular mobilization.
- May begin aquatic shoulder therapy.
- General fitness - may use stationary bike (arm MUST be kept in sling . . . NO weight bearing through arm).
- Begin peri-scapular muscle strengthening: postural work, scapular retraction, protraction, elevation and depression.
- Continue wrist/elbow ROM.

#### 4. Functional Milestones

- Full ROM – limits of forward elevation of 90° and external rotation of 20° (may vary depending on subscapularis tendon repair).
- Full use of shoulder for all general activity without pain.

- Light bimanual or modified occupational duties.

#### **5. Advancement Criteria for Phase III**

- Full active ROM limits of forward elevation of 90° and external rotation of 20° (may vary depending on subscapularis tendon repair).

### **PHASE III: 6 Weeks Post Op → 12 Weeks Post-Op**

#### **1. Objectives**

- Maintain/improve shoulder ROM.
- Increase shoulder strength.
- Return to work: for manual and overhead occupations.

#### **2. Sling**

- May discontinue.

#### **3. Therapeutic Exercises**

- Begin gentle Theraband strengthening exercises, progressing to strengthening exercises with free weights for all planes (except IR). Increase repetitions before increasing weight (↑ endurance > ↑ strength).  
No resisted internal rotation – for 12 weeks.
- Begin overhead activity.
- Begin swimming to increase shoulder strength at low resistance.
- Begin putting and chipping for golf.
- General fitness - may begin jogging.
- May begin driving.

#### **4. Functional Milestones**

- Full active ROM.
- Full use of shoulder for sporting activity.

#### **5. Advancement Criteria for Phase IV**

- Full use of shoulder for all general activity without pain.

### **PHASE IV: 12 Weeks Post-Op → 6 months Post Op**

#### **1. Objectives**

- Maintain/improve shoulder ROM.

- Increase shoulder strength.
- Progressive return to hobbies, low impact sport.

## **2. Sling**

- Already discontinued.

## **3. Therapeutic Exercises**

- Begin internal rotation strengthening.
- Progressive return to golf: begin with irons progressing to full swings with all clubs at 6 months.

## **4. Functional Milestones**

- Full active ROM.
- Use of shoulder for low impact sporting activity.

## **References**

- Bicknell, R., Rehabilitation Protocols, Queen's University Sports Medicine.
- General Rehabilitation Guidelines, Bone and Joint Center, University of Washington Medical Center.
- Bostonshoulderinstitute.com: Total Shoulder Arthroplasty/Hemiarthroplasty Protocol 7 Copyright © 2016 The Brigham and Women's Hospital, Inc. Department of Rehabilitation Services.