St. Francis Rehabilitation Center

REVERSE SHOULDER ARTHROPLASTY REHABILITATION GUIDELINE

St. Francis Orthopaedic Institute and St. Francis Rehabilitation Center

All information contained in this protocol is to be used as a general guideline only. Specific variations might be appropriate for each patient and might be specified by the physician. In all cases, it is acceptable to advance the program more slowly than stated. If the patient experiences excessive pain, discontinue exercise until the physician is contacted. Achieving and maintaining a low level of pain and inflammation is the most important goal in all stages of rehabilitation, even if less passive and active range of motion are accomplished. **Recognize that this procedure is a salvage procedure that is primarily designed to improve pain and improve active use of the arm in elevation. Due to the biomechanics of the prosthesis, other planes of ROM, especially ER in adduction and functional IR behind the back are biomechanically made more difficult, only limited motion is expected, and rehabilitation of these motions is de-emphasized. Many common rehabilitation activities performed for other surgical procedures are NOT appropriate for this procedure. Only light limited rehabilitation emphasizing passive elevation and then later active elevation are typically prescribed.**

SYMBOLS AND ABBREVIATIONS

AAROM, active-assistive range of motion
ADLs, activities of daily living
AFE, active forward elevation
AROM, active range of motion
FE, forward elevation
NA, not applicable
PER, passive external rotation
PFE, passive forward elevation
PIR, passive internal rotation
PNF, proprioceptive neuromuscular facilitation
POD, postoperative day
POM, postoperative month
POS, plane of the scapula
POW, postoperative week
PROM, passive range of motion
ROM, range of motion

STAGED GOALS FOR RANGE OF MOTION

Time	PFE	PER at 20° of Abduction	PER at 90° Abduction	PIR Behind the Back	AFE
POW 1	70°–120°	0°	NA	NA	NA
POW 3	90°–120°	0°–20°	NA	NA	NA
POW 6	120°–135°	10°–30°	NA	NA	80°–120°
POW 12	120°–150°	20°–45°	30°–45°	Hip	90°–135°
POM 6	120°–150°	20°–45°	45°–75°	Buttock	110°–150°

Forward elevation, either active or passive, is the plane of motion in which an individual naturally lifts his or her arm that is anterior to the plane of the scapula and lateral to flexion.

PHASE 1

Goals

°Minimize pain and inflammatory response
°Patient education on goals of rehabilitation, precautions, and ADL modifications in order to minimize pain and prevent dislocation
°Achieve staged ROM goals

POD 1 to POW 6

°Elbow, wrist, and hand AROM with no weight
°Scapula elevations and retractions (no weight) in or out of the sling

- °Edema reduction including elastic stocking and/or edema glove PRN
- °Pendulum exercises (Figure 1)
  - °Lean over the table a comfortable amount
  - °Keep the body still
  - °Move the arm in small comfortable circles only
- °PFE until mild stretch and discomfort (specific ROM limits might be specified by the physician)
  - °This motion is of primary importance but must be comfortable while performing
  - °7 to 12 repetitions 2-4 times per day
  - °Preferred exercises
    - °Sit with family member or therapist lifting the arm (Figure 2)
    - °Kinex KS2 (Kinex Medical Company, LLC, Waukesha, WI) continous passive motion machine for 10 to 20 minutes 2 to 3 times per day
- °Upright PER with elbow in slight abduction until mild stretch and discomfort
  - °This motion is of secondary importance
  - **°Achieve staged ROM goals unless a more restrictive limit is given by the physician**
  - °7 to 12 repetitions 2 times per day
  - °Preferred exercises
    - °Sit with family member or therapist rotating the arm (Figure 3)
- °Patient education
  - °Primary focus of phase 1: encourage healing and improve PFE
  - °Use of sling as instructed by physician; typically, full time in community and if up for >5-10 minutes at home
  - °No use of the arm reaching behind the back or out to the side in abduction due to dislocation risk
  - °Minimal use of the arm for light, waist-level ADL's only
  - °Sleep in a recliner with the arm supported

Figure 1. Pendulum exercise initially is performed with small circles.

Figure 2. Assisted passive forward elevation. The assistant typically stands diagonally in front of patient.

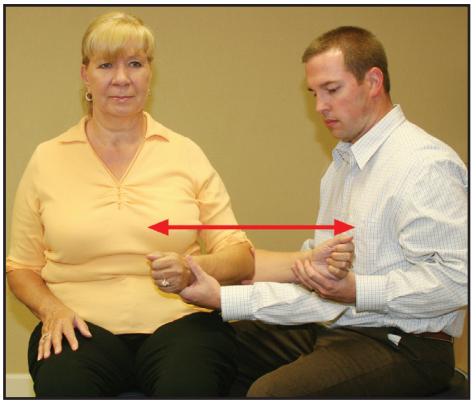


Figure 3. Assisted sitting passive external rotation.

Adjunctive Exercises

- °Instruction in ice or heat PRN for home use
- °Spine therapy assessment and mobilization PRN
- °Therapist assisted PROM and light stretching primarily to facilitate PFE

Interventions to Avoid

- °PROM, AROM, or strengthening in coronal-plane abduction
- °Reaching behind the back or excessive ER beyond staged ROM goals
- °Advanced stretching exercises
- °Stretching that results in moderate or severe pain
- °Upper body ergometer

PHASE 2

Goals

°Minimize pain and inflammatory response
°Achieve staged ROM goals emphasizing PFE
°Work towards AFE above shoulder level
°Educate the patient about appropriate long-term modifications to ADLs

POW 6 to POW 12

°Continue pendulum exercise
°Achieve staged ROM goals in PFE
    °Rope-and-pulley AAFE (Figure 4)
    °Consider supine AAFE (Figure 5)
    °Can continue phase 1 interventions as well
°PER PROM is usually discontinued if staged ROM goals are easily obtained. If PROM is continued, use same exercise as listed in phase 1.
°Submaximal pain-free isometrics
    °Perform with the elbow flexed and instruct the patient to press with 1 to 2 pounds of force only
    °**PAINFREE** Flexion, Abduction, ER, IR are considered
°Initiate the AASEP as comfortable to improve AFE
    °A stepwise progression in difficulty of strengthening exercises from PFE to AFE against gravity
    °Goal of the progression is to maximize overhead AROM
    °EMG demonstrates progressive activation of cuff and deltoid during the progression
    °If excessive scapula or glenohumeral substitutions or pain are present, choose an easier exercise in the progression
    °The order of the exercise sequence has variability
    °Not all exercises need to be performed. Choose exercises that are comfortable, that can be performed with minimal substitution but are fatiguing by 20-30 repetitions
    °Ensure that these exercises do not increase pain
    °Exercises are divided into 3 difficulty levels
    1. Gravity-minimized exercises
        °Horizontal dusting (Figure 6)
            °Perform straight ahead and perform at 20º angles medially and laterally, if comfortable with a constant motion

Figure 4. Rope-and-pulley active-assistive forward elevation exercise.

Figure 5. Self-assisted supine active-assisted forward elevation. The hand-assisted exercise is preferred.

Figure 6. Horizontal dusting exercise.

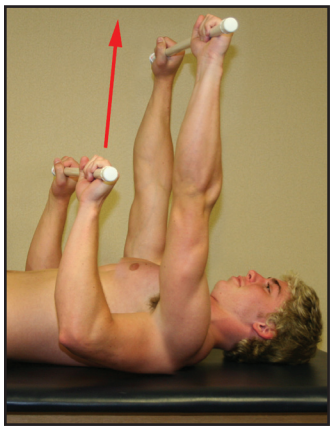
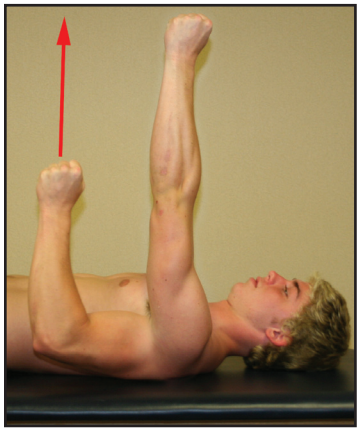


Figure 7A. Jackins supine assistive reach.



7B. Jackins supine active reach.

7C. Jackins incline reach.

- °Jackins supine reaching progression
  - °Begin at 0° with elbow bent and end at 90° of elevation with elbow extended
  - °Start with the assistance of a cane or wand (Figure 7A)
  - °Progress to active motion (Figure 7B)
  - °Can progress to using 1- to 2-lb weight
  - °Can progress to inclined position, continuing to reach to ceiling (Figure 7C)
- °T-Band supine FE (Figure 8)
  - °Must start involved arm at 90° of elevation
  - °Pull arm into FE
- °Side-lying gravity-minimized AFE (Figure 9)
  - °Lie on uninvolved side
  - °Place involved arm on ironing board
  - °Slide hand on board

2. Assistive elevation exercises
   - °Rope-and-pulley AAFE (Figure 4)
   - °Incline dusting (Figure 10)

Figure 8. Supine forward elevation with elastic band.

Figure 9. Side-lying, gravity-eliminated active forward elevation.

Figure 10. Incline dusting.

°Standing assistive elevation and active independent eccentric lowering
°Wall-slide AAFE
°Ensure that patient is in FE and is not in flexion
°Must be pain-free and natural when performed

3. Unsupported elevation exercises
°AFE (Figure 11)
°Initiate AFE after levels 1-2 of the AASEP are complete
°Eventually may add very light resistance (typically, 0.5 to 1lb for resistance **only if specifically allowed by the physician)**


Figure 11. Active forward elevation.

°Light scapula strengthening emphasizing scapula retraction with shoulder extension to neutral (Figure 12)

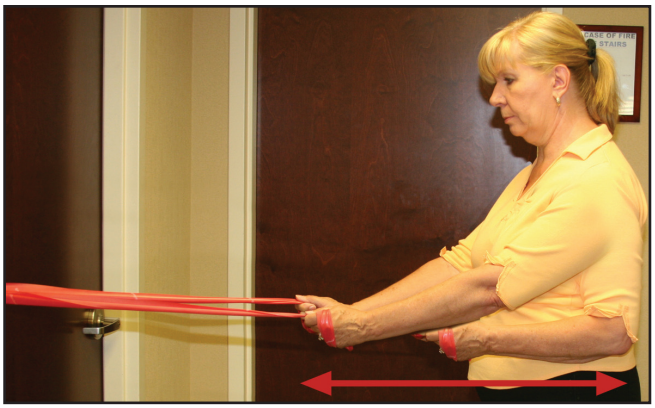


Figure 12. Scapular retraction with shoulder extension to neutral with elastic resistance.

°Patient education
°Continue to not use arm in straight plane abduction
°Ok to carefully use arm at hip, and behind back at waist level carefully respecting tightness, apprehension, or pain
°Make sure patient discusses with their surgeon appropriate long term activity modifications before patient uses the surgical arm for heavy lifting/recreational sports

Adjunctive Exercises

°Aquatic exercises - AAROM, AROM, and light strengthening
°Therapist assisted PROM and light stretching primarily to facilitate PFE
°Manual resistance to elevation by the therapist with alternating isometrics

Interventions to Avoid

°PROM, AROM, or strengthening in coronal-plane abduction
°Advanced stretching exercises
°Moderate-level or high-level rotator cuff or deltoid strengthening activities
°Exercises that result in moderate or severe pain
°Any heavy lifting or recreational sports without physician approval

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