Salina Regional Orthopedic Clinic
Salina Regional Health Center

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Proximal Humeral Fracture with Open Reduction Internal Fixation Rehabilitation Framework

The following is a basic framework from which to work during rehabilitation following open reduction and internal fixation of proximal humeral fractures. However, it is critical to communicate with the surgeon in order to be aware of the quality of the bone and fracture repair, any concomitant procedures that might have been performed, etc., that might impact the progression that is appropriate for each specific patient.

Safe Zones established intraoperatively by the surgeon

- These ranges can start on Post-op day 1, but may require a few weeks to achieve depending on patient comfort
- Passive range of motion limits
- 140/40 Program: Max. forward flexion to 140°; Max. external rotation to 40°
- 130/30 Program: Max. forward flexion to 130°; Max external rotation to 30°
- No abduction

If concomitant biceps tenodesis is done with ORIF for proximal humeral fractures, avoid resistance to elbow flexion for 6 weeks, and for the initial couple of weeks, have elbow flexion/extension range of motion be supported to the well arm.

PHASE I: Passive Motion – 0-6 weeks post-op

Goals:

- PROM – 140/130 degrees of flexion, ER of 40/30 by end of week 6 (see above)
- Decrease pain, Decrease muscle atrophy, Educate regarding joint protection
- Provide the patient with instructions for home exercises 3-5 x per day

Precautions:

- Stay within safe zone determined at surgery (see above)
- Sling with abduction pillow at all times, removed only for 3-5 x/day exercises, showering, and dressing

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Teaching:

- Emphasize home, passive well-arm assisted PROM (FF and ER as above)
- Instruct in regular icing techniques or cold therapy device (use as much as possible out of 24 hours for 8-10 days)
- Ice packs for 20-30 minute intervals, especially at the end of an exercise session
- Monitor for edema in forearm, hand, or finger

Exercises:

- Pendulum exercises
- Passive, forward flexion, in front of the plane of the scapula as pain allows per safe zone above (140/40 or 130/30): supine well arm, table slides, or table walk back motion all allowed
- Passive external rotation with the arm supported in the plane of the scapula: may be supine with cane assistance, seated and supported on arm rest with motion performed by well arm; or propped on counter top and step around
- Active scapular retraction, elevation in sitting or standing
- Active elbow, wrist, hand ROM – Grasping and gripping lightweight objects

PHASE II: **Active Range of Motion (6-10 weeks post-op)**

Goals:

- Full range of motion by end of week 10. After 6 week physician visit, patient and therapist can move beyond the safe zones as pain allows if radiographic evidence supports sufficient healing.
- Emphasis should be on range of motion before strengthening.
- Improve strength, Decrease pain, Increase functional activities, scapular stabilization.

Precautions:

- No sling use

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Teaching:

- Encourage continued stretching at home. Limited only by pain

- Ice after exercise as needed.

Exercises:

- Encourage patient to use smooth, natural movement patterns
- Continue to work on PROM as in Phase I and progress beyond precautionary range limits
- Begin AROM and AAROM (using a cane), progressively, to full range of motion when passive motion is normalized – progress active motion to reclined then sitting position
- Begin internal rotation with hand slide up spine, sleeper stretch gently
- Side-lying ER against gravity
- Encourage normal scapular mechanics with active motion
- Add Theraband exercises or light dumbbell weights (2lbs) for flexion, extension, external rotation, after passive and active motion is restored
- Scapulothoracic strengthening (prone extension, prone T, etc.)
- Aquatic therapy, if available, can begin no earlier than 1 month post op wound is completely healed.
    - Week 4-6: Stay within established safe zone listed above. Passive motion only
    - Week 6 +: Shoulder fully submerged – slow, active motion for flexion, elevation, ER/IR and horizontal abduction/adduction out to scapular plane, ROM limited by pain only.

***PHASE III:* Final Strengthening – 10+ weeks**

Goals:

- If acceptable motion has been achieved (>160 FF, >60 ER, IT T12 or above), then Maximize strength – otherwise continue with stretching program
- Improve neuromuscular control
- Increase functional activities

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Precautions:

- No sudden, forceful resisted IR (e.g. golfing, wood splitting, swimming) until >3 months post-op

Teaching:

- Continue home stretching minimum 1x per day to maintain full range of motion

Exercises:

- Continue to increase difficulty of Theraband and dumbbell exercises as tolerated
- Increase resistance exercises – must be light enough weight that >20 reps are achieved per set
- Continue aerobic training as tolerated, and modalities as appropriate
- Continue to progress home program

NOTES:

1. With proper exercise, motion, strength, and function continue to improve even after one year.
2. The therapy plan above only serves as a guide. Please be aware of specific individualized patient instructions as written on the prescription or through discussion with the surgeon.
3. Please call Dr. Rump if you have any specific questions or concerns (785) 452 – 7366
4. The patient's "Home Exercise Stretching Program" (critical for first 10 weeks) is attached

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Home Exercise Stretching Program

- Perform passive, assisted forward flexion and external rotation (outward turning) exercises with the operative arm. You were taught these exercises prior to discharge. Both exercises should be done with the non-operative arm used as the "therapist arm" while the operative arm remains completely relaxed.
- 10 of each exercise should be done 5 times daily, work up to the max degrees

Forward Flexion

Maximum: ____ deg.
Lie flat on your back, completely relax your operative arm like a wet noodle, and grasp the wrist of the operative shoulder with your opposite hand. Using the power in your opposite arm, bring the stiff arm up only to the maximum indicated above (90 degrees indicates your arm pointed straight ahead). Start holding it for 10 seconds and the work up to where you can hold it for a count of 30. Breathe slowly and deeply while the arm is moved. Repeat this stretch ten times.

External Rotation

Maximum: ____ deg.
External rotation is turning the arm out to the side while your elbow stays close to your body. It is best stretched while you are lying on your back. Hold a cane, yardstick, broom handle, or golf club in both hands. Bend both elbows to a right angle. With your operative arm completely relaxed, use steady, gentle force from your normal arm to rotate the hand of the stiff shoulder out away from your body. Continue the rotation only to the maximum indicated above (90 degrees indicates your arm pointed straight ahead). Holding it there for a count of 10.