MIDWEST ORTHOPAEDICS at RUSH
SPORTS MEDICINE & SHOULDER

Grant Garrigues, MD
1611 W. Harrison St., Suite 400
Chicago, IL 60612
P: 312.432.2880 F: 708.409.517

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 140o ; Max. External rotation to 40o
- **130/30 Program:** Max. forward flexion to 130o ; Max. External rotation to 30o
- 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 by the well arm.

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

Goals:

- PROM – 140/130 degrees of flexion, ER of 40/30 by the 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 3-5x/day exercises, showering, and dressing

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 minutes intervals, especially at the end of an exercise session
- Monitor for edema in forearm, hand, or finger

Exercises:

- Pendulum exercises
    - o *With the arm hanging, the patient gently swings the hand forward and backward, then side-to-side, and then clockwise and counterclockwise*

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- 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 on range of motion before strengthening.
- Improve strength, Decrease pain, Increase functional activities, Scapular stabilization

Precautions:

- No sling use

Teaching:

- Encourage continued stretching at home. Limited only by pain
- Ice after exercise as needed.

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Teaching:

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Exercises:

- Encourage patient to use smooth, natural movement patterns
- Continue to work on Passive ROM as in Phase I and progress beyond precautionary range limits

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- 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 if wound is completely healed.
    - o Week 4-6: Stay within established safe zone listed above. Passive motion only
    - o Week 6 +: Shoulder fully submerged – slow, active motions for flexion, elevation, ER/IR and horizontal abduction/adduction out to scapular plane, range of motion limited by pain only.

Phase III: Final Strengthening – 10+ weeks

Goals:

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

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 discussions with the surgeon.

3. Please call Dr. Garrigues if you have any specific questions or concerns 312-432-2880

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4. The patient's "Home exercise stretching program" (critical for first 10 weeks) is attached.

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Discharge Instructions after Internal Fixation of Proximal Humerus

General
- Use ice on the shoulder intermittently over the first 48 hours after surgery, then as needed.
- Caution: Narcotics are habit forming and have multiple side effects. Begin to taper your use as soon as you are able.

Activity
- Wear sling at all times, removing it only to shower, dress/undress, or for any prescribed exercises. Do not drive while in your sling and/or on narcotic medications.
- When getting dressed/undressed, gently assist your elbow into a hanging position and lean over with your arm hanging down like a weight on a string if you need to access your armpit or slide on a shirt sleeve—do not raise your arm from your side against gravity
- Move your fingers frequently to prevent swelling.
- Stay hydrated and walk frequently to avoid pneumonia, blood clots, and constipation

Over the counter medications
- To prevent constipation: Stool softener of choice. Miralax is most popular, but Colace, Dulcolax or Senakot—whatever keeps you regular.
- For pain: Tylenol should be used (as long as you do not have liver disease) for pain
- Blood thinner: Aspirin 325 mg daily for 6 weeks unless you are already on a different blood thinner (Coumadin, Xarelto, lovenox, etc.)

Wound care
- You may remove your dressing after two days, leave any steri-strips/sutures/staples in place. They will fall off on their own.
- You may shower 5 days after surgery. The incision CANNOT get wet prior to 5 days. Simply allow the water to wash over the site and then pat dry. Do not rub the incision. Make sure your axilla (armpit) is completely dry after showering.
- Keep incision out of direct sunlight until the scars fade (months)
- If garments irritate incision, feel free to cover with a band-aid or gauze

Diet
- Stay hydrated
- High fiber diet with extra fresh fruits and vegetables

Concerning Findings
- If you have any problems:
  - During business hours call the office: 312.432.2880
  - After hours call and ask for the orthopaedic resident on call: 312.432.2880 , option 0
- Concerning findings: Excessive redness of the incisions, Drainage for more than 4 days after surgery, Fever of more than 101.5° F

You should see Dr. Garrigues or his PA 10-14 days after your surgery. If you do not have an appointment, please call 708-236-2701 to schedule

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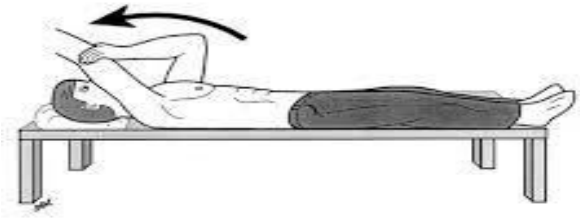
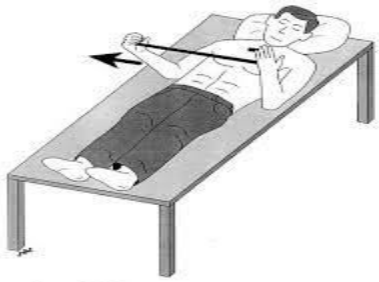
Home Range of Motion Exercises

- 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. (if not specified, default is 140°)
Lay 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 ten seconds and then 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. Repeat the entire cycle 5 times per day.



External rotation Maximum: _____ deg. (if not specified, default is 40°)
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. Repeat this exercise ten times. Repeat the entire cycle 5 times per day.