



## Humeral Shaft Fracture Open Reduction Internal Fixation (ORIF) Rehabilitation Framework

The following is a basic framework from which to work during rehabilitation following open reduction and internal fixation (ORIF) of humeral shaft fractures.

If concomitant biceps tenodesis was done with ORIF, avoid resistance to elbow flexion for 6 weeks, and for the initial 2 weeks, have elbow flexion/extension range of motion be supported by the well arm.

### Phase I – Passive Motion (0- 6 weeks post-op)

#### Precautions and Activity Guidelines

- Stay within safe zone of 130° flexion, ER of 30°
- Sling with abduction pillow at all times, removed only for 3-5x/day exercises, showering, and dressing

#### Goals

- PROM - 130° flexion, ER of 30° by the end of week 6
- Decrease pain, decrease muscle atrophy, educate regarding joint protection
- Provide the patient with instructions for home exercises 3-5x/day

#### Exercises/PT Interventions

- Pendulum exercises
- Passive forward flexion, in front of plane of scapula as pain allows per safe zone above, supine well-arm, table slides, or table walk back motion all allowed
- Passive ER 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

#### 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 elbow, wrist, hand



## Phase II – Active Range of Motion (6 - 10 weeks post-op)

### Precautions and Activity Guidelines

- No sling use

### 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

### Exercises/PT Interventions

- Encourage patient to use smooth, natural movement patterns
- Continue to work on passive ROM 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 (2 lbs) 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.
  - Week 4-6: Stay within established safe zone listed above, passive motion only
  - 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.

### Teaching

- Encourage continued stretching at home, limited only by pain
- Ice after exercise as needed



## Phase III – Final Strengthening (10+ weeks)

### Precautions and Activity Guidelines

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

### 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

### Exercises/PT Interventions

- 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

### Teaching

- Continue home stretching minimum once daily to maintain full range of motion

### NOTES

- With proper exercise, motion, strength, and function continue to improve even after one year
- 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
- Please call our office if you have any specific questions or concerns