



## Proximal Humeral Fracture Management (Non-Surgical)

### Critical Rehabilitation Principles

The first 2 weeks for all proximal humerus fractures managed non-operatively entails complete shoulder immobilization in the sling until the patient is seen in clinic for radiographic assessment. Subsequent progression will depend on if the fracture is categorized as unstable (more displacement/more fragments) or stable (such as an impacted fracture, or minimally displaced 2-part fracture) which will be determined by Dr. Hippensteel. **If not otherwise specified, unstable protocol is the default.** At all points in recovery, motion progression should not create pain in the involved shoulder nor create a feeling of movement across the fracture site.

- Rehabilitation activity should not ever create a feeling of motion at the fracture site; any pain with rehab activities should be less than 3/10 and transient with resolution within 1 hour of such activity.
- Full passive motion should be restored in all planes prior to beginning the active assisted to active motion progression.
- Full active motion with good mechanics should be restored prior to strengthening exercises.

## Unstable Proximal Humeral Fracture Management

Unstable proximal humeral fractures require 4 weeks of complete shoulder immobilization in a sling, followed by initiation of the rehab process if cleared following radiographic assessment

### Phase I – 4 to 8 weeks post-injury

#### Precautions and Activity Guidelines

- Remain in sling at all times other than PT (home or clinic) and personal hygiene until cleared by Dr. Hippensteel to discontinue sling use
- No active motion or active use of the arm
- Pain-free** passive elevation – maximum 140°, ER maximum to 40°
- No internal rotation (vertebral or at 90°)

#### Goals

- Protect fracture site with immobilization to optimize healing
- Encourage motion in pain-free range up to stated limits to prevent stiffness while healing in immobilization



### Exercises/PT Interventions

- Passive forward elevation up to maximum 140° (supine well arm assisted; tabletop step back; tabletop supported using well arm to slide)
- Passive external rotation with arm at neutral (along side of body) up to max 40° (seated well arm assisted; supine cane assisted with arm supported into scapular plane)
- May begin aquatics or basic UE program with slow speed of motions; avoid hook and rotate exercise and cross body abduction (hug yourself)
- Pendulums, elbow, wrist, hand, and scapular retraction

### Criteria to Progress to Phase II

- Pain-free passive FE to 140°, ER to 40°
- Clearance by Dr. Hippensteel based on evidence of early callus at 6-8 week radiographs

## Phase II – 8 to 12 weeks post-injury

### Precautions and Activity Guidelines

- Wean from sling gradually at home first, then in community if cleared by Dr. Hippensteel
- Avoid lifting more than 5 lbs.
- Avoid weightbearing on affected arm

### Goals

- Emphasis on restoring passive range of motion
- Restore full passive motion of the glenohumeral joint first, then progress to active assisted, then active motion through the full range
- Restore functional use of the arm for ADLs below shoulder level (feeding, grooming, etc.)
- Protect healing fracture from stress overload

### Exercises/PT Interventions

- Pain-free** passive range of motion without range limits for elevation, ER both with the arm against the side as well as at 90° of abduction, and IR toward full motion in all planes
- Continue aquatic program in all planes and may gradually increase speed of motion
- Forward elevation progression: supine active assisted, to active, to incline, to vertical supported, to vertical unsupported (after full passive range is established)
- ER/IR AROM against gravity when full passive range is established
- Scapular protraction/retraction
- Active motion through short arc from balanced position and rhythmic stabilization in balanced position (90° elevation in supine)

## Phase III – 12+ weeks post-injury



### **Precautions and Activity Guidelines**

- Per MD clearance based on sufficient fracture healing

### **Goals**

- AROM to equal PROM for elevation with normalized mechanics and no pain against gravity (in vertical position) and also for ER at neutral and 90°
- Strength to equal opposite upper extremity in all major muscle groups
- Functional return to work/board; GFR > 90%; DASH < 10%

### **Exercises/PT Interventions**

- Continue stretching to end range as tolerated in all planes until full motion is achieved if this has not already been accomplished
- Begin stretching progression with light band/hand weight resistance for all major upper extremity muscles, including rotator cuff and scapular stabilizers
- Begin functional progression to sport and work demands

### **Criteria for Return to Work/Sport**

- Clearance from Dr. Hippensteel
- Pain-free at rest and minimal pain with the work or sport specific activity simulation
- Sufficient ROM and strength with normalized mechanics for the activity



## Stable Proximal Humeral Fracture Management

### Phase I – 2 to 4 weeks post-injury

#### Precautions and Activity Guidelines

- Sling immobilization at all times except for therapy (home or clinic) and personal hygiene
- No active use of the involved arm
- No rotation of the involved arm (internal or external)
- Pain-free PROM forward elevation - maximum 90° elevation

#### Goals

- Protect fracture site from movement to optimize healing environment
- Decrease risk for stiffness associated with immobilization
- Promote distal circulation of hand and forearm
- Education patient about activity guidelines and rehab progression/expectations

#### Exercises/PT Interventions

- Active grip, wrist flexion/extension; forearm pronation/supination; elbow flexion/extension; scapular retraction/protraction as tolerated
- Small circle pendulum clockwise and counterclockwise
- Passive forward elevation to 90° maximum

#### Criteria to Progress to Phase II

- Pain not increased with passive elevation to 90°
- Clearance based on radiographic evidence of lack of fracture fragment displacement at 4-6 week radiographic assessment and clinical evaluation by Dr. Hippensteel

### Phase II to IV – correspond to Phase I to III for unstable fracture guidelines

- Phase II for stable is Phase I for unstable
- Phase III for stable is Phase II for unstable
- Phase IV for stable is Phase III for unstable