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## **Physical Therapy for Proximal Humerus Fracture**

### **Accelerated Pathway**

The first two weeks for all proximal humerus fractures managed non-operatively entails complete shoulder immobilization in a 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. Brusalis. Patients with stable fractures may undergo an accelerated rehabilitation pathway. 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.

#### **KEY CLINICAL CONCEPTS IN REHABILITATION**

1. Rehabilitation activities 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 one hour of such activity
2. Full passive motion should be restored in all planes prior to beginning the active assisted to active motion progression
3. Full active motion with good mechanics should be restored prior to strengthening exercises

#### **PHASE 1: (Weeks 2-4)**

##### **General Guidelines and Precautions**

- Sling immobilization at all times except therapy and personal hygiene
- No active use of the involved arm
- No rotation of the involved arm
- Pain-free passive range of motion in forward elevation to a maximum of 90 degrees

##### **Goals**

- Protect fracture site from movement to optimize healing environment
- Decrease risk for stiffness associated with immobilization
- Promote distal circulation of hand and forearm

- Educate patient about activity guidelines and rehab progression/expectations

### **Exercises**

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

### **Criteria to Progress to Phase 2**

- Pain not increased with passive elevation to 90 degrees
- Clearance based on radiographic evidence of maintain fracture alignment at 4-week radiographic assessment

### **PHASE 2-** (Weeks 4-8)

#### **General Guidelines and Precautions**

- Remain in sling at all times other than PT (home or clinic) and personal hygiene until cleared by MD to discontinue sling use
- No active motion or active use of the arm
- PAIN-FREE Passive elevation - max to 140; ER max to 40
- No internal rotation (vertebral or at 90)

#### **Goals**

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

#### **Exercises**

- Passive forward elevation up to max 140 (supine well arm assisted; tabletop step back; table top supported using well arm to slide)
- Passive external rotation with arm at neutral (alongside of body) up to max 40 (seated well arm assisted; supine cane assisted with arm supported into scapular plane)
- May begin aquatics for Basic UE program with slow speed of motions; avoid hook and rotate exercise and cross body adduction (hug yourself)
- Pendulum, elbow, wrist, hand and scapular retraction

### **Criteria to Progress to Phase 2**

- Pain-free passive forward elevation to 140; ER to 40
- Clearance by MD based on evidence of early callus at 6-8 week radiographic assessment

### **PHASE 3-** (Weeks 8-12)

#### **General Guidelines and Precautions**

- Wean from sling gradually at home first, then in community if cleared by Dr. Brusalis.
- Avoid lifting more than 5 pounds
- Avoid weight bearing 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**

- Pain-free passive range of motion without range limits for elevation; ER (0); ER (90); and IR towards full motion in all planes
- Continue aquatic program in all planes and may gradually increase speed of motion
- Forward elevation progression: supine active-assisted, active, to incline, to vertical supported, to vertical unsupported (after full passive range of motion is established)
- ER/IR AROM against gravity when full passive range is established
- Scapular protraction and retraction
- Active motion through short arc from balanced position and rhythmic stabilization in balanced position (90 degree elevation in supine position)

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

- Per Dr. Brusalis' clearance based on demands of sport, status of fracture healing, status of motion and strength.

### **PHASE 4-** (Weeks 12+)

#### **General Guidelines and Precautions**

- Per Dr. Brusalis' 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 at 90 degrees.
- Strength to equal opposite upper extremity in all major muscle groups
- Functional return to work/sport.

#### **Exercises**

- Continue stretching to end-range as tolerated in all planes until full motion is achieved if this has not already been accomplished.
- Begin strength progression with light band/hand weight resistance for all major upper

- extremity muscles, including rotator cuff and scapular stabilizers
- Begin functional progression as needed specific to sport or work demands