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## **Total Elbow Arthroplasty: Rehabilitation Guidelines**

Total elbow arthroplasty is most commonly performed for rheumatoid arthritis, osteoarthritis, and fracture of the distal humerus. As a rule both the humeral and ulnar components are cemented in, providing immediate fixation to the bone. The extensor mechanism is violated to insert the prostheses and must heal before active extension can be performed. The radial head may either be preserved or resected depending on impingement at the time of surgery. The ulnar nerve is generally transposed anteriorly to reduce the likelihood of ulnar neuropathy following the procedure.

### **Rehabilitation Considerations**

- Hematoma formation following elbow arthroplasty can lead to pain and loss of motion in the early phases after surgery. Attempts to reduce and mobilize edema are critical in the early phases.
- Full flexion and extension can usually be obtained on the table but stiffness may ensue rapidly. Patients must be encouraged to perform daily stretching exercises to preserve motion.
- Because the extensor mechanism must heal back to the ulna, active elbow extension, such as using the arm to assist in rising from a chair, is not permitted for 8 weeks.
- Adjacent joint therapy may be particularly important for patients with rheumatoid arthritis who may have concomitant disease of the shoulder and wrist

### **Inpatient:** (0-4 days)

- Arm is generally splinted in extension and elevated.
- The splint is removed 24-48 hours after surgery

### **ROM**

- Instruct in home program: active assisted elbow and wrist flexion, extension, pronation and supination
- Instruct in home program, and begin, self-assisted forward elevation and external rotation of the shoulder to prevent adjacent joint stiffness
- Finger ROM but no aggressive grip strengthening so that muscular attachments heal

### **Other**

- Instruct to don and take off sling
- Methods of edema control
- Instruct in precautions of no active elbow extension and avoid direct pressure on elbow
- Instruct on proper use of ice or PolarCare
  - 20-30 minutes at a time, several times per day especially after exercises
- Arrange for outpatient physical follow-up to begin day after clinic follow-up (10-14 days)

### **Wound Instructions**

- Mepore to wound until dressing totally dry
- Shower to wound at 10 days but no bath or hot tub for 3 weeks

### **Outpatient Physiotherapy Phase 1:** (Week 2-4)

#### **ROM**

- Continue active elbow and wrist flexion, pronation and supination and active assisted elbow flexion.
- Continue shoulder flexibility exercises

#### **Strength**

- Can start gentle grip strengthening but no active elbow or wrist strengthening exercises until Phase II

#### **Sling**

- Sling should only be used when out in busy or crowded locations but not around the house or to bed

#### **Other**

- Incision mobilization and desensitization
- Modalities for pain, inflammation and edema control (no e-stim)
- Cryotherapy as needed
- Ulnar nerve desensitization

### **Outpatient Physiotherapy Phase 2:** (Weeks 4- 8)

#### **ROM**

- Continue shoulder elbow and wrist ROM
- At 6 weeks can add active extension (anti-gravity only but no resistance)
- Night time extension splinting if flexion contracture developing

#### **Strength**

- May begin gentle isometric and isotonic wrist flexion/extension and elbow flexion strengthening
- Biceps strengthening should be done with elbow supported
- No elbow extension strengthening

#### **Sling**

- Sling should be fully discontinued at this point

### **Outpatient Physiotherapy Phase 3:** (Weeks 8 -12)

#### **ROM**

- Active range of motion in all planes
- Continue night time extension splinting if necessary
- Mayo Elbow brace if flexion contracture >30°

#### **Strength**

- Continue isotonic strengthening
- May add anti-gravity active extension but no resistance
- May add UBE at very low resistance for conditioning
- May add exercises for shoulder to promote generally upper extremity conditioning

### **Outpatient Physiotherapy Phase 4:** (Weeks 12 - 16)

#### **ROM**

- Continue maintenance flexibility program

#### **Strength**

- Progressive isotonic resistance including elbow extension
- Progress to functional use