

General Rehabilitation Guidelines

Program for Total Elbow Arthroplasty

General Information

- 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 follow 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. Hematoma also increases the risk of infection which occurs in 2-3 percent of elective cases and up to 7% of cases performed for trauma.
 - Full flexion and extension can usually be obtained on the table but stiffness may ensue rapidly. Continuous passive motion is almost always employed when possible but 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

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Prehabilitation

- Instruct in application of ice and encourage use as much as tolerated within a 24 hour period for first week. If using ice packs, encourage to ice 20-30 minutes every 3-4 hours while awake
- Instruct in home program of elbow flexion, extension, pronation and supination.
- Instruct in basic progression of rehabilitation program and expectations for time course to recovery
- Arrange follow-up physical therapy appointment on 7th-10th day post-op to correspond with physician's post-operative evaluation

Inpatient: (0-4 days)

- Arm is generally splinted in extension with hemovac drain in place for 1st 36 hours to prevent swelling and reduce chance of a hematoma. Arm is generally elevated in a sling on a pole.
- Evening of the first postoperative day, the splint is removed and patients are started on CPM
 - Set to provide full flexion and extension.
 - Arm should be removed every 1-2 hours to prevent compressive neuropathy
 - Cryotherapy in between sessions
- **ROM**
 - Instruct in home program, and begin, 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 doff sling
 - Methods of edema control
 - Instruct in precautions of no active elbow extension and avoid direct pressure on posterior aspect of elbow
 - Instruct on proper use of ice or cryocuff
 - 20-30 minutes at a time, several times per day
 - should be done especially after exercises
 - Arrange for outpatient physical follow-up to begin on day of office follow-up
- **Wound Instructions**
 - dry gauze to wound q day until dressing totally dry, then cover prn
 - may shower at 7 days but no bath or hot tub for 3 weeks

Outpatient Phase 1: (Hospital Discharge to Week 4)

- **ROM**
 - Continue program 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 patients are out in busy or crowded locations but not around the house and not to bed
- **Other**
 - Incision mobilization and desensitization
 - Modalities for pain, inflammation and edema control (no e-stim)
 - Cryotherapy as needed
 - Ulnar nerve desensitization

Outpatient Phase 2: (Weeks 5 – 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
- **Other**
 - Continue scar massage

Outpatient Phase 3: (Weeks 9 -12)

- **ROM**
 - Active range of motion in all planes
 - Continue night time extension splinting if necessary
 - Dynasplint if flexion contracture $>30^{\circ}$
- **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 Phase 4: Weeks 12 - 16)

- **ROM**
 - Continue maintenance flexibility program
- **Strength**
 - Progressive isotonic resistance including elbow extension
 - Progress to functional use