



ELBOW FRACTURES AND SIMPLE DISLOCATIONS NON-OPERATIVE GUIDELINES

Phase 1: Protection (Weeks 0 to 2-6)

PRECAUTIONS

- Protect in thermoplastic removable orthosis (or sling if instructed by referring provider)
 - To be worn at all times or to be removed for hygiene and/or light exercises as permitted by Dr. Hippensteel
- No passive range of motion (PROM) of elbow and forearm
- Observe non-weight bearing (NWB) status of involved upper extremity (UE)

SPECIAL CONSIDERATIONS

- Length of protective phase varies depending on injury severity and stability; follow Dr. Hippensteel's recommendations for required immobilization time and earliest initiation of controlled motion
- Stable elbow fractures (e.g. non- or minimally displaced radial head fractures, and simple elbow dislocations):
 - Dr. Hippensteel may clear for elbow motion within 1-3 days to minimize risk of stiffness
 - Immobilization requirements may include:
 - Posterior elbow shell orthosis
 - Sling
 - Unrestricted movement

TREATMENT RECOMMENDATIONS

- Patient education
 - Nature of the condition and expectations for course of treatment
 - Protective orthosis wearing schedule and care
 - Management of pain and edema
 - Activity modifications
 - Movement strategies for performing ADL/IADL while observing precautions
 - Light hand use
 - Home exercise program (HEP) for hand, wrist, shoulder, scapular mechanics, and elbow if permitted
- Orthotic fabrication
 - Posterior elbow orthosis most commonly in 90° elbow flexion, neutral forearm rotation, wrist included for comfort
 - Olecranon fractures may require immobilization in greater degree of extension to minimize pull on triceps insertion
- Soft tissue mobilization to all musculature around elbow: flexors and extensors of elbow, wrist and forearm
 - Triceps adherence and posterior capsule thickening can prevent elbow flexion



- Anterior capsule and elbow musculature can prevent elbow extension
- AROM of shoulder, scapulae, wrist, and digits
- Gentle AROM of elbow/forearm within stable ranges if permitted
- Edema management
 - Compression
 - Elevation
 - Elastic therapeutic taping
 - Ice

CRITERIA FOR ADVANCEMENT

- Radiographic indication of sufficient stability determined by referring provider is required to allow advancement to elbow/forearm active assisted range of motion (AAROM) and PROM
- If excessively stiff may need to progress sooner- communication with referring provider is crucial

EMPHASIZE

- Protect healing structures
- Control edema and pain
- Promote stability
- Maintain and promote ROM of uninvolved joints



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Phase 2: Mobilization (Weeks 3-8)

PRECAUTIONS

- Continue elbow orthosis for protection as needed until discontinued by Dr. Hippensteel
- Avoid sharp increase in pain during exercises
- Observe ROM precautions, weightbearing status and lifting limitations per referring provider instructions

SPECIAL CONSIDERATIONS

- Phase 2 may start earlier with Dr. Hippensteel's clearance
- Distal humeral and olecranon fractures: Dr. Hippensteel may initially limit active elbow extension and passive elbow flexion
- Use caution with prolonged elbow flexion to avoid irritating ulnar nerve

TREATMENT RECOMMENDATIONS

- Patient education
 - Protective or progressive orthosis: wearing schedule and care of orthosis
 - Pain management: heat, ice
 - Management of stiffness
 - Use of affected arm in light ADL/IADL
 - Progress HEP
- Functional/ADL training
- Soft tissue mobilization to all musculature around elbow: flexors and extensors of elbow, wrist and forearm
 - Triceps adherence and posterior capsule thickening can prevent elbow flexion
 - Anterior capsule and elbow musculature can prevent elbow extension
- PROM elbow and forearm
 - Use of moist heat to increase tissue extensibility (consider positioning at end range flexion or extension)
 - Watch for guarding/co-contraction and sharp increase in pain
 - Low load prolonged positioning
 - Gentle muscle energy techniques
- AROM/AAROM elbow, forearm, shoulder, wrist, digits
 - Minimize compensatory strategies
 - Assess and address scapular mechanics
- Therapeutic exercises and activities to promote functional elbow ROM
- Proprioceptive neuromuscular facilitation techniques (e.g., contract-relax)
- Increase joint proprioception with gentle isometrics



- Joint mobilizations when cleared by referring provider (e.g., ulnohumeral joint, proximal radioulnar joint, radiohumeral joint)
- Edema management
 - Compression garments
 - Manual edema mobilization
 - Elastic therapeutic tape
 - Thermal modalities (heat, ice)
- Reduce co-contraction (most common in biceps brachii)
 - Breathing techniques
 - Biofeedback device
 - Visualization
 - Bilateral arm movements
- Orthoses
 - Protective orthosis
 - Usually wean at or by week 6 consult with referring provider
 - Static progressive orthoses
 - Initiate when sufficient tissue healing has occurred to withstand prolonged forces required to increase motion and cleared by referring provider
 - Apply prolonged low load vs. strong force
 - Patient may adjust splint as tolerated to increase motion as tissue relaxes
 - Designs and recommended wearing schedules:
 - Flexion: 30 minutes at a time, 3-5x daily to avoid irritation of ulnar nerve
 - Custom: Come along flexion orthosis, flexion cuff
 - Patient education is essential on development of ulnar nerve symptoms
 - If development of ulnar nerve symptoms occurs, discontinuation of splint or shorter interval schedule may be necessary
 - Extension: up to 8 hours at a time while sleeping to achieve low-load prolonged stretch
 - Custom: turnbuckle extension (lacking more than 45 degrees or greater), serial static extension (lacking fewer than 45 degrees)
 - Supination/pronation: 30-45 minutes at a time, 3-5x daily
 - Custom and prefabricated options are available

CRITERIA FOR ADVANCEMENT

- Sufficient bone and soft tissue healing for participation in unrestricted activity per Dr. Hippensteel

EMPHASIZE

- Increase ROM
- Enhance function
- Limit stiffness



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Phase 3: Strengthening (Weeks 9-12)

PRECAUTIONS

- Avoid using forceful stretching or other high loads to address stiffness

CONSIDERATIONS

- May use supportive garments during sports/activities as desired
- Static progressive splints may be required for up to 1 year to maximize motion- educate patient on orthosis program
- Slow and gradual progression back into higher level activities

TREATMENT RECOMMENDATIONS

- Functional/ADL training
- Work conditioning
- Postural reeducation as needed
- Continue manual therapy techniques to achieve increase in ROM
- Continue PROM/AAROM/AROM and stretching of affected joints
- Progressive resistive exercises
 - Isolate triceps to increase extension
 - Strengthen biceps, brachialis, brachioradialis to increase flexion
 - Proximal/distal UE strengthening
- Weightbearing activities
- Continue use of static progressive orthoses up to 1 year to maximize ROM
 - Patient may require additional visits to adjust extension and flexion orthoses to accommodate ROM progress or signs of wear
- Endurance exercises (e.g., UE ergometry)

CRITERIA FOR DISCHARGE

- Functional performance uninterrupted by elbow ROM
- Elbow and forearm AROM maximized and within functional limits
- Sufficient strength for return to previous activities
- Independent in HEP and use of static progressive orthoses to manage stiffness
- Recommend for surgical consultation if:
 - Stiffness persists for 6 months despite therapy and use of static progressive orthosis
 - Functional performance continues to be significantly interrupted by ROM limitations

EMPHASIZE

- Maximize function and return to fitness and sport
- Limit stiffness and maximize ROM
- Increase strength and endurance