WRIST DISTAL RADIUS FRACTURE POST-OPERATIVE GUIDELINES

The following post-operative distal radius fracture guidelines were developed by HSS Rehabilitation. Progression is both criteria-based and patient specific. Phases and time frames are designed to give the clinician a general sense of progression. The rehabilitation program following open reduction internal plate fixation emphasizes early, controlled motion to prevent stiffness and to avoid disuse atrophy of musculature. The program should balance management of prior deficits, tissue healing and appropriate interventions to maximize flexibility, strength, and pain-free performance of functional activities. This model should not replace clinical judgment.

Follow physician modifications as prescribed.
WRIST DISTAL RADIUS FRACTURE POST-OPERATIVE GUIDELINES

Phase 1: Protective (Weeks 0-2)

PRECAUTIONS
- Observe non-weight bearing status
- Avoid tight grasping, lifting, carrying, pushing, pulling
- No passive range of motion (PROM) of wrist and forearm
- Avoid sharp increase in pain during exercises
- Be alert for signs and symptoms of the following and report to surgeon if present
  - Complex regional pain syndrome (CRPS)
  - Infection
  - Pain over fracture site(s) with digit motion, e.g. extensor indicis proprius (EIP), extensor pollicis longus (EPL), flexor pollicis longus (FPL)
  - Abnormal sensation

ASSESSMENT
- Quick Disabilities of the Arm, Shoulder and Hand Score (QuickDASH)
  - Include work and performance modules if appropriate
- Numeric Pain Rating Scale (NPRS)
- Orthotic fit and position
  - Wrist 0°-20° extension
  - Thumb and distal palmar crease clearance
- Screen active range of motion (AROM) of proximal upper extremity joints (shoulder, elbow)
- Screen AROM of digits including thumb
- AROM of bilateral wrists (flexion/extension, radial/ulnar deviation) and forearms (pronation, supination)
- Edema- measurement options include:
  - Wrist circumferential measurement
  - Distal palmar crease circumferential measurement
  - Figure of 8 measurement of hand
  - Finger circumferential gauge
- Functional status- level of hand use in daily activity (interview, observation)
TREATMENT RECOMMENDATIONS

- **Patient education**
  - Nature of the condition and expectations for course of treatment
  - Orthotic wearing schedule and care
  - Wound care/pin care as per surgeon’s protocol
  - Management of pain and edema
  - Scar management- instruct patient to initiate gentle massage when incision is dry and closed
  - Activity modification to decrease or eliminate pain
  - Movement strategies for performing ADLs while observing precautions
  - Light hand use
  - Home exercise program
  - Light soft tissue mobilization

- Light soft tissue mobilization
- AROM/PROM of digits including thumb
- Isolated AROM/AAROM of wrist (flexion/extension, radial/ulnar deviation) without compensation by extensor digitorum communis (EDC) for extensor carpi radialis (ECR) and extensor carpi ulnaris (ECU)
- AROM/AAROM of forearm pronation and supination with elbow at 90° flexion at side
- Edema management (ice, elevation, overhead active digit motion)

CRITERIA FOR ADVANCEMENT

- Surgeon’s clearance for PROM wrist and forearm

EMPHASIZE

- Edema management
- Digit ROM
- Isolated wrist and forearm ROM
- Light hand use
- Minimal sling use
WRIST DISTAL RADIUS FRACTURE POST-OPERATIVE GUIDELINES
Phase 2: Mobilization (Weeks 3-8)

PRECAUTIONS
- Observe non-weight-bearing status
- Avoid tight grasping, lifting, carrying, pushing, pulling
- Avoid sharp increase in pain during exercises
- Be alert for signs and symptoms of the following and report to surgeon if present
  - CRPS
  - Infection
  - Pain over fracture site(s) with digit motion, e.g. EIP, EPL, FPL
  - Abnormal sensation

ASSESSMENT
- QuickDASH
  - Include work and performance modules if appropriate
- NPRS
- Orthotic fit and position
  - Wrist 0°-20° extension
  - Thumb and distal palmar crease clearance
- Screen AROM of proximal upper extremity joints (shoulder, elbow)
- Screen AROM of digits including thumb
- AROM/PROM of affected wrist flexion/extension and forearm pronation/supination
- AROM of affected wrist radial/ulnar deviation (AROM only to minimize pain in case of ulnar styloid fracture or triangular fibrocartilage complex (TFCC) injury.)
- Assess for intrinsic verses extrinsic tightness
- Edema - measurement options include:
  - Wrist circumferential measurement
  - Distal palmar crease circumferential measurement
  - Figure of 8 measurement of hand
  - Finger circumferential gauge
- Functional status- level of hand use in daily activity (interview, observation)
- Joint position sense if discrepancy noted between AROM and functional use
TREATMENT RECOMMENDATIONS

- Patient education
  - Wound care/pin care as per surgeon protocol
  - Management of pain and edema
  - Explanation of differences between AROM and PROM (both should be performed)
  - Home exercise program

- Soft tissue mobilization

- Scar management
  - Gentle massage around and over dry and closed incision; steristrips should be removed manually if they are still on after 10 days
  - Consider silicone scar pad or scar elastomer if appropriate

- Joint mobilization – after clearing for contraindications, therapists skilled in techniques can perform mobilizations to improve ROM when there is continued joint stiffness

- Intrinsic/extrinsic stretching

- AROM/PROM of digits including thumb

- A/AAROM for wrist and forearm; may also perform multiplane ROM exercises

- Initiate PROM exercises for wrist and forearm when fracture healing and surgeon permits
  - Patient instruction on correct position of hands during self-passive ROM

- Edema management with compression (compression sleeve and/or glove; self-adherent elastic wrap; elastic adhesive tape)

- Proprioception training as needed

- Orthotic options may be implemented for limited finger ROM if patient is at least 3 weeks post-operative and there is minimal edema in affected hand
  - Static progressive metacarpophalangeal (MCP) flexion orthotic (forearm based) for limited MCP flexion or limited composite digit flexion

- Static progressive wrist orthotics may be considered in patients who are at least 4-6 weeks post-operative and continue to have decreased ROM, especially in wrist extension and forearm supination
  - Static progressive wrist extension orthotic
  - Static progressive digit and wrist extension orthotic (flexor stretcher) for extrinsic flexor tightness
  - Static progressive forearm supination orthotic

CRITERIA FOR ADVANCEMENT

- Surgeon’s confirmation of fracture healing with clearance to initiate strengthening

EMPHASIZE

- Edema management
- Digit ROM
- Wrist and forearm ROM
- Light hand use during ADLs
WRIST DISTAL RADIUS FRACTURE POST-OPERATIVE GUIDELINES
Phase 3: Strengthening (Weeks 9-12)

PRECAUTIONS
- Avoid overexertion/introducing too much resistance before patient is ready
- Avoid sharp increase in pain during exercises
- Be alert for signs and symptoms of the following and report to surgeon if present
  - CRPS
  - Infection
  - Pain over fracture site(s) with digit motion, e.g. EIP, EPL, FPL
  - Abnormal sensation

ASSESSMENT
- QuickDASH
  - Include work and performance modules if appropriate
- NPRS
- Screen AROM of proximal upper extremity joints (shoulder, elbow)
- Screen AROM of digits including thumb
- AROM/PROM of affected wrist flexion/extension and forearm pronation/supination
- AROM/PROM of affected wrist radial/ulnar deviation
- Assess for intrinsic verses extrinsic tightness
- Edema- measurement options include:
  - Wrist circumferential measurement
  - Distal palmar crease circumferential measurement
  - Figure of 8 measurement of hand
  - Finger circumferential gauge
- Functional status- level of hand use in daily activity
- Grip strength
- Pinch strength
- Manual Muscle Testing as need for upper extremity strength
- Joint position sense if discrepancy noted between AROM and functional use
TREATMENT RECOMMENDATIONS

• Patient education
  o Management of pain and edema
  o Explanation of importance of gradual strengthening to avoid inflammatory reaction
  o Importance of integrating hand use in daily activity for automatic, multiplanar movements
  o Home exercise program- add strengthening and flexibility as needed

• Soft tissue mobilization
• Scar management
• Continued massage over dry and closed incision.
• Consider silicone scar pad or scar elastomer if appropriate.
• Joint mobilization – after clearing for contraindications, therapists skilled in can perform mobilizations to improve ROM when there is continued joint stiffness
• Intrinsic/extrinsic stretching
• A/AA/PROM for digits, wrist, and forearm; may also perform multiplane ROM exercises
• Strengthening exercises for digits, wrist, and forearm
• Closed kinetic chain exercises (wall push-ups, putty flatten)
• Occupation Based Intervention using functional tasks as a treatment modality
• Proprioception training as needed
• Edema management with modalities and/or compression (compression sleeve and/or glove; self-adherent elastic wrap; elastic adhesive tape).
  o Orthotic options may be implemented for limited finger ROM
• Static progressive MCP flexion orthotic (forearm based) for limited MCP flexion or limited composite digit flexion
  o Static progressive wrist orthotics may be considered in patients who continue to have decreased ROM, especially in wrist extension and forearm supination
  o Static progressive wrist extension orthotic
  o Static progressive digit and wrist extension orthotic (flexor stretcher) for extrinsic flexor tightness
  o Static progressive forearm supination orthotic
• Consultation with performance specialists if returning to sports activities

CRITERIA FOR DISCHARGE

• Functional ROM or plateaued ROM
• Functional grip/pinch strength or plateaued grip/pinch strength
• Resumption of daily, work, and recreation activity
**EMPHASIZE**

- Edema management
- Wrist and forearm ROM and flexibility
- Gradual strengthening
- Full hand and upper extremity use in ADLs
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References


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