



# ORTHOPEDICS & SPORTS MEDICINE

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## Dr. Klika & Dr. Kirkpatrick Ulnar Nerve Submuscular Transposition

**Surgical Procedure:** The origins of the FCU, FCR, PL, PT, and a portion of the FDS is resected from the medial epicondyle. The nerve is released and transferred from the area of the tunnel to a new anterior position. It is placed deep to these muscles in a parallel alignment to the median nerve. The flexor pronator mass is then reattached.

### Phase 1 – Maximum Protection 0 - 2 weeks

#### Goals for phase 1

- Protect surgical repair
- Manage pain and edema
- Maintain range of motion of digits and shoulder

#### Other considerations

In most cases, patients are not referred to therapy until after the two week follow-up appointment with the surgeon

#### Post-surgical Mold

- Patient is placed in a post-surgical long arm mold with elbow at 60-90 degrees of flexion and wrist in neutral to slight flexion

#### Edema Management

- Elevation and ice as needed
- Manual Edema Mobilization (MEM)

#### Wound Care:

- Sterile dressing changes as needed

#### ROM

- AROM of digits and shoulder in all planes of motion -10 reps each hour
- Initiate scapular retraction



## Phase 2 –Protect Repair 2 - 6 weeks

### Goals for phase 2:

- Protect surgical repair
- Manage pain and edema
- Maintain range of motion of digits and shoulder
- Promote functional range of motion of elbow

### Other considerations:

- During movement, ensure that no paresthesia symptoms occur. Doing so will exacerbate symptoms and delay recovery.
- It is important to take moving two point discrimination measurements at initial evaluation and at regular intervals to document sensory return.
- With medial elbow tenderness, some patients like the protection of an elbow pad made by adhering open cell foam to the inside of stockinette or tubigrip

### Orthosis

- The post-surgical long arm mold is discontinued
- Fabricate custom wrist hand orthosis positioning wrist in neutral or issue over-the-counter splint. Wrist hand orthosis to be worn at all times for first 6 weeks post-op to protect repair of the flexor/pronator mass.

### Edema Management

- Light compression with Coban or compression sleeves to digits, hand, wrist and forearm as needed
- Elevation
- Manual Edema Mobilization (MEM)
- Kinesiotape may be helpful for reducing edema

### Scar Management

- Begin scar massage no sooner than 2 days after suture removal after scar is fully closed with no scabbing present. Begin with light massage using lotion.
- Educate patient in scar management
- Apply scar remodeling products as needed. Therapist may consider applying Micropore tape to scar during the day to prevent the formation of hypertrophic scarring.

### Manual Therapy

- Desensitization may be utilized if needed to reduce hypersensitivity of incision site progressing from light to heavy pressure

### ROM

- 2 weeks:
  - Initiate gentle active/active-assisted elbow and forearm ROM within pain tolerance
  - Proximal nerve flossing progressing to glides as the patient progresses. Begin with isolated single joint range of motion and avoid composite stretching during this phase.
    - Keep in mind that the nerve is now anterior to the axis of the elbow joint thus elbow flexion now places the nerve on slack while elbow extension places the nerve on stretch
    - Special care should be taken to reduce presence of paresthesia while completing exercises and nerve gliding
  - Continue ROM as needed to scapula, shoulder and digits
- 4 weeks:
  - Initiate gentle pain-free wrist active range of motion avoiding end range and prolonged wrist extension



## Phase 3 –Maximize Range of Motion & Restore Strength 6+ weeks

### Goals for phase 3:

- Progress to full ROM and strength
- Manage pain and edema
- Restore functional use of involved extremity and independence with activities of daily living
- Return to work

### Other consideration:

- During the strengthening phase, it's important to go slowly with resistive wrist flexor/pronator mass strengthening and forced grip

### Orthosis

Discontinue wrist hand orthosis

### Continue Phase 2 Scar and Edema Management and Manual Therapy for desensitization as needed

### ROM

- Initiate gentle pain-free wrist passive range of motion.
- Continue to progress range of motion from isolated elbow, forearm and wrist motion and gradually progressing to composite stretching until full pain-free range of motion is achieved.

### Strengthening

- 7 weeks: Initiate submaximal isometric forearm and wrist strengthening
- 8 weeks: Progress as tolerated to eccentric/concentric pain-free isotonic shoulder, elbow, forearm and wrist strengthening and incorporate grip strengthening as tolerated

### Work Conditioning

After 10 weeks and with MD consent a comprehensive work conditioning program for patients with high demand / heavy manual labor occupations may be appropriate



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## References

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Skirven T. M., Ostermans, A. L., Fedorczyk, J. M., & Amadio, P. C. (2011). *Rehabilitation of the Hand and Upper Extremity* (Vol. 1 ). Philadelphia, PA: Elsevier.

This protocol was reviewed and updated by Brian Klika, MD, Lacey Jandrin, PA, Andrew Kirkpatrick, MD, Tiffany Terp, PA, and the Hand Therapy Committee 8/9/2021.