



# ORTHOPEDICS & SPORTS MEDICINE

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## Dr. Klika & Dr. Kirkpatrick CMC Arthroplasty

### Phase 1 – Maximum Protection 0-3 Weeks

#### Goals for phase 1

- Immobilize and protect reconstruction
- Pain and edema control
- Educate patient in home program and importance of wearing splint at all times except hand hygiene

#### Other considerations

Patient will most often be referred to therapy for initial therapy visit after his/her 2-week follow-up with surgeon. Patient is usually only seen for one appointment during this initial immobilization phase. This appointment consists of splint fabrication and patient education in ROM of uninvolved joints, edema, and scar management. Patient begins therapy 1-2 visits per week at 4 weeks post-op phase 2.

#### Orthosis

Forearm-based thumb spica orthosis is fitted for continual wear in the following position:

- Wrist 20 degrees extension, CMC joint midway between palmar abduction and extension, MP joint neutral to slight flexion, IP joint free (allow functional pinch to index finger)
- Do not position thumb in radial abduction.
- Avoid pressure at base of thumb to prevent irritation of dorsal radial sensory nerve (DRSN)

#### Edema Management

- Light compression with coban or compression sleeves to digits, hand and forearm as needed
- Elevation
- Manual Edema Mobilization (MEM)

#### 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

#### AROM

Initiate AROM to uninvolved joints with splint on 4x/day

- digit ROM (flexor tendon glides, digit abduction/adduction, intrinsic plus)
- thumb IP joint flexion/extension
- elbow and shoulder ROM as needed to prevent stiffness



## Phase 2 –Protect Repair with Controlled ROM 3 - 6 weeks

### Goals for phase 2

- Continue to protect healing repair while restoring pain-free AROM
- Continue scar and edema control

### Other Considerations

Do not allow excessive composite thumb CMC flexion and adduction during this phase as it places stress on the reconstruction.

### Orthosis

- Continue thumb spica orthosis between exercise sessions and at night

### ROM

Dr. Kirkpatrick patients begin the following AROM program at 2-3 weeks  
Dr. Klika's patients begin the following AROM program at 4 weeks

Active ROM is initiated to the wrist and thumb 4x/day

- Wrist all planes of motion
- Thumb CMC palmar and radial abduction, opposition to index finger and middle finger, thumb extension, MP flexion/extension.
- Slowly progress from opposition to index/middle fingers to opposition to ring/small fingers. Patient should be working on full opposition to base of small finger by 6 weeks.
- If IP joint flexion is limited, may initiate passive IP flexion while supporting CMC joint (instruct patient on PROM to IP joint with splint on to ensure CMC is well-supported)

### Manual Therapy

- Continue phase 1 scar and edema management
- Desensitization if complaints of hypersensitivity in region of radial scar and DRSN

### Modalities

- Fluidotherapy for heat, ROM, and desensitization
- Paraffin may be used for deep heat prior to ROM
- Ultrasound for scar management

### Strengthening

- Initiate submaximal pain-free isometrics: thumb CMC palmar abduction, adduction and extension, digit abduction for intrinsic strength



## Phase 3 –Maximize Active Range of Motion 6 - 8 weeks

### Goals for phase

- Restore functional pain-free range of motion
- Continue to control edema and minimize scar adhesions

### Other Consideration:

- Although PROM is indicated for joint and soft tissue restrictions, avoid painful ROM and stretching beyond a functional range of motion. The end goal of surgery is to stabilize the thumb for pain-free function.
- Dynamic stabilization exercises may include isometric opposition against index finger or middle finger without losing “C” position, opponens isometrics squeezing tennis ball between thumb and small/ring fingers (extend index and middle fingers), and first dorsal interossei isometrics or first dorsal interossei isotonic using a rubber band

### Orthosis

- Begin to wean from forearm-based thumb spica orthosis. Weaning schedule should be based on pain level and swelling. For patients with persistent pain and swelling, weaning should be more gradual.
- Issue a neoprene CMC support for light support during functional activities as needed
- A hand-based thumb spica orthosis may be fabricated if the patient's daily activities or job requires repetitive manual work

### ROM

- Initiate pain-free PROM to wrist and thumb to restore functional motion
- Progress slowly to full opposition to base of small finger if it is pain-free

### Manual Therapy

- Continue phase 1 scar and edema management
- Desensitization if complaints of hypersensitivity in region of radial scar and DRSN

### Modalities

- Fluidotherapy for heat, ROM, and desensitization
- Paraffin may be used for deep heat prior to ROM
- Ultrasound for scar management

### Functional Activity

- Initiate light prehensile activities and educate the patient in light functional tasks at home such as self-cares, folding laundry, and computer work.
- Gradually over a 4-week period, progress from light to higher level functional ADL

### Strengthening

- Initiate isotonic strengthening including weighted wrist and forearm exercises and gentle grip and pinch strengthening with putty
- Initiate thumb stabilization exercises with emphasis on training patient to abduct and extend thumb without losing flexed “C” posture of thumb MP and IP joints.



## Phase 4 – Progress to Strengthening and Full Function 8 - 12 weeks

### Goals for phase

- Initiate isotonic strengthening and restore functional strength
- Return to ADL and full duty work

### Other considerations

- Ensure patient is flexing the MP joint during pinching activities. Hyperextension of the MP joint during pinch will place stress on and lead to failure of the reconstruction. If patient is unable to maintain a neutral to flexed MP joint during functional pinch, be sure to communicate this to the surgeon and consider a hand-based MP flexion orthosis to be worn with functional pinching activities.
- Educate patient that symptoms and strength will continue to improve for up to a year after surgery.

### Orthosis

- Patient should be completely weaned from forearm-based thumb spica orthosis by 8 weeks.
- Patient may continue wearing neoprene CMC support or hand-based orthosis for heavy repetitive manual work but should eventually wean from these as strength improves

### ROM

- Continue A/PROM for wrist and hand as needed to restore full functional pain-free motion

### Functional Activity

- Continue to progress to heavier home management tasks as tolerated if pain-free

### Strengthening

- Continue isotonic strengthening and progress thumb stabilization exercises as tolerated
- Strengthen radial wrist flexors if a portion of the FCR was harvested for reconstruction

### Work Conditioning

- After 10-12 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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This protocol was reviewed and updated by Brian Klika, MD, Lacey Jandrin, PA, Andrew Kirkpatrick, MD, Tiffany Terp, PA and the Hand Therapy Committee 2/21/2022.