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Flexor Tendon Repair Zones 1-3
Early Mobilization

A deep cut on the palm side of the hand, wrist, or forearm can damage the tendons that bend the wrist, thumb and fingers. Repair of the damaged tendons is necessary to restore normal movement in the wrist and hand. Successful rehabilitation following flexor tendon repair requires the guidance of a highly trained hand therapist. The therapist provides the patient with safe exercises that promote tendon gliding while avoiding risk of tendon rupture as well as other important treatment to control scarring and swelling.

Phase 1 – Maximum Protection Days 1 - 14

Goals for phase 1

- Immobilize and protect repair
- Initiate ROM while protecting repair
- Minimize risk of scar adhesions
- Pain and edema control

Other considerations

Dressings to be removed for ROM exercises to ensure tight composite passive flexion to maximize tendon excursion

Splint

Dorsal blocking splint is fitted for continual wear in the following position:

- Wrist: 20° extension, MP's: 45-60° flexion, IP's: full extension
- apply gutter splints as needed to maintain full extension
- If there is a nerve repair, position PIP joint at 30° of flexion

PROM

The following PROM exercises to be performed every two hours within the constraints of the splint, 25 repetitions each:

- MP flexion, active extension to splint
- PIP flexion, active extension to splint
- DIP flexion, active extension to splint
- Composite PIP/DIP flexion, active extension to splint
- Composite fist, active extension to splint
- Wrist flexion (passively flex wrist forward out of splint) with finger extension, followed by active wrist extension to splint with passive finger flexion

Edema Management

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

Wound Care

- Educate patient in dressing changes



Phase 2 –Protect Repair with Controlled ROM 2 - 4 weeks

Goals for phase 2

- Continue to protect healing repair while achieving adequate tendon excursion to prevent scar adhesions
- Continue scar and edema control

Splint

- Continue dorsal blocking splint between exercise sessions and at night

ROM

- Continue Phase 1 Exercises within the splint
- Initiate the following exercises outside of the splint:
 - Wrist/finger tenodesis exercises –
 - passive composite finger flexion is provided then the patient actively extends wrist,
 - passive wrist flexion is provided then the patient actively extends digits
 - Passive wrist flexion with passive hook fisting to prevent intrinsic tightness
 - Place & hold for gentle tension in the following positions:
 - Wrist extension, MP's extended, IP's flexed (hook position)
 - Wrist extension, MP's & PIP's flexed, DIP's extended (straight fist)
 - Wrist extension, fingers in composite fist
- If patient is doing well in terms of ROM and swelling, reduce the frequency of exercises to every 3 hours or 6x/day

Scar Management

- After 2 days of suture removal, initiate scar mobilization
- Apply scar remodeling products as needed
- At 3 weeks post-op as long as the wound is healed, initiate ultrasound for scar

Continue phase 1 edema management



Phase 3 –Maximize Active Range of Motion 4 - 6 weeks

Goals for phase

- Restore full active range of motion while protecting the healing repair
- Continue to control edema and minimize risk of scar adhesions

Splint

- Continue dorsal blocking splint between exercise sessions and at night

ROM

- Begin full active isolated and composite wrist and digit extension outside of the splint
- Begin AROM hand exercises outside of the splint (hand exercises may include thumb palmar abduction, thumb opposition, digit abduction/adduction, intrinsic plus/MP flexion, claw fist, gentle full fist)
- Week 5 - Initiate blocking exercises for PIP and DIP flexion except small finger DIP due to risk of rupture

Functional Activity

- Begin light prehensile activities in therapy sessions only

Phase 4 – Restore Full Motion & Progress to Strengthening 6 - 12 weeks

Goals for phase

- Restore full active and passive ROM
- Regain strength
- Return to ADL and full duty work

Splint

- Discontinue dorsal blocking splint
- If limited PIP joint extension is present, splint PIP joint in full active extension at night only
- Dynamic or static progressive splinting may be initiated to PIP joint if contracture present

ROM

PROM is initiated avoiding aggressive composite wrist and digit extension until 8 weeks

Modalities

If needed, start NMES or ultrasound to enhance tendon excursion

Functional Activity

Begin light activity at home and gradually over a 4-week period of time return to functional use of the involved hand for high level work and home management tasks

Strengthening

At 8 weeks post-op initiate strengthening

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

Other considerations

Educate patient that a tight sustained grip with or without resistance greatly increases risk of tendon rupture. The patient should be using the hand for light activity only at home until 10 weeks post-op or with MD consent.



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Suggested Reading:

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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.