

FLEXOR TENDON REPAIR PROTOCOL

Zone I

Passive motion

0 to 3 weeks post-op:

- Remove post-op dressings within 1 to 3 days post-op
- Wound care and edema reduction techniques as needed
- Fabricate thermoplastic dorsal blocking splint
 - Wrist at 30 degrees flexion
 - MP joints at 50 degrees flexion
 - IP joints at neutral
- Begin passive flexion to each digit joint
 - 10 repetitions, every one to two hours
- Active digit extension within limits of splint
- Therapist supervised wrist extension only with digits maintained in full passive flexion
- Begin gentle scar massage when sutures removed at 10 to 14 days

3 weeks post-op:

- Begin 'place and hold' exercises for digit flexion with wrist in 30 degrees extension
 - Patient should be instructed in using 50% of motor power only
- Adjust splint with wrist to neutral position

4 weeks post-op:

- Continue place and hold exercises, including hook fist position to encourage FDP tendon glide
- Advance to active digit flexion if evidence of early scar adhesions

6 weeks post-op:

- Discontinue use of dorsal blocking splint
- Advance exercise program to include full active digit flexion
- Begin blocking exercises
- Continue hook fist exercises to increase FDP glide
- Consider PIP joint blocking splint or cast to improve DIP joint flexion if FDP tendon glide is poor

8 weeks post-op:

- Begin strengthening

Zone II

Passive motion

0 to 1 week post-op

- Remove post-op dressings
- Maintain wrist and digits in protected position at all times
- No active finger flexion
- Fabricate thermoplastic dorsal blocking splint
 - Wrist positioned at 30 degrees flexion
 - MP's positioned at 60 degrees flexion
 - IP's positioned at 0 degrees
- Home exercise program:
 - Passive flexion of each individual joint, 10 reps every 1 to 2 hours
 - Active extension of each digit within limits of splint
- Edema reduction techniques
- Wound care and dressing changes as needed
- Thorough patient education regarding need for constant splint use, flexor tendon anatomy, and wound healing/scar adhesion formation

1 to 2 weeks post-op

- Sutures removed at 10 to 14 days post-op.
- Begin scar massage following suture removal
- Continue passive range of motion

3 weeks post-op

- Begin 'place and hold' exercises, with instruction to patient to use 50% of their muscle power
 - If patient is compliant, dorsal blocking splint should be removed for exercises. Wrist is positioned in 30 degrees of extension during 'place and hold' exercises, in tenodesis pattern
 - Patient should be specifically instructed to avoid composite wrist and digit extension

3 weeks post-op (continued)

- Continue passive range of motion
- Continue edema reduction techniques. Be aware that use of co-ban may be creating small amount of resistance with 'hold' portion of exercises.
- Adjust dorsal blocking splint to position wrist at neutral.

4 to 6 weeks post-op

- Continue home exercise program.
- If poor flexor tendon glide is evident and patient is unable to 'hold' flexed position, early gentle active flexion is initiated.

- If poor flexor tendon glide is evident and patient is compliant, splint is discontinued at 5 weeks post-op.
 - Patient is specifically instructed to use splint for any risky activities, and is educated regarding avoiding resistive activities
- If there is no evidence of scar adhesions limiting range of motion, or if patient has history of diabetes, prednisone use, or other conditions which may delay healing, splint is discontinued at 6 weeks post-op.

6 to 8 weeks post-op:

- Continue active and passive range of motion, advancing to include composite wrist and digit extension at 6 weeks post-op
- Add tendon glide and blocking exercises
- Begin strengthening at 8 weeks post-op

Early Active Motion

(based on Indiana Hand Center protocol)

0 to 2 weeks post-op:

- Remove post-op dressings within first 1 to 2 days
- Fabricate dorsal blocking splint for night use and between exercise sessions.
 - Splint is fabricated with hinge at wrist, allowing wrist extension.
 - Extension block is included in splint to block wrist extension beyond 30 degrees extension.
 - Thermoplastic cover is fabricated for block, to prevent wrist motion between therapy sessions
- Begin place and hold exercises for digit flexion, with wrist in tenodesis position of 30 degrees extension
- Begin scar massage at 10 to 14 days post-op.

2 to 5 weeks post-op

- Continue place and hold exercises
- Advance to gentle active digit flexion at 5 weeks, if evidence of early volar scar adhesions

5 to 6 weeks post-op:

- Remove dorsal blocking/tenodesis splint
- Advance to full digit active flexion
- Begin blocking exercises

8 weeks post-op:

- Begin grip strengthening

ALGORITHM TO ADVANCE RANGE OF MOTION

(From: Sueoka SS, LaStayo PC. "Zone II flexor tendon rehabilitation: a proposed algorithm. J Hand Ther. Oct-Dec. 2008)

- First 3 weeks post-op (beginning at 3-7 days post-op): use either passive (Duran's), dynamic traction (Kleinert's) or early active protocols, based on physician preference and patient's ability to cooperate/comply with program.
- 3 weeks post-op:
 - Begin place and hold exercises for digit flexion.
 - Assess passive motion – if passive motion is limited, continue passive motion as well.
 - Continue dorsal blocking splint for all patients
- 3.5 weeks post-op:
 - Evaluate AROM to assess presence or absence of flexor lag.
 - If patient has full active motion, continue place and hold exercises
 - If flexion lag is present, begin active composite digit flexion
 - Continue dorsal blocking splint for all patients
- 4 weeks post-op:
 - Evaluate AROM to assess presence or absence of flexor lag
 - If patient has full active motion, continue place and hold exercises and gentle active composite fisting, with continued use of dorsal blocking splint up to 8 weeks post-op
 - If flexion lag is present, begin fisting series of full digital flexion, hook fist and straight fist exercises. Include full extension of the digits.
 - Continue place and hold exercises
 - Continue dorsal blocking splint
- 4.5 weeks post-op:
 - Evaluate AROM to assess presence of flexion lag.
 - If no lag is present:

- Begin composite wrist and digit flexion and extension exercises
 - Continue dorsal blocking splint
 - If lag persists:
 - Begin blocking or isolated FDS and FDP exercises.
 - Continue dorsal blocking splint
- 5 weeks post-op:
 - Evaluate AROM to assess presence of flexion lag
 - If no lag is present:
 - Continue to protect repair, with composite wrist and digit range of motion only
 - Continue dorsal blocking splint
 - If lag is present:
 - Begin light resistance exercises with putty
 - Begin ultrasound, e-stim, as needed.
 - Continue dorsal blocking splint
- 5.5 weeks post-op:
 - Evaluate AROM to assess presence of flexion lag
 - If no lag is present:
 - Continue all active exercises and dorsal blocking splint
 - If lag is present:
 - Discontinue dorsal blocking splint
 - Fabricate composite wrist and digit extension splint, if needed
 - Continue active fisting exercises
- 6 weeks post-op:
 - Evaluate AROM to assess presence of flexion lag
 - If no lag is present:
 - Discontinue dorsal blocking splint
 - Continue active digit exercises
 - Begin strengthening at 8 weeks post-op