

Postoperative Treatment For Zone 2-4 Flexor Tendon Repair (Early Active)— Dr. Trueblood

Indications: Traumatic lacerations of FDS and FDP in the digits, identified within three weeks of injury, generally benefit from surgical repair. All flexor tendon repairs will regress in the strength of tissue at the repair site over the first 2 weeks after surgery. Repair strength rebounds to the same strength as that at the time of repair by four weeks. The repair must therefore be protected to prevent rupture. Good quality tissue repaired with at least a 4-strand core stitch and running epitendinous stitch will usually tolerate a protected, early motion protocol. This is designed to minimize the potential for flexor tendon adhesions to the digital pulley system and may foster a more rapid return of tendon-repair strength. Patients with compromised soft tissue envelopes, frayed or small-caliber tendon, or limited ability to participate in a protected therapy protocol may be better served by a modified Duran protocol.

Technique: The flexor tendon is exposed using incisions that respect the low tension axis of the digit, designed to minimize postoperative scarring. A minimal touch technique is used to mobilize and pass the FDP beneath the A2 and A4 pulleys to the site of injury. For sharp lacerations, a 4-strand core stitch supplemented with a 6-O prolene epitendinous stitch is used to repair the flexor tendon. Wounds are irrigated and closed with interrupted, chromic gut stitch. The patient's wounds are cleaned, dried, and dressed. A dorsal blocking splint is then placed in 30 degrees of flexion at the wrist, 50 degrees of MCP flexion, and in full IP extension.

The patient is instructed to elevate their hand above heart level in their splint in the days following surgery to minimize digital edema. Therapy begins on postoperative day 3.

Therapy Instructions:

Hand Therapy 2-3x/ week x 6 weeks

Weeks 0-3

- Protect Repair
 - No unprotected, active flexion of digits.
 - No passive wrist extension.
 - No passive finger extension except as noted in protocol.
 - No active/ functional use of the hand.
 - Patient instructed to not support their body weight with the injured extremity.
 - No operating machinery or driving with this distracting injury.
- Splinting:
 - Forearm based, dorsal blocking splint with wrist in neutral, MCP's flexed 50 degrees, and IP's in full extension. If FDP to one finger is repaired, then all four digits must be included in the splint.

- Pulley ring for injured digits if a pulley reconstruction was performed.
- Supervised Therapy:
 - Remove splint and perform passive wrist extension with fingers in full flexion.
 - Passive wrist flexion with digits in passive hook fist position.
 - Place and hold digital flexion with the wrist extended in hook, straight, and full fist positions.
 - Edema control
 - Wound care-- progress to scar massage by 2 weeks.
 - HEP training
- Home Exercise Program (performed in splint)
 - Passive full composite fist
 - Passive DIP extension while maintaining MCP and PIP in flexion
 - Block MCP in full flexion and actively extend IP's
 - Passive DIP flexion and active extension
 - Passive PIP flexion and active extension
 - Isolated FDS glide of unaffected flexion
 - Gravity assisted wrist flexion followed by active extension to splint limits.

Week 3-4

- Splinting
 - Continue dorsal blocking splint.
 - May add serial static PIP extension splints at night if needed.
- Supervised Therapy
 - Start place and hold exercises if not already initiated
 - Place and hold for hook, full, and straight fist with wrist passively extended.
 - Place and hold for isolated FDS glide of involved digits.
 - NB: gentle tension only for place and hold exercises. Monitor the patient closely for co-contraction during these exercises and train the patient to avoid this motor behavior in their exercise.
- HEP-- continue all previous home exercises

Week 4-5

- Splinting:
 - Cut dorsal blocking splint down to hand-based.
- Supervised exercise
 - Start AROM/ AAROM of digits in all three fist positions with wrist extended.
 - NO resistance to any movements.

Week 5-6

- Precautions:
 - 3# weight bearing. May start light activities around the home.
- Splinting:



Excellence in Motion

- D/C splint
- Supervised exercise
 - AROM/PROM of digits and wrist.
 - Add blocking exercises for independent DIP/ PIP flexion as needed.

Week 6-8

Therapy 1-2x/ week for 6 weeks

- Precautions
 - No lifting, pushing, or pulling.
 - May type/ write. Weight lifting to 5#
- Splinting
 - May add LMB-type, dynamic PIP extension splint if PIP flexion contracture >15 degrees.
- Supervised exercise
 - Continue AROM/ PROM.
 - Start NMES/ ultrasound as needed to optimize pull through

Week 8+

- Precautions
 - weight bearing as tolerated

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