

CLINICAL PROTOCOL FOR FLEXOR TENDON EARLY MOBILIZATION – MODIFIED DURAN METHOD

THEORY: Intrinsic pumping to increase transport of nutrients in synovial fluid promotes more rapid healing. Early motion minimizes development of extrinsic adhesions and promotes early collagen alignments. 3-5 mm of tendon glide is required. Used for Zones I through IV.

PRECAUTIONS:

- Requires patient cooperation – contraindicated for young children or any confused patients.
- Only for tidy wounds with no evidence of infection.
- Early mobilization program must begin no later than the fifth post-operative day.
 - 2-5 days

DAY 2-4 POST-OPERATIVE REPAIR:

Splint:

Custom fabricated dorsal protective splint with:

Wrist: 20° palmar flexion

MP's: 40-50° flexion

IP's: 0°

FPL:

Wrist: 20° palmar flexion

MP: 15° flexion

IP: 15° flexion

Clinical Program:

1. Review the exercises below.
2. Adjust splint as needed.
3. Check wound.
4. Hygiene care.
5. Patient education with emphasis on precautions.
6. Apply coban as needed.
7. If patient not extending fully, therapist may passively flex the MP joint and encourage full **active** IP extension. **Passive** IP extension can be done if flexors are fully relaxed with wrist and MP's flexed.

Home Exercise Program: The patient is instructed to remove the digital Velcro straps hourly and complete the following exercises:

1. 8-10 repetitions of full passive flexion of the DIP joints with passive/active extension to the splint.
2. 8-10 repetitions of full passive flexion of the PIP joints with passive/active extension to the splint.
3. 8-10 repetitions of composite passive flexion with composite passive/active extension to the splint.

**It is important to stress to the patient that when strapped in the dorsal protective splint, he/she should not resist the digital strap. Resistance can result in an isometric contraction which could cause a tendon rupture.

2 WEEKS POST-OP:

Splint: Continue full-time.

Clinical Program Add:

1. Sutures removed.
2. Light massage begun.
3. Active hold in composite fist in splint, "gentle".

Home Exercise Program Add:

1. Active hold in composite fist as described above.

3½ WEEKS POST-OP:**Clinical Program Add:**

1. Gentle active flexion and extension of all fingers within the limits of the splint – avoid making a tight fist.

4 WEEKS POST-OP:**Splint, Clinical, and Home Exercise Program Add:**

Remove splint for:

1. Active wrist motion in tenodesis manner.
2. Composite active flexion and extension of digits.

4½ WEEKS POST-OP:**Splint:**

1. Modify to place wrist in neutral.

Clinical:

1. "Non-resistive" functional activities such as picking up foam, rice, etc.

5 WEEKS POST-OP:**Splint:**

1. If finger is stiff with limited range of motion and tendon excursion, discontinue splint in low risk activity.
2. Continue with splint at night and with high risk activity.
3. If taken out of splint, issue patient precaution sheet.

6 WEEKS POST-OP:**Splint:**

1. Discontinue splint except with high risk activity.
2. Continue with splint at night for one more week.
3. Patients with low scar may wear splint for 10 weeks.

Clinical Program:

1. More aggressive friction scar massage.
2. Blocking exercises. Stabilize on sides of digit. Do not stabilize on volar as this will serve as an isometric force.
3. Review precautions with patient.

6 TO 8 WEEKS POST-OP:**Splint:**

1. Discontinue splint for all activities except high risk activities at Week 7.
2. Dynamic forearm based PIP extension splint if needed.

7 WEEKS POST-OP:**Clinical and Home Exercise Program Add:**

1. Gentle passive wrist and finger extension if needed.

8 TO 10 WEEKS POST-OP:**Clinical and Home Exercise Program Add:**

1. Gradual increase in resistive exercises continues.
2. Dynamic extension splints as needed for PIP contractures.

REFERENCES:

1. Stewart, KM. Tendon Injuries. In: Stanley BG, Tribuzi SM (eds.). Concepts in Hand Rehabilitation. Philadelphia, PATIENT: F.A. Davis Co., 1992: 353-394.
2. Stewart, KM, Van Strien, G. Post-operative Management of Flexor Tendon Injuries. In: Hunter, JM, Mackin EJ, Callahan AD (eds.). Rehabilitation of the Hand, 4th ed. St. Louis, MO: Mosby, 1995: 409-462.
3. Evans, RB Managing the Injured Tendon: Current Concepts; Journal of Hand Therapy 2012; (25) 2: 173-190.