

## Early Mobilization Program for Extensor Tendon Repairs

### REHABILITATION PROTOCOL

Patient Name: \_\_\_\_\_ Date: \_\_\_\_\_

Diagnosis: \_\_\_\_\_

Surgery: \_\_\_\_\_ Surgery Date: \_\_\_\_\_

#### Indications

- The early mobilization program for extensor tendon repairs is indicated for complex extensor tendon injuries in which the periosteum is violated or the soft tissue is extensively involved with Zone V, VI or VII lacerations and repairs. Another indication for the early motion program includes rigid fixation of any fracture in the area of Zone V – VII with a concomitant extensor tendon injury.
- This therapy program is *not* necessary for simple lacerations. Those patients typically have excellent results with a 4-week immobilization program prior to commencing active range of motion exercises.

#### Rationale – Therapy Program

- The early motion program permits a minimum of 3-5mm of extensor tendon excursion, which is believed to be sufficient to prevent dense peritendinous adhesions from blocking tendon gliding. In all likelihood, without early motion the extensor tendons would become severely adherent to bone and/or the extensor retinaculum. The early motion favorably influences the orientation of the collagen fibers along the tendons.
- By permitting 30°-35° of MP joint flexion, this helps minimize the likelihood of MP joint contractures by allowing the collateral ligaments some degree of stretch.
- AROM decreases edema and maintains soft tissue elasticity.

#### Postoperative Rehabilitation

##### 3-5 Days Postop

- The bulky dressing is removed. A light compressive dressing is applied to the hand and forearm along with fingersocks and Coban™.

- A long dorsal outrigger (LDO) is fitted with the wrist positioned in 40° of extension. At the digital level, wide Velcro slings with rubber band traction supporting the PIP and DIP joints are utilized to maintain the MP and IP joints in extension. The splint is worn continuously. Note: The slings should be of sufficient width to block both PIP and DIP joint flexion. If necessary, IP gutters may be utilized in place of the slings.
- A volar flexion block splint (i.e. resting pan) is fitted in a bivalve fashion to the LDO. This splint should allow for 30° of MP flexion of the index and long fingers and 35° of flexion to the ring and small fingers.
- AROM exercises are initiated at the MP level within the rubber band traction. The patient attempts to simply flex the fingers to the volar base of the static resting pan splint. This allows the patient to flex approximately 30° - 35° of MP joint flexion. Through the dynamic rubber band traction, the MP joints are then brought into neutral extension. The patient performs these exercises 15 repetitions each hour.
- For night wear, the patient is fitted with a wrist and MP block splint. The wrist is positioned in 30° of extension with the MP joints in 0° of flexion. The patient is cautioned to hold the wrist and digits in full extension while changing to the static night splint.
- Active and PROM exercises are performed to the IP joints twice a day for 10 minutes while in the wrist and MP block splint. These exercises are performed once in the morning before applying the outrigger (which is worn during the day) and once in the evening when the wrist and MP block splint is reapplied.

### **10-14 Days Postop**

- Within 48 hours following suture removal, scar massage with lotion may be initiated. As the patient progresses through therapy, scar retraction may be performed to mobilize adhesions, along with Otoform K™, Rolyan 50/50™ or Elastomer™.

### **3 Weeks Postop**

- Active-assisted extension is permitted within the restrains of the LDO and resting pan splint. In addition, active MP flexion is continued within the two splints.

### **4 Weeks Postop**

- Unrestricted AROM exercises are initiated to the wrist and fingers 10 minutes each hour. Emphasis is placed on isolated EDC exercises along with the composite flexion and extension of the digits and wrist.
- The wrist and MP extension splint is continued between exercise sessions and at night.

- Ultrasound may be incorporated into the therapy program as a deep heat to enhance the mobility of the underlying soft tissues and adhesions.
- NMES may be initiated. To isolate and stimulate the EDC can be quite effective in mobilizing the EDC through dense adhesions. To use NMES 4-6 times a day at this time frame is beneficial.
- Isolated passive flexion may be initiated to the wrist.

### **6 Weeks Postop**

- PROM exercises are initiated for the wrist and digits.
- Taping and/or dynamic flexion splinting may be initiated as necessary to enhance composite passive flexion of the digits and resolve extrinsic extensor tightness.
- The wrist and MP blocking splint is continued between exercise sessions and at night.

### **7 Weeks Postop**

- The wearing time for the wrist and MP block splint is gradually decreased. To reduce the splint 1 hour each day should eliminate wearing the splint during the day within 7-10 days.
- Progressive strengthening may be initiated to the hand and wrist. This would include not only hand weights for the wrist and forearm, but may include putty and a hand exerciser.

### **9-10 Weeks Post**

- Typically, static and dynamic splinting can be discontinued.

### **Considerations**

- An early motion program is highly recommended for extensor tendon repairs in zones VI, VII, or VIII where there is soft tissue loss or fractures. The program maximizes the opportunity for mobilization of the extensor tendons and reduces extrinsic extensor tightness.