Carpal Tunnel Release
Endoscopic and Open Technique

Carpal Tunnel Release is performed in one of two ways. A small incision in the palm is made vertically and the Transverse carpal ligament is divided. The second technique used is endoscopic. In this case, one portal hole is made on one side of the transverse carpal ligament, which is then endoscopically divided.

**Phase 1: Early Protective Phase 0-3 weeks**

**Goals for Phase 1:**
- Immobilize and protect surgical site
- Restore full wrist and hand ROM
- Minimize risk of scar adhesions
- Pain and edema control

**Wound care**
- Light dressing applied as needed

**Edema Management**
- Light compression with compression sleeves to thumb, hand and forearm as needed after incision healed
- Elevation
- Manual Edema Mobilization (MEM)

**ROM**
AROM 4-6x/day including flexor tendon glides, isolated blocking to the FDS and FDP, thumb opposition and wrist all planes of motion

**Scar Management**
- Begin scar massage no sooner than 2 days after suture removal after scar is fully closed with no scabbing present. Begin with light massage using lotion.
- Educate patient in scar management
- Apply scar remodeling products as needed

**Manual Therapy**
- Desensitization – begin with light pressure and soft fabrics and progress to deeper pressure and coarse textures
- Median nerve glides

**Modalities**
- Ultrasound for scar management
- Heat modalities to progress ROM

**Other considerations**
Pillar pain along the thenar or hypothenar area may be present during initial 3 months following surgery. Gripping, and firm pressure along the palm can cause pain. As post operative edema subsides, typically pillar pain will also subside.
Phase 2: Intermediate / Late Phase 3+ weeks

Goals for phase 2:
- Initiate progressive strengthening
- Develop home exercise program
- Educate patient to prevent recurrence of symptoms
- Gradually return to full functional use of involved arm

ROM
- Continue phase 1 ROM exercises until WNL
- Gentle intrinsic stretching as needed
- Median nerve glides as needed

Manual Therapy
- Continue scar management techniques
- Continue desensitization as needed
- Median nerve glides

Strengthening
- Initiate strengthening initiated with foam blocks or putty no more than 5 minute sessions 3-5x/day. Educate patient in slow, sub-maximal pain-free gripping and pinching exercises.
- 4-6 Weeks –
  - If strength is severely limited and/or patient requires significant strength in their job, progress to stronger putty or an exerciser with extra padding to avoid discomfort.
  - Initiate forearm and wrist isotonic strengthening
  - Postural strengthening

Other considerations
- Strengthening is not initiated if significant pain or moderate amounts of edema persist.
- Educate patient in reducing risk of recurrence.

Ways to reduce chance of recurrence:
- avoid repetitive use of wrist
- avoid using high-frequency vibration tools
- ergonomic education and workplace modification
- AE training such as anti-vibration gloves may be necessary
- frequent stretching and breaking up repetitive tasks

Modalities
- Continue with ultrasound for scar management and heat modalities to progress ROM if it has not progressed to WNL for patient

Functional Activity
- 6 weeks -- Patient education completed to reduce chance of recurrence of symptoms. Education on proper body mechanics and ergonomics should be vended to patient.
- 8 weeks – gradually return to functional use of the involved hand for higher level work and home management tasks.
- 10 weeks – patient may return to unrestricted use of the hand with MD permission.

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

References: