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## TIBIAL TUBERCLE TRANSFER PATELLAR REALIGNMENT PROTOCOL (Dr. Nawab)

### GENERAL GUIDELINES:

- TTWB with crutches in the brace for 6 weeks.
- ROM restricted to 0° for first 7-10 days and then limited to 30° up until 4 weeks postop.
- Limited ROM brace should be locked at 0° for first 2 weeks and then unlocked to 30° as tolerated for ambulation and ADL's once adequate Quad control is established.
- Sleep with the brace locked at 0° for immobilization unless otherwise instructed by M.D.
- Keep the entire leg elevated. Do not place pillows under the knee for long periods of time.
- Utilize cryotherapy for 20 to 30 minutes every hour for pain and swelling reduction.
- Keep incisions dry for 5 days but may shower anytime postoperatively.
- Avoid pull on Tibial Tubercle for 6 weeks.

### WEEKS 0-4

- Restore superior and medial patellar mobility.
- Restore FULL knee extension within 2 weeks (low load-long duration stretching).
- Hamstring, gastrocnemius, and ITB stretching.
- Ankle ROM/strengthening for swelling and DVT prevention.
- NO ROM for 2 weeks and then limited ROM to 0°-30° from weeks 2-4.
- Modalities as needed for pain and swelling.
- NMES for Quadriceps activation and re-education.
- 3-way (ABD/EXT/ADD) open chain straight leg exercises once pain is under control and adequate QUAD control established.
- *Focus on knee remaining locked in concentric and eccentric phase of leg lifts. Increase reps and hold time initially, before adding resistance. No ankle weight until extensor lag is eliminated.*

### WEEKS 4-6

- Increase ROM as tolerated (goal of 0°-110°)
- Continue to increase hip resistance during ABD/ADD/EXT open chain exercises as tolerated.

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- May start light aquatic exercises once good Quadriceps control is established.
- Soft tissue mobilizations as needed for scar and myofascial restrictions.
- Isometric hamstring strengthening on a ball progressing to AROM as tolerated.
- Initiate stationary bike for range of motion without resistance.

### **WEEKS 6-12**

- ROM to WNL's as tolerated.
- SLR into flexion at 6 weeks once patient can perform without an extension lag. (Isometrics until the patient is able to do this).
- Calf raises once full weight bearing
- PF brace if needed until adequate VMO return to eliminate PF pain and maltracking.
- Increase resistance with all exercises as tolerated.
- Hamstring curls to 90° with resistance as tolerated.
- Increase leg strength, allow for normal gait and walking longer distances.
- Start closed chain exercises as tolerated in a protected range. (Mini-squats, proprioceptive retraining, BAPS board)
- Leg press (0°-60°) with light resistance and high repetitions. (10-12 weeks postop)
- Increase resistance with stationary bike for strength and endurance training.
- Edema control.

### **MONTHS 3-6**

- Low impact weight program increasing intensity of strength and functional training for a gradual return to normal activities.
- Elliptical trainer.
- Core strengthening.
- Regain Quad/hamstring girth and tone.

### **MONTHS 6-9**

- Sport specific training (if applicable).