

## **Tibial Tubercle Osteotomy (Elmslie-Trillat) Postop Rehabilitation Program**

### **Includes Treatment For**

- TTO/Elmslie-Trillat Procedure
- Extensor Mechanism Realignment with MPFL Reconstruction

### **General Considerations:**

- Patients are TDWB with use of crutches and immobilizer (blocked at 0°) postoperatively for 4 weeks
- Important not to push for flexion past 90° for 4 weeks postop to protect repair
- Avoid active knee extension until weeks 4-6
- Regular manual and self-mobilization of the patella (superior and inferior only), patellar tendon, and portals should be performed to prevent fibrosis, improve range of motion, and functional mobility
- Regular attention to proper VMO recruitment and patellofemoral mechanics will optimize outcome
- Return to sports and activities is dependent on passing a functional sports test

### **Phase I (Day 1 to 4 weeks)**

- Goals: TDWB to protect osteotomy, restore ROM from 0° to 90~ no active knee extension until weeks 4-6, knee immobilizer worn for 4 weeks, ensure wound healing and decrease swelling
- MD office visit at 1 day and 1 week postop
- Initiate gentle ROM immediately within ROM restrictions and pain tolerance
- Pain and edema control
- Exercises should focus on submaximal muscle setting, multi-plane leg raises (avoiding hip flexion until no extension lag), and ROM:
  - o Heel/wall slides to 90°, Stretching ( calf, hamstrings and lateral musculature), submaximal muscle setting (quad, adductors, hamstrings, and glute), multi-plane SLR (avoiding hip flexion until no extension lag), electrical stimulation for quadriceps recruitment, well leg cycling, upper extremity and trunk exercises
- Patellar, suprapatellar pouch, and scar mobilization regularly

### **Phase II (Weeks 4 to 8)**

- Goals: FWB by week 8, wean from immobilizer when able to demonstrate quadriceps control, restore flexion, ROM to I 25~ begin active knee extension
- MD visit at 1 month postop
- Wean from immobilizer first with sleeping, then around the house
- Begin WBAT with crutches, slowly wean from crutches when able to demonstrate good knee control
- Exercises to focus on:
  - o Weight shifting, short-arc knee bends, step-ups, begin eccentric exercises, isotonic hip and leg exercises with no quad lag, continue to increase exercise intensity and resistance of other exercises

**Phase III (Weeks 8 to 12)**

- Goals: Protect repair, restore full ROM, continue pain and edema control
- More aggressive passive flexion stretching to increase range of motion
- Add lateral exercises (i.e., lateral stepping, lateral step-ups, etc.)
- Continue all exercises with emphasis on closed chain, functional, and proprioceptive program
- Initiate two-legged stationary bicycling
- Stair machine and Nordic Track in brace for cardiovascular

**Phase IV (Weeks 12 to 16)**

- Goals: increase strength, power and cardiovascular conditioning
- Sport-specific exercises and training program
- Maximum eccentric-focused strengthening program
- Increase resistance of cycling, stair machine, and pool programs

**Phase V (Weeks 16 to 6 months)**

- Goals: develop maximum strength, power, and advance sport-specific activities
- Resisted closed chain rehabilitation through multiple ranges
- Begin light running program as able to demonstrate good strength and mechanics

**Phase VI (6 months+)**

- Running program, intensive balance drills, and agility program
- Initiate plyometric training as able to demonstrate adequate strength and proper mechanics
- Return dependent on passing functional sports assessment and when cleared by surgeon