



## **Tibial Tubercle Osteotomy Rehabilitation Guidelines**

### ***General Guidelines***

- No closed kinetic chain exercises for 6 weeks
- Supervised physical therapy takes place for 3 to 6 months post-operatively

### ***General Progression of Activities of Daily Living***

Patients may begin the following activities at the dates indicated

- Bathing and showering after suture removal
- Sleep with brace locked in extension for 4 weeks
- Driving at 6 weeks post-op
- Brace locked in extension for 6 weeks for ambulation
- Use of crutches continued for 6 weeks post-op

### ***Rehabilitation Progression***

The following is a general guideline for progression of the rehabilitation program following patellar realignment. Progression through each phase should take into consideration patient status (e.g. healing, function) and physician advisement. Please consult the physician if there is any uncertainty regarding advancement of a patient to the next phase of rehabilitation.

## **Phase 1 (0-6 Weeks)**

### ***Goals***

- Protect fixation and surrounding soft tissue
- Control inflammatory process
- Regain active quadriceps and VMO control
- Minimize the effects of immobilization through CPM and heel slides in the allowed ROM (90°)
- Full knee extension
- Patient education regarding rehabilitation process

### ***ROM:***

0-90 degrees

### ***Brace/Weightbearing Status:***

- Brace locked in full extension for all activities except therapeutic exercise and CPM use
- Toe touch weightbearing with two crutches

***Therapeutic Exercises:***

- Quad sets and isometric adduction with biofeedback for VMO
- Heel slides (0-90 degrees)
- CPM when indicated for 2 hours, twice daily, 0-90 degrees
- Non-weightbearing gastrocnemius/soleus, hamstring stretches
- SLR in four planes with brace locked in full extension
- Resisted ankle ROM with theraband
- Patellar mobilization
- Begin aquatics (where available) at 3-4 weeks with emphasis on gait

***Criteria to advance to Phase 2:***

Good quad set, approximately 90 degrees of flexion, no signs of active inflammation

**Phase 2 (6-8 weeks)**

***Goals:***

- Increase range of flexion
- Avoid overstressing fixation
- Increase quadriceps and VMO control for restoration of proper patellar tracking

***Brace:***

Discontinue use for sleeping, unlock for ambulation

***Weightbearing Status:***

As tolerated with unlocked brace

***Therapeutic Exercise:***

- Continue exercises noted above in Phase 1, progress toward full flexion with heel slides
- Progress towards weight bearing gastrocnemius/soleus stretching
- Discontinue CPM if in use
- Begin aquatic therapy, emphasis on normalization of gait
- Balance exercises
- Remove brace for SLR
- Stationary bike, low resistance, high seat
- Short arc quadriceps exercises in pain free ranges
- Wall slides progressing to mini squats, 0-45 degrees of flexion

***Criteria to advance to Phase 3:***

Good quadriceps tone and no extension lag with SLR, Non-antalgic gait pattern, good dynamic patellar control with no evidence of lateral tracking or instability

### **Phase 3 (8 weeks – 4 months)**

#### ***Weightbearing Status/Brace:***

Discontinue brace, weightbearing as tolerate

#### ***Therapeutic Exercise:***

- Step-ups, begin at 2” and progress towards 8”
- Stationary bike, add moderate resistance
- Four way hip for flexion, adduction, abduction, extension
- Leg press 0-45 degrees of flexion
- Closed Kinetic chain terminal knee extension with resistive tubing or weight machine
- Swimming, Stairmaster for endurance
- Toe raises
- Hamstring curls
- Treadmill walking
- Continue proprioception exercises

#### ***Criteria to advance to Phase 4:***

- Good to normal quadriceps strength,
- No evidence of patellar instability,
- No soft tissues complaints,
- Normal gait pattern,
- Clearance from physician to begin more concentrated closed chain exercises and resume full or partial activity

### **Phase 4 (4-6 months)**

#### ***Goals:***

- Continue improvements in quadriceps strength
- Improve functional strength and proprioception
- Return to appropriate activity level

#### ***Therapeutic Exercise:***

- Progression of closed chain kinetic activities
- Jogging in pool progressing to land
- Functional progression, sport-specific activities or work hardening as appropriate