

**COMPREHENSIVE PHYSICAL THERAPY**

Melinda Amato OTR/L, CHT  
Brandon Heyda OTR/CHT

Raymond Ryan PT/Director  
Valerie Peckingham PT  
Isabella Mesturini PT, DPT

Peter Ives PTA  
Kirsten Perillo PTA

## Megan R. Wolf, MD

### Sports Medicine/Foot & Ankle

## Tibial Tubercle Osteotomy/Transfer (TTO)

### Post-Operative Protocol

#### Phase I – Maximum Protection

##### 0 to 2 weeks:

- Brace - locked in full extension for 6 weeks
- Non-weightbearing for 4 to 6 weeks (per physician's instructions)

##### Manual therapy

- Ice and modalities to reduce pain and inflammation
- Gentle patella mobilizations

##### Exercise progression

- Range of motion: 0 to 45 degrees knee flexion
- Begin submaximal quadriceps setting

##### Weeks 2 to 4:

##### Exercise progression

- Range of motion: 0 to 60 degrees
- Continue with submaximal quadriceps setting
- Isometric hamstring/groin exercises

##### Weeks 4 to 6:

- Progressive weight bearing (per physician's instructions)

##### Exercise progression

- Range of motion: 0 to 90 degrees (by week 6)
- Begin straight leg raises

#### Phase II – Progressive Range of Motion and Early Strengthening

##### Weeks 6 to 8:

- Full weight bearing
- Brace
  - Week 6: open to 45 to 60 degrees of flexion
  - Week 7: open to 90 degrees of flexion

##### Goals

- Continue with swelling control and patella mobility

##### Exercise progression

- Gradually progress to full range of motion
- Normalize gait pattern
- Multi-plane straight leg raising and closed kinetic chain strengthening program
- Gradual bilateral closed chain progression
- Gradual step up progression
- Begin stationary bike
- Initiate shallow and deep water pool program

##### Weeks 8 to 10:

- Wean out of brace

##### Exercise progression

- Normalize gait pattern
- Restore full range of motion
- Add light gym strengthening (leg press and hamstring curls)

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## Tibial Tubercle Osteotomy/Transfer (TTO) Post-Operative Protocol

### Weeks 10 to 12:

#### Exercise progression

- Full range of motion
- Terminal quadriceps stretching
- Advance closed chain and gym strengthening program
- Add treadmill walking and elliptical trainer

### Phase III – Progressive Strengthening

#### Weeks 12 to 16:

#### Exercise progression

- Full range of motion
- Advance closed chain and gym strengthening
- Increase intensity on bike, treadmill, and elliptical trainer
- Initiate shallow water pool running program

### Phase IV – Advanced Strengthening and Functional Drills

#### Weeks 16 to 20:

- **Patients may advance to impact activity after consulting with physician and therapist about the long-term strategy for maintaining optimal knee health. In many instances advancing to impact activity may not be appropriate.**

#### Exercise progression

- Begin linear land based running program
- Advance to lateral and rotational drills as tolerated

### Phase V – Plyometric Drills and Return to Sport

#### Weeks 20 to 24:

#### Exercise progression

- Advance gym strengthening
- Progress running/sprinting program
- Begin multi-directional field/court drills
- Begin bilateral progressing to unilateral plyometric drills

#### Sports test and follow-up with physician

- Follow-up appointment with physician
- Sports test for return to competition **6 months post-op** (per physician's release)

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