



Austin Cole, MD

MPFL Reconstruction with Tibial Tubercle Osteotomy

Post-Operative Protocol

Phase I – Maximum Protection

Weeks 0 to 2:

- Brace – locked in full extension during all ambulation and partial weight bearing (25-50%) with two axillary crutches. Brace locked during sleep.
- Can unlock brace to allow for 0-30 degrees for unloaded range of motion only.
- Limit knee flexion to 0-30 degrees for 2 weeks.

Goals

- Reduce inflammation
- Normalize superior/inferior patella mobility with manual mobilizations
 - Avoid lateral patellar glides
- Full extension
- Passive/active ROM with 30 degree flexion limit

Exercise progression

- Quadriceps setting using NMES as needed
- Multi plane straight leg raising/ open chain hip strengthening
- Gait training

Weeks 2 to 4:

- Brace- locked in full extension during all ambulation and PWB (25-50%) with two axillary crutches
- Progress ROM to 0-60 degrees

Goals

- Reduce inflammation

Exercise progression

- Full knee extension/hyperextension

Weeks 4 to 6:

- Brace- locked in full extension during ambulation (and sleep) and WBAT
- Progress ROM to 0-90 degrees
- Gradual progression with WB from two crutches to no assistive device

Phase II – Progressive Range of Motion and Early Strengthening

Weeks 6 to 8:

- Discontinue Brace
- Progress to full ROM as tolerated
- Initiate bike with light resistance
- Initiate loaded flexion 0-90 degrees

Goals

- Full knee extension/hyperextension
- Progress to full knee flexion ROM
- Normalize gait mechanics
- Normalize patellofemoral joint and scar mobility

Exercise progression

- Multi-plane open and closed kinetic chain hip strengthening
- Step-up progression, mini squats
- Stationary biking and treadmill/outdoor walking
- Deep water pool program when incisions healed. Focus on range of motion
- Proprioception drills

Phase III – Advanced Strengthening and Endurance Training

Weeks 8 to 10:

- Full ROM

Goals

- Reduce inflammation
- Full range of motion
- Normal gait

Exercise progression

- Progress squat/leg press
- Increase intensity of stationary bike program. May add elevation to treadmill walking and elliptical
- Advance intensity of deep water pool program; focus on endurance training

Weeks 10 to 12:

Exercise progression

- Squat progression: progress as tolerated with focus on swelling and pain
- Controlled movement series
- Focus on increased lower extremity flexibility

Phase IV – Advance Strengthening and Running Progression

Weeks 12 to 14:

- Administer Preliminary functional test for physician to review
- Initiate straight line jogging at 12 weeks if proper biomechanics are demonstrated

Exercise progression

- Basic ladder series
- Lateral lunge progression
- Linear jogging progression
- Basic plyometric box progression

Weeks 14 to 20:

- Advance ladder, hurdle, and plyometrics
- Sport specific field/court drills
- Criteria to progress to Phase V- pass functional test at >90% (involved versus uninvolved limb)
- Perform functional testing at 16 weeks.
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Phase V- Return to Sport

Weeks 20 to 24:

- Return to Sport and Functional Drills Phase
- Follow-up examination with the physician
- Sports test for return to competition at 6 months

Exercise progression

- Advance ladder, hurdle and plyometrics
- Sport specific field/court drills
- Non-contact drills
- Criteria to be released to return to sport- f/u exam with physician, pass functional test, and display confidence in high speed cutting, multi plane plyometric drills, sprinting, and decelerating.