

Postoperative Rehabilitation Protocol for  
**MPFL Reconstruction with Tibial Tubercle Osteotomy (TTO) and/or**  
**Trochleoplasty**

*\*Physical Therapy should be started within a week after surgery*

Postoperative weeks 0-6

- Precautions / Restrictions
  - Weight bearing
    - 0-6 weeks: 50% weight bearing. Avoid full weight bearing for first 6 weeks
  - Brace:
    - 0-2 weeks: 0-70 degrees
    - 2-4 weeks: 0-90 degrees
    - Unlock brace after week 4
      - Leave brace unlocked at all times following nerve block resolution
      - Brace may be removed while sleeping, for hygiene and therapy
      - Avoid ambulation without brace for first 6 weeks
  - Avoid lateralization of patella
- Range of Motion
  - AAROM and PROM with flexion and extension
  - ROM criteria as above (under brace settings)
- Strengthening
  - Restore quadriceps recruitment
  - Hip progressive resistive exercises: pain-free SLR with brace if lag is present
  - Ankle pumps
  - Quad sets (consider NMES for poor quad sets), Glute sets
  - SLR – 4 way
  - Hamstring activation – heel slides, hamstring sets, bridges
- Modalities PRN

Postoperative weeks 7-10

- Precautions / Restrictions
  - Be aware of concomitant procedures and restrictions they pose to rehabilitation (ie. Tibial tubercle osteotomy or articular cartilage procedure)
  - Avoid lateralization of patella
  - Normalize gait pattern with fully extended knee in effort to fight quadriceps avoidance
- Range of Motion
  - Knee extension: full PROM and AAROM to full knee extension
  - Limit ROM 0-110 degrees (until 8 weeks)
  - ROM 0-120 degrees by 10 weeks
  - ROM 0 to full flexion by 10+ weeks
- Strengthening
  - Progress quadriceps strengthening

- Advance proximal strength and core training
- Initiate balance and proprioceptive training
- Suggested exercises
  - Continue phase 1 exercises as appropriate
  - Gait training: heel toe gait pattern [with adequate quad control (SLR without a lag, ability to achieve terminal knee extension) and knee ROM] to ensure normal loading response
  - Underwater treadmill (adequate wound healing) or anti-gravity treadmill for gait: Low grade elevation or retro-walking
  - Progress pain-free arc of motion, close chain preferred
  - Submaximal multi angle isometrics
  - Leg press: monitor arc of motion (bilateral, eccentric)
  - Initiate forward step up (FSU) progression, 6" step with adequate strength
  - Stationary Bike – progress seat height and resistance as tolerated
  - Hip extension with knee flexion, side planks, bridge
  - Balance and proprioceptive training: double limb support on progressively challenging surfaces to single limb support on level surface only with demonstration of good alignment, stability, and control
- Modalities PRN

#### Postoperative weeks 11-18+

- Precautions
  - Avoid symptom provocation
  - Correct any gait deviations in ROM or patellar tracking
- Maintain full ROM
- Strengthening
  - Advance proximal strength through functional activities
  - Balance progression with postural alignment and N-M control
- Suggested Exercises
  - Balance progression with postural alignment and N-M control (static to dynamic, introduce different planes of motion, challenging surfaces)
  - Address muscle imbalances
  - Promote cross training: elliptical, stationary bike, swimming
  - Initiate running progression (late phase)
  - Initiate bilateral leg plyometric program with MD clearance and evidence of good eccentric quadriceps control

#### Postoperative weeks 19-24 (Advanced Strengthening and Function)

- Goals
  - If isokinetic testing available, aim for 85% limb symmetry index (LSI) at 180° / sec and 300° / sec
  - Cardiovascular fitness to meet demands of sport
- Precautions
  - Pain with therapeutic exercise & functional activities
  - Inadequate strength, functional strength, ROM, flexibility, fitness when returning to sport
- Maintain full ROM
- Strengthening – continue to advance LE strengthening, flexibility, dynamic single limb stability & agility programs
- Suggested Exercises
  - Continue to advance LE strengthening, flexibility, dynamic single limb stability & agility programs

- Address muscle imbalances – evaluation-based
- Advance core stability
- Continue cross training
- Advance plyometric program with MD clearance and evidence of good eccentric quadriceps control
- Vertical jumping progression: Jump down
- Horizontal jumping progression: Broad jump, single leg landings
- Progress running program
- Cutting, deceleration, change of direction with MD clearance and dynamic single limb stability

Criteria for Discharge / Return to Sport:

- If available - Isokinetic test at 180°/ sec and 300°/ sec: 85% limb symmetry index (LSI)
- Demonstrate symmetry, quality, and alignment during selected movement patterns
- Medical clearance by surgeon for return to play progression
- Lack of apprehension with sport specific movements
- Hop Test > 85% limb symmetry
- Demonstrate quality of movement with required sports specific activities