

Medial Patellofemoral Ligament (MPFL) Reconstruction with Tibial Tubercle Osteotomy (TTO)

Phase 1 – Maximum Protection

Weeks 0 to 2

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

Goals:

- Reduce pain and inflammation
- Protect the surgical repair
- Full knee extension

Exercise Progression:

- Quadriceps setting, emphasize VMO, use NMES as needed
- Emphasize patellofemoral mobilizations
- Passive/active knee range of motion with 30 degrees flexion limit
- Multi-plane straight leg raising
- Open chain hip strengthening
- Gait training

Weeks 2 to 4

- Brace – locked in full extension during all ambulation and partial weight bearing (25-50%) with two axillary crutches
- Progress ROM as tolerated to 0-60 degrees

Goals:

- Reduce pain and inflammation
- Protect the surgical repair
- Maintain full of knee extension

Weeks 4 to 6

- Brace – locked in full extension during all ambulation and weight bear as tolerated (WBAT) pending MD approval for weight bearing after imaging
 - Gradual progression of weight bearing from two crutches to one crutch to no assistive device
- Progress ROM as tolerated to 0-90 degrees

Goals:

- Reduce pain and inflammation
- Maintain full knee extension

Phase 2 – Progressive Stretching 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
- Progress to full knee flexion ROM
- No swelling
- Normal gait pattern

Exercise Progression:

- Continue to emphasize patella mobility
- Gait training – normalize gait pattern
- Proprioception drills
- Begin unilateral closed kinetic chain program
- Step-up progression

Phase 3 – Advanced Strengthening and Endurance Training

Weeks 8 to 10

Goals:

- Full knee range of motion

Exercise Progression:

- Advance stationary bike program (increase intensity)
- Introduce treadmill walking and elliptical trainer
- Gym strengthening progression

Weeks 10 to 12

Exercise Progression:

- Lunge progression (retro, walk, and split) as indicated
- Swimming freestyle
- Gym strengthening progression

Phase 4 – Advanced 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 training in preparation for functional testing
- Progress plyometric training from double leg to single leg activities

Criteria to progress to Phase 5

- Perform test at 18-20 weeks
- Pass Return to Sport test at >90% (involved vs uninvolved limb)

Phase 5 – Return to Sport

Weeks 20-24

Exercise Progression:

- Advance ladder, hurdle, and plyometrics
- Sport specific field/court drills
- Non-contact drills

Criteria for return to play:

- Follow-up examination with the physician
- Pass return to sport function test at >90% (involved vs uninvolved limb)
- Display symmetry and confidence in high-speed cutting, multi-plane plyometric drills, sprinting, and decelerating

Anticipated return to sport:

- 5-6 months for contact and non-contact athletes



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