

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

Phase I - Maximum Protection

Weeks 0-2

- Brace- locked in full extension during all ambulation and PWB (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 initial 2 weeks

Goals

- Reduce inflammation and pain
- 0 degrees of knee extension

Exercise progression

- Quadriceps setting, emphasize VMO, use NMES as needed
- Emphasize patellofemoral mobilizations
- Passive/active knee range of motion with 30° 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 PWB (25-50%) with two axillary crutches
- Progress ROM as tolerated to 0-60 degrees

Goals

- Reduce inflammation and pain
- Maintain 0° of knee extension

Weeks 4 to 6:

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

Goals

- Reduce inflammation and pain
- Maintain 0° of knee extension

Phase II- 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/hyperextension
- Progress to full knee flexion ROM
- No swelling
- Normal gait pattern

Exercise progression

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

Phase III- Advanced Strengthening and Endurance Training

Weeks 8 to 10:

Goals

- Full knee range of motion

Exercise progression

- Advance stationary biking 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 IV- 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 V

- Pass Return to Sport test at >90% (involved vs. uninvolved limb)
 - See testing protocol- perform at 16-20 weeks

Phase V- Return to Sport

Weeks 20 to 24:

Exercise progression

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

Criteria to be released for return to sport

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