Connecticut Orthopaedics

Megan R. Wolf, MD
Sports Medicine/Foot & Ankle

MPFL Reconstruction
With Tibial Tubercle Osteotomy/Transfer (TTO)
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
  - 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
  - Full extension
  - Passive/active ROM with 30 degree flexion limit

  Exercise progression
  - Quadriceps setting, emphasize VMO, using NMES as needed
  - Emphasize patellofemoral mobilizations
  - Passive/active knee range of motion with 30 degree 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 to 0-60 degrees

  Goals
  - Reduce inflammation
  - Maintain full knee extension

  Exercise progression
  - Full knee extension/hyperextension

Weeks 4 to 6:

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

  Goals
  - Reduce inflammation and pain
  - Maintain full knee extension

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
  - No swelling
  - Normalize gait mechanics
  - Normalize patellofemoral joint and scar mobility

Exercise progression
- Continue to emphasize patella mobility
- Gait training—normalize gait pattern
- Proprioception drills
- Begin unilateral closed kinetic chain program
- Multi-plane open and closed kinetic chain hip strengthening
- Step-up progression
- Stationary biking and treadmill/outdoor walking
- Deep water pool program when incisions healed. Focus on range of motion

Phase III – Advanced Strengthening and Endurance Training

Weeks 8 to 10:

- Full ROM

Goals
- Reduce inflammation
- Full range of motion
- Normal gait

Exercise progression
- Advance stationary biking program (increase intensity)
- Introduce treadmill walking and elliptical trainer
- Gym strengthening progression
- Begin closed chain squat progression (mini-squat, etc)
- 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
- Lunge progression (retro, walk, and split) as indicated
- Swimming freestyle
- Controlled movement series
- Focus on increased lower extremity flexibility
- Gym strengthening progression

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 training in preparation for functional testing
- Progress plyometric training from double to single leg activities
- Advance ladder, hurdle, and plyometrics
- Sport specific field/court drills

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

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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

Criterial 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

Revised ***