



OVERVIEW

- Focus on protection of graft and fixation in primary phases (Weeks 0 -12)
- For MPFL reconstruction with TTO, please use **MPFL + TTO** rehab protocol.
- Supervised Physical Therapy for 4-6 months
- TROM Brace for 4-6 weeks, WBAT in brace (with crutches early on)
- Early motion and quad control
- Begin passive ROM + resisted closed chain early on to restore motion + quad control

GENERAL GUIDELINES

- Ok to shower on post-op day 3. **NO bathing/soaking knee** x 3 weeks
- Sleep with brace locked in extension x 1-2 weeks
- **Brace guidelines:** Locked in full extension for 1st week (when walking and during sleep). As quad function improves, begin unlocking brace gradually from Week 2 - Week 6 (15°-20° per week, fully unlocked at week 6).
- Discontinue **TROM brace** after Week 6, Switch to **PF brace** at Month 3
- Weight-bearing as tolerated (usually off crutches by start to mid Week 2)

PHASE 1: Post-Op Through Week 6

Goals:

- Protect graft and graft fixation with use of brace and specific exercises
- Control inflammation + swelling (cryocuff and elevation for 2 weeks)
- Regain full knee extension and at least **90° of knee flexion**
- Restore normal gait on level surfaces
- **Motion Goals:** Flexion to 90° by Week 4, 110°-120° by Week 6, Full Motion by Week 8

Brace (Total Length = 6 weeks):

- **Week 1: Brace locked in full extension for ambulation and sleeping**
- **Weeks 2-4:** Unlock brace (goal of 90°) as quad function returns. OK to d/c brace when sleeping after first post-op visit (Day 10-14)
- **Week 5-6:** Unlock brace completely from Week 5 to Week 6. Wean from brace after Week 6, as patient demonstrates good quad control + normal gait mechanics

Weight-Bearing:

- *Many patients with **PF disorders** have **poor proximal control: During weight-bearing**, prevent **dynamic valgus + hip internal rotation** to avoid placing abnormal loads on graft
- **Week 1:** Partial weight-bearing with crutches to assist with balance
- **Weeks 2 - 6:** Progress to full weight-bearing with normal gait mechanics
- Wean from crutches by 2 weeks and brace by 6 weeks as patient demonstrates normal gait mechanics and good quad control (no quadriceps lag)



Exercise:

- 1) Begin **patellar mobilization** and patellar glides as soon as tolerated
 - Restore normal passive patellar mobility in all directions
- 2) Maintain **full extension** and work on flexion via passive flexion, AAROM and heel slides (limit to 90°)
 - **Goal:** 90° flexion by Week 4, 120° by Week 6, full motion by Week 8
- 3) Restore **Quadriceps Strength and Function** as pain/swelling improve:
 - E-Stim
 - Begin quad sets immediately after surgery
 - Begin light resisted quad + hamstring strengthening as pain subsides
 - SLR in all planes: Begin with brace on (in extension) until quad strength sufficient to prevent extensor lag. Add weight as tolerated to hip abduction, adduction and extension.
 - Quad isometrics at 60° and 90°
- 4) Strengthen and regain **Proximal Control**
 - Begin pre-operatively and start immediately post-op
 - NWB exercise targeting hip abductors, external rotators and extensors
 - Once patient is able to isolate muscles with NWB exercise, progress to WB strengthening as tolerated
- 5) **Gait training:**
 - Facilitate normal gait, pay particular attention to quad-avoidance gait (walking extended or hyper-extended)
 - Facilitated by decreasing pain and swelling, quad strengthening
 - If available, aquatic therapy (once sutures out) to normalize gait, WB + strength.
 - Hamstring, Gastroc/Soleus stretching

PHASE 2: Weeks 7-12

Criteria for advancing to Phase 2:

- Full Extension and Flexion to 90°
- Good quad set, SLR without extension lag
- Minimal swelling/inflammation
- Normal gait on level surfaces

Goals:

- Restore normal gait with stair climbing
- Maintain full extension, progress towards full flexion
- Increase hip, quadriceps, and calf strength
- Increase proprioception



Exercises:

- Continue with range of motion/flexibility exercises as appropriate
- Initiate CKC quad strengthening and progress as tolerated (Wall sits, Step-ups, Mini-squats, Leg press 90° – 30°, Lunges)
- Progressive hip, hamstring, calf strengthening (gradually add resistance to open chain hamstring exercises at week 12)
- Continue Hamstring, Gastroc/Soleus stretches
- Stationary Bike (progressive time and resistance)
- If available, pool-running (waist deep) or on unweighted treadmill @10-12 weeks

PHASE 3: Weeks 13 Through 18-20

Goals:

- Full range of motion
- Begin functional training
- Focus on maintaining neutral lower extremity alignment
- Emphasize postural alignment and symmetric strengthening
- Improve strength, endurance + proprioception of extremity to prepare for sports
- Normalize running mechanics
- Strength goal: 70% of uninvolved lower extremity per isokinetic evaluation

Exercises:

- Neutral lower extremity alignment – Anterior superior iliac spine and knee remain positioned over 2nd toe, with hip in neutral
- Patient should begin wearing PF brace to augment muscular control and proprioception
- Advance partial squats and incorporate BOSU ball to facilitate proximal control
- Initiate single-leg activities including single-leg squat, ball toss, etc
- Progress toward full weight-bearing running at about 16 weeks
- Begin swimming if desired
- Progressive hip, quad, hamstring, calf strengthening
- Cardiovascular/endurance training via StairMaster, elliptical, bike

PHASE 4: Month 5 Through Month 6

Goals:

- Symmetric performance of basic and sport specific agility drills
- Single hop and three hop tests 85% of uninvolved leg
- Quadriceps and hamstring strength at least 85% of uninvolved lower extremity

Exercises:

- Continue flexibility & strengthening program based on individual deficits
- Initiate plyometric program as appropriate for patient's athletic goals
- **Agility** progression including, but not limited to:



Exercises (cont):

Side steps and crossovers

Figure 8 and shuttle running, One and two leg jumping

Cutting, Acceleration/deceleration/sprints

- Continue progression of running distance based on patient needs
- Initiate sport-specific drills as appropriate for patient

Phase 5: Post-op Months 6-8 = RETURN TO SPORT