

Medial Patellofemoral Ligament Reconstruction Rehabilitation Protocol Nick Avallone, M.D.

MD visit at 7 days post-op

Physical therapy begins at 1-2 days post-op

Phase I: Weeks 0-4

Goals

- Minimize pain and knee effusion, initiate gait training — bilateral axillary crutches
- Early ROM
 - Weeks 0-2: 0-60 degrees
 - Weeks 2-4: 0-90 degrees
- Brace
 - Brace locked at 0 degrees for 2 weeks, unlocked 0-30 degrees with ambulation weeks 2-4
 - Brace locked at 0 degrees during sleep hours for two weeks, then discontinue during sleep hours upon MD clearance
- Quad sets to assist with restoration of neuromuscular control

Therapeutic exercise

- Non-weight bearing exercise
 - Quad and glute sets, heel slides
- Straight leg raises in all planes with brace locked at 0 degrees (standing and supine)
- Knee extension, clamshells and hip abduction — minimize TFL recruitment
- Self-stretch of hamstrings, gastrocnemius and soleus
- Partial squat to promote vastus medialis oblique recruitment (begin at 3-5 weeks)
- Upper extremity cardiovascular conditioning

Modalities

- Modalities as needed to minimize pain, electrical stimulation combined with exercise to promote quadriceps strength and minimize gait abnormalities
- Manual Therapy:
 - Low grade patellofemoral joint mobilization (inferior glide) for pain relief, articular nutrition and to minimize capsular/suprapatellar fat pad contracture
- Manage early effusion with cryotherapy and compression wrap as needed, electrical stimulation
- Early PROM to the operated limb (i.e. hip complex, ankle mobilization as appropriate to minimize pain, promote healthy development of periarticular tissues/cartilage, minimize scar formation and prepare for weight bearing activities within phase II)
- Assessment of lumbosacral spine/pelvis to rule out contributing factors, which may contribute to current functional limitation

Criteria to progress to phase II

- Achieve 0 degrees knee extension AROM
- 60-90 degrees knee flexion AROM by end of week 4
- Straight leg raise without extensor lag
- Minimal pain with sit to stand and functional squat within 30 degrees allowed by brace

Phase II: Weeks 4-12

Goals

- Lateral restraint brace provided by Orthopedic Surgeon, patient must demonstrate adequate quadriceps control for ambulation and to normalize/achieve reciprocal gait pattern, achieve independence with ambulation
- A/PROM progression 90-120 degrees weeks 4-6
- Progress closed kinetic chain strengthening as part of exercise regimen
- Continue to establish muscular control of quadriceps group and hip musculature (i.e. gluteus maximus, medius, minimize valgus position of knee with exercise)
- Supplement land based exercise with water walking/gait training in pool
- Protect surgical site/graft with weight bearing exercise through week 12

Therapeutic exercise

- Weight bearing exercise performed with lateral restraint bracing
- Balance/proprioception training (i.e., symmetrical stance squat) including use of balance disc, wobble board, progression from symmetrical stance to single leg balance — pain should be minimal
- Initiate low level plyometrics at 6-12 weeks
- Progress closed kinetic chain multi-planar strength training at hip complex weeks 8-12 (when quadriceps control achieved) — avoid dynamic knee valgus, transverse plane rotation through lower leg
- Initiate core training

Modalities

- Manual Therapy:
- Knee complex mobilization as needed
- Patellofemoral joint mobilization
- Soft tissue and scar mobilization PRN

Criteria to progress to phase III

- Knee complex AROM must exceed 90 degrees by week 6, if not achieved contact referring MD
- Single leg stance 30 seconds, no buckling of knee complex and minimal pain

Phase III: Weeks 12 to 16

Goals

- Patient should demonstrate full range of motion

- Provide instruction pertaining to safety with dynamic loading/jumping
- Progress with dynamic proprioception/balance weeks 8-12
- Initiate running activities week 12-16
- Begin sport specific training week 14-16 (i.e., cutting, pivoting)

Therapeutic exercise

- Weight bearing exercise performed with lateral restraint bracing
Balance/proprioception training including use of balance disc, wobble board, progression from symmetrical stance to single leg balance.
- Progress multi-planar strength training at hip complex weeks 8-12 (when quadriceps control achieved) — avoid dynamic knee valgus, transverse plane rotation through lower leg)
- Progress core stabilization

Modalities

- Manual Therapy:
- Knee complex mobilization as needed
- Patellofemoral joint mobilization as needed

Criteria to progress to phase IV

- Full knee complex range of motion
- Good dynamic control of knee position with jumping/loading
- Patient reports no pain with sport specific training or running activities

Phase IV: Weeks 16 to 24

Goals

- Return to sport or demanding physical activity week 20-24

Therapeutic exercise

- Progression of plyometrics/agility training, running activities
- Patient should continue to demonstrate control of knee position with progressive dynamic loading
- Continue with strengthening/progression of multi-planar hip strengthening and advance core stabilization

Criteria to discontinue therapy

- No pain with all activity
- Good lower extremity neuromuscular control

References of adaptation

Enderlein, D., et al. (2014). Clinical outcome after reconstruction of the medial patellofemoral ligament in patients with recurrent patella instability. *Knee Surgery Sports Traumatol Arthrosc.* (22); pp. 24582464

Fithian, D.C., Powers, C.M., & Khan, N. (2010). Rehabilitation of the knee after medial patellofemoral ligament reconstruction. *Clin Sports Med* (29); pp. 283-290.

Vitale, T.E., et al. (2016). Physical therapy intervention for medial patellofemoral ligament reconstruction after repeated lateral patellar subluxation/dislocation. *International Journal of Sports Physical Therapy*. Vol II. (3); pp. 423-435

The above protocol is intended to be utilized by the clinician as a guideline in the treatment of this disorder. It is based on current research and has been formulated as a collaborative effort between Physicians and Physical Therapists. It is not intended to serve as a substitute for sound clinical decision making. Every patient is a unique case, and it should be anticipated that not all patients will fit into the timelines set forth in this protocol. If the Physical Therapist has any questions regarding the course of treatment, the referring physician should be contacted for further guidance.