

**MEDIAL PATELLOFEMORAL LIGAMENT (MPFL) REPAIR AND RECONSTRUCTION  
REHABILITATION PROTOCOL****PHASE I (Surgery to 6 weeks after surgery)**

- **Appointments**
  - Rehabilitation appointments begin 7 to 10 days after surgery and continue once every 10 to 14 days.
- **Rehabilitation goals**
  - Protection of the post-surgical knee
  - Restore normal knee range of motion
  - Normalize gait
  - Eliminate effusion (swelling)
  - Restore leg control
- **Precautions**
  - Brace locked in extension for gait and activities of daily living.
  - Use axillary crutches for gait as needed with brace on. Weight bearing as tolerated.
  - Range of motion limitations as stated below.
- **Range of Motion Exercises**
  - 0°-90° of knee flexion for passive and active assisted range of motion.
- **Suggested Therapeutic Exercises**
  - Quadriceps sets
  - Four way leg lifts with brace on in supine for hip strengthening.
  - Ankle pumps
  - Ankle isotonic with exercise band.
- **Cardiovascular Exercises**
  - Upper body circuit training or use of an upper body ergometer.
- **Progression Criteria**
  - 6 weeks after surgery

**PHASE II (Begin after meeting Phase I criteria, usually 6 weeks after surgery)**

- **Appointments**
  - Rehabilitation appointments are 1 to 2 times per week.
- **Rehabilitation goals**
  - Single leg stand control
  - Good control and no pain with short arc functional movements, including steps and partial squats
  - Good quad control
- **Precautions**
  - Use a lateral buttress knee sleeve for all activities.

- Avoid over-stressing fixation: begin movement control and gentle strengthening with closed chain movements in a shallow arc of motion and by using un-weighting techniques (such as the pool or double leg support).
- Avoid post-activity swelling.
- **Suggested Therapeutic Exercises**
  - Gait drills (begin with pool)
  - Functional single plane closed chain movements (begin with pool)
  - Continued gradual progression of range of motion
  - Gradual progress of lower extremity strengthening with precautions to avoid dynamic valgus or medial knee displacement.
  - Balance and proprioception exercises
- **Cardiovascular Exercises**
  - Upper body circuit training or upper body ergometer.
- **Progression Criteria**
  - Normal gait on level surfaces
  - Good leg control without extensor lag, pain or apprehension
  - Single leg balance greater than 15 seconds
  - At least 12 weeks after surgery

**PHASE III** (Begin after meeting Phase II criteria, usually 12-14 weeks after surgery)

- **Appointments**
  - Rehabilitation appointments once every 1 to 2 weeks
- **Rehabilitation goals**
  - Full range of motion
  - No effusion (swelling)
  - Improve quadriceps strength
  - Improve proximal hip and core strength
  - Improve balance and proprioception
- **Precautions**
  - Avoid closed chain exercises on land past 90° of knee flexion to avoid over-stressing the repaired tissues and increased patellofemoral forces.
  - Avoid post-activity swelling
- **Suggested Therapeutic Exercises**
  - Continue range of motion exercises and stationary bike
  - Closed chain strengthening begin with single plane progress to multi-plane
  - Single leg press
  - Balance and proprioception exercises: Single leg stand, balance board
  - Hip and core strengthening
  - Stretching for patient specific muscle imbalances
  - Initiate low amplitude agility drill in the sagittal plane – avoid frontal and transverse initially because of the potential for dynamic valgus.
- **Cardiovascular Exercises**
  - Swimming with flutter kick (no breast stroke) or StairMaster

- No Running
- **Progression Criteria**
  - Full range of motion
  - No effusion (swelling)
  - No patellar apprehension
  - Single leg balance with 30° of knee flexion greater than 15 seconds.
  - Good control and no pain with squats and lunges.

**PHASE IV** (Begin after meeting Phase III criteria, usually 16 to 18 weeks after surgery)

- **Appointments**
  - Rehabilitation appointments are approximately once every 2 to 3 weeks
- **Rehabilitation goals**
  - Good eccentric and concentric multi-plane dynamic neuromuscular control (including impact) to allow for return to work/sports.
- **Precautions**
  - Post-activity soreness should resolve within 24 hours
  - Avoid post-activity swelling
- **Suggested Therapeutic Exercises**
  - Impact control exercises beginning 2 feet to 2 feet, progressing from 1 foot to the other and then 1 foot to the same foot.
  - Movement control exercises beginning with low velocity, single plane activities and progressing to higher velocity, multi-plane activities.
  - Progression to multi-planar agility drills with progressive increase in velocity and amplitude.
  - Sport/work specific balance and proprioceptive drills.
  - Hip and core strengthening.
  - Stretching for patient specific muscle imbalances
- **Cardiovascular Exercises**
  - Replicate sport or work specific energy demands.
- **Progression Criteria**
  - Return to sport/work criteria:
    - Dynamic neuromuscular control with multi-plane activities and without pain, instability or swelling.
    - Approval from the physician and/or sports rehabilitation provider.

**REFERENCES**

1. Fisher B, Nyland J, Brand E, Curtin B. Medial patellofemoral ligament reconstruction for recurrent patellar dislocation: a systematic review including rehabilitation and return-to-sports efficacy. *Arthroscopy*. 2010 Oct; 26(10): 1384 – 94.
2. Neuman DA. *Kinesiology of the Musculoskeletal System: Foundations for Physical Rehabilitation*. 1<sup>st</sup> ed. St. Louis, MO: Mosby: 2002.

3. Minkowitz R, Inzerillo C, Sherman OH. Patella Instability. *Bull NYU Hosp Jt Dis.* 2007; 65(4): 280-93.
4. E Nomura, Y. Horiuchi and M. Inoue. Correlation of MR imaging findings and open exploration of medial patellofemoral ligament injuries in acute patellar dislocations, *Knee* 9 (2002), pp. 139-143.
5. Andrish J. The Management of Recurrent Patellar Dislocation. *Ortho Clinics North Am.* 2008; 39(3): 43-55.
6. Arendt EA, Fithian DC, Cohen E. Current concepts of lateral patella dislocation. *Clinics Sports Med.* 2002; 21(3): 499-519.
7. Arendt EA, Moeller A, Agel J. Clinical outcomes of medial patellofemoral ligament repair in recurrent (chronic) lateral patella dislocations. *Knee Surg Sports Traumatol Arthrosc.* 2011 Apr 30.