

## General Rehabilitation Guidelines

### *Patellar Instability*

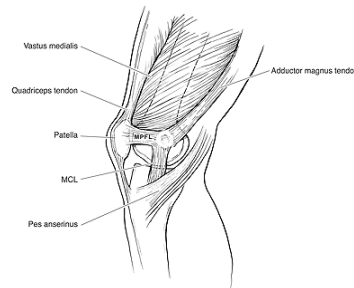
#### Protocol after **Medial Patellofemoral Ligament Reconstruction (MPFL)**

##### General Information

- MPFL reconstruction is an operation for lateral patellar instability and pain relief. These patients often have recurrent lateral patellar dislocations secondary to traumatic injuries leading to soft tissue abnormalities such as a tear or avulsion to the MPFL. Collagenous structures typically fail at a range of 20-30% of elongation which translates to be about 12-18mm of patellar lateral dislocation.
- Anatomy- There is some disagreement as to the exact attachment of the MPFL. It is generally accepted that the MPFL inserts at the superomedial patella and the undersurface of the vastus medialis. However, it has been documented that the origin of the femoral attachment is at the medial epicondyle, adductor tubercle, distal to the adductor tubercle, anterior aspect of the medial epicondyle, posterior aspect of the medial epicondyle, or the medial collateral ligament.
- The MPFL is the primary soft-tissue restraint of lateral patellar displacement providing anywhere from 50-60% of the total medial restraining force. Without the MPFL stabilizing force, patellar lateral shifting increases greatly from 20°-90° of knee flexion even with the other medial patellar stabilizing forces intact.
- The joint reaction forces of the patellofemoral joint during gait with 10-15° of knee flexion is approximately 50% of body weight. During ascent/descent of stairs with about 60° of knee flexion the force increases to about 3.3 times the body weight. With activities such as deep squatting, the joint reaction force can reach up to 7.8 times the body weight with approximately 130° of knee flexion.

##### *Rehabilitation Considerations*

- There are a variety of techniques used to reconstruct the MPFL. Some techniques involve harvesting a semitendinosis, adductor magnus, or quadriceps tendon autograft or allograft.
- A few of the initial goals of therapy is to restore full active and passive range of motion, gain strength of the quadriceps muscle, specifically the VMO, in order to reinforce normal tracking of the patella, and gait training that promotes a return to full weight-bearing. Cryotherapy and modalities are indicated for pain and edema as needed. NMES may also be utilized to promote VMO function and strength gains.
- Some patients may wear a brace that is locked at 0° anywhere from 0-6 weeks. Range of motion may also be limited to 0-30° the first 2 weeks, 0-60° from 2-4 weeks, 0-90° from 4-6 weeks, and then 6-12 weeks progress to full range of motion.



# Medial Patellofemoral Ligament Reconstruction

And/ or

## Tibial Osteotomy

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\*All restrictions and/or precautions will be set or changed by the referring surgeon based on the stability of the repair and procedure performed.

### Phase I (0-2 weeks)

#### Weight Bearing:

WBAT with brace locked at 0°

#### Range of Motion:

0-30° in brace PROM/AAROM

#### Treatment and Exercises:

Passive heel slides

Ankle theraband

Multi-angle quad sets

Straight leg raises -4 directions

Hamstring , ITB and calf stretches

NMES to quad (VMO)

Modalities for pain and swelling

Dr visit at 2 weeks (adjust protocol per doctor orders if needed)

### Phase II (2-4 weeks)

#### Weight Bearing:

WBAT with brace locked at 0°

#### Range of Motion:

0-60° PROM/AAROM

**Treatment and Exercises:**

Prone quad set

TKE

Calf raises

4 way theraband

Core and hip strength with ROM restriction

Continue NMES or modalities as needed

Phase III (4-6 weeks)
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**Weight Bearing:**

WBAT with brace locked at 0

**Range of Motion:**

0-90<sup>0</sup> PROM/AAROM

**Treatment and exercises:**

Bike for ROM without resistance (not full revolution)

Closed chain quadriceps exercises

Squats 0-45<sup>0</sup> with ball

Proprioception

Continue core and hip strengthening within ROM restrictions

Dr visit 6 weeks (adjust protocol per doctors orders if needed)

Phase IV (6-12 weeks)
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**Weight Bearing:**

FWB -wean from assistive device

**Range of Motion:**

Start Patellofemoral Stabilizer Brace

Progress to full ROM

**Treatment and Exercise:**

Progress all previous exercises protecting patellofemoral joint and with emphasis on VMO

Hamstrings (8 weeks if use of semitendinosis)

Bike with resistance

Treadmill for gait training

**Treatment and exercise:**

Return to running progression

Functional agilities

Return to sport as per doctors' orders

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