

REHAB PROTOCOL MEDIAL PATELLOFEMORAL LIGAMENT REPAIR

GENERAL PRINCIPLES / PRECAUTIONS

- Wear brace / immobilizer at all times except during bathing and physical therapy for 8 weeks. Keep brace locked in extension for the first 4 weeks. The brace should be unlocked at Week 5 and worn until post-op week 8.
- Keep incisions clean & dry until sutures are removed and incisions are healed.
- Edema / Effusion management & attaining full knee extension are top priority for proper treatment.
- Bilateral crutches should be used for ambulation for 2 weeks PWB and 4 weeks WBAT. All criteria must be met for independent ambulation without the use of assistive device.
- Knee active isotonic knee extension for at least 2 weeks.
- Track or treadmill running should not be started before 4 months post-op.
- This protocol, as well as most others, is a general guideline. Patients should not be progressed to the next phase until they demonstrate proper form with all activities and all criteria are met in the current phase.
- Properly assess the whole body and incorporate treatment for loss of mobility and stability throughout. Not doing so can prevent optimal outcomes and increase risks of future injuries.

IMMEDIATE POST-OPERATIVE PHASE (Weeks 1-2)

- **Goals:**
 - Promote healing and protect repair
 - Decrease pain / swelling / inflammation
 - Restore voluntary muscle activation
 - Decrease / minimize pain, muscle spasm and fascial binding
 - Educate in joint protection / proper ambulation.
- **Precautions**
 - Partial Weight-bearing with locked brace until Week 3
 - Avoid pivoting and twisting the knee
 - Avoid undue pain and stress to the surgical site
 - ROM
 - Week 1 = 45°
 - Week 2 = 60°
- **Treatment (Days 1-7)**
 - Gastroc towel stretch
 - Quad sets using NMES
 - SLR flexion with locked knee brace
 - 3-way SLR (abduction/adduction/extension)
 - Supine and/or seated heel slides
 - Week 1 ROM = 45 degrees
- **Treatment (Days 8 – 14)**
 - Continue all previous exercises
 - Week 2 ROM = 60°
 - Double Leg Bridge w/ Swiss ball or peanut

EARLY REHABILITATION PHASE (Weeks 3-4)

- **Criteria to Enter Phase**
 - Full passive knee extension
 - Appropriate quadriceps control (no extensor lag with SLR flexion)
 - Knee flexion to 60°
 - Minimal joint effusion and pain
 - Independent ambulation with crutches and locked brace
- **Goals:**
 - Gradually improve knee flexion ROM
 - Diminish swelling and pain
 - Improve muscle control and activation
 - Normalize superior and inferior patella mobility
- **Precautions**
 - WBAT ambulation utilizing bilateral axillary crutches and locked knee brace until Week 4
 - Avoid active isotonic knee extension
 - ROM:
 - Week 3 = 75°
 - Week 4 = 90°
- **Treatment (Days 15-21)**
 - Continue all previous exercises for strength and mobility/flexibility
 - Seated Stepper (limited ROM)
 - Patellar mobilization (Superior and Inferior patella mobilization)
 - Double leg proprioception activities
 - Well leg exercises
 - Continue ice and muscle stimulation as needed.
- **Treatment (Days 22-28)**
 - Continue all previous exercises
 - Seated and Standing calf raises
 - Pool walking program (if incisions are closed and well-healed)
 - Continue pain modalities as needed

INTERMEDIATE PHASE (Weeks 5-10)

- **Criteria to Enter Phase**
 - Active Range of Motion 90° or greater
 - Minimal to no full joint effusion
 - Minimal / no joint line or patellofemoral pain
 - Active quadriceps contraction without extensor lag
 - Heel to toe gait pattern with locked knee brace
- **Goals:**
 - Restore full knee range of motion
 - Improve lower extremity strength
 - Enhance proprioception, balance, and neuromuscular control
 - Improve muscular endurance
 - Restore limb confidence and function

- **Precautions**
 - Avoid pivoting or twisting the knee
 - Avoid multi-planar movements
 - Avoid closed-chain movements with deep knee flexion angles over 90 degrees
 - Wear the post-operative knee brace during all functional activities until Week 8
 - ROM:
 - Week 5 = 105°
 - Week 6 = 115°
 - Week 8 = 125°
 - Week 10 = 135°
- **Treatment (Week 5-7)**
 - Initiate:
 - Upright Stationary bicycle (if ROM allows)
 - Prone planks
 - Leg Press (0-100°)
 - ¼- ½ squats
 - Forward and lateral cone step-over
 - Forward Step-up (4-6" step)
 - Non-resisted to resisted sidestepping
 - Single Leg proprioception drills
 - Pool Program (progress hip and leg exercises, deep water jogging)
- **Treatment (Week 8-9)**
 - Continue all relevant strengthening and stretching
 - Initiate:
 - Eccentric single leg calf raises (for running)
 - Shuttle plyometric jumps
- **Treatment (Week 10)**
 - Continue all relevant strengthening and stretching
 - Initiate:
 - Stairstepper
 - Light plyometric drills (i.e., jump rope)

ADVANCED ACTIVITY PHASE (Week 11-16)

- **Criteria to Enter Phase**
 - ROM 125° or greater
 - No pain with ADL performance
 - Adequate quadriceps strength (4/5) without pain with testing
 - Normalized gait pattern with unlocked brace
- **Precautions**
 - Closed-chain movement with deep knee flexion angles past 90 degrees
 - Post-exercise swelling and pain
- **Goals:**
 - Normalize joint ROM and muscle performance
 - Enhance muscular power and endurance
 - Improve proprioception and neuromuscular control
 - Initiate sport-specific drills

- **Treatment**

- Continue all relevant / previous treatment
- Initiate:
 - Elliptical and incline treadmill
 - Multi-directional CKC exercises
 - Isokinetic hamstring and quadriceps strengthening with machines
 - Agility ladder drills
 - Medicine ball tosses

RETURN TO ACTIVITY PHASE (Weeks 16-22)

- **Criteria to Enter Phase / Interval Running**

- Quadriceps torque / body weight ratio (55% or greater)
- Hamstrings / Quadriceps ratio (70% or greater)
- Able to perform quality single leg squat to 45°
- Able to perform 70% maximum contralateral leg press
- Able to perform brisk walk for 20 minutes
- Able to perform reciprocal bounding for 50 feet with good form

- **Goals:**

- Gradual return to full-unrestricted sports
- Achieve maximal strength and endurance
- Normalize neuromuscular control
- Progress skill training

- **Precautions**

- Pain-free activity and avoid post-exercise joint effusion

- **Treatment**

- Continue all previous relevant exercises
- Initiate:
 - Interval running program
 - Progressive multi-directional agility drills
 - Circuit training / HIIT
 - Sport-specific training programs

DISCHARGE TESTING / PLANNING (usually performed at 6-8 months)

- Based on a patient's age, gender, and level that they are returning to (i.e. recreational, amateur, professional) a decision is made to endorse their return to sport/ higher level activity or to ask the patient to refrain from doing so. Currently our criterion includes, but is not always limited to the following.
 - Demonstrate quality and symmetrical movement throughout the body evaluated with comprehensive movement screen or assessment process.
 - Symmetrical and acceptable comprehensive scores on CKC LE testing
 - At least 90% symmetry when comparing right to left side per isokinetic test for the hamstrings and quadriceps
- Biomechanical assessment of their performance helps safe return to sport / higher level activity. Patient's may be videoed and analyzed doing activities such as running, jumping, hitting or throwing to see if sound body mechanics are being utilized.
- Not all patients who have undergone MPFL repair are candidates for functional testing. Those undergoing these tests should be chosen with proper consideration given to what they plan to return to and their general fitness level.
- No matter how well a patient is doing with return to sport testing it is prudent to remember how important time is to full healing and safe return to sport / activity.
- Often times, patients are scheduled periodically during the phase in which they are trying to return to sport / higher level activities to assess their progress and properly change their program until they are deemed safe to return to all activities
- Patients should schedule periodically during this time to assess their progress and properly change their program until they are deemed safe to return to all activities.