

## TTO & MPFL Repair Rehabilitation Protocol

### **I. IMMEDIATE POST-OPERATIVE PHASE**

**Week 1 Goals:** *Diminish swelling/inflammation (control hemarthrosis) & Initiation of quadriceps muscle training*

- Independent Ambulation. Brace on 24/7. Off for hygiene only
- Weight Bearing: TTWB in brace locked in extension. 0-30 degrees of flexion in CPM. Swelling/ Inflammation Control: Cryotherapy, NSAIDS, Elevation & Ankle Pumps Range of Motion: ROM to 30 degrees of flexion in brace
- Muscle Retraining: Quadriceps isometrics, Straight Leg Raises, Hip Adduction Flexibility: Hamstring Stretches, Calf Stretches

### **II. ACUTE PHASE**

**Week 2-6 Goals:** *Control swelling/inflammation, Gradual Improvement in ROM & Quadriceps Strengthening (Especially VMO)*

*Note: Rate of progression based on swelling/inflammation.*

- Weight Bearing: Heel touch Weight bearing with brace locked in extension. Swelling/Inflammation: Cryotherapy, NSAIDS, Elevation and Ankle Pumps Range of Motion: Rate of progression based upon swelling/inflammation.
- At least 60 degrees flexion (Week 2) At least 90 degrees flexion (Week 4) Full flexion (Week 6-8)
- Muscle Retraining: Electrical muscle stimulation to quads Quad Setting Isometrics
- Straight Leg Raises (flexion)  
Hip Adduction  
Floor based CORE & hip work, patellar mobilization
- Flexibility: Continue Hamstring, Calf Stretches Initiate quadriceps muscle stretching

### III. SUBACUTE PHASE -MODERATE PROTECTION

**Week 6-8 Goals:** *Eliminate any joint swelling, Improve muscular strength and control without exacerbation of symptoms. Progress Weight Bearing*

1. Weight Bearing: Advance 25% weekly
2. Progress to full WB with normal Gait pattern
3. ROM (0-near full flexion)
4. Strong quadriceps contraction: Advance closed chain quad sets
  - a. Exercises: Continue muscle stimulation to quadriceps (if needed) Quadriceps setting isometrics
5. Progress balance, core & stability work
6. Stationary bike
7. Advance SLR, floor based exercises
8. 4 way Hip Machine (hip adduction, abduction, extension, and flexion Front Step-Ups (if able)
9. Swelling/Inflammation: Continue use of ice, compression, and elevation, as needed.

### IV. ADVANCED PHASE - MINIMAL PROTECTION

**Week 8-16 Goals:** *Achieve maximal strength and endurance. Functional activities/drills*

Criteria to Progress to Phase IV:

1. Full Non-Painful ROM
2. Full Weight Bearing
3. Absence of swelling/inflammation
4. Knee extension strength 70% of contralateral knee.
  - a. Exercises: Wall Squats (0-70 degrees) pain free arc Vertical Squats (0-60 degrees)\*
  - b. Leg Press  
Forward Lunges  
Lateral Lunges
  - c. Lateral Step-ups  
Front Step-ups  
Knee Extension, pain free arc  
Hip Strengthening (4 way)  
Bicycle, elliptical, swimming, Stairmaster®  
Proprioception drills
5. Continue all stretching
6. Continue use of ice as needed



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## V. RETURN TO ACTIVITY PHASE

**Week 16-24 Goal:** *Functional return to work/sport*

### Criteria to Progress to Phase V:

1. Full Non-Painful ROM
2. Sport Specific functional drills (competitive athletes) if cleared by MD
3. Appropriate Strength Level (80% of greater of contralateral leg)
4. Satisfactory clinical exam
  - a. Exercises: Functional Drills  
Continue Jogging/Running Program
  - b. Strengthening Exercises (selected) Flexibility Exercises

\* If patient is able to perform pain free.