

MPFL Reconstruction / Tibial Tubercle Osteotomy (TTO) / Cartilage Graft

Physical Therapy Protocol

Phase I – Maximum Protection (Weeks 0–4)

Goals:

- Protect surgical repair and cartilage graft
- Minimize pain and swelling
- Prevent quadriceps atrophy
- Maintain early ROM within safe limits

Restrictions:

- ROM: 0°–90° PROM only for first 6 weeks
- Brace:
 - Locked in full extension (0–0°) for Weeks 0–4
 - 0°–90° range allowed between Weeks 4–6

- Unlocked at Week 6
- Weight Bearing: Non-weight bearing (NWB) for 8 weeks

Exercises:

- Flexion/Extension – wall slides
- Flexion/Extension – seated
- Patella/Tendon mobilization
- Extension mobilization
- Quad sets
- Ankle pumps
- Sit and reach for hamstrings (towel)
- Balance series

Cardiovascular:

- Bike/Rowing with well leg only

Phase II – Protected Progression (Weeks 5–8)

Goals:

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Minimally Invasive Joint Specialist
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- Controlled advancement of ROM beyond 90°
- Begin isometric strength and neuromuscular control
- Maintain cardiovascular fitness

Restrictions:

- Continue PROM limit if <6 weeks
- Still NWB through Week 8
- Brace at 0–90° range

Exercises:

- Toe and heel raises
- Continue previous exercises
- Hamstring sets
- Double knee bends
- Bike with both legs – no resistance (from Week 6)
- Balance drills

Cardiovascular:

- Continue rowing and bike (no resistance)

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- Aquajogging (Week 7+)
 - Begin treadmill walking at 7% incline
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Phase III – Strength & Reintroduction (Weeks 9–12)

Goals:

- Transition to weight-bearing
- Strengthen key lower extremity groups
- Initiate light dynamic activity

Restrictions:

- Weight-bearing begins at Week 9 as tolerated
- Progress slowly from brace as cleared

Exercises:

- Double leg bridges
- Reverse lunges – static hold
- Resistance cord work
- Balance squats

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- Single leg deadlifts
 - Leg press
 - Begin elliptical and stair stepper
 - Rowing machine
 - Swimming with fins
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Phase IV – Functional Strengthening & Sport Prep (Weeks 13–20)

Goals:

- Enhance neuromuscular control
- Normalize strength for higher-level function
- Begin agility and linear running

Exercises:

- Continue all previous strength work
- Running progression (Week 12–16)
- Initial: single-plane jogging
- Advance: multi-directional movements (Week 16–20)

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- Begin sports test prep
 - Outdoor biking, hiking, snowshoeing
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Phase V – Return to Sport and High-Level Activity (Weeks 20–24+)

Goals:

- Return to full strength, endurance, and coordination
- Resume high-impact and sport-specific activity

Exercises:

- Complete functional sports testing
- High-level agility work
- Initiate return to sport:
 - Golf
 - Skiing
 - Basketball
 - Tennis
 - Football

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