

Rehabilitation Protocol: Patella MACI with Tibial Tubercle Osteotomy

Phase 1 (Weeks 0-2)

- **Weightbearing:** Heel touch only
- **Hinged Knee Brace:** Locked in full extension except when performing CPM, rehab exercises
- **Range of Motion:** 0-45° as tolerated, heel-slide knee ROM and CPM only
- **Therapeutic Exercises**
 - Isometric quadriceps strengthening, straight leg raises with brace locked in extension
 - Ankle pumps

Phase 2 (Weeks 2-6)

- **Weightbearing:** Continue heel touch only
- **Hinged Knee Brace:**
 - **Weeks 2-4:** Unlocked 0-45° for ambulation
 - **Weeks 4-6:** Unlocked 0-90° for ambulation
 - Okay to remove while at rest and for rehab exercises
- **Range of Motion:** Increase active, active-assist, and gentle passive knee ROM as tolerated
- **Therapeutic Exercises**
 - Heel slides, Quad/Hamstring/Glute sets
 - Patellar and tibiofibular joint mobilizations

Phase 3 (Weeks 6-12)

- **Weightbearing:** Advance to full WBAT
- **Hinged Knee Brace:** Discontinue brace for ambulation once weightbearing comfortably
- **Range of Motion:** Full knee ROM
- **Therapeutic Exercises**
 - Okay to begin blood flow restriction therapy.
 - Straight leg raises, heel raises, gait training
 - Gentle, progressive closed chain lower extremity strengthening at 8 weeks
 - Stationary bicycle at 10 weeks

Phase 4 (Weeks 12-26)

- **Range of Motion:** Full knee ROM
- **Therapeutic Exercises**
 - Planks, Swiss ball, Walking lunges, Swimming
 - Elliptical trainer starting at 16 weeks

Phase 5 (From 6 Months)

- Progress to running, jumping, pivoting, and sports-specific exercises
- Return to sports/athletics once cleared by Dr. Gross