

Tibial Tubercle Osteotomy (TTO) Post-Operative Rehabilitation Protocol

Phase I: 0-2 Weeks: TTWB, Brace locked

- **Weightbearing:**
 - Toe-touch weightbearing (20%) with crutches (0-6 weeks)
 - **Hinged Knee Brace:**
 - Locked in extension for all activities (including sleeping)– removed for PT and showering (0-2 weeks)
 - **Range of Motion:**
 - ROM 0-90 → PROM, active assist
 - Goal of 0-90 by 6 weeks post-op
 - **Therapeutic Exercises:**
 - **Weeks 1-6:** quad sets, co-contractions, isometric abduction/adduction, ankle strength
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Phase II: 2-6 Weeks: TTWB, Brace unlocked

- **Weightbearing**
 - Toe-touch weightbearing (20%) with crutches (0-6 weeks)
 - **Hinged Knee Brace:**
 - Unlocked for all activities – removed for PT, showering, sleeping (2-6 weeks)
 - **Range of Motion:**
 - ROM 0-90 → PROM, active assist
 - Goal of 0-90 by 6 weeks post-op
 - **Therapeutic Exercises:**
 - **Weeks 1-6:** quad sets, co-contractions, isometric abduction/adduction, ankle strength
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Phase III: 6-8 Weeks: PWB, Wean from brace

- **Weightbearing:** Advance to 50% weightbearing
 - **Hinged Knee Brace:** Unlocked, may wean from brace as tolerated
 - **Range of Motion:** Full/Painless ROM
 - **Therapeutic Exercises:**
 - **Weeks 6-10:** straight leg raises, partial wall sits, terminal knee extension with theraband (no greater than 45 degrees), continue previous exercises
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Phase IV: 8-12 Weeks: WBAT, Discontinue brace

- **Weightbearing:** Discontinue crutches when quad function adequate
 - **Hinged Knee Brace:** Wean off/discontinued
 - **Range of Motion:** Full painless active and passive ROM
 - **Therapeutic Exercises:**
 - **Weeks 10-12:** hamstring strengthening, theraband resistance 0-45 degrees, light open chain exercises, continue previous exercises
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Phase V: 12-16 Weeks: Normalize Gait

- **Weightbearing:** Full, normalize gait pattern
 - **Hinged Knee Brace:** None
 - **Range of Motion:** Full painless active and passive ROM
 - **Therapeutic Exercises:**
 - **Weeks 12-16:** Begin treadmill walking at slow pace, progress to balance/proprioception exercises, initiate sport-specific drills
 - **Weeks 16-20:** Advance closed chain strengthening exercises, focus on single leg strength, progress to walking forward and backward on the treadmill, initiate light plyometric training
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Phase VI: 16-20+ Weeks: Advanced Closed Chain Strengthening

- **Weightbearing:** Full, normalize gait pattern
- **Hinged Knee Brace:** None
- **Range of Motion:** Full painless active and passive ROM
- **Therapeutic Exercises:**
 - **Weeks 16-20:** Advance closed chain strengthening exercises, focus on single leg strength, progress to walking forward and backward on the treadmill, initiate light plyometric training
 - **Weeks 20-24 (4-5 months):** Continue strength training, emphasize single leg loading, progressive running/agility program
 - **Months 5-6:** Continue strength training, emphasize single leg loading, progressive running/agility program
 - **May return to impact activities/athletics at 6 months post-op with physician clearance**