

Tibial Spine Avulsion Fracture

Physical Therapy Protocol Prescription

Diagnosis: Tibial Spine Avulsion Fracture Frequency: 2-3 visits/week Duration: 4 months

OVERVIEW:

- Focus on the protection of fixation in Phase I (0-6 weeks postop).
- Brace: 8 weeks total
 - Weeks 0-2: Toe-Touch Weight Bearing (Full Extension)
 - Weeks 3-4: Partial Weight Bearing (Full Extension, d/c crutches after 4 weeks)
 - Weeks 5-6 WBAT (Full Extension)
 - Weeks 7-8 (Unlock brace in 30⁰ increments, unlocked and off after week 8)
- Sleep with brace ON & LOCKED in extension for 3 weeks.
- Crutches: 4 weeks total (0-2 TTWB, 3-4 PWB, 5-6 WBAT)

Phase I: Weeks 0-6

Goals:

- Protect fracture fixation with the use of brace and specific exercises.
- Minimize effects of immobilization, inflammation & edema (ice weeks)
- Advance to Full WB, wean off crutches, obtain motion

Brace:

- Weeks 0-4: Brace locked in full extension for ambulation & sleeping.
- Weeks 5-6: WBAT in extension. OK to d/c brace when sleeping.
- Weeks 7-8: Begin unlocking in 30⁰ increments every 3-4 days, Unlock by the start of Week 8 and d/c after Week 8.

Weight-Bearing:

- Weeks 0-2: TTWB
- Weeks 3-4: PWB
- Weeks 5-6: Wean from crutches as patient demonstrates normal gait mechanics and improved quad control.

Range of Motion:

- AAROM → AROM as tolerated starting in week 2
- Maintain full extension and work on progressive knee flexion.
- 0-90° by Week 3
- 0-125° by Week 6

Exercises:

- Patellar mobilization/scar mobilization
- Quad sets, Hamstring curls, Heel slides
- Non-weight bearing stretching of Gastro-Soleus
- Straight-leg raise with brace in full extension until quad strength returns (no extension lag)

Phase II : Weeks 7-12

Goals:

- Maintain full extension, obtain full flexion
- Increase hip, quadriceps, hamstring and calf strength
- Increase proprioception

Brace:

- Begin unlocking in 30° increments (every 3-4 days) after Week 6. Unlocked when weight bearing by the start of Week 8.
- Discontinue after Week 8 (once patient has full extension and no lag)

Exercises:

- Begin stationary bike
- Continue with ROM/flexibility exercises as appropriate
- Closed chain extension exercises
- Weight bearing Gastroc-Soleus stretching
- Toe raises, start proprioception program

Phase III: Weeks 13-18

Exercises:

- Begin straight-ahead, treadmill running after Week 12
- Continue flexibility and ROM exercises as appropriate for patient
- Progressive hip, quad, hamstring and calf strengthening
 - Mini-Wall Squats (0-60°)

- Lateral Lunges & Step-Ups
- Hip Abduction/Adduction
- Short-Arc Leg Press
- Cardiovascular/endurance training via stair master, elliptical and bike
- Advance proprioceptive activities and agility drills

Phase IV: Months 5-6 - Return to Sport

Exercises:

- Progress flexibility/strength program based on individual needs/deficits
- Initiate plyometric program as appropriate for patient's athletic goals
- Agility progression including:
 - Side steps + Crossovers, Figure 8 and Shuttle Running
 - One & Two Leg Jumping
 - Cutting/Accelerative/Deceleration/Sprints, Agility Ladder Drills
- Continue progression of running distance based on patient needs
- Sport-specific drills as appropriate for patient
- Gradual return to activity as tolerated