

## *Tibial Spine Avulsion Fracture Rehabilitation Guidelines*

The intent of this protocol is to provide guidelines for progression of rehabilitation and is not intended to serve as a substitution for clinical decision-making. Progression through each phase of rehabilitation should take into account tissue-healing time frames, clinical objective findings, and MD/DO approval to ensure structural stability. There will be variability between patients in terms of time frames and it is crucial not to progress through phases until the individual meets the appropriate requirements.

<p><b>Post-op</b></p>	<p><b>Weight Bearing:</b></p> <ul style="list-style-type: none"> <li>• 0-4 weeks → TDWB</li> <li>• 4-6 weeks → gradual progression from PWB to WBAT</li> <li>• Crutch weaning and D/C is dependent walking without a limp</li> </ul> <p><b>Initial ROM Related Restrictions:</b></p> <ul style="list-style-type: none"> <li>• Splint in extension for first 2 weeks after surgery</li> <li>• Flexion 0 to 90° for 2-4 weeks</li> <li>• Progress to ROM as tolerated after 4 weeks, no forceful passive knee flexion, only out of brace for ROM exercises for first 6 weeks</li> <li>• Knee locked in extension for weight bearing and sleeping, can unlock the knee brace for ROM exercises</li> </ul>
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**Phase 1  
(weeks 1-6)  
Protective  
Phase**

**Goals:**

- Optimize bone and tissue healing and limit scar formation
- Protect surgical repair
- Reduce effusion, swelling and pain
- Restore knee ROM
- Promote normal proprioceptive and neuromuscular control
- Near full weight bearing by week 6

**Tissue Healing:**

- PRICE – Protection, Rest, Ice, Compression, Elevation
- Scar massage after incision is healed

**Gait:**

- 2 crutches at all times until walking without a limp around 6 weeks

**POW 1-6:**

- Patella, patella tendon and quadriceps tendon mobilization
- Quad activation working on terminal extension
- Quad/Hamstring/Glute sets
- Straight leg raises (in brace if extension lag out of brace)
- Open chain quad exercises until weight bearing is allowed
- Quadriceps stretching within ROM restriction
- Gastrocnemius stretching without weight bearing
- Hip and Core strengthening within restrictions

**Phase 2  
(weeks 7-9)  
Early  
Strengthening**

**Criteria for advancement to Phase 2:**

- Near symmetric ROM to contralateral side
- No extensor lag
- Normal joint temperature
- Minimal to no joint effusion

**Goals:**

- Normalize gait pattern on flat ground
- Maintain trace to no joint effusion
- Tolerate standing and walking activity

**Precautions:**

- Progression of weight bearing and normal gait
- Closed kinetic chain activity preferred
- Limit weight bearing to less than 90 degrees knee flexion

**Strength, Proprioception and Neuromuscular Re-education:**

- Progressive balance training
- Calf raises
- Leg presses
- Double leg squats
- Core, hip and upper body strengthening as appropriate

**Cardio:**

- Stationary Bike

<p><b>Phase 3</b> <b>(weeks 10-16)</b> <b>Progressive</b> <b>Strengthening</b></p>	<p><b>Criteria for Advancement to Phase 3:</b></p> <ul style="list-style-type: none"> <li>• Full weight bearing</li> <li>• Normalize gait pattern on flat ground</li> <li>• Maintain trace to no joint effusion</li> <li>• Tolerate standing and walking activity</li> </ul> <p><b>Goals:</b></p> <ul style="list-style-type: none"> <li>• Build lower extremity strength, endurance, and balance.</li> </ul> <p><b>Precautions:</b></p> <ul style="list-style-type: none"> <li>• No cutting/pivoting activities</li> </ul> <p><b>Strengthening, Proprioception and Neuromuscular Re-education:</b></p> <ul style="list-style-type: none"> <li>• Double leg squats</li> <li>• Leg press</li> <li>• Static lunges</li> <li>• Dynamic lunges</li> <li>• Balance training</li> <li>• Core, hip and upper body strengthening as appropriate</li> </ul> <p><b>Cardio:</b></p> <ul style="list-style-type: none"> <li>• Stationary bike</li> <li>• Elliptical use and treadmill walking</li> <li>• Can run at 12 weeks</li> </ul>
<p><b>Phase 4</b> <b>(weeks 16+)</b> <b>Return to Play</b></p>	<p><b>Criteria for advancement to Phase 4</b></p> <ul style="list-style-type: none"> <li>• Good form on Phase 3 exercises</li> <li>• Progressive strength/endurance development</li> <li>• No joint effusion after phase 3 activities</li> </ul> <p><b>Goals:</b></p> <ul style="list-style-type: none"> <li>• Build lower extremity muscular strength</li> <li>• Progress to sport specific activities as tolerated</li> </ul> <p><b>Precautions:</b></p> <ul style="list-style-type: none"> <li>• None</li> </ul> <p><b>Strengthening, Proprioception and Neuromuscular Re-education:</b></p> <ul style="list-style-type: none"> <li>• Same as above, plus:             <ul style="list-style-type: none"> <li>○ Single leg squats</li> <li>○ Single leg dead-lifts</li> <li>○ Step ups/downs</li> <li>○ Multidirectional lunges</li> </ul> </li> <li>• Progress to plyometric and sport specific training</li> </ul>