

ACL Tibial Spine Avulsion Fracture Fixation Rehabilitation Protocol

Phase 1: Weeks 0-7

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 30° increments, unlocked and off after week 8)
- Sleep with brace ON & LOCKED in extension for 4 weeks.
- Crutches: 4-6 weeks total (0-2 TTWB, 3-4 PWB, 5-6 WBAT)

Wean off crutches when meets criteria:

When $\geq 0^\circ$ knee extension & at least 90° knee flexion, can easily perform repetitive SLR without lag, minimal effusion, and can ambulate without a limp

Goals:

- Protect fracture fixation with the use of brace and specific exercises.
- Minimize effects of immobilization, inflammation & edema (ice x2 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 30° increments every 3-4 days. Unlock by the start of Week 8 and d/c after Week 8.

Weight-Bearing:

- 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 30° increments, unlocked and off after week 8)

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 2: 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 3: Weeks 13-18

Exercises:

- Begin straight-ahead, treadmill running after Week 12 *when meets criteria below*
- 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

***CRITERIA TO BEGIN STRAIGHT LINE JOGGING AT 12 WEEKS:**

- PAIN LESS THAN 3 / 10 (WORST)
- WITHIN 2° NORMAL KNEE EXTENSION & 120° KNEE FLEXION
- QUADRICEPS & HAMSTRING STRENGTH > 60% NORMAL
- LESS THAN 4cm DEFICIT ON SINGLE-LEG SQUAT (ANTERIOR REACH)
- AT LEAST 1 MINUTE OF SINGLE LEG SQUATS • DOCTOR APPROVAL

Jogging Progression:

- Running prep exercises: focus on the deceleration phase such as DL speed squats, DL drop squats, DL “bounce bounce bounce squat”, then progress to alternating SL drop squats.
- Initiate jogging and progress to in-line running: Begin on treadmill with 2- 3 days per week. Begin with 1:1 or 2:1 walk to jog ratios, (ie. 1 min walk to 1 min jog or 2 min walk to 1 min jog). Then progress each week by 1 min jog until 12-15 min of jogging is achieved.

Phase 4: 4-6 Months

Exercises:

- Progress flexibility/strength program based on individual needs/deficits
- Initiate plyometric program as appropriate for patient's athletic goals
- Agility progression *When meets criteria Below*
- Continue progression of running distance based on patient needs
- Sport-specific drills as appropriate for patient

***CRITERIA TO BEGIN AGILITY WORK IN PHASE IV:**

- PAIN LESS THAN 2 / 10 (WORST)
- QUAD & HAM STRENGTH > 80% NORMAL; > 50% H/Q RATIO FOR FEMALES
- AT LEAST 3 MINUTES OF SINGLE LEG SQUATS
- JOGGING >15 MINUTES ON TREADMILL
- DOCTOR APPROVAL

Agility: (NO single leg Plyo's until at least POW 20)

Ladder drills, footwork agility drills, cone drills

Double leg plyos: jump rope, line jumps, cone jumps, depth jumps, box jumps

High intensity predictable patterned movements, incorporate sport specific drills

Return to Sport:

****CRITERIA TO RETURN TO PLAY AFTER PHASE IV:**

- PAIN LESS THAN 2 / 10 (WORST)
- QUAD & HAM STRENGTH > 90% NORMAL; > 60% H/Q RATIO FOR FEMALES
- 95% ON **LEAP TESTING (Found on www.KunkelSportsSurgery.com)**
- DOCTOR APPROVAL

• After above clearance, the Return to play progression is as follows:

- 1) Return to non-contact practice/individual drills
- 2) Return to contact practice
- 3) Return to scrimmage
- 4) Return to interval play
- 5) Return to full play