

## REHABILITATION AFTER TIBIAL SPINE (ACL) FRACTURE FIXATION

### I. Phase I (Max protection phase) – Weeks 0-6

**Goals:** reduce inflammation/effusion, allow early bone healing, full passive knee extension, gradually increase knee flexion, restore voluntary quad activation, protect fracture fixation with use of brace

**BRACE:** Brace x 8 weeks. Locked in -10 extension at all times for first week except when doing PT exercises. Locked in -10 extension for sleeping and ambulation weeks 1-3, ok to unlock when sitting. Locked in -10 extension for ambulation weeks 4-6, ok to unlock when sitting, ok to remove when sleeping if no extension loss. Brace on but unlocked week 6-8.

**WEIGHT BEARING:** TTWB x 2 weeks, then PWB x 1 weeks, then WBAT with crutches x 1 week (wean from crutches as patient demonstrates normal gait mechanics and improving quad control), d/c crutches at earliest week 4, but should be without crutches by week 6 at latest

- Stage 1: Immediate post-surgery (Days 1-10)
  - Ice, compression, elevation
  - PROM 0-90 (to tolerance) - Emphasize maintenance of full extension
  - AROM as tolerated
  - Patellar mobilizations
  - Stretch hamstrings, calf, hip flexors
  - Avoid active resisted knee flexion
  - Strengthening exercises (electrical stim to quads):
    - Quad sets
    - SLR flexion
      - Straight leg raises in brace until quad returns (no extensor lag)
    - Hip abduction/adduction
- Stage 2: Weeks 2-6
  - Continue use of ice and compression/compressive wrap
  - ROM guidelines: gradually increase PROM as tolerated
    - Goal is 0-120 at week 6 postop – in early phases, emphasize maintenance of full knee extension
  - Continue PROM/AAROM/AROM exercises and stretching
  - Avoid active resisted knee flexion
  - Strengthening exercises:
    - SLR (all 4 planes)
    - Knee extension 90-0 degrees
    - CKC mini-squats 0-45 degrees
    - CKC wall squats 0-60 degrees

- Initiate CKC exercises as quad control returns
  - Lateral and front step overs
  - Lateral lunges
  - Step downs (lateral)
  - Step downs (front)

## II. **Phase II (Motion + early strengthening) – Weeks 6-12**

Goals: maintain full knee extension, regain full knee flexion, minimal to no swelling/inflammation, restore quad strength, gradually increase functional activities and hip/quad/hamstring/calf strength, increase proprioception

- Criteria to progress to Phase II:
  - Full quad control
  - Normal gait kinematics
  - ROM at least 0-120
  - Satisfactory clinical exam
  
- Continue use of ice and compression as needed
- Brace unlocked at all times when ambulating until full normal gait returns, ok to discontinue at week 8
- Continue ROM and stretching to maintain 0-135 degrees
- Progress strengthening exercises – emphasize closed chain extension exercises
  - Leg press 70-0 degrees
  - Knee extension 90-40 degrees
  - Hip abd/adduction
  - Wall squats 0-60 degrees
  - Vertical squats 0-60 degrees
  - Lateral step-ups
  - Front and lateral lunges
  - Hamstring curls
  
- Balance/proprioception training
  - Biodex stability
  - Squats rocker board
  - Cup walking (step overs)
  - Standing on foam single leg
  - Patellar mobilization/scar mobilization
  
- Begin stationary bike week 6
- May initiate stair stepper week 8

### **III. Phase III – Modified activity + late strengthening phase (Week 12-18)**

Goals: improve strength and endurance, maintain full ROM, gradually increase applied stress

- Criteria to progress to Phase III:
  - Full non-painful ROM
  - No pain or tenderness
  - Satisfactory clinical exam
  - Satisfactory isokinetic test
  
- Continue all flexibility and strengthening exercises listed above
- Progressive hip/quad/hamstring/calf strengthening
- Treadmill walk/run program
- Ok to begin straight line running
- Advance proprioceptive activities and agility drills

### **III. Phase IV – Return to sport/full activity phase (Month 4.5 and beyond)**

Goals: improve strength and endurance, prepare for unrestricted activities

- Exercises
  - Continue and progress all strengthening exercises and stretching drills
  - Gradually add in deep squatting and straight line running
  - Then once doing those without issues, add in pivoting/cutting/agility and plyometric program
    - Side steps, crossovers, figure 8 and shuttle running
    - One and two leg jumping
    - Cutting/acceleration/deceleration/sprints
    - Ladder drills
  - Complete return to sport specific exercises and movements