

Tibial Tubercle Anteromedial (Fulkerson) Osteotomy Physical Therapy Protocol

Phase I: Immediate Post-operative (Days 1 to 7)

Goals

- Diminish swelling/inflammation
- Diminish post-operative pain
- Initiate voluntary quadriceps control
- Independent ambulation with weight bearing restrictions

Weight Bearing

- Non weight bearing for first one to two weeks

Brace

- Sleep in brace for first one to two weeks
- Use for ambulation until good quadriceps control is achieved

Range of Motion

- 0 to 45 degrees for the first four days

Days 1 to 4

Range of Motion

- Full passive knee extension
- Flexion to 45 degrees

Exercises

- Quad sets
- Straight leg raises
- Hip adduction/abduction
- Hamstring stretches
- Calf stretches
- Passive range of motion and gentle active assertive range of motion within limits
- **No active knee extension**
- Cryotherapy with elevation for pain and inflammation every hour for 20 minutes

Days 5 to 7

Range of Motion

- Flexion to 60 degrees

Exercises

- Continue exercises as listed for the first five days
- Continue cryotherapy for pain management

Phase II: Acute (Weeks 2 to 4)

Goals

- Control swelling and pain
- Promote healing of realignment of tibial tuberosity
- Quadriceps strengthening

Weight Bearing

- 25 percent weight bearing with two crutches at week three
- 50 percent weight bearing with two crutches at week four

Range of Motion

- 0 to 75 degrees from weeks one to three
- 0 to 90 degrees at week four

Weeks 1 to 3

Weight Bearing

- 25 percent weight bearing with two crutches at week three

Range of Motion

- Flexion to 75 degrees

Exercises

- Continue exercises as listed above
- Neuromuscular electrical stimulation to quads
- Prone hip extension
- Continue cryotherapy for pain management

Week 4

Weight Bearing

- 50 percent weight bearing with two crutches

Range of Motion

- Flexion to 90 degrees

Exercises

- Continue exercises as listed above
- NuStep (maintaining range of motion restrictions)
- Gentle submaximal isometric knee extensions (multi-angle)
- Continue cryotherapy for pain management

Phase III: Subacute (Weeks 5 to 8)

Goals

- Gradual improvement of range of motion
- Improve muscular strength and endurance
- Control forces on extension mechanism

Weight Bearing

- 75 percent weight bearing with two crutches at week five
- Progress to full weight bearing at week six (wean from crutches as gait normalizes)

Range of Motion

- 0 to 115 degrees at week five
- 0 to 125 degrees at week six
- Progress to full-range of motion at week eight

Week 5

Weight Bearing

- 75 percent weight bearing with two crutches

Range of Motion

- Flexion to 115 degrees

Exercises

- Continue exercises as listed above
- Short arc quads
- Hamstring curls
- Bicycle

Week 6

Weight Bearing

- Full weight bearing (wean off crutches when gait normalizes)

Range of Motion

- Flexion to 125

Exercises

- Continue exercises as listed above
- Mini squats
- Step ups
- Leg press (light)
- Lateral walks with resistance
- Pool program
- Proprioception activities

Week 8

Range of Motion

- Progress to full range of motion

Exercises

- Continue exercises as listed above
- Leg press
- Terminal knee extensions

Phase IV: Strengthening (Weeks 9 to 16)

Criteria to Enter Phase IV

- Range of motion to at least 0 to 115 degrees
- Absence of swelling and inflammation
- Voluntary control of quads
- Normal gait

Goals

- Gradual improvement of muscular strength
- Functional activities/drills

Exercises

- Continue exercises as listed above
- Wall squats
- Lateral step downs
- Forward lunges
- Lateral lunges
- Monster walks with resistance
- Long arc quads (light)
- Elliptical/StairMaster

Phase V: Return to Activity (Week 17 and Beyond)

Criteria to Progress to Phase V

- Full, non-painful range of motion
- Appropriate strength level (80 percent or greater of contralateral leg)
- Satisfactory clinical exam

Goals

- Functional return to sport specific drills

Exercises

- Continue exercises as listed above
- Initiate running program
- Initiate agility program
- Initiate plyometric program
- Sport specific training and drills