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