



**Department of Orthopaedic Surgery  
Sports Medicine and Shoulder Service**

**High Tibial Osteotomy and Distal Femoral Osteotomy Rehab Protocol**

**Patient Name:**

**Date:**

**Diagnosis:** \_\_\_\_\_

**Frequency: 2-3 visits/week Duration: 4 months**

**Weeks 1-6**

- HEP
- ROM as tolerated in brace
- NWB in brace for 2 weeks
- Progress from 25% - 50% PWB in brace locked in extension for the following 4 weeks
- SLR, quad sets
- Patella mobilization

**Weeks 6-14**

Supervised PT – 3 times a week (may need to adjust based on insurance)

**GOALS**

- Restore full ROM
- Restore normal gait
- Demonstrate ability to ascend and descend 8-inch stairs with good leg control without pain
- Improve ADL endurance
- Independence in HEP

**PRECAUTIONS**

- Avoid descending stairs reciprocally until adequate quad control and lower extremity alignment
- Avoid pain with therapeutic exercise and functional activities
- Avoid running and sport activity

**TREATMENT STRATEGIES**

- Progressive WBAT with brace-allowed flexion advanced if good quad control (good quad set/ability to SLR without pain or lag). May use crutches/cane if needed
- Aquatic therapy if available – pool ambulation or underwater treadmill
- D/C crutches or cane when gait is non-antalgic
- D/C brace and use patellar sleeve when non-antalgic gait and quad control adequate as determined by therapist
- AAROM exercises
- Patellar mobilization
- SLR's in all planes with weights
- Proximal PREs
- Neuromuscular training (bilateral to unilateral support)
- Balance apparatus, foam surface, perturbations
- Short crank stationary bike
- Standard stationary bike (when knee ROM>115)
- Leg press – bilateral/eccentric/unilateral progression
- Squat program (PRE) 0-60 deg
- Open chain quad isotonic (pain free arc of motion)
- Initiate step-up and step-down programs
- Stairmaster
- Retrograde treadmill ambulation
- Quad stretching
- Elliptical machine
- Forward Step-Down Test
- Upper extremity cardiovascular exercises as tolerated
- Cryotherapy
- Emphasize patient compliance to HEP

**\*\* Progression to Running Criteria:**

- Isometric extensor limb symmetry index (LSI)>70% plus extensor and flexor LSI>70%
- Active ROM 0 to > 125 degrees
- Functional hop test >70% contralateral side
- Swelling < 1cm at joint line
- No pain
- Demonstrates good control on step down

**CRITERIA FOR ADVANCEMENT**

- ROM to WNL
- Ability to descent 8-inch stairs with good leg control w/o pain
- Add water exercises if desired (and all incisions are closed and sutures out)

**Weeks 14-22**

**GOALS**

- Maximize strength and flexibility as to meet demands of ADLs
- Isokinetic test >85% limb symmetry
- Lack of apprehension with patient specific activities
- Flexibility to accepted levels for patient specific activities
- Independence with gym program for maintenance and progression of therapeutic exercise program at discharge

## **PRECAUTIONS**

- Avoid pain with therapeutic exercise and functional activities
- Avoid sport activity until adequate strength development

## **TREATMENT STRATEGIES**

- Progress squat program <90 degree flexion
- Lunges
- Start favored running (treadmill) program at 4 month postop if 8-inch step down satisfactory
- Cont LE strengthening and flexibility programs
- Agility program/sport specific (sports cord)
- Start plyometric program when strength base is sufficient
- Isotonic knee flexion/extension (pain and crepitus-free arc)
- Isokinetic training (fast to moderate to slow velocities)
- Functional testing (hop test)
- Isokinetic testing
- HEP

## **CRITERIA FOR DISCHARGE**

- Symptom free running and sport-specific agility
- Hop test >85% limb symmetry
- Isokinetic test >85% limb symmetry
- Lack of apprehension
- Flexibility to acceptable levels
- Independence with gym program for maintenance and progression of therapeutic exercise program
- Lack of apprehension
- Flexibility to acceptable levels
- Independence with gym program for maintenance and progression of therapeutic exercise program at discharge