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TMI Sports Medicine

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**High Tibial Osteotomy (HTO) & Distal Femoral Osteotomy Procedure of the Knee -  
Postoperative Rehab Protocol**

You will stay overnight one day in the hospital. Upon discharge, you will see a TMI physical therapist in Dr. Robertson's office on post-operative day #1 and begin a rehabilitation program. You will wear a hinged knee brace at all times (except for showering) for 6-8 weeks following surgery. You may be transitioned to a functional brace at 6 weeks.

**Postoperative Phase I: Early Protection Phase (Weeks 0 to 8)**

**Goals**

- ROM 0 to 100 degrees
- Prevents quad inhibition
- Control postoperative pain/swelling
- Normal proximal muscle strength
- Independence with home exercise program

**Precautions**

- Maintain weight bearing restrictions
- Postoperative brace may be unlocked but protects the coronal plane forces
- TTWB in brace with crutches for first 4 weeks
- Advance to partial weight bearing at 4-6 weeks with progressive advancement to WBAT at 8-10 weeks.

**Treatment Plan**

- AAROM exercises (pain-free range of motion)
- Towel extensions
- Patellar mobilization
- Quadriceps reeducation (quad sets +/- E-stim)
- Straight leg raises (all planes)
- Stationary bike when ROM allows (week 3 to 4) - low resistance. May "Rock for Range" using well leg immediately.
- Upper extremity cardiovascular exercises, as tolerated

- Hip progressive resistance exercises
- May start Alter-G and Pool ambulation for gait training at 50% body weight at 6 weeks, progression per MD (Assure wound is completely healed/scar prior to beginning pool therapy).

### **Criteria for Progression to Phase II**

- MD direction for progressive weight-bearing (week 6)
- Proximal muscle strength 5/5
- ROM 0 to 100°
- Supine SLR without an extension lag

### **Postoperative Phase II (Weeks 8 to 12)**

#### **Goals**

- ROM 0 to within normal limits
- Normal patellar mobility
- Restore normal gait
- Ascend 8 inch stairs with good control and without pain

#### **Precautions**

- Avoid descending stairs reciprocally until adequate quadriceps control
- Avoid pain with therapeutic exercise and functional activities

#### **Treatment Plan**

- Progressive weight-bearing / gait training with crutches
  - Discontinue crutches when gait is non-antalgic
- Discontinue brace at 8 weeks. At MD discretion depending on osteotomy healing.
- Continue pool exercises and gait training via Alter-G
- AAROM exercises
- Leg press 0 to 60°
- Mini-squats
- Retrograde treadmill ambulation
- Proprioception training (i.e. balance board)
- Initiate forward step-up program
- SLRs (progressive resistance)
- Lower extremity
- Home exercise program

### **Criteria for Progression to Phase III**

- ROM 0 to WNL
- Normal gait pattern
- Demonstrated ability to ascend 8 inch step
- Normal patellar mobility

### **Postoperative Phase III (Weeks 12 to 20)**

## **Goals**

- Return to normal ADL
- 85% limb symmetry on isokinetic testing (tibiofemoral lesions)
- Improve lower extremity flexibility
- Demonstrate ability to descend 8 inch stairs with good control and without pain

## **Precautions**

- Avoid pain with therapeutic exercise and functional activities
- Avoid running until adequate strength development and surgeons clearance

## **Treatment Plan**

- Progress squat program
- Initiate step down program
- Stairmaster and elliptical
- Leg Press (emphasizing eccentrics)
- Advance proprioception training (perturbations)
- Retrograde treadmill ambulation/running
- Jogging program on Alter-G with gradual increase in body weight at 12-16 weeks if tolerated
- Hamstring curls/proximal strengthening
- Lower extremity stretching
- Agility exercises (sports cord) at 14 weeks if tolerated
- Home exercise program

## **Criteria for Progression to Phase IV**

- 85% limb symmetry on isokinetic testing (tibiofemoral lesions)
- Demonstrated ability to descend 8 inch step with good leg control and w/o pain

## **Postoperative Phase IV: Return to Sport (Weeks 20 and Beyond)**

### **Goals**

- Lack of apprehension with sport-specific movements
- Maximize strength and flexibility to meet demands of individual's sport activity
- Hop test  $\geq$  85% limb symmetry

### **Precautions**

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

### **Treatment Plan**

- Continue to advance lower extremity strengthening, flexibility, and agility programs
- Forward running
- Plyometric program

- Monitor patient's activity level throughout course of rehabilitation and adjust accordingly
- Encourage compliance to home exercise program

**Criteria for Discharge**

- Lack of apprehension with sport-specific movements
- Hop test  $\geq$  85% limb symmetry
- Flexibility to accepted levels of sports performance
- Independence with gym program for maintenance and progression of therapeutic exercises