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**HIGH TIBIAL OR FEMORAL OSTEOTOMY  
PROTOCOL**

**GENERAL GUIDELINES**

- No closed kinetic chain exercises for 6 weeks
- Rehabilitation protocol is the same for femoral or tibial osteotomy
- Rehabilitation for ACL reconstruction combined with high tibial osteotomy is dictated by the HTO protocol.
- Supervised physical therapy takes place for 3-6 months post-operatively.

**GENERAL PROGRESSION OF ACTIVITIES OF DAILY LIVING**

Patients may begin the following activities at the dates indicated (unless otherwise specified by the physician):

- Bathing/Showering without brace after suture removal
- Sleep with brace locked in extension for 4 weeks
- Driving: 1 week for automatic cars, left leg surgery  
6 weeks for standard cars or right leg surgery
- Brace locked in extension for 4 weeks for ambulation
- Use of crutches, brace for ambulation for 6-8 weeks post-op
- Weight-bearing as tolerated with brace locked in extension for first 4 weeks.

**REHABILITATION PROGRESSION:**

The following is a general guideline for progression of the rehabilitation program following femoral or tibial osteotomy. Progression through each phase should take into consideration patient status (e.g. healing, function) and physician advisement. Please consult the attending physician if there is any uncertainty regarding advancement of a patient to the next phase of rehabilitation.

**PHASE I:**

Begins immediately post-op through approximately 4 weeks.

**Goals:**

- Protect fixation and surrounding soft tissue
- Control inflammation
- Minimize the adverse effects of immobilization through CPM and heel slides from 0-90° of knee flexion
- Full knee extension and 90° of flexion
- Educate patient regarding rehabilitation progression

**Brace:**

- 0-4 weeks: Locked in full extension for all activities except therapeutic exercises and CPM use. Locked in full extension for sleeping.

**Weightbearing Status:**

- 0-4 weeks: Weightbearing as tolerated with two crutches

**Therapeutic Exercises:**

- Ankle pumps
- Quad sets
- Heel slides from 0-90° of flexion
- CPM for 2 hours, twice daily, from 0-90° of flexion
- Non-Weightbearing calf, hamstring stretches
- SLR in four planes with brace locked in full extension
- Resisted plantarflexion with theraband

**PHASE II:**

Begins approximately 4 week post-op and extends to approximately 6 weeks. Criteria for advancement to Phase II:

- Good quad set
- Approximately 90° of flexion
- No signs of active inflammation

**Goals:**

- Increase range of flexion
- Avoid overstressing fixation
- Increase quadriceps strength

**Brace:**

4-6 weeks: Brace unlocked for ambulation

**Weightbearing Status:**

4-6 weeks: As tolerated with two crutches

**Therapeutic Exercises:**

- Continue exercises as noted above, progress towards full flexion
- Discontinue CPM if knee flexion is at least 90°
- Initiate aquatic therapy with emphasis on normalization of gait pattern
- Remove brace for SLR exercises, must be able to maintain full extension
- Initiate stationary bike, low resistance

**PHASE III:**

Begins approximately 6 weeks post-op and extends through approximately 8 weeks. Criteria for advancement to Phase III:

- Good quadriceps tone and no extension lag with SLR
- Full extension
- Flexion 90-100°

**Brace:**

Discontinue brace at 6 weeks post-op as allowed by physician.

### **Weightbearing Status:**

May discontinue use of crutches if the following criteria are met:

- No extension lag with SLR
- Full extension
- Nonantalgic gait pattern (may use one crutch or cane until gait is normalized)

### **Therapeutic Exercises:**

- Mini-squats 0-45°, progressing to step-ups
- 4-way hip for flexion, extension, adduction, abduction
- Stationary bike, add moderate resistance
- Leg press 0-60° of flexion
- Closed kinetic chain terminal knee extension with resistive tubing or weight machine
- Toe raises
- Balance exercises (e.g. single-leg standing, KAT)
- Hamstring curls

### **PHASE IV:**

Begins at approximately 3 months post-op and extends through approximately 9 months. Criteria for advancement to Phase IV:

- Good to normal quadriceps strength
- No soft tissue complaints
- Normal gait pattern
- Clearance from physician to begin more concentrated closed kinetic chain exercises, and resume full or partial activity.

### **Goals:**

- Continue improvements in quadriceps strength
- Improve functional strength and proprioception
- Return to modified activity level

### **Therapeutic Exercises:**

- Progression of closed kinetic chain activities
- Treadmill walking
- Swimming
- Jogging in pool with wet vest or belt
- Sports-specific activities or work hardening as appropriate.