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Complex Knee, Shoulder and  
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## **High Tibial Osteotomy (HTO) & Distal Femoral Osteotomy (DFO) Protocol**

### **Phase 1: Weeks 0-6**

*Goals: crutch/brace education, pain and swelling control, range of motion, glute/quad/hamstring activation. Progressive ROM > 120 by 6 weeks*

#### **CPM Machine**

- Start 0-30, progress 5 degrees per day as tolerated to 120 (4 hours per day, discontinue at 4 weeks post-op)

#### **0-6 Weeks Post Op**

- **Opening Wedge: Non-weight bearing x 6 weeks**
- **Closing Wedge: Non-weight bearing x 2 weeks; may begin WB transition at week 3**
- **No Biking**
- Pain/edema control, patella mobilizations if necessary
- Quad Sets/Hamstring co-contractions at multiple angles
- SLR in brace at 0° until quad can maintain knee locked
- Heel slides/ extension hangs
- Calf stretches
- Ankle pumps +/- with leg elevation
- May begin BFR after day 14

### **Phase 2: Weeks 6-12**

*Goals: normal gait without assistance, full range of motion, proprioception, strengthening starting with isometrics and progressing appropriately*

*Progress from 2 crutches to one crutch and then full weight bearing over 2 weeks*

#### **Weeks 6-12**

- 2-week WB progression- (one week on two crutches, one week on one crutch)
- Discontinue brace
- No impact activities
- Baseline proprioceptive/balance re-education
- Achieve full ROM, or maintain if already achieved
- Begin closed chain strengthening, progress balance, core/pelvis and stability work
- Patellar/tibial/femoral mobilization for terminal ROM
- Stationary bike



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**Phase 3: Weeks 12-24**

*Goals: Continue and advance strengthening: lower chain concentric/eccentric strengthening of core/hips/glutes/quads/hamstrings, dynamic lower chain strengthening, progress non-impact cardio training, progress proprioception*

**Weeks 12-24**

- Non-impact cardio allowed after radiographic clearance by physician
- Progress all strengthening as tolerated over months 3-6
- No impact activities until 6 months

**Phase 4: 6 Months +**

- No formal restrictions after radiographic clearance by physician
- Progress back to impact activities if strength is appropriate
- Return to sport progression as appropriate