

Postoperative Rehabilitation Protocol for  
**High Tibial Osteotomy (HTO) or Distal Femoral Osteotomy (DFO)**  
**with Osteochondral Allograft Transplant (OCA)**

*\*Physical Therapy should be started within a week after surgery*

**Phase 1: Postoperative weeks 0-4**

- Goals
  - Minimize pain / edema
  - Restore ROM
- Precautions / Brace / Crutch Use
  - Weight bearing
    - 0-4 weeks: Flat foot (0-25%) weight bearing
  - Brace
    - 0-2 weeks: Set 0-90 degrees
    - 2-4 weeks: Open to available range
    - Leave brace unlocked at all times following resolution of nerve block
    - Brace may be removed for hygiene and therapy
    - Avoid active hamstring activity for first 2 weeks
- Range of Motion
  - 0-2 weeks: 0-90 degrees
  - 2+ weeks: progress to full ROM
  - Patellofemoral joint mobilization
- Strengthening
  - Restore quad recruitment
  - Quad, hamstring, and gluteal strengthening exercises
  - Quad NMES
  - Avoid active hamstring exercises for first 2 weeks
- Modalities PRN

**Phase 2: Postoperative weeks 4-8**

- Goals
  - Improve muscle strength & endurance
  - Full, pain-free ROM
- Precautions / Brace / Crutch Use
  - Weight bearing
    - 4-6 weeks: Continue flat foot (0-25%) weight bearing
    - 6-8 weeks: may progress to 50% weight bearing after clearance from 6-week clinic appointment
  - Brace: May discontinue after 6 weeks if capable of SLR without extensor lag
- Range of Motion
  - Restore full, pain-free, active ROM
- Strengthening

- Continue phase 1 exercises
- Advance to multi-angle knee isometrics
- Advance gluteal strengthening exercises to closed chain
- Closed chain quad exercises
- Modalities PRN

### Phase 3: Postoperative weeks 8-16

- Goals
  - Progress to WBAT and normalize gait
  - Progress balance and NM control
- Precautions / Brace / Crutch Use
  - Full weight bearing without crutches
  - Caution should be exercised when engaging in CKC knee flexion of approximately 90 degrees and stepping downstairs in early postoperative period
- Range of Motion
  - Maintain full ROM
- Strengthening
  - Continue phase 2 exercises
  - Progress balance and proprioception exercises (integrate balance with strengthening)
  - Advance lower extremity strengthening (closed and open chain)
  - Advance gluteal strengthening
  - Include cardiovascular conditioning with elliptical, and stationary bike (12+ weeks)
  - **Precautions**
    - Weeks 8-10: limit mini-squats to 0-45 degrees
    - Week 10-12: Heel taps 2-4" & Step ups 6-8"
    - Weeks 12-14: Resisted OKC quadriceps strengthening through full ROM
- Modalities PRN

### Phase 4: Postoperative weeks 16-24

- Goals
  - Normalize gait
  - Progress balance and NM control
- Maintain full ROM
- Strengthening
  - Continue and progress phase 3 exercises
    - Progress balance and proprioception exercises (integrate balance with strengthening exercises)
    - Begin functional activity / sport specific work including agility drills and plyometrics
    - Include cardiovascular conditioning with elliptical, swimming, and stationary bike
    - Begin running progression program
- Modalities PRN

### Phase 5: Postoperative 6+ months

- Goals
  - Progress to sport specific and/or unrestricted functional activities
  - Maximize strength and flexibility to meet demands of individual's sports/work activity
  - *Any return to sport and high-impact activity, needs clearance from the physician to confirm healing of the graft on x-ray before that progression may begin*

- Maintain full ROM
- Strengthening
  - Continue to advance strengthening, flexibility, and agility programs
  - Impact control exercises
  - Jogging and running progression
  - Sports/work specific balance, agility, and proprioceptive drills
- Work quad to within 15% or less difference of contralateral limb
- *Goal return to sport at 8-9mo*