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**Cartilage Restoration Postoperative Protocol: Weight-bearing Femoral Condyle (Microfracture, Osteochondral autograft or allograft)**

**I) Weeks 0-6 (Healing Phase):**

- Restrictions:
  - 1) Knee immobilizer as needed
  - 2) TTWB with crutches
  
- Goals:
  - 1) Reduce swelling
  - 2) Reduce muscle atrophy
  - 3) Gradual full range of motion
  
- Outcome measures at initial evaluation:
  - 1) LEFS: Lower extremity functional scale.
  - 2) PSFS: Patient specific functional scale.
  
- Anti-edema
  - 1) Ice/Cryotherapy multiple times during the day
  - 2) Compression with TubiGrip/TEDS
  
- If provided: CPM 8 hours/day x 6 weeks, start 0-60 degrees post-op, progress to specified maximum flexion depending on the lesion location.
  
- Therapy/Exercise examples:

- 1) Quad sets, SLR
- 2) Hamstring sets
- 3) Gluteal sets
- 4) Hip belt abduction isometrics
- 5) Pillow adductor squeezes
- 6) Crunches
- 7) Ankle dorsiflexion/plantar flexion isometrics or Theraband strengthening
- 8) Weight shifts
- 9) Alter-G Treadmill walking
- 10) Multi-directional patella mobilization
- 11) Stationary bicycle with no resistance once knee flexion greater than 90 degrees

## **II) Weeks 6 to 12 (Transitional Phase):**

### · Restrictions:

- 1) Weight-bearing status: use bathroom scale to progress as follows:

Week 7: PWB 1/3 body weight

Week 8: PWB 2/3 body weight

Week 9: FWB with crutches/crutch/cane

Week 10+: Discontinue ambulatory aids

### · Goals:

- 1) Reduce effusion
- 2) Full weight bearing by ten weeks without crutches
- 3) Continue full ROM
- 4) Reduce pain
  - a. Electrical stimulation
  - b. Soft tissue mobilizations and myofascial release
- 5) Minimize hip, core and lower extremity atrophy

### · Therapy/Exercise examples:

- 1) Low weight (max 10-20lbs.) open-chain leg extension and curl
- 2) Stationary bicycle with gradual increased tension per level of comfort
- 3) Continue quad sets, SLR, leg curl and heel slides
- 4) Strengthen quads, hamstrings, and hip abductors/extensors using ankle weights and/or elastic band resistance through full ROM as tolerated
- 5) Gentle closed-chain terminal knee extension 0-40 degrees (TKE) permitted starting at 9-10 weeks as tolerated per weight bearing restriction.
- 6) Body weight partial squats and leg press 60- to 0- degree arc.
- 7) Alter-G Treadmill walking
- 8) Multi-directional patella mobilization
- 9) Core training:
  - a. Begin with mat-based exercises paying attention to weight-bearing status.

- b. Advance to physio ball exercises as able.
- c. Incorporate multi-planar training as able and restrictions permit.

### **III) Weeks 13+ (Remodeling Phase):**

- Restrictions:
  - 1) Return to impact loading activities and clearance for return to sports as determined by surgeon
  - 2) No pivoting sports should be started without surgeon clearance
  
- Goals:
  - 1) Full active range of motion of the involved knee
  - 2) No effusion
  - 3) Improved quad strength and endurance
  
- Outcome measures at final evaluation:
  - 1) LEFS: Lower extremity functional scale.
  - 2) PSFS: Patient specific functional scale.
  
- Weight bearing:
  - 1) Normal walking
  
- Therapy/Exercise examples:
  - 1) Resisted open-chain exercise with  $\leq 20$ lbs to be progressed as tolerated after 6mos
  - 2) Closed-chain exercise to promote knee stability and proprioception through full ROM as tolerated. Progress mini-squats to squats. Leg press 90- to 0- degree arc.
  - 3) Cycling on level surfaces permitted with gradual increase in tension per level of comfort
  - 4) Treadmill walking/reverse treadmill walking encouraged
  - 5) Core training:
    - a. Advance to weight-bearing multi-planar training as able.