



Cartilage Restoration Postoperative Protocol:

I) Weeks 0-6 (Healing Phase):

- Restrictions:
 - 1) Knee immobilizer as needed
 - 2) Touch weight bearing with crutches

- Goals:
 - 1) Reduce swelling
 - 2) Reduce muscle atrophy
 - 3) Gradual full range of motion

- Anti-edema
 - 1) Ice/Cryotherapy multiple times during the day
 - 2) Compression with TubiGrip/TEDS

- 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: Partial weight bearing (PWB) 1/3 body weight
 - Week 8: PWB 2/3 body weight
 - Week 9: Full weight bearing 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 ≤ 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.