**Femoral Condyle Microfracture/OATS/MACI/Joint Restoration Rehabilitation Protocol**

**Phase I – Maximum Protection (0 to 1 week):**

**0 to 1 week:**

* Ice and modalities to reduce pain and inflammation
* Use crutches **non-weight bearing for 2 weeks, PWB 50% for 2 weeks, progress towards FWB by 6 weeks**
* Elevate the knee above the heart for the first 3 to 5 days
* Initiate patella mobility drills
* Begin full passive/active knee range of motion exercises
* Quadriceps setting focusing on VMO restoration
* Blood flow restriction therapy to maintain muscle mass and activate quads
* Multi-plane open kinetic chain straight leg raising
* Gait training with crutches

**Phase II – Progressive Stretching and Early Strengthening (Weeks 1 to 6):**

**Weeks 1 to 6:**

* Maintain program as outlined in week 0 to 1
* P/AROM Start week 3 and advance 5°/Day as tolerated on CPM
* Continue with modalities to control inflammation
* Initiate global lower extremity stretching program
* Begin stationary bike when 90° PROM knee flexion achieved

**\*\***Can substitute 1 hour of bike (well leg active & operative knee passive) for 2 hours of CPM\*\*

* Begin Pool Exercise Program when incisions healed
* Implement reintegration exercises emphasizing core stability
* Begin closed kinetic chain multi-plane hip strengthening on uninvolved side
* Manual lower extremity PNF patterns
* Proprioception drill emphasizing neuromuscular control
* Begin multi-plane ankle strengthening

**Phase III – Strengthening and Proprioceptive Phase (Weeks 6 to 10):**

**Weeks 6 to 10:**

* Normalize gait pattern
* Advance stationary bike program; begin treadmill walking and elliptical trainer; avoid running and impact activity
* Initiate closed kinetic chain exercises progressing bilateral to unilateral
* Initiate proprioception training

Phase IV – Advanced Strengthening and Initiation of Plyometric Drills (Weeks 10 to 20):

**Weeks 10 to 16:**

* Initiate gym strengthening-beginning bilateral progressing to unilateral

Leg press, heel raises, hamstring curls, squats, lunges,

**Weeks 16 to 20:**

* Continue with advanced strengthening
* Begin functional cord program
* Begin pool running program progressing to land as tolerated

**Phase V – Return to Sport Functional Program (Weeks 20 to 24):**

* Follow-up examination with physician
* Implement sport specific multi-directional drills and bilateral plyometric activity progressing to unilateral as tolerated
* Continue with aggressive lower extremity strengthening, cardiovascular training, and flexibility
* Sports test for return to play

**RETURN TO ACTIVITIES**

Running: 4-5 months when functional criteria are met

Golf: Short irons at 4 months, full swing with long irons at 5 months.

Delay 4-6 weeks if lead leg.

Pivoting/cutting sport: When functional criteria are met and cleared by surgeon, typically

6+ months at earliest

\*\**Assure patient that improvement will continue to be noticed for 12 to 18 months as the new cartilage remodels and matures\*\**