**Trochlea/Patella Microfracture/OATS/MACI/Joint Restoration Rehabilitation Protocol**

**Phase I – Maximum Protection (0 to 6 weeks):**

**0 to 1 week:**

* Ice and modalities to reduce pain and inflammation
* **Brace 0° to 20° for 6 weeks**
* 50% Weight Bearing x 1 week, then WBAT in Brace.
* Elevate the knee above the heart for the first 3 to 5 days
* Initiate patella mobility drills
* PROM 0°-60° first 2 weeks
* 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

**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 and operative knee passive) for 2 hours of CPM\*\*

* Begin Pool Exercise Program when incisions healed (week 3)
* 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 16):**

**Weeks 6 to 10:**

* Continue with Phase II exercises as indicated
* Begin Protected Weight Bearing Opening Brace As Follows:

 - 0° to 45° (week 7)

 - 0° to 60° (week 8)

 - 0°to 90° (week 9)

 - Wean out of brace by week 10

* Normalize Gait
* Advance time and intensity on cardiovascular bike program
* May begin treadmill or elliptical trainer - avoid running
* Initiate closed kinetic chain exercises progressing bilateral to unilateral

**Weeks 10 to 16:**

* Initiate gym strengthening – bilateral, progressing to unilateral as tolerated
* Leg press, squats, hamstring curls, ab/adduction, calf raises
* Avoid leg extensions/lunges
* Begin functional cord resistance program

Phase IV – Advanced Strengthening (Weeks 16 to 20):

* Continue with a full gym-strengthening program avoiding PF provocative exercise (lunges, leg extensions…)
* Begin pool running program advancing to an interval running program
* Initiate Impact Activity (As Directed by Physician)

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

* Follow-up examination with physician
* Implement sport specific multi-directional drills
* Continue with aggressive lower extremity strengthening, cardiovascular training, and flexibility
* Continue with plyometric activity (increasing as tolerated)
* 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\*\**