**HTO (High Tibial Osteotomy) & Femoral MFx/OATs/MACI/Meniscal Transplant Rehabilitation Protocol**

**\*\*\*\*MD may make changes for weight bearing restrictions\*\*\*\*\***

**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, then PWB 50% for 2 weeks, progress towards FWB by 6 weeks.**
* Brace locked to 0 degrees until pt exhibits excellent quad control; brace can be unlocked to 90 degrees when there is good quad control and worn for the next 6 weeks.
* If meniscal allograft then brace locked at 0\* for 4 weeks and wear for 8 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
* 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
* Continue with modalities to control inflammation
* Initiate global lower extremity stretching program
* Begin stationary bike and pool exercise program (when incisions healed)
* Implement reintegration exercises emphasizing core stability
* Manual lower extremity PNF patterns
* Proprioception drill emphasizing neuromuscular control
* Multi-plane ankle strengthening

**Phase III – Strengthening and Proprioceptive Phase (Weeks 6 to 12):**

**Weeks 6 to 12:**

* Normalize gait pattern
* Advance stationary bike program; begin treadmill walking and elliptical trainer; no running and impact activity
* Initiate closed kinetic chain exercises progressing bilateral to unilateral
* Initiate proprioception/balance training

Phase IV – Advanced Strengthening (Weeks 12 to 24):

**Weeks 12 to 16:**

* Initiate gym strengthening-beginning bilateral progressing to unilateral

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

**Weeks 16 to 24:**

* Continue with advanced strengthening
* Begin functional cord program

**Phase V – Return to Sport/Functional Program (Week 24):**

* Follow-up examination with physician
* Implement sport specific multi-directional drills
* Continue with lower extremity strengthening, cardiovascular training, and flexibility

**RETURN TO ACTIVITIES**

Running: 5-6 months when functional criteria are met

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

6-7+ months at earliest