

## **Post-Operative Rehabilitation Progression for Structural Management of Articular Cartilage Lesions of the Knee**

*\*Structural Management includes: Osteochondral autograft transplantation (OAT's), osteochondral allograft transplant, osteochondral fragment fixation, trans-articular drilling and retro-articular drilling.*

### ***Tibiofemoral Compartment:***

#### ***Acute Phase (0-6 wks)***

*Weight bearing guideline:* NWB x 4 weeks; PWB x 2 weeks, then progress to FWB when the patient presents with:

- Full knee extension
- Sufficient knee flexion to demonstrate a normal gait pattern
- Minimal effusion and pain
- Sufficient quadriceps control to eccentrically control lowering the body's center of mass with knee flexion from 0-30 degrees

*PO Bracing:* No specific PO bracing unless needed for comfort or stability during ambulation

*Continuous Passive Motion:* Early ROM is advocated immediately following surgical intervention with a goal to progress to full ROM within 6 weeks post-operative. The use of mechanical CPM is not required.

*ROM Progression:* Progress ROM as tolerated with no limitations in ROM

#### ***Strengthening:***

- Early quadriceps and hamstrings muscle activation is initiated immediately after surgery with care to protect the PF joint.
- NWB lower extremity strengthening is initiated immediately following surgery and progressed to more closed kinetic chain activities as WB restrictions permit
- Core stability strengthening is initiated immediately following surgery as tolerated by pain

*Balance/Proprioception Training:*

- Initiate double leg balance weight shifting and proprioception activity once permitted to PWB
- Advance to single leg balance/proprioception exercises as permitted by WB status

*Modalities:*

- NMES (Neuromuscular electrical stimulation) to enhance recruitment of quadriceps musculature, post-operatively
- Cryotherapy/Vasopneumatic therapy to assist with maintenance of post-operative effusion

***Sub-acute Phase (6-12 wks)***

*Weight Bearing Progression:* FWB is permitted when above criteria met

*PO Bracing:* All bracing discontinued. Optional to use varus or valgus unloading brace with progression to return to activity

*Strengthening:*

- Progression of closed kinetic chain strengthening of the lower extremity consistent with WB status
- Progression of hip and core stability strengthening
- Target on residual asymmetries in lower extremity strength

*Balance/Proprioception:*

- Progression to advanced single limb balance from stable to unstable surfaces
- Initiation of agility activities on stable surfaces

*Cardiovascular Conditioning:*

- Initiation of PWB CV conditioning including biking and swimming
- No impact activities permitted at this time

*Modalities:*

- Continuation of NMES if limitations in quad activation persist
- Continuation of cryotherapy if residual effusion persists

***Transition to Function/Return to Play (3-6 months)***

The transition to function phase is designed to help transition the patient, once sufficient healing, progression of strength and functional mobility has occurred. The focus of this phase is to

progressively re-introduce pre-injury activity to the patient in a progressive systematic fashion. All impact activity is introduced after a minimum of 3 months PO, to insure sufficient healing. Once the patient completes a return to function/return to play progression, a consideration is made to release the patient to activity.

Return to play following these procedures is typically restricted until 3-6 months post-operative to allow sufficient healing to occur. In addition to adequate healing, the patient must present with the following objective criteria:

1. No residual effusion
2. Full ROM and normal patellofemoral joint mobility
3. Strength of quadriceps and hamstring musculature >90% of the contralateral limb
4. Demonstration of performance on lower extremity functional performance testing >90% contralateral leg.
5. Completion of a return to play progression with no signs of pain, swelling or instability.