

Microfracture Post-Operative Rehabilitation Protocol

Phase I: 0 – 6 weeks

Brace

- Patella-trochlear lesions: brace locked in extension with weightbearing, unlocked when non-weightbearing
- Femoral condyle, tibial plateau lesions: none
- **Weightbearing status**
- Patella-trochlear lesions: weightbearing as tolerated in brace locked 0-30° for 6 weeks
- Femoral condyle, tibial plateau lesions: non-weightbearing for 6 weeks
- **Exercises**
- Continuous Passive Motion (CPM) machine – 6 to 8 hours per day in 2 hour sessions at slow, comfortable speed. Start at 50° of flexion, and increase 10° per day up to 90°
- If CPM not used, passive flexion/extension of knee 500 cycles, three times a day
- Passive knee ROM exercises (see figures below)
- Extension
 - Passive extension – sit in a chair and place your heel on the edge of a stool or chair; relax thigh muscles and let the knee sag under it's own weight until maximum extension is achieved.
 - Heel props – place rolled up towel under the heel and allow leg to relax
 - Prone hangs – lie face down on a table/bed with the legs hanging off the edge of the table; allow the legs to sag into full extension.
- Flexion
 - Passive flexion – sit on chair/edge of bed and let knee bend under gravity; may use the other leg to support and control flexion
 - Wall slides – Lie on your back with the involved foot on the wall and allow the foot to slide down the wall by bending the knee; use other leg to apply pressure downward.
 - Heel slides – Use your good leg to pull the involved heel toward the buttocks, flexing the knee. Hold for 5 seconds; straighten the leg by sliding the heel downward and hold for 5 seconds.
- Quadriceps sets in full extension
- Straight leg raises (with brace locked in extension if patella-trochlear lesion)
- Hamstring isometric sets in full extension
- Patella mobilization
- Hip abduction, adduction
- Ankle ROM and gastoc-soleus strengthening with tubing/therabands

- **Phase II: Weeks 6 – 12**

- **Brace**

- Patella-trochlear lesions: brace unlocked for full ROM, then weaned off as tolerated; may continue brace as needed during strenuous exercise

- **Weightbearing status**

- Gradual increase to weightbearing as tolerated

- **Exercises**

- Full active knee ROM
- Stationary bicycling – begin with no resistance, with goal of 45 minutes for endurance training; then may gradually increase resistance
- Treadmill walking / elliptical trainer (slow speed, no incline) – begin with 5-10 minute duration; advance 5 minutes/week
- Standing Hamstring curls
- Standing toe raises
- Closed chain exercises for hamstring; for quadriceps, may begin squats to chair and wall slides (back against wall) at week 8 with knee flexion limited 0 - 45°; if patella-trochlear repair, avoid until week 12
- Elastic resistance cord exercises (avoid open chain knee extension)

- **Phase III: Weeks 12 – 16**

- **Exercises**

- Continue previous exercises with progressive resistance
- Begin running program – begin on treadmill or soft track; start with 1 minute running, 4 minute walking intervals; increase running by 1 minute/week (with decrease in walking interval) with goal of 20 minutes of continuous running after 5 weeks
- Seated leg press; avoid if patella-trochlear repair
- For patella-trochlear repair, may begin may begin squats to chair and wall slides (back against wall) with knee flexion 0 - 30°

- **Phase IV: Weeks 16 – 24**

- **Exercises**

- Continue to increase lower extremity strength and endurance
- Advance running program
- Begin agility and plyometric training

- **Phase IV: Weeks 24+**

- **Exercises**

- Return to sports that involve contact, cutting, pivoting or jumping 6 months out from surgery