



Michael Knesek MD

Phone: 219-795-3360 Fax: 219-756-6500

9001 Broadway, Merrillville IN, 46410

801 Macarthur BLVD, STE 302, Munster IN, 46321

3800 St. Mary Drive, STE 101, Valparaiso IN, 46383

## **Microfracture Post-Operative Rehabilitation Protocol**

### **Phase I: 0 - 6 weeks**

#### **Brace**

- Patella-trochlear lesions: brace locked 0-30 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 gastroc-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

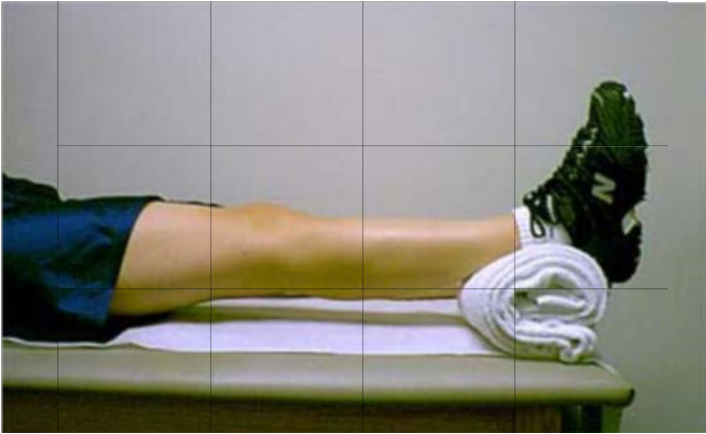
## **Phase IV: Weeks 24+**

## Exercises

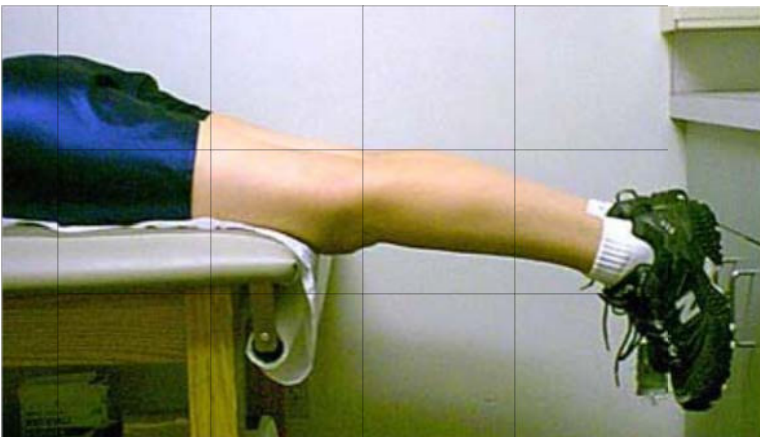
- Return to sports that involve contact, cutting, pivoting or jumping

### EXERCISE FIGURES

#### Heel props



#### Prone hangs



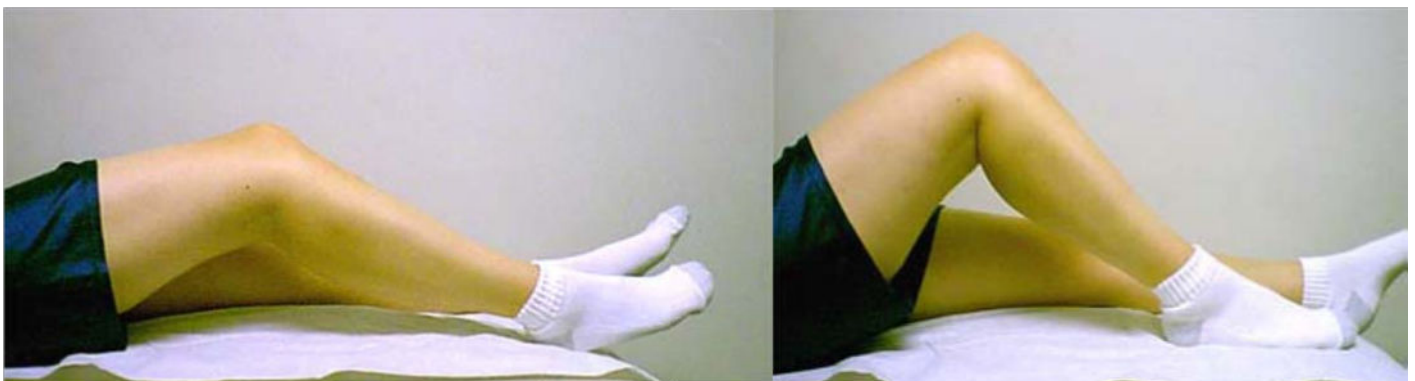
**Passive flexion**



**Wall slides**



**Heel slides**



**Straight leg raises**

**Partial ¼ squats**

