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## Physical Therapy Protocol: Microfracture Patellofemoral

### Philosophy:

Microfracture surgery is a surgical attempt to restore articular cartilage for weight bearing activities. The process is complex and when healed, produces a fibrocartilage base on the joint surface. Although the joint surface benefits from this healed fibrocartilage, the result is not as resilient as natural hyaline cartilage (unfortunately, as of yet, there is no surgery to restore human cartilage back to normal). For a younger patient, microfracture surgery is important to preserve as much cartilage function in the knee for as long as possible, therefore a commitment to non-weight bearing on the knee is needed to achieve a desirable outcome. Below are general precautions for the weight-bearing restrictions, based on lesion location, size and intra-op MD parameters. A strong, pain-free knee with functional range-of-motion only comes about through surgical intervention with careful physical therapy performed with the therapist and at home.

**-TROM Brace is locked in extension for ambulation x 6 weeks, small & large lesions**

### **-Weight bearing:**

Week 1: 25% of body weight in locked brace

Week 2: 50% of body weight in locked brace

Week 3: 75% of body weight in locked brace

Week 4: progress to FWB in locked brace

Week 6-8: progress to opening of brace, and then wean from brace

### **-Range Of Motion:**

Week 1: 0-90

Week 2: 0-105

Week 3: 0-115

Week 4: 0-125

Week 8: FROM

## *Phase I, surgery to 6 weeks*

### **OSMS appointments:**

Medical appointments at 2 weeks, with films to assess tunnels/implanted hardware

Physical therapy will begin as directed by your physician and as indicated on your physical therapy order

### **Rehabilitation Goals:**

Protect the healing tissue

Reduce swelling

Control pain



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Gradually restore knee ROM, quad activation

**Precautions:**

Brace locked in extension for ambulation

NO active NWB knee extension exercises

**Range-of-Motion Exercises:**

As above

**Suggested Therapeutic Exercises:**

Ankle pumps

Quad sets, 4-way SLSs

Multi-angle isometrics

Active knee extension 90°-40° (no resistance)

Prone TKE

Clam shells

NMES to quadriceps

Begin patellar mobilizations

-**Small lesion** (<2cm<sup>2</sup>): at 1-2 weeks, initiate weight shifts with knee in extension; at 4-6 weeks, begin toe calf raises, and partial WB leg presses 0-60 then progress to 0°-90° at 6-8 weeks

**Cardiovascular Exercises:**

Upper body circuit training or upper body ergometer

After 4 weeks, stationary bike with low resistance

**Progression Criteria:**

Patient may progress to phase II after 6 weeks if they have full passive knee extension, knee flexion to 125°, minimal pain and fair quadriceps activation

***Phase II, (after Phase I criteria met, usually at 6-12 weeks)***

**OSMS appointments:**

Medical appointments at 6 and 12 weeks

Physical therapy appointments continue at once or twice weekly

**Rehabilitation Goals:**

Full knee flexion by week 8

Gradually improve quad strength and endurance

Improve tolerance to functional activities

**Precautions:**

Wean from TROM brace

**Suggested Therapeutic Exercises:**



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Patellar mobilizations

Progress gluteal strengthening with resistance to 4-way leg raises

DL bridges, standing TKE, proprioceptive drills

-**Small lesion** (<2cm<sup>2</sup>): at 6-8 weeks, initiate front lunges, wall squats, front and lateral step-ups; at 8-10 weeks begin mini-squats 0°-45°

-**Large lesion** (>2cm<sup>2</sup>): toe calf raises; at 8-10 weeks initiate front lunges, wall squats, front and lateral step-ups

**Cardiovascular Exercises:**

Stationary bike with low resistance, advance as tolerated

**Progression Criteria:**

Progress to phase III when patient can perform 20 SLR with no extensor lag, 10 repeated single leg step downs with good form, and no reactive effusion or exacerbation of symptoms

***Phase III, (after Phase II criteria met, usually after 12+ wks)***

**OSMS appointments:**

Medical appointment at 12 weeks

Physical therapy appointments fade to every 10-14 days until cleared

**Rehabilitation Goals:**

Gradual return to full unrestricted functional activity and sport

**Suggested Therapeutic Exercises:**

Leg presses 0°-90°

Bilateral squats 0°-60°

Unilateral step-ups progressing from 2in to 8in

Core strengthening

Forward lunge, squat holds, fire hydrants, continued balance and proprioceptive exercise

**Cardiovascular Exercises:**

Stationary bike with resistance

Stairmaster

Swimming

NordicTrack/elliptical

Increase walking tolerance (distance, cadence, incline, etc.)

**Progression Criteria:**

After 18 weeks, ok to begin plyometric training, progress from double and single leg hopping, agility and balance drills

-**Small lesion** (<2cm<sup>2</sup>): at 20 weeks, ok to begin jogging and progress to running; avoid high-impact sports (singles tennis, basketball, football, baseball, soccer) until 6-8 months



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**-Large lesion** ( $>2\text{cm}^2$ ): at 24 weeks, ok to begin jogging and progress to running; avoid high-impact sports until 9-12 months

**References:**

- Wilk, Brotzman SB, ed. *Clinical Orthopedic Rehabilitation*. St. Louis: Mosby-Yearbook, 2003.