

## Microfracture Procedure (Femoral Condyle) Regular (Medium-Large Lesion) Rehabilitation Program

### I. PHASE I: PROTECTION PHASE:

**Goals:** Reduce swelling and inflammation  
Protect and promote healing articular cartilage  
Restoration of full passive knee extension  
Gradual restoration of knee flexion  
Re-establish voluntary quadriceps control

#### Weeks 0-2

**Brace:** Use elastic wrap to control swelling and inflammation

**Weight Bearing:** Non weight-bearing week 0-2  
Use of crutches to control weight bearing forces

**Inflammation Control:**  
Use of ice and compression 15-20 min. (6-8 times daily)

**Range of Motion:** Immediate motion  
Full passive knee extension  
Passive and active assisted knee flexion (3-5 times daily) to promote articular cartilage healing  
Week one: 0-90o or beyond (to tolerance)  
Week two: 0-105o or beyond (to tolerance)  
Flexibility exercises: stretch hamstrings, calf & quads

**Strengthening Exercises:** Isometric quadriceps setting  
Straight leg raises (4 directions)  
Multi-angle quadriceps  
Electrical muscle stimulation to quads  
Bicycle when ROM permits  
Proprioception and balance training

**Functional Activities:** Gradual return to daily activities  
Monitor swelling, pain and loss of motion

#### Weeks 3-4

**Weight Bearing:** Toe-touch WB week 3  
25% WB week 4  
Weight bearing crutches

**Range of Motion:** Gradually progress knee flexion  
Week 3: 0-115/125o  
Week 4: 0-125/130o+  
Maintain full passive knee extension  
Continue stretches for quadriceps, hamstrings, gastroc  
Perform active assisted and active ROM (4-5 times daily)

**Strengthening Exercises:** Bicycles (1-2 times daily)  
Low intensity bicycle – longer duration

Quads setting  
 Straight leg flexion  
 Hip abd/adduction  
 Hip flexion/extension  
 Light hamstring curls  
 Pool program (once incisions are closed)  
 Proprioception and balance training  
 No OKC resisted knee extension

**Inflammation Control:** Continue use of ice, elevation and compression (4-5 times daily)

**Functional Activities:** Gradually return to functional activities.  
 No sports or impact loading

**II. PHASE II: INTERMEDIATE PHASE (WEEKS 5-8):**

**Goals:** Protect and promote articular cartilage healing  
 Gradually increase joint stresses and loading  
 Improve lower extremity strength and endurance  
 Gradually increase functional activities

**Weight Bearing:** 50% WB week 6  
 75% WB week 7  
 FWB as tolerated week 8

**Flexibility Exercises:** Continue stretching hamstrings, quadriceps, and calf

**Strengthening Exercises:** Initiate functional rehab exercises  
 Mini-squats & leg press week 6  
 Closed kinetic chain exercises (step-ups, lunges) week 8  
 Vertical squats, wall squats, leg press  
 Bicycle, elliptical (low intensity long duration)  
 Initiate progressive resistance exercise\* (PRE's)  
 Hip abd/adduction, extension/flexion  
 Hamstring strengthening (light)  
 Pool program  
 Initiate walking program\* (light walking)  
 Proprioception and balance training

**Functional Activities:** Gradually increase walking program  
 \*Progression based on monitoring patient swelling, pain and motion

**III. PHASE III: LIGHT ACTIVITY PHASE (WEEKS 8-16) :**

**Goals:** Improve muscular strength/endurance  
 Increase functional activities  
 Gradually increase loads applied to joint  
 Control compression and shear forces

**Criteria to Progress To Phase II:**

- 1) Full non-painful ROM
- 2) Strength within 20% contralateral limb
- 3) Able to walk 1.5 miles or bike for 20-25 minutes without symptoms

**Exercises:** -  
 Continue progressive resistance exercises  
 Continue functional rehabilitation exercises  
 Balance and proprioception drills  
     Bicycle and elliptical  
     Neuromuscular control drills  
 Initiate light running program  
 \*\*Physician will determine  
 Continue all stretches to lower extremity

**Functional Activities:** Gradually increase walking distance/endurance  
     Pool running week 10  
     Light running week 12-16  
     Progress running program week 16-18  
     Progression based on monitoring patient's swelling, pain, and motion\*

**IV. PHASE IV: RETURN TO ACTIVITY PHASE (WEEKS 16-26):**

**Goals:** Gradual return to full unrestricted functional activities  
     \*Actually timeframes may vary based on extent of injury and surgery  
     \*Physician will advise rate of progression

**Exercises:** -  
 Continue functional rehab exercises  
 Continue flexibility exercises  
 Restrict with deep squatting with resistance and heavy knee extensions  
 Monitor jumping activities closely

**Functional Activities:** -  
 Low impact sports (cycling, golf) weeks 6-8  
     Moderate impact sports (jogging, tennis, aerobics) weeks 12-16  
     High impact sports (basketball, soccer, volleyball) weeks 16-26  
 \* Actual return to sports or strenuous will be determined by your Physician & Rehabilitation Team