

Microfracture Procedure (Trochlear Lesion) (Small to Medium Lesions)

I. PHASE I: PROTECTION PHASE (Week 0-6)

Goals: Protection of healing articular cartilage from load and shear
Reduce swelling and inflammation
Restoration of full passive knee extension
Gradual restoration of knee flexion
Re-establish voluntary quadriceps control

Weeks 0-2

Brace: Locked at 0° during ambulation and weight bearing activity

Weight Bearing: Toe-touch WB (~25% body weight) in full extension
Week 1 - 50% body weight (BW) week 2 in brace

Inflammation Control: Use of ice and compression 15-20 min. (6-8 times daily)
Use elastic wrap to control swelling and inflammation

Range of Motion: Immediate motion
Full passive knee extension immediately
Patellar mobilization immediately 6-8x daily
Active assisted knee flexion (3-5 times daily)
Initiate CPM day one for total of 8-12 hrs daily
Week one: 0-90° or beyond to tolerance
Week two: 0-115° or beyond to tolerance
Flexibility exercises: stretch hamstrings, calf and quads

Strengthening Exercises: Isometric quadriceps setting
Straight leg raises (4 directions)
Electrical muscle stimulation to quads
Bicycle on Unicam with limited motion 0-60 degrees
Ankle pumps
Hip rotation strengthening

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

Week 6

Weight Bearing: 75% BW week 3
Week 4 full weight bearing

Range of Motion: Gradually progress knee flexion
Week 3: 0-125°
Week 4: 0-135°
Maintain full passive knee extension
Continue patellar mobilization
Continue stretches for quadriceps, hamstrings, gastroc
Perform active ROM (4-5 times daily)

Strengthening Exercises:

Bicycles (1-2 times daily) low intensity cycling (unicam)
 Electrical muscle stimulation
 Quads setting
 Straight leg flexion
 Hip abd/adduction
 Hip flexion/extension
 Pool program (once incisions are closed)
 Proprioception and balance training

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: TRANSITION PHASE WEEKS 6-12

Criteria to progress to Phase II:

Full passive knee extension
 Knee flexion to 115 degrees
 Minimal pain/ swelling
 Voluntary quad activation

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

Full WB week 4-6 without brace (physician discretion)

Flexibility Exercises: Continue stretching hamstrings, quadriceps, and calf

Strengthening Exercises:

Leg Press (light) 0-60 degrees
 Mini-squat 0-45 degrees
 Toe calf raise
 EMS to Quads
 Continue SLR
 Quad sets
 Bicycle (gradually increase time) low intensity
 Lateral lunges with sportcord
 Wall Slides 0-60 degrees
 Pool program (walking and running week 6)
 Initiate walking program (week 8)
 Proprioception and balance training
 Elliptical (week 10-12)
 Treadmill walking (week 10-12)

Functional Activities:

Gradually increase walking program
 *Progression based on monitoring patient swelling, pain and motion

III. PHASE III: LIGHT ACTIVITY PHASE (WEEKS 12-16)

Goals: Improve muscular strength/endurance
 Increase functional activities
 Gradually increase loads applied to joint

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 (week 12)
 Neuromuscular control drills
 Pool program
 Continue all stretches to lower extremity
 Light jogging (week 12-16) physician determination

Functional Activities: Gradually increase walking distance/endurance
 Light jogging

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
 Emphasize patellar mobility
 Quadriceps strengthening without pain
 Hip Strengthening (ER/IR)
 Continue with squatting for 3-4 months
 Continue flexibility exercises
 Stretch quads, hamstring, calf

Functional Activities : Per physician direction
 Low impact sports (cycling, golf) wks 12-16
 Moderate impact sports (jogging, tennis, aerobics) wks 20-26
 High impact sports (basketball, soccer, volleyball) wks 26+