

**MICROFRACTURE PROCEDURE  
(FEMORAL CONDYLE)**

Regular (Medium-Large Lesion) Rehabilitation Program

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

A. Weeks 0-2

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

- Weight Bearing:
- Non weightbearing 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: 0-90° or beyond (to tolerance)
  - Week two: 0-105° or beyond (to tolerance)
  - Flexibility exercises: stretch hamstrings, calf and 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

B. 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: 0-115/125°  
Week 4: 0-125/130°+
  - 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)
  - 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

### 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, stair climber\*
  - Initiate progressive resistance exercise\* (PRE's)

- Hip abd/adduction, extension/flexion
- Hamstring strengthening (light)
- Pool program
- Initiate walking program\*
- Proprioception and balance training

Functional  
Activities:

- Gradually increase walking program

\*Progression based on monitoring patient swelling, pain and motion

### 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 stair climber
- 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\*

#### 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