

## MICROFRACTURE PROCEDURE (FEMORAL CONDYLE)

Small Lesion (Accelerated) Rehabilitation Program

### PHASE I: PROTECTION PHASE

- Goals:
- Reduce swelling and inflammation
  - Protection of healing articular cartilage
  - Restoration of full passive knee extension
  - Gradual restoration of knee flexion
  - Re-establish voluntary quadriceps control
- A. Weeks 0-2
- Weight Bearing:
- Toe-touch WB (~20 pounds) week 0-2
  - Use of crutches to control weight bearing forces
  - Discontinue crutches when patient exhibits normal gait
- 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
  - Active assisted knee flexion (3-5 times 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)
  - Multi-angle quadriceps
  - Electrical muscle stimulation to quads
  - Bicycle when ROM permits
  - Proprioception and balance training (weight shifts)
- Functional Activities:
- Gradual return to daily activities
  - Monitor swelling, pain and loss of motion

### B. Week 3-4



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- Weight Bearing: - 50% WB week 3  
- 75% WB week 4
- Range of Motion: - Gradually progress knee flexion  
Week 3: 0-125°  
Week 4: 0-135°  
- Maintain full passive knee extension  
- Continue stretches for quadriceps, hamstrings, gastroc  
- Perform 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  
- Mini squats (week 3-4)  
- Front and side lunges  
- Leg press (light – week 3-4)  
- 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

## PHASE II: INTERMEDIATE PHASE (WEEKS 4-8)

- Goals: - Protect and promote articular cartilage healing  
- Gradually increase joint stresses and loading  
- Improve lower extremity strength and endurance  
- Gradually increase functional activities
- Weightbearing - Full WB week 4-6 as tolerated (physician discretion)
- Flexibility Exercises: - Continue stretching hamstrings, quadriceps, and calf



### Strengthening

- Exercises:
- Initiate functional rehab exercises
  - Closed kinetic chain exercises (step-ups, lunges)
  - 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 (running week 4-6)
  - Initiate walking program (week 6-8)
  - 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 8-12)

- 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 stair climber
  - Neuromuscular control drills
  - Initiate light running program (week 8-10)  
\*\*physician will determine
  - Continue all stretches to lower extremity

### Functional

- Activities:
- Gradually increase walking distance/endurance
  - Light running week 8-10



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#### PHASE IV: RETURN TO ACTIVITY PHASE (WEEKS 12-20)

- 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
- Functional Activities:
- Per physician direction
  - Low impact sports (cycling, golf) weeks 6-8
  - Moderate impact sports (jogging, tennis, aerobics) weeks 8-12
  - High impact sports (basketball, soccer, volleyball) weeks 12-16