

MICROFRACTURE REHABILITATION (FEMORAL CONDYLE)

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:
- 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)
 - 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) to promote articular cartilage healing
 - 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

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

- Range of Motion:
- Gradually progress knee flexion
 - Week 3: 0-120°
 - 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
 - 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

- Weightbearing
- 50% WB Week 5
 - 75% WB Week 6
 - Full WB week 7 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 III:

- 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 10)
- Continue all stretches to lower extremity

Functional
Activities:

- Gradually increase walking distance/endurance

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

Goals:

- Gradual return to full unrestricted functional activities
- *Actual 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 8-12
- High impact sports (basketball, soccer, volleyball) weeks 12-16