OrthoIllinois REHABILITATION

Microfracture of Knee Joint

Precautions: For 4+ weeks, ambulate with crutches. WB status will be determined by physician based on location of lesion.

Phase I (1 – 5 days post-op)

- Wound care: Observe for signs of infection
- Modalities: prn for pain and inflammation (ice, IFC)
- Brace: For patellofemoral lesion, locked during WB
- Gait: WB status determined by physician based on location of lesion
    - Patellofemoral: typically TTWB, 25%
    - Femoral condyle: typically NWB
    - Check with physician for each patient's WB status as it is a case-by-case decision
- ROM: 0-90 degrees
- Exercises: Passive positional stretches for flex/ext; CPM as prescribed by physician; Ankle AROM

Phase II (5 days – 4 weeks post-op)

- Wound care: Observe for signs of infection and begin scar management techniques when incision is closed
- Modalities: NMES and sEMG for neuromuscular re-ed; IFC for pain/edema
- Brace: As prescribed per physician: likely locked in extension for WB, if used
- Gait:
    - Initiate weight-shifting activities as soon as WB status allows
    - Femoral condyle, unless otherwise directed by physician:
        - For 2 weeks, NWB
        - At 2 weeks post-op, increase to TTWB
        - At 3 weeks post-op, 25% WB
    - Patellofemoral:
        - For 1 week, TTWB
        - At 1 week post-op, increase 25% WB per week
- ROM:
    - Week 1: 0 – 90 degrees
    - Week 2: 0 – 105 degrees
    - Week 3: 0 – 115 degrees
    - Week 4: 0 – 125 degrees
    - PROM for flexion within pain-free range

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- Exercises/Strengthening:
    - UBE and stationary bike with well leg for conditioning
    - At 3 – 4 weeks post-op, begin stationary bike
    - At week 3, for patellofemoral lesion, initiate bilateral light leg press, within WB precautions
        - Week 3: 0 – 60 degrees
        - Week 4: 0 – 90 degrees
    - Increase/maintain patellar mobility with emphasis on superior glide
    - Hamstring, gastroc, soleus, and hip flexor stretches
    - Multi-angle quad and hamstring sets
    - 4 way SLR
    - Heel raises within WB status
    - Patellofemoral lesion: NO open chain extension
    - Condyle lesion: begin open chain extension from 90 – 40 degrees flexion

Phase III (4 weeks – 10 weeks post-op)

- Wound care: Continue scar mobilization
- Modalities:
    - Continue E-stim for re-education or edema
    - sEMG to continue (for balance of VL to VMO or overall contraction)
    - Continue prn (ice, IFC)
- Brace: At week 6, begin weaning from post-op brace; At week 10, D/C brace
- Gait:
    - Femoral Condyle:
        - At 5 weeks, progress to 50% WB
        - At 6 weeks, progress to 75% WB
        - At 7 weeks, FWB
    - Patellofemoral: FWB
- ROM: Emphasize full extension and increase to full flexion
- Strengthening: Continue phase II
    - Femoral Condyle:
        - At 6 weeks, add leg press
        - At 8 weeks, closed chain activities
            - Begin with knee flexion < 60 degrees
    - Patellofemoral:
        - At 5 weeks, initiate closed chain activities in sagittal plane
        - At 8 weeks, add additional planes for closed chain activities

- Conditioning:
    - Stationary bike (low resistance and increase time)
    - Pool, if available, when all incisions are sufficiently healed
    - Treadmill forward and retro, walking speed only
    - At week 8, may increase to advanced exercises if the following criteria are met:
        - Full ROM
        - Functional testing within 30% of contralateral LE
    - At week 8, advanced exercises include
        - Leg press/Squats 0-90 degrees
            - Avoid loading knee at deep flexion angles
        - Increased size of step for step up exercises (2 inches increasing to 8 inches as able)
        - Increase weight with open chain knee extension (protect patellofemoral repair)

Phase IV (10+ weeks post-op)

- Wound care: Continue scar mobilization
- Modalities: Continue PRN
- Gait: Full WB
- ROM: By 12 weeks, full ROM
- Strengthening:
    - Conditioning and strengthening activities that do not increase symptoms
    - Walking program
- Testing: Lower Extremity Functional tests less than 25% deficit (must be able to meet this before moving to week 12 activities)

At weeks 12 – 16

- Strengthening and proprioceptive activities advanced per patient abilities. Treadmill activities can be increased to light jogging within this time frame if pain and swelling do not increase with the increased speed. Other machines include elliptical, steppers, and stationary bicycles. Proprioceptive activities should also be emphasized.

At week 16

- The patient will be allowed to increase activities for gradual return of function or return to sport. Patient will be able to advance to a gym program, work conditioning program, or sport specific training upon release by physician. If a patient plays contact or high impact sports, he/she may not return for 6-8 months.

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REHABILITATION

Adapted From:

1) Reinold MM, Wilk KE et al. Current Concepts in the Rehabilitation Following Articular Cartilage Repair Procedures in the Knee. J Orthop Sports Physical Therapy 2006;36:774-794
2) Cole BJ. Microfracture – Femoral Condyle Rehabilitation Protocol. 2003
3) Cole BJ. Microfracture – Trochlear/Patellar Defect Rehabilitation Protocol. 2003
4) Massachusetts General Hospital Sports Medicine: A Division of Orthopedic Surgery. Arthroscopic microfracture surgery protocol. 2008

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