ROCKFORD ORTHOPEDIC

Microfracture of Knee Joint

Post-op Precautions:
The patient will ambulate with crutches for 4 weeks or more after surgery. The physician will base weight-bearing status upon the location of the lesion.

Phase I (1 – 5 days post-op)

- Wound care: Observe for signs of infection
- Gait: WB will vary by the size of the lesion and the location. See physician prescription. The patient will typically be NWB for femoral condyle lesions and TTWB (25%) for patellofemoral lesions.
- Modalities: prn for pain and inflammation (ice, IFC)
- Brace: Used for patellofemoral lesions locked for WB.
- ROM: 0 – 90 degrees
    - o Passive positional stretches for extension and flexion
    - o CPM as prescribed by physician
    - o 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
- Gait:
    - o Femoral condyle lesions: Initially NWB; s/p 2 weeks increase to TTWB; s/p week 3 then increase to 25% WB
    - o Patellofemoral lesions: Initially TTWB; At s/p week 1 increase 25% per week
    - o Initiate wt shifting activities as soon as WB status allows
- Brace: if used, locked for WB
- ROM:
    - o Minimum Goals:
        - Week 1: 0 – 90 degrees
        - Week 2: 0 – 105 degrees
        - Week 3: 0 – 115 degrees
        - Week 4: 0 – 125 degrees
    - o Stationary bike at 3 to 4 weeks
    - o PROM for flexion with no limits unless painful
    - o Increase / maintain patellar mobility with emphasis on superior glide
    - o Hamstring, gastrocnemius, soleus, and hip flexor stretches
- Strengthening:
    - o Multiangle Quad and Hamstring sets
    - o 4 way SLR
    - o Calf raises within WB status
    - o At week 3 initiate bilateral leg press for patellofemoral lesions 0 – 60 degrees week 3, 0 – 90 at 4 weeks
    - o **NO** open chain knee extension for patellofemoral lesions
    - o Condyle lesions may start open chain extension from 90 – 40 degrees flexion

- Modalities:
  - o NMES to quads if unable to perform quad sets and extensor lag with SLR
  - o IFC and ice for pain and edema prn
  - o sEMG neuromuscular re-education for quad sets
- Conditioning
  - o Upper Body Cycle
  - o Stationary bike with the well leg

Phase III (4 – 10 weeks post-op)

- Wound care: Continue scar mobs
- Gait:
  - o Femoral condyle lesion: s/p week 5 progress to 50% , 75% at s/p week 6 and full WB at s/p week 7
  - o Patellofemoral lesions: FWB
- Brace: Wean from post-op brace starting at week 6 and D/C at 10 weeks
- ROM goals:
  - o Emphasize full extension and increase to full flexion
- Strengthening:
  - o Continue Phase II
  - o Femoral condyle:
    - Add leg press at **week 6**
    - Closed chain activities by **week 8**
  - o Patellofemoral:
    - Initiate closed chain activities at **week 5** in sagittal plane, additional planes added after **week 8**
    - At **week 8** may initiate open chain extension in ROM that does cause articulation of the repair site
- Modalities:
  - o Continue E-stim for re-education or edema
  - o sEMG to continue (for balance of VL to VMO or overall contraction)
  - o Continue ice and IFC prn
- Conditioning:
  - o Stationary bike (low resistance and increase time)
  - o Pool (if available) when all incisions sufficiently healed
  - o Treadmill forward and retro (walking speed only)
  - o At **week 8** may increase to advanced exercises if following criteria met:
    - Full ROM
    - Functional testing within 30% of contralateral LE
  - o At **week 8** advanced exercises include:
    - Leg press 0 – 90 degrees
    - Bilateral squats to 0 – 60 degrees
    - Increased size of step for step up exercises (2 inches increasing to 8 inches as able)
    - Increase wt with open chain knee extension (Protect patellofemoral repair)

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Phase IV (10 + weeks post-op)

- Wound care: Continue scar mobs
- Gait: Full WB
- ROM: Full ROM by **week 12**
- Strengthening:
    - o Conditioning and strengthening activities that do not increase symptoms
    - o Walking program
- Modalities: continue prn
- Testing: Functional tests less than 25% deficit (must be able to meet this before moving to week 12 activities).

At weeks 12 to 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.

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. Mircofracture – Femoral Condyle Rehabilitation Protocol. 2003
3) Cole BJ. Mircofracture – Trochlear / Patellar Defect Rehabilitation Protocol. 2003
4) Massachusetts General Hospital Sports Medicine: A Division of Orthopedic Surgery. Arthroscopic microfracture surgery protocol. Available at http://www.massgeneral.org/sports/protocols/Microfracture%20rehabilitation%20(knee)%20protocol%20protocol.pdf: Accessed November 12, 2008