Microfracture Procedure
Rehabilitation Protocol
Dr. Mark Adickes

Introduction:
• This rehabilitation protocol has been developed for the patient with a microfracture procedure. It is of the utmost importance to protect this patient against excessive weight bearing forces during the early postoperative period to avoid shearing or disruption of the healing cartilage. Early passive range of motion within the allowed range is highly beneficial to enhance the cartilage and the remodeling process.

Goals of rehabilitation are to:
• Control pain, swelling, and hemarthrosis
• Regain normal knee range of motion
• Regain a normal gait pattern and neuromuscular stability
• Regain normal lower extremity strength
• Regain normal proprioception, balance, and coordination

The physical therapy should be initiated within 3 to 5 days post-op. It is extremely important that the supervised rehabilitation be supplemented by a home fitness program.

Important post-op signs to monitor:
• Swelling of the knee or surrounding soft tissue
• Abnormal pain response, hypersensitive
• Abnormal gait pattern, with or without assistive device
• Limited range of motion
• Weakness in the lower extremity musculature
• Insufficient lower extremity flexibility

Return to activity:
• It requires both time and regular clinic evaluation to safely and efficiently return to functional activity.
• Adequate strength, flexibility, and endurance are all necessary to return to high level function, all of which are addressed in this program.
• Isokinetic testing and functional evaluation are required to assess a patient’s readiness to return to sport.
• Return to intense activities following the microfracture procedure may increase the risk of repeat injury. Symptoms such as pain,
swelling, or instability should be closely monitored by the patient.
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Phase 1: Week 1-8

Range of Motion:
- ROM-Passive 0-90° (wk 4)
- Femoral condyle defect: 0-45° Trochlear defect: 0-30°
- Range of motion to increase to reach 0-110° (wk 5)
- goals based on area of defect as noted 0-120° (wk 8)
- Gastroc/Soleus stretch
- Hamstring/ITB stretch
- Heel/Wall slides to reach goal
- Patella mobs
- Ankle pumps

Strength:
- Quad/Hamstring/Gluteal sets
- Multi-angle isometric (0-60°) wk 4
- Multi-angle isometric (90-30°) wk 6-8
- SLR in all 4 planes as tolerated
- Hip flexion
- Selective ROM activity-depending on defect site as noted by Dr. Adickes
- Trochlear repair- only isometric training with quads, NO active motion through range

Weight Bearing:
- NWB with crutches
- NWB to PWB (wk 6-8)

Brace:
- Locked at 0° extension for protection

Modalities:
- E-stim/biofeedback as needed
- Ice 15-20 minutes

Goals for Phase 1:
- ROM 0-120°
- NWB to PWB with one crutch
- Control pain, inflammation, and effusion
- Adequate quad/VMO contraction
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Phase 2: Week 8-36

Range of Motion:
• Passive, 0-135°
• Patella mobs
• Gastroc/Soleus stretch
• Hamstring/ITB stretch
• Heel/Wall slides to reach goal

Strength:
• SLR in 4 planes with ankle wt/tubing
• Mini-squats (0-30°); Wall squats
• Initiate 3-6” lateral/forward step-up/downs
• Leg press (0-60°)/Total Gym
• Knee extension (90-30°); Hamstring curls (0-90°)
• Multi-hip machine in 4 planes
• Heel raise/Toe raise

Balance Training:
• Weight shift (side-to-side, fwd/bkwd)
• Initiate single leg balance work
• Progress to wobble board, ½ foam roller
• Single leg balance with plyotoss
• Sportscord balance work

Weight Bearing:
• NWB to PWB to FWB with quad control
• FWB (wk 8)
• D/C (wk 6-8)

Brace:
• Discharge by week 8 or as noted by Dr. Adickes

Aerobic Conditioning:
• Bicycle when 110° flexion is reached
• EFX for endurance
• Treadmill with 2-3% incline to reduce joint loads
• Swimming (as noted by Dr. Adickes)

Modalities:
• Ice 15-20 minutes

Goals for Phase 2:
• PWB to FWB with quad control
• ROM 0-135°
• Increase lower extremity strength and endurance
• Control pain and inflammation
• Enhance proprioception, balance, and coordination
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Phase 3: Week 36-52

Range of Motion:
• Continue all stretching activities from previous phases

Strength:
• Continue all strengthening activities from previous phases increasing weight and repetition
• Reverse/Lateral lunges
• Straight leg dead lift
• Stool crawl

Balance Training:
• Advance to dynamic balance work with different surfaces

Running/Conditioning Program:
• Initiate running on minitramp, progress to treadmill as tolerated in a straight plane
• Initiate jump rope for endurance and impact
• Initiate walking program for endurance
• Swimming (kicking)
• Bicycle for endurance
• Continue to increase time and resistance on the above

Functional Training:
• Initiate light plyometric work
• Initiate lateral movement (shuffle, slide board)
• Initiate sport specific/functional drills at month 6
• Progress into sport training at month 9

Modalities:
• Ice 15-20 minutes as needed

Goals for Phase 3:
• Maintain full range of motion
• Maximize lower extremity strength and endurance
• Initiate sport specific activity
• Initiate functional activity