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Rehabilitation Guidelines for
Microfracture Procedures to the Knee

The rehabilitation guidelines are presented in a criterion based progression. Specific time frames, restrictions and precautions are given to protect healing tissues and the surgical repair/reconstruction. General time frames are also given for reference to the average, but individual patients will progress at different rates depending on their age, associated injuries, pre-injury health status, rehab compliance and injury severity. Injury severity refers to the size and location of the articular cartilage lesion. Lesions that are larger or are in predominantly weight bearing locations will progress more slowly than smaller or non-weight bearing lesions.

Specific attention must be given to impairments that caused the initial problem. For example if the patient is s/p medial compartment microfracture procedure and they have a varus alignment, post-operative rehabilitation should include correcting muscle imbalances or postures that create medial compartment stress.

PHASE I (Surgery to 6 weeks)

APPOINTMENTS	Meet with physician at 1 week post-op Begin physical therapy 2-5 days post-op, meet 1x week
REHAB GOALS	<ol style="list-style-type: none"> 1. Protection of the post-surgical knee 2. Restore normal knee range of motion and patellar mobility 3. Eliminate effusion 4. Restore leg control
WEIGHT BEARING -Femoral Condyle lesions	Use axillary crutches, in unlocked brace for up to 6 weeks <ul style="list-style-type: none"> • Weeks 0-2 = non-weight bearing • Weeks 3-4 = touchdown weight bearing • Weeks 5-6 = WBAT
WEIGHT BEARING -Patellofemoral lesions	Use axillary crutches, in locked brace for 5 weeks <ul style="list-style-type: none"> • Weeks 0-2 = touchdown weight bearing • Weeks 3-4 = 50% weight bearing • Weeks 5-6 = WBAT
ROM EXERCISES	<ul style="list-style-type: none"> • Knee extension on a bolster • Prone hangs • Supine wall slides as tolerated without pain • Passive ROM off the end of the table as tolerated without pain • Biking – use contra-lateral leg to create ipsilateral PROM NOTE: ROM exercises should be carried out frequently throughout the day with high repetitions to help remodel the developing fibrocartilage. The optimal goal during the first 6 weeks is to do 1-2 hours of ROM exercises per day

SUGGESTED THERAPEUTIC EXERCISE	<ul style="list-style-type: none"> • Quad sets • SLRs • 4 way leg lifts in standing with brace on for balance and hip strength • Patellar mobilizations • Begin pool at axilla level at the start of week 5
CARDIOVASCULAR EXERCISE	Upper body circuit training or UBE
PROGRESSION CRITERIA	<ol style="list-style-type: none"> 1. 6 weeks post-op 2. No effusion 3. Full knee extension

PHASE II (begin at 6 weeks)

APPOINTMENTS	Meet with physician at 1 and 2 months post-op Physical therapy 1x every 1-2 weeks
REHAB GOALS	<ol style="list-style-type: none"> 1. Single leg stand control 2. Normalize gait 3. Good control and no pain with functional movements, including step up/down, squat, partial lunge (staying less than 60 degrees of knee flexion)
PRECAUTIONS	<ol style="list-style-type: none"> 1. Avoid post-activity swelling 2. Avoid loading knee a deep flexion angles 3. No impact activities until 12 weeks post-op
SUGGESTED THERAPEUTIC EXERCISE	<ul style="list-style-type: none"> • Non-impact balance and proprioceptive drills • Stationary bike • Gait drills • Hip and core strengthening • Stretching for patient specific muscle imbalances • Quad strengthening – closed chain exercises short of 60 degrees knee flexion • Continue pool program – alternating days with land program
CARDIOVASCULAR EXERCISE	Non-impact endurance training: stationary bike, Nordic track, swimming, deep water run, cross trainer
PROGRESSION CRITERIA	<ol style="list-style-type: none"> 1. Normal gait on all surfaces 2. Full range of motion 3. No effusion 4. Ability to carry out functional movements with out unloading affected leg or pain, while demonstrating good control 5. Single leg balance greater than 15 seconds

PHASE III (begin after meeting phase II criteria ~3 months)

APPOINTMENTS	Meet with physician at 14-16 weeks post-op Physical therapy 1x every 1-2 weeks
REHAB GOALS	<ol style="list-style-type: none"> 1. Good control and no pain with sport and work specific movements, including impact

PRECAUTIONS	<ol style="list-style-type: none"> 1. Post-activity soreness should resolve within 24 hours 2. Avoid post-activity swelling 3. Avoid knee pain with impact
SUGGESTED THERAPEUTIC EXERCISE	<ul style="list-style-type: none"> • Impact control exercises beginning 2 feet to 2 feet, progressing from 1 foot to other and then 1 foot to same foot • Movement control exercise beginning with low velocity, single plane activities and progressing to higher velocity, multi-plane activities • Sport/work specific balance and proprioceptive drills • Hip and core strengthening • Stretching for patient specific muscle imbalances
CARDIOVASCULAR EXERCISE	Replicate sport or work specific energy demands
RETURN TO SPORT/WORK CRITERIA	<ol style="list-style-type: none"> 1. Dynamic neuromuscular control with multi-plane activities, without pain or swelling