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Post-Operative Physical Therapy Protocol for Microfracture

Phase I: Post-operative weeks 0 – 6

Goals:

1. Protection of the post-surgical knee
2. Restore normal knee range of motion and patellar mobility
3. Eliminate effusion and swelling
4. Restore leg control

Weight-bearing (Femoral Condyle Lesions):

1. Use crutches, in unlocked brace for up to 8 weeks
 - Weeks 0-4: Non-weight bearing
 - Weeks 5-8: Toe-touch weight bearing
 - After week 8: Weight bearing as tolerated

Weight-bearing (Patellofemoral Lesions):

1. Use crutches, in brace locked in extension for up to 6 weeks
 - Weeks 0-2: Toe-touch weight bearing

- Weeks 3-4: 50% weight bearing
- Weeks 5-6: Weight bearing as tolerated

Ice:

1. Ice 4-6 times per day for 15-30 minutes per session

Range-of-Motion Exercises:

(For patellofemoral lesions: patients wear a brace with a flexion stop of 30-40° to limit patellofemoral contact)

1. Towel rolls
2. Prone hangs
3. Supine wall slides as tolerated without pain
4. Passive range of motion off the end of the table as tolerated without pain
5. CPM machine:
 - For Femoral Condyle Lesions: 0-60° for 8 hours per day for 8 weeks
 - For Patellofemoral Lesions: 0-40° for 8 hours per day for 8 weeks
6. Biking — use contralateral leg to create ipsilateral passive range of motion

Note: Range of motion exercises should be carried out frequently throughout the day with high repetitions. The optimal goal during the first 6 weeks is to do 4-8 hours of range of motion exercises per day.

Exercises:

1. Quad sets
2. Straight leg raises
3. Four way leg lifts in standing with brace on for balance and hip strength
4. Patellar mobilizations
5. Begin pool activity at the start of week 5. Exercises may include gait drills (forward walk, march walk, skate step, step and balance) with depth of water at the level of the axilla. Deep water running, vertical kicking or biking can also be included.

Progression Criteria to Advance to Phase II:

1. 6 weeks post-op

2. No effusion
3. Full knee extension

Phase II: Begins after meeting Phase I criteria, usually 6-8 weeks after surgery

Goals:

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° of knee flexion)

Precautions:

1. Avoid post-activity swelling
2. Avoid loading knee at deep flexion angles
3. No impact activities until 12 weeks post-op

Exercises:

1. Non-impact balance and proprioceptive drills
2. Stationary bike
3. Gait drills
4. Hip and core strengthening
5. Stretching for patient specific muscle imbalances
6. Quad strengthening: Closed chain exercises short of 60° knee flexion
7. Continue pool program: Alternating days with land program
8. Cardiovascular exercise: Non-impact endurance training including stationary bike, Nordic track, swimming, deep water run, cross trainer

Progression Criteria to Advance to Phase III:

1. Normal gait on all surfaces
2. Full range of motion
3. No effusion

4. Ability to carry out functional movements without unloading affected leg or pain, while demonstrating good control
5. Single leg balance greater than 15 seconds

Phase III: Begins after meeting Phase II criteria, usually 12 weeks after surgery

Goals:

1. Good control and no pain with sport and work specific movements, including impact

Precautions:

1. Post-activity soreness should resolve within 24 hours
2. Avoid post-activity swelling
3. Avoid knee pain with impact

Exercises:

1. Impact control exercises beginning 2 feet to 2 feet, progressing from 1 foot to the other and then 1 foot to the same foot
2. Movement control exercises beginning with low velocity, single plane activities and progressing to higher velocity, multi-plane activities
3. Strength and control drills related to sport specific movements
4. Sport/work specific balance and proprioceptive drills
5. Hip and core strengthening
6. Stretching for patient specific muscle imbalances
7. Cardiovascular exercise: Replicate sport or work specific energy demands

Progression Criteria to Return to Sport/Work:

1. Dynamic neuromuscular control with multi-plane activities without pain or swelling.