

Alta View Sports Medicine



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Knee Microfracture

What to Expect

Microfracture is a surgical option to treat isolated cartilage defects in a joint, most commonly the knee. As articular cartilage is relatively devoid of a blood supply, a full thickness injury to the cartilage is unlikely to heal. Unstable cartilage fragments may be sheared off and become a loose floating body within the joint and a cause of catching, locking, and pain in the knee. The exposed underlying bone becomes subject to further injury, a significant source of pain, and untreated defects predispose the joint to further osteoarthritis.

During surgery, a full evaluation of the entire knee is performed, including the surrounding articular cartilage, menisci, and ligaments. Associated injuries are addressed. The cartilage surrounding the chondral defect is cleaned to a stable rim and arthroscopic instruments are used to make tiny holes in the exposed bone. These provide a conduit for the body's natural healing factors and stem cells to form a layer of protective fibrocartilage in the defect. Appropriate rehabilitation is critical to the success of the procedure.

Return to full activity and sports is delayed to allow time for the underlying bone and fibrocartilage to heal.



Phase 1 (0 – 2 weeks postop)

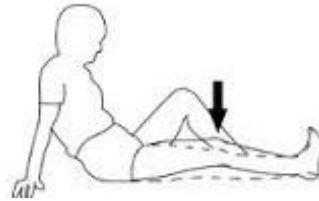
Goals: Control pain, Diminish swelling, Begin regaining knee motion, Protect the microfracture site

- Pain: You will be prescribed pain medication to use after surgery. Use as directed and wean use to as needed. You may begin taking an anti-inflammatory medication (i.e. ibuprofen, naproxen) unless medically contraindicated. Do not drive or use alcohol while taking narcotic pain medication.
- Brace: A brace is only given if the microfracture site involves the patella (undersurface of the knee cap) or trochlea (groove of the femur the patella glides in). If this is the case the brace will be set to allow only 0-30° of flexion for 6 weeks. It may be removed when not ambulating.
- Weight bearing:
 - Femoral condyle/tibial plateau defects: non-weightbearing for 6 weeks
 - Crutches at all times
 - Patella/trochlea defects: weight bearing as tolerated in knee brace set 0-30° for 6 weeks
- Ice: Place a bag of ice or cryocuff on the knee for 30 minutes a few times each day and after therapy or home exercises.
- Dressing: Remove the ace wrap and discard all white dressings about your knee about 48 hours after surgery.
 - You may shower, but keep your knee dry until sutures are removed
 - Do not submerge knee until suture removal (no baths, pools, hot tubs)
 - Keep incisions covered with band-aids or wrap knee with ace wrap to protect incision during the day
- Schedule your postoperative visit for 10-14 days after surgery. At this visit:
 - Suture removal
 - Review of your surgery (bring your surgical photos) and rehab plan
 - Prescription for physical therapy if necessary or desired

Exercises

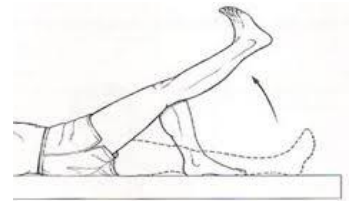
- For patella/trochlea lesions: Perform any range of motion exercises with brace in place with the settings of 0-30° (may only remove brace when in CPM)
- Continuous Passive Motion (CPM) machine: 6-8 hours/day for 1-2 hours at a time. Start 0-60° and increase by 10° daily as tolerated at a comfortable speed

- Quad Sets (keep knee in full extension)

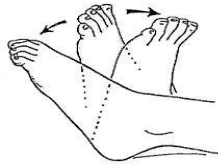


- Straight leg raises

- Keep knee brace locked in extension for patella/trochlea lesions

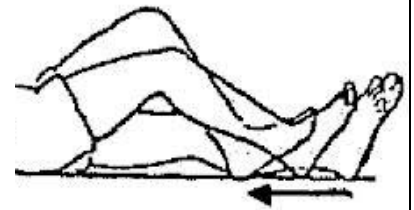
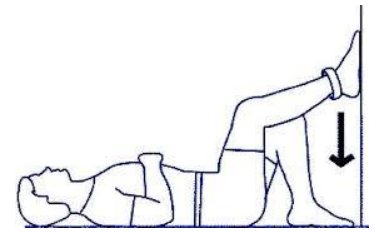


- Ankle Pumps (10 reps/hour)



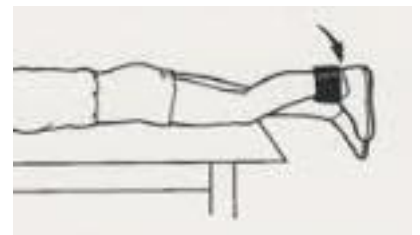
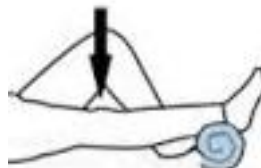
- Knee Flexion:

- Wall Slides: Lie on back with foot on wall, allow gravity and nonoperative leg to assist pushing back operative leg
- Heel Slides



- Knee Extension:

- Heel Prop
- Prone Leg Hang



- Cycling without resistance (15 min 2-3 times daily as tolerated)
 - Set the seat to allow slight knee bend

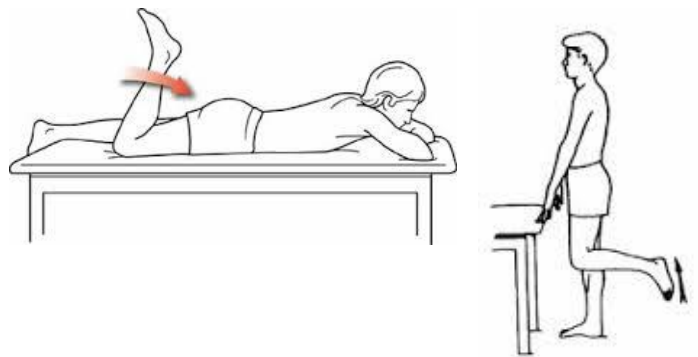
Phase 2 (2 - 6 weeks postop)

Goals: Improve ROM, Quad/Hamstring strengthening, Protect the microfracture site

- Brace: Continue to use in patella/trochlea lesions at 0-30° when ambulating
- Weight bearing:
 - Femoral condyle/tibial plateau defects: non-weightbearing for 6 weeks
 - Patella/trochlea defects: weight bearing as tolerated in knee brace set 0-30° for 6 weeks. May begin to wean off crutches
- Avoid any impact exercises to the knee

Exercises

- Continue exercises from Phase 1
- Prone/Standing hamstring curls
- Stationary Bike:
 - Set the seat to allow a slight knee bend during the cycle
 - Goal 45 min without resistance, then ok to increase resistance as tolerated
- Pool exercises
 - Pool walking
 - Gentle swimming avoiding whip kicks



Phase 3 (6-12 weeks postop)

Goals: Regain full range of motion, Begin weightbearing, Restore normal gait, Return to functional daily activities

- Brace: Unlock for full range of motion. You may discontinue brace once you have regained full motion. If you feel more stable with it you may continue to wear it. Consider using a neoprene knee sleeve during activity to help control swelling.
- Weightbearing: You may wean off crutches
- Schedule a clinic visit about 3 months from surgery date

Exercises

- Continue exercises from Phase 1 & 2
- Resisted knee flexion/extension
 - Standing calf raises
 - Standing Mini squats (avoid knee flexion > 90°)
 - Seated leg press (avoid knee flexion > 45°)
- Balance/Coordination/Proprioception Training
 - Single leg stork balance/calf raises
 - Backward walking
 - Wobble board/BOSU balance trainer
- Endurance Program
 - Pool program: pool walking/running, swimming
 - Stationary Bike: increased duration and resistance
 - Elliptical: may begin once off crutches. Gradual increase in duration.
- Cardiovascular conditioning: elliptical, bike, swimming, as tolerated
 - Gentle walking and treadmill once normal gait reestablished without crutches

Phase 4 (3-6 months postop)

Goals: Maintain full range of motion, Increased leg strength and endurance, Return to skill activities and full sport participation

- At this point you may feel ready to get back to sports—be cautious! Cutting, pivoting, and high impact produce increased forces on the cartilage repair site and should be avoided until 5 months
- Schedule a clinic visit for 6 months from surgery date

Exercises

- Continue exercises from Phases 2 & 3
- At 3 months:
 - Front and Lateral Lunges
 - Front and Lateral Step-Ups
 - Wall squats (may use gym ball behind back against wall)
 - Progress to single leg wall squats
 - Stair climber machine
 - Begin treadmill jogging or on soft track (Goal of 20 min at mild pace)
- At 4 months:
 - May begin outdoor running on level surface, road biking
 - Plyometric exercises/jumping
- At 5 months:
 - Agility drills: backward running, figure of eight drills, box runs
 - Sport specific drills
 - May begin trail and stair running
 - May begin skiing groomers, golf, tennis
- At 6 months:
 - Criteria for return to full sport activity: full range of motion, pain free all strengthening activities, good neuromuscular control/agility, satisfactory clinical exam
 - Return to full sport participation and competition