

Knee Cartilage Repair Rehabilitation Protocol

By James L Chen, MD

Phase	Time	Exercises/Activities/RESTRICTIONS	Goals
Early Post operation	0-2 weeks	Non weight bearing Brace in extension CPM—advance a as tolerated Passive/Active ROM Straight leg raise Quadriceps isometrics Patella mobilizations	Pain and swelling control
Phase I	2-6 weeks	Toe-touch weight bearing Brace in extension Continue CPM Patella mobilizations Active/passive/AAROM Straight leg raise, Quad isometrics Hip resistive exercises Plantar flexion theraband Stationary bike with NO resistance Modalities OK Home exercise program	ROM to 120° Healing of cartilage lesion
Phase II	6-12 wks	Discontinue brace/crutches --transition to unloading brace --discontinue crutches when gait has normalized Discontinue CPM AAROM exercises Leg press—0-60° arc Mini-squats/wall slides Proprioception/balance program Hip/CORE program Forward step-up program Straight leg raise Stair master/elliptical Pool therapy OK Modalities OK Home exercise program	ROM to normal Normal patellar mobility Restore normal gait Ascent stairs with good control
Phase III	12-20 wks	No Running Progress squat program Initiate step-down program Leg press, Proprioception training Agility exercises, Elliptical Lower extremity stretching Modalities Home exercise program	Descend stairs with good control Return to normal ADL Improve flexibility
Phase IV	>20 wks	Continue LE strengthening/flexibility Forward running (per MD) Brace for sports (per MD)	Sport specific activity Running in 5-8 months

Post Operative Instructions

ON THE DAY OF SURGERY:

Ice: Use ice or the cold therapy unit over the leg for 15 minutes every 1 to 2 hours to decrease pain and inflammation.

Pain medication: You will be given a prescription for a narcotic for pain control. Begin taking the pain medication as prescribed as soon as you have pain. Do not wait until you are in severe pain before taking them as it takes 30 to 45 minutes to work. You should be able to stop taking the pain medicine within two to three weeks. Avoid taking Tylenol while you are taking the narcotic as they both contain acetaminophen which can be dangerous to your liver in high amounts.

Eating: Begin eating with liquids and light foods (jello, soup, bread). Progress to your normal diet slowly over the 24 hours following surgery. The narcotics can make you nauseous, so take them with food whenever possible.

DAY 1 AND UNTIL POST-OP VISIT:

Dressings: Keep the dressing on the surgical site until your first post-operative visit— usually 5-7 days after your surgery. This decreases the risk of post-operative infection. Do not put ointment on your incisions.

Walking: DO NOT PUT WEIGHT ON THE LEG. Walk with your leg elevated off the ground and with your crutches.

Bathing: You may sponge bathe following the surgery. You can also shower with a plastic garbage bag around the leg, but you must keep the dressing absolutely dry. Do not bathe in a tub. Once the sutures are removed you may shower or bathe and get the incision wet. Do not swim in a pool or the ocean until instructed by your surgeon.

Crutches: Continue to use the crutches until instructed by your doctor.

Brace: DO NOT PUT WEIGHT ON THE LEG. If you are given a brace, you may unlock it to perform your exercises, when in a motion machine, or sitting in a car or chair.

CPM: You may given a CPM for knee range of motion. Start at 0-30 degrees, and advance 5 degrees every 12 hours until you are at 90 degrees. Use it for 6 hours/day for 6 weeks.

Driving: Do not drive until instructed to do so.

Therapy: Contact a physical therapist prior to surgery to begin formal physical therapy approximately 5-10 days following your surgery.

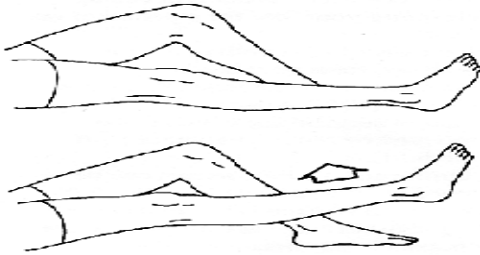
It is normal to experience some swelling in the knee and leg. To decrease this, keep your leg elevated above the level of your heart as much as possible.

Avoid putting a pillow behind your knee as this can cause problems getting your knee straight.

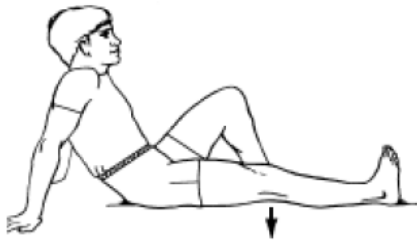
Post Operative Instructions: Knee Surgery

EXERCISES: START POST-OPERATIVE DAY 1:

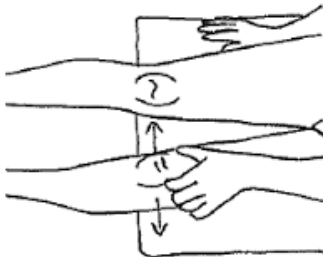
1. **Straight Leg Raises.** Lift your leg about twenty-four (24) inches off the ground and hold it for 10 seconds. Do a minimum of three (3) sets of ten (10) repetitions. Make sure you do this with your brace locked in full extension.



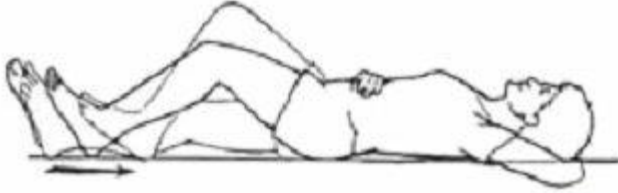
2. **Quad Sets.** With this exercise, you tighten your thigh muscles and hold for five (5) seconds. Do a minimum of three (3) sets of ten (10) repetitions. When you tighten your thigh muscles, it will feel like your knee is being pushed into the ground. Make sure you do this with your brace locked in full extension.



3. **Move your kneecap (patella) side to side.** Move the kneecap toward the inner side of your leg and hold it for five (5) seconds. Do three (3) sets of ten (10) repetitions in each direction. This will be harder to do until the bandages are removed.



4. **Heel Slides.** (bending the knee) slide your heel toward your buttock. This may be assisted by using a towel to pull your foot.



5. **Bridging Exercises.** Roll a towel and put it under your heel with nothing under your knee. Keep this position for 5 to 10 minutes. You can assist this by resting your hand on your thigh, near the knee.



6. **Calf Pumps.** Move both ankles up and down, at least 10 times an hour until you are up and around regularly to encourage blood flow in the lower legs and reduce the risk of DVT (blood clot).



7. **CPM.** A CPM (continuous passive motion) machine may be ordered by your surgeon. This machine helps gain your motion a little faster than if you did not have it, and may help with stiffness. Use this machine at least six (6) hours a day (you may want to do this at night)- if so, you will probably need sleeping pills such a Benadryl to help you for the first few nights. Start at zero (0) to thirty (30) degrees, and increase it five (5) degrees every twelve (12) hours as tolerated. You may return the machine when your knee bends more than ninety (90) degrees with the therapist or the machine is at its full range zero (0) to one hundred twenty (120) degrees for two (2) to three (3) days. Unlock your brace to use the CPM (**do not remove the brace**).