Inland Orthopaedic Surgery & Sports Medicine Clinic

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KNEE CARTILAGE REPAIR: OSTEOCHONDRAL ALLOGRAFT TRANSPLANTATION FEMORAL CONDYLE POST-OP INSTRUCTIONS AND REHAB PROTOCOL

This protocol has been developed for the patient following repair of damaged knee cartilage with osteochondral allograft transplantation. This procedure is done to reconstruction the patient's own cartilage and bone defect in the knee using a fresh allograft. The allograft is contoured to fit the cartilage defect in your knee and is "press-fit" into place.

Physical therapy should begin **4 weeks** following surgery. Your rehabilitation will be a supervised program by a physical therapist and a home program as directed by your therapist.

Primary goals of the procedure and rehabilitation are: 1) Control joint pain and swelling 2) Regain normal knee range of motion and strength 3) Regain normal gait pattern and neuromuscular stability for ambulation 4) Regain normal proprioception, balance, and coordination for daily activities 5) Achieve the level of pre-injury function based on the orthopaedic and patient goals.

The goal of this rehabilitation plan is to facilitate return to the pre-injury level of function. Return to activity, sports and work depend upon multiple factors. This decision is based off the healing of the graft and the function of the knee. Return to work, sports and cutting activities is allowed after the graft is healed and the patient achieves adequate flexibility, strength and endurance of the knee equal to 80-90% of the uninjured side. Generally, return to full duty for manual labor work is around 6-9 months after surgery. Return to competitive sports is between 9-12 months.

I. **POST-OPERATIVE INSTRUCTIONS:**

a. **Take 1 tablet (325 mg) of aspirin per day**, starting the day after surgery and continuing **for 2 weeks**. This is done to decrease the risk of blood clots.

b. The dressing may be removed 3 days after surgery, but keep the steri-strips in place. Try to keep the wound as dry as possible until follow-up.

c. It is ok to shower after surgery, but keep the dressings and incision wrapped with saran wrap or something similar. When in the shower, do not scrub or soak the incisions. Just let soap/water run over the knee and pat dry. Do not submerge incisions in bath or pool until fully healed (4-5 weeks).

d. If you had a **nerve block at the time of surgery, it usually wears off 12-24 hrs post-operatively**. It is normal to have some numbness in the leg the first few days after surgery as a result. **The first night after surgery take pain medication before going to bed as the nerve block will often wear off during the night.**

e. Take the prescribed pain medications as directed. You can supplement your pain control with ice, elevation of the affected extremity and over-the-counter ibuprofen if needed, making sure to follow the dosage as recommended on the bottle. Use ice max 20 min/hour. Place a towel between skin and ice to protect skin.

f. Decrease the frequency of your pain medicine as your symptoms allow. Generally patients are able to be off of pain medicine around 1-2 weeks post-op.

g. After surgery you will be non-weight bearing on the operative extremity (It is ok to touch the toes to the ground for balance control). Use the crutches for walking at all times. You will be non-weightbearing x 4 weeks.

h. From weeks 4-6, weight-bearing is transitioned to 25% of your body weight as you continue to use crutches. At week 6, you will transition to weight bearing as tolerated without crutches over 1-2 weeks.

i. After surgery, the first few days are generally spent recovering and resting. When resting, work on calf pumps (moving your ankle up and down) several times per hour. This helps reduce swelling in the leg and decrease the chance of blood clots.

j. If you were placed into a brace, continue the brace x 6 weeks. When sitting down**, you may unlock the brace by pulling up on the orange tabs to bend the knee**. You may take an occasional break from wearing the brace if you are at home and resting. You can remove the brace for sleeping after 2 weeks.

k. Other exercises to work on 3-4 times per day, before seeing therapist include calf pumps, straight leg raises, quad sets (contracting your thigh and holding for 10 seconds) and bending and straightening the knee.

l. You may have been given a CPM following surgery. Begin 4-6 hours per day total. The CPM is set at one cycle/minute from 0-30 degrees. Begin using after the nerve block has worn off. Progress 10 degrees per day as tolerated.

m. Return to driving. There is no conclusive data to guide the exact time when it is safe to return to driving. You cannot drive while still on narcotic pain medications. In surgery was on your right leg, it is not safe to drive until the brace is off and you are full weightbearing.

II. **<u>Rehabilitation Protocol 0-6 Weeks Post-Op</u>**

a. Range of motion goal: 0-90 (minimum) by two weeks post-operatively. **Emphasize full extension of the knee**
   - i. Heel slides
   - ii. Prone Hangs

b. **Weight Bearing: Use crutches for walking x 6 weeks.**
   - i. **Weeks 0-4, you are non-weightbearing**. Your foot may touch the floor to keep you balanced, but you should not put any additional weight on the leg.
   - ii. **Weeks 4-6, weight-bearing is 25% of your body weight.** Your therapist will teach you how to do this.

c. **Brace:** You will wear the brace x 6 weeks. Range of motion is allowed and encouraged in the brace as soon as tolerated. You may remove the brace for CPM use and physical therapy.

d. **CPM:** use for 4-6 hours per day at 1 cycle per minute. Begin at 0-30 degrees, after the block wears off, and increased 10 degrees per day as tolerated. Use for 4 weeks after surgery. An alternative to CPM use is active range of motion exercises (bending and straightening) 100 reps/5 times per day.

e. **Range of Motion:** Goal is to achieve full knee range of motion by 4-6 weeks.

f. Progress bilateral closed chain strengthening using resistance less than patient's body weight

f. Hip/Core progressive resistive exercises

g. Patellar mobilization emphasize superior glides

h. Gastroc-soleus stretch

j. Modalities: cryotherapy, electrical stimulation, edema control, etc.

III. **<u>6-12 Weeks Post-Op</u>**

a. **Range of Motion:** goal is to have normal range of motion by this point

b. **Weight bearing:** Full, wean off crutches

c. **Brace:** None required. May consider functional brace for activities, especially if concomitant ligament of meniscus surgery

d. **CPM:** discontinued. Progress knee flexion.

e. **Gait:** progress normalized gait pattern, no limping

f. Progress bilateral closed chain strengthening using resistance less than patient's body weight. Progress to supine unilateral leg press with low weight. Begin open chain knee strengthening
g. **NO squats, wall slides, lunges or knee extension exercises**
h. Begin stationary bike when knee flexion is > 110 degrees
i. Begin proprioception program
j. Continue edema control/modalities/patellar mobilization

IV. 12-24 Weeks Post-Op

a. Continue all exercises from earlier protocol
b. Advance bilateral and unilateral closed chain exercises
c. Isokinetic quadriceps exercises
d. **May begin walking on treadmill**
e. **May begin jogging at 5-6 months**
f. Progress proprioception/balance activities
g. incorporate elliptical trainer and stairs at 5-6 months post-op

V. 24 Weeks Post-Op and Beyond

a. **Progress slowly through lateral movement exercises**
b. Continue advanced strengthening
    i. Full arc progressive resistance exercises-emphasize quads
c. Progress treadmill/swimming program
d. Progress plyometrics program
e. Progress sport training program
f. Progress neuromuscular/functional program
g. Agility drills

VI. Return to competitive sports and full speed cutting activities

a. You need to be cleared by Dr. Hazelwood and your physical therapist/athletic trainer
b. In general return to sports and cutting activities is allowed after the patient achieves adequate flexibility, strength and endurance of the knee that is equal to at least approximately 90% of the other side **and there is full incorporation of the graft**. This generally is allowed around 9-12 months after surgery.