

MACI CARTILAGE REPAIR (LARGE LESION)

Before Your Surgery

YOUR SURGERY AT A GLANCE

SURGERY	MACI: your own cartilage cells, grown in a lab, are implanted into the cartilage defect. Usually done through a small open incision
HOW LONG	About 1–1.5 hours , depending on defect size and any added procedures
ANESTHESIA	The anesthesia team will review their plan with you, including a nerve block for pain after surgery
WHERE	Proliance Surgery Center at Valley (PSCV) or Valley Medical Center (VMC), both in Renton. We will tell you which. You go home the same day
AFTER SURGERY	Hinged knee brace, unlocked, and crutches. Toe-touch only for 6 weeks , off crutches around 10–12 weeks . PA visit at 2 weeks
PHYSICAL THERAPY	Starts 5–7 days after surgery, 2 times a week . Schedule it before surgery

Do these now, before surgery

- **Schedule physical therapy** for 5–7 days after surgery.
- **Arrange a driver** and someone to stay with you for the first 24 hours.
- **Get your handicap placard** at a DMV office, using the application from your clinic visit, so you do not have to deal with it while recovering.
- **Get fitted for an ice machine** and stock up on bags of ice.

About Your Injury

Cartilage is a smooth, slippery layer that covers the ends of your bones. It lets your knee move smoothly and absorb shock. Unlike bone, cartilage has no blood supply and **cannot heal itself**. A cartilage defect is like a pothole in a road. The edges may fray, but the hole will not fill in on its own.

For younger, active patients like you, cartilage restoration with **MACI** (Matrix-Assisted Chondrocyte Implantation) is the best available option to promote healing and extend the life of your joint. MACI is designed to address your specific injury and restore normal joint function.

Your imaging shows a **large cartilage defect (5 cm² or greater)** on the end of the thigh bone (femoral condyle) or the top of the shin bone (tibial plateau). Larger defects need longer protection from weight, because a bigger area of young graft tissue is exposed to pressure. The recovery is slightly longer, but **long-term results remain excellent** when you follow the protocol.

About Your Surgery

MACI is an FDA-approved procedure done in two stages:

- **Stage 1 (biopsy):** during an arthroscopic procedure, a small sample of healthy cartilage is taken from an area of your knee that does not bear weight.
- **Stage 2 (implantation):** over 4–6 weeks, a lab grows your cells into millions of new cells. In the second surgery (your upcoming procedure), the cells are implanted into your cartilage defect using fibrin glue. This stage is generally done open, but can occasionally be done arthroscopically.

This is a very precise surgery. The new cartilage cells are carefully placed into the defect. Over time, while the knee is protected, the new cartilage grows into the bone. Because these are your own cells, the goal is to recreate the normal cartilage you had before the injury.

Healing occurs in four stages

- **Weeks 1–2:** the graft integrates.
- **Weeks 2–12:** the cells develop and build new cartilage (matrix).
- **Months 3–12:** the tissue matures and bonds.
- **Month 12 and beyond:** ongoing maturation and remodeling, up to 24 months.

85% of MACI implants are still intact at 5 years, making this one of the most successful cartilage restoration procedures available. If you have a meniscus tear, ligament injury, or alignment problem, it may be treated during the same surgery.

Risks of surgery

Infection, blood clots, and fluid buildup. We will work together to lower these risks and make your recovery as smooth as possible.

Learn more and watch the videos

My website covers cartilage injuries, MACI and other cartilage restoration options, and recovery in more detail. merrittsurgery.com/surgeries/cartilage-repair-restoration



Scan to learn more
and watch videos

The Day of Surgery

What to expect, step by step.

1 A couple of days before

The nursing staff will call to confirm your check-in time and when to stop eating and drinking.

2 Check in

Check in at the front desk at your assigned time. In the pre-op area, with your family, our nurses will help you change, start an IV, and review your health history.

3 Meet the team

I will meet with you to review the plan, and the anesthesia team will explain their approach.

4 Surgery

When the operating room is ready, you will walk back with a nurse. After anesthesia is given, you will not remember anything until the recovery room. While you are in surgery, your family can pick up your post-operative medicines at the pharmacy (next to the surgery center at PSCV, or near the operating rooms at VMC).

5 Recovery room and going home

You will be monitored until you are awake, have some crackers and juice, and are comfortable. Then you will change into your clothes and be wheeled to your car. **You need someone to drive you home and stay with you for the first 24 hours.**

After Surgery: What to Expect

Right after surgery, expect pain, swelling, and bruising. You will be in a hinged knee brace, **unlocked (free to bend) from day 1**, and on crutches. You will be **toe-touch weight bearing (about 10–15 lb, for balance) from the day of surgery for 6 weeks**. Then weight is added as tolerated. Physical therapy is critical to your recovery. For pain, Tylenol (acetaminophen) and your prescribed narcotic are safe to use.

How the graft heals: newly implanted cartilage cells are very fragile. For the first 6 weeks the graft is mostly water and does not bear load well. Gentle motion without weight helps it integrate. From week 6, weight is added as tolerated to stimulate the cells to make collagen and mature. The graft keeps getting stronger through months 3–5. Full maturation takes 12–24 months.

Key difference for a large lesion: walking without a crutch is delayed to **weeks 10–12** (compared with weeks 8–9 for smaller lesions). The brace stops once you are off crutches.

When	What to expect
Week 0–1	Toe-touch weight bearing from the day of surgery, about 10–15 lb, for balance. Hinged brace unlocked for walking; off for sleep. Begin quad sets, straight-leg raises, heel slides, ankle pumps, and kneecap mobilization. Electrical muscle stimulation (NMES) to the quad begins at PT.
Weeks 1–3	Toe-touch continues. Brace unlocked for walking; off for sleep. Bending goals 90° by week 2 (don't force it), 105° by week 4. Begin active straightening exercises in a protected arc (90° to 40°).
Weeks 4–6	Toe-touch continues until week 6. Bending goal 120° by week 6. Deep-water pool walking once the incisions are healed.
Weeks 6–12	Weight bearing as tolerated from week 6 , still with crutches. No crutch by weeks 10–12 (longer for large lesions). The hinged brace stops once you are off crutches; an unloading brace may be considered. Recumbent bike begins. Bending limits lifted.
Months 3–5	Progressive strengthening in gradually deeper ranges. Low-impact conditioning: cycling, swimming, elliptical. No loaded deep bending past 90° until month 5.
Months 9–12	Walk-jog running program begins. Plyometrics at month 12. Sport-specific training.
Months 12–18	Return to cutting, pivoting, and impact sports after meeting all criteria and with my clearance. MRI at 12 months.

Driving

- **Right leg:** you must be off crutches, have the brace unlocked or off, be off narcotic pain medicine, and be able to brake hard. Usually about 10–12 weeks.
- **Left leg (automatic car):** typically 4–6 weeks, once you are off narcotic pain medicine.

Preparing for Surgery

Medicines and supplements before surgery

- The pre-op nurse will tell you when to stop eating and drinking.
- **Stop fish oil, vitamin E, and herbal supplements 5 days before surgery.**
- **Tell us** if you take a blood thinner (such as Eliquis, Xarelto, warfarin, or Plavix) or a weekly diabetes or weight-loss injection (such as Ozempic, Wegovy, or Mounjaro). These may need to be stopped earlier.
- **No anti-inflammatory medicines.** Stop ibuprofen (Advil, Motrin), naproxen (Aleve), meloxicam, celecoxib (Celebrex), diclofenac, and anti-inflammatory creams and gels such as Voltaren **7 days before surgery**, and do not take them for **6 weeks after surgery**. They can slow bone and cartilage healing. The low-dose (81 mg) aspirin we prescribe after surgery is different: take it as directed.

Physical therapy before surgery (prehab)

Starting physical therapy before surgery helps you recover faster afterward. Focus on decreasing swelling, activating the quadriceps, restoring range of motion, and improving overall strength. **Start prehab as soon as possible.**

Stop smoking

Smoking greatly impairs cartilage healing and increases the risk of infection. **Stop smoking at least 2 weeks before surgery**, and ideally much longer.

Nutrition

What you eat has a direct effect on how well you heal. Start good nutrition before surgery and continue through your recovery. Our nutrition guide explains what to take and how much: merrittsurgery.com/surgeries/nutritional-optimization



Scan for the nutrition guide

Ice machine: my #1 recovery recommendation

An ice machine is the single best investment you can make for your recovery. It makes icing **20 minutes on, 20 minutes off** easy, without the risk of frostbite, and is far easier than ice bags or gel pads. Our clinic staff can fit you for one before surgery and show you how to get the most out of it. Stock up on bags of ice: the machine can use a bag a day. **Scan the code to learn more or buy one.**



Scan for recovery tools

Get your home ready

- Remove throw rugs or obstacles that might catch a crutch and cause a fall.
- Have clean sheets and comfortable clothes ready.

- Stock the refrigerator with healthy food, and buy bags of ice for the ice machine.

Day-of-Surgery Checklist

- ☐ Verify your check-in time and follow the instructions on when to stop eating and drinking
- ☐ Physical therapy scheduled for 5–7 days after surgery
- ☐ Bring your brace (you will be fitted at your pre-operative visit)
- ☐ Wear comfortable clothes that fit over a brace (sweatpants work well)
- ☐ No perfume or lotion on your skin
- ☐ Remove jewelry or leave it at home
- ☐ Ice machine and bags of ice ready at home for when you return
- ☐ A driver, and someone to stay with you for the first 24 hours
- ☐ If you are under 18: one family member must stay at the surgery center or hospital during the entire surgery

Contact Information

Questions about your surgery	(425) 656-5060
PSCV Surgery Center	(425) 226-2041
Surgery scheduling	(425) 528-7155
Pre-op nurse	(425) 291-1465
Billing	(425) 291-1414
PSCV address	4009 Talbot Rd S, Ste 200, Renton, WA 98055
VMC address	400 S. 43rd Street, Renton, WA 98055