

OSTEOCHONDRAL ALLOGRAFT OF THE KNEECAP WITH TIBIAL TUBERCLE OSTEOTOMY

Before Your Surgery

YOUR SURGERY AT A GLANCE

SURGERY	Osteochondral allograft (OCA) of the kneecap or trochlea plus a tibial tubercle osteotomy (TTO) to improve kneecap tracking, in one surgery
HOW LONG	About 1–1.5 hours
ANESTHESIA	General anesthesia, with 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 locked straight and crutches, toe-touch for 6 weeks . PA visit at 2 weeks . X-ray at 6 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

Articular cartilage covers the ends of the bones in the knee and lets them glide with almost no friction. It has no blood supply, so it cannot heal itself. A cartilage injury left alone does not get better. It gets larger.

Think of the joint surface as a road. A focal cartilage defect is a pothole in an otherwise intact surface. Our goal is to fill that pothole with donor cartilage before the road wears down further.

Your kneecap (patella) and its groove on the thigh bone (trochlea) form the **patellofemoral joint**. It carries some of the highest loads in the knee: up to **8 times your body weight** during a deep squat. Because it bears so much load, cartilage damage here is especially important to treat.

Your imaging shows cartilage damage on the kneecap or groove **plus kneecap malalignment**: your kneecap does not track correctly through the groove as you bend and straighten your leg. This puts even more load on the damaged area and makes the injury worse over time.

A **tibial tubercle osteotomy (TTO)** is a bone cut that moves the spot where the kneecap tendon attaches to your shin bone (tibia). This reduces the load on the graft and improves how your kneecap tracks through the

groove. If you also need kneecap stabilization (MPFL reconstruction or lateral retinacular lengthening), it is done at the same time. It does **not** change your recovery plan or weight-bearing rules: the TTO drives the timeline.

Why surgery: the cartilage damage and the kneecap alignment must be treated together for the best outcome.

About Your Surgery

An **osteochondral allograft (OCA)** is a single-stage surgery. It replaces the damaged cartilage **and** the bone underneath with a size-matched graft from a tissue bank. The graft is a fully formed plug: a living cartilage surface already in place on a cylinder of bone. It is matched to the size and curve of your defect using your imaging before surgery.

The OCA heals by **bone-to-bone healing**: the bone part of the graft fuses with your own bone. This is strong, and it allows a faster recovery than cell-based procedures. The TTO heals as new bone bridges the cut, around the screws that hold it in place. It needs **6 weeks of protected weight bearing** for that new bone to become solid.

Donor tissue comes from an accredited tissue bank and goes through rigorous screening and testing for infectious diseases. The risk of disease transmission is extremely low.

Risks of surgery

Stiffness, infection, blood clots, numbness around the incisions, continued pain and swelling, graft failure, and the need for more surgery. We use a nerve block and a pain plan after surgery to keep narcotic use low.

Learn more and watch the videos

My website covers cartilage injuries, the difference between OCA and other cartilage repairs, 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

Pain, swelling, limited motion, and stiffness are normal after surgery and improve over time. You will be **toe-touch weight bearing for 6 weeks**: your crutches carry your weight, and your foot touches the floor with **about 10 to 15 pounds**, for balance. Your brace stays **locked straight for all walking and for sleep through week 6**. It is opened a little at a time in weeks 7–8 and stopped after you are walking confidently without crutches (usually about **8–10 weeks**).

Bending is done sitting or lying down, step by step and never past the limit: no more than **45° by day 5, 60° by week 1, and 75° by week 3**. After week 3, bending can go up to **90°, and no further, until the 6-week X-ray**. A stationary bike can start after week 3: rock the pedals back and forth within the limit, with full turns only after the limit is lifted. Unlike a TTO alone, the brace stays locked at night and bending goes up step by step, because the cartilage graft on the kneecap also needs protection. You do not need a CPM (continuous passive motion) machine. Gentle kneecap gliding starts on day 1 to prevent stiffness.

When	What to expect
Weeks 0–6	Toe-touch weight bearing : crutches carry your weight (about 10–15 lb, for balance). Brace locked straight for walking and sleep. Bending no more than 45° by day 5, 60° by week 1, 75° by week 3 , then up to 90° until the 6-week X-ray. Stationary bike after week 3, rocking within the limit. Kneecap mobilization from day 1. Quad sets, straight-leg raises, heel slides, ankle pumps. Inner quad (VMO) activation from days 1–2; NMES (electrical muscle stimulation) starts at your first PT visit.
Weeks 7–12	Weight bearing increases after the 6-week X-ray confirms the TTO is healing, at a pace guided by how you feel. Off crutches before the brace (off crutches usually about weeks 8–10). Brace gradually unlocked in weeks 7–8 and stopped once you walk confidently without crutches. Mini-squats, step-ups, and recumbent bike begin. Avoid loaded bending past 60° through weeks 10–12.
Weeks 13–20	Full weight bearing. Progressive strengthening: single-leg squats, goblet squats, step-downs. Running begins at weeks 14–16 once you pass the 8-inch step-down test. Two-leg plyometrics begin at weeks 16–17.
Months 5–6	Sport-specific training. Cutting, pivoting, and agility drills begin at month 6. Formal return-to-sport testing, including strength and hop tests.
Months 6–9+	Return to moderate sport at 6 months at the earliest . High-demand cutting and pivoting sports are recommended at 9 months . Surgeon clearance is needed at each stage. We will check the TTO screws at a later visit.

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 8–10 weeks.
- **Left leg:** typically 2–4 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)

Physical therapy before surgery is recommended to strengthen the VMO (inner quadriceps), improve motion, decrease swelling, and restore normal walking. This usually takes **4–8 weeks** after your most recent injury episode, and it leads to a faster and better recovery.

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.

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, and leave jewelry 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