

OCA Femoral Condyle with HTO — Pre-Operative Information

About Your Injury

Articular cartilage covers the ends of bones in the knee, allowing smooth gliding 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 before the road deteriorates further.

Malalignment — your leg alignment is critical. Your imaging and examination show **varus alignment** (bow-legged). This means your leg is angled inward, which puts **excess load on the inner (medial) side of your knee**. This malalignment contributed to your cartilage damage. More importantly: **any cartilage repair will fail unless the malalignment is corrected**. You cannot expect a graft to succeed if the mechanical environment remains abnormal.

High Tibial Osteotomy (HTO) is a bone cut in the upper tibia (shinbone) that shifts your weight-bearing axis from the **damaged medial (inner) compartment** to the **healthier lateral (outer) compartment**. By unloading the damaged side and loading the healthier side, the HTO protects your osteochondral graft and gives it a chance to heal and mature.

Both the cartilage damage AND the malalignment must be addressed together. Filling the pothole without fixing the alignment is like patching a road that remains damaged underneath — the repair will fail. Your surgery combines both procedures in a single operation.

[Learn more at merrittsurgery.com](http://merrittsurgery.com) or [youtube.com @merrittsurgery](https://www.youtube.com/@merrittsurgery)

About Your Surgery

A combined procedure: You will undergo two complementary surgeries performed at the same time:

The OCA Component: A size-matched plug of donor bone and cartilage — taken from a screened and tested tissue donor — is surgically placed into your cartilage defect. The plug is cut to fit the exact size and depth of your lesion. Once in place, the bone-to-bone interface integrates and heals over the first 6–12 weeks. The cartilage surface immediately restores the joint anatomy.

High Tibial Osteotomy (HTO): A **controlled bone cut in the upper tibia**, precisely aligned and held in place with a **plate and screws**. This realigns your leg axis and shifts the weight-bearing load to the healthier lateral compartment. The osteotomy takes approximately **6–12 weeks to heal** through bridging callus formation.

Dr Merritt used CT scan + NewClip 3D-printed custom cutting guide allow us to plan the exact amount of bone to remove and angle of correction. This maximizes precision and reduces operative time.

Surgical time: This combined procedure typically takes about **2 2.5 hours**. It is performed as an outpatient procedure at the **Valley Medical Center (VMC)**. You will go home the same day. You will receive a general anesthetic and a nerve block to help with postoperative pain.

Donor tissue screening: All donor tissue is obtained from a FDA-regulated tissue bank and undergoes rigorous screening for infectious diseases (HIV, hepatitis, etc.). The risk of disease transmission is extremely low — approximately 1 in several million.

Risks: infection, blood clots, numbness, stiffness, delayed bone healing or non-union (especially in smokers), overcorrection/undercorrection, hardware irritation, continued pain. Smoking significantly impairs bone healing — **you must stop smoking at least two weeks before surgery.**

What happens on the day of surgery: A couple of days before surgery, the nursing staff will call you to confirm your check-in time and when to stop eating and drinking. On the day of surgery, check in at the front desk at your assigned time. You will go to the pre-op area with your family where our nurses will help you get changed, start an IV, and review your health history. You will meet with me to review the plan, and the anesthesia team will explain their approach. 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 medications at the pharmacy next to the surgery center. If you are under 18, one family member must stay at the surgery center during the entire surgery. In the recovery room, you will be monitored until you are awake, have some crackers and juice, and be made comfortable. Once ready, you will change into your clothes and be wheeled to your car. **You will need someone to drive you home and stay with you for the first 24 hours.**

After Surgery — What to Expect

After surgery it is normal to experience pain, swelling, limited motion, and stiffness. These are expected and will improve over time.

Weight bearing: You will be **toe-touch weight bearing (TTWB) for the first 6 weeks.** This protects both the osseous (bone) integration of the OCA graft and the healing of the osteotomy. You will use crutches to carry your weight — your foot contacts the floor for balance only.

Brace: You will wear a brace for walking. **Range of motion is unrestricted from Day 1** — you do not need a CPM (continuous passive motion) machine.

Week 6 X-ray: Before you can advance weight bearing, you must have an **X-ray at Week 6 to confirm the osteotomy bone is healing** on track.

Physical therapy should start within the first week after surgery, typically 2 times per week. Your PT will guide you through range of motion, strength, and functional progression.

Weeks 0–6	Toe-touch weight bearing (TTWB) — crutches carry your weight. Brace for walking. ROM unrestricted from Day 1 — no CPM. Begin quad sets, straight-leg raises, heel slides, ankle pumps, patellar mobilization. NMES begins Day 1–2. No isolated hamstring curls in Phase 1.
Week 6	X-ray to confirm osteotomy bone healing — this is the gate before weight bearing can advance. If healing is on track, progressive weight bearing begins.
Weeks 7–12	Progressive weight bearing: 25% Week 7, 50% Week 8, 75% Weeks 9–10, full weight bearing Weeks 10–12. Wean crutches then brace. Mini-squats, step-ups, recumbent bike begin.
Months 3–6	Progressive strengthening — squats, leg press, lunges. Low-impact conditioning: cycling, swimming, elliptical. Running begins around Month 6 (after radiographic HTO union confirmed).

Months 6–9	Running progression. Plyometric exercises begin. Sport-specific training with progressive intensity.
Month 9+	Return to full sport after meeting all strength and functional criteria AND surgeon clearance. MRI and clinical assessment as needed.

Driving: If surgery was on your right leg, typically 6–8 weeks. If your left leg, typically 4–6 weeks. You must be off narcotic pain medications before driving.

Preparing for Surgery

Pre-surgical physical therapy (prehab): The stronger you come into surgery, the stronger you come out of surgery. Good quad strength and ROM of the knee ensures an easier recovery.

Nutrition: A good diet with increased protein and collagen supplementation helps speed your recovery and prevent muscle weakness after surgery. Vitamin C can help with inflammation and stiffness. Start these before surgery and continue through your recovery.

Ice Machine — My #1 Recovery Recommendation

I highly recommend purchasing an ice machine to help your recovery. An ice machine is the single best investment you can make — it allows for continuous icing without the risk of frostbite and is far easier than using 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 go through a bag a day when used regularly.

Prepare your home: Remove throw rugs or obstacles that might catch a crutch and cause a fall. Make sure you have clean sheets and comfortable clothes ready. Stock the refrigerator with healthy food and buy bags of ice for the ice machine.

Handicap placard: You will be given a handicap parking pass application at your clinic visit. Get this at a DMV office before your surgery so you do not have to deal with it while recovering.

Day-of-Surgery Checklist

- ☐ Verify your check-in time and follow instructions on when to stop eating and drinking
- ☐ Schedule Physical Therapy for 5–7 days after surgery (do this before 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 or leave jewelry at home
- ☐ Have the ice machine and bags of ice ready at home for when you return

Contact Information

Questions about your surgery:

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