

OSTEOCHONDRAL ALLOGRAFT WITH HIGH TIBIAL OSTEOTOMY

Your First Two Weeks After Surgery

Your surgery is done, and now the recovery starts. This guide walks you through the first two weeks, from the day of surgery until **your PA visit at 2 weeks** (your follow-up with our physician assistant). Keep it somewhere handy. It answers most of the questions patients call us about. Your medicines are covered in the separate **Medication Guide** that comes with it.

YOUR PLAN AT A GLANCE

WEIGHT ON YOUR LEG	Toe-touch only until your 6-week X-ray. Crutches carry your weight; your foot touches the floor with about 10 to 15 pounds, for balance . Then weight is added in steps; most people are off crutches at 10 to 12 weeks
BRACE	Hinged brace, unlocked from day 1, for walking and for sleep . Hinge set 0 to 90° in week 1, 0 to 105° in week 2, then fully open. Off for exercises. Wear it until you are off crutches, usually 10 to 12 weeks
BENDING	Allowed from day 1 sitting or lying down. Goals: 90° by 1 week, 105° by 2 weeks , 115° by 3 weeks, and 125° by 4 weeks
STRAIGHTENING	Keep the knee fully straight when resting. Never rest with a pillow under your knee
PHYSICAL THERAPY	Starts 5 to 7 days after surgery, 2 times a week
MEDICINES	No anti-inflammatory medicines for 6 weeks (ibuprofen, naproxen, meloxicam, Celebrex, Voltaren gel). Keep taking your 81 mg aspirin
SHOWERING	Starting 48 hours after surgery, with the incision covered until your PA visit. No baths, pools, or hot tubs for 4 weeks
FOLLOW-UP	Your PA visit at 2 weeks
QUESTIONS	(425) 656-5060 , day or night

What We Did

Cartilage is the smooth, slippery layer on the ends of the bones in your knee. It has no blood supply, so it cannot heal on its own, and a damaged spot tends to get bigger, like a pothole in a road. You had a pothole on the end of your thigh bone (the **femoral condyle**, the rounded part that rests on your shin bone). Depending on what we found, we filled it in one of two ways:

- **A donor plug (osteochondral allograft).** We replaced the damaged spot with a plug of healthy cartilage on a base of bone from a carefully screened donor, cut to match your knee and pressed snugly into place.

- **Fixing your own piece (fixation).** If a loose piece of your own cartilage and bone was healthy enough to save, we put it back and held it with small pins or screws.

Your leg was also slightly **bow-legged**, which overloaded the inner side of your knee and would wear out the repair. So we also did a **high tibial osteotomy (HTO)**: a controlled cut in the top of your shin bone, to straighten the leg, held with a **plate and screws**. The correction was planned ahead of time from a CT scan, using a custom 3D-printed guide. This shifts your weight to the healthier outer side.

Both the repair and the bone cut in your shin bone heal like a broken bone, in about 6 to 12 weeks. Until then, too much weight can shift them. Whichever way the bone was cut, **toe-touch for 6 weeks protects the cartilage**. That is why the early rules below matter, even when your knee starts to feel good.

What "toe-touch" means

Your crutches carry your weight. Your foot rests on the floor with **about 10 to 15 pounds, for balance**. Keep it that way for **6 weeks**, even if the knee feels fine.

Your three jobs for the next two weeks

- **Keep your weight off the leg.** Toe-touch only, crutches for every step, for 6 weeks. The repair needs time to heal into the bone.
- **Get the knee fully straight, and keep it moving.** Rest it straight, and bend it gently several times a day.
- **Wake up your quad** (the big muscle on the front of your thigh). Swelling shuts it off. Ice, elevation, and quad exercises turn it back on.

Day by Day

What to do, and what to expect, from the day of surgery to your PA visit.

DAY 0

The Day of Surgery

Goal: Rest, ice, elevate, and keep the knee straight.

Rest today. The main goal is to **prevent swelling and pain** and get your recovery started. **Icing and elevation** are the two best ways to do that.

- **Keep the knee straight.** When lying in bed or on the couch, put a pillow **under your calf**, not under your knee. The knee should rest fully straight. This position is uncomfortable at first, but it is the most important position for your recovery.
- **Ice right away.** Unbuckle the brace and put the ice machine pad directly over the ACE wrap. The dressing protects your skin. Use it 20 minutes on, 20 minutes off.
- **Toe-touch only.** Use both crutches for every step. Keep trips short: bathroom, kitchen, back to bed.
- **Avoid sitting with your leg down or being up too much** today. Both increase swelling and pain.
- **Your leg will feel heavy.** Have someone help you move it, or loop a towel around your heel to lift it.
- **Wear the brace, unlocked (hinge set 0 to 90°),** whenever you are up on your crutches, and **for sleep.**
- **Ankle pumps:** point and flex your foot 20 times every hour you are awake. This keeps blood moving in your calf.

Your nerve block

Before surgery you had a **saphenous nerve block**, numbing medicine placed near a nerve on the inside of your thigh. It numbs the inside of your knee and shin and usually wears off **12 to 24 hours** after surgery. Pain often climbs the first night as it fades. **Take your pain medicine before bed on the first night, even if you feel fine.** Numb skin can't feel when it is getting too cold, so **never put ice directly on bare skin.** Be extra careful on your crutches while the leg is numb.

Before bed tonight

- ☐ Pain medicine taken
- ☐ Ice machine on, leg elevated on a pillow under the calf
- ☐ Ankle pumps done
- ☐ Brace on (unlocked) for sleep, crutches next to the bed
- ☐ A clear path to the bathroom, with no throw rugs or cords

DAY 1

The Day After Surgery

Goal: Take off the bulky dressing, refit the brace, and start moving.

1 Remove the bulky dressing

Undo the brace straps and remove the ACE wrap (save it). Throw away the gauze pads underneath; some dried blood on them is normal. Your incisions are closed with **dissolving stitches** under the skin and sealed with **skin glue**. **Leave the glue alone.** Use dry gauze as needed. **Nothing needs to be removed. No creams, lotions, or ointments** on the knee for 4 weeks.

If the gauze is soaked through or an incision is actively dripping, call **(425) 656-5060**. This is very unlikely.

2 Refit the brace

Put the brace back on, unlocked, with the hinge set from 0 to 90°. It will feel loose now that the dressing is off and some swelling has gone down. Undo the Velcro and shorten the straps to snug it up. If a strap or hinge rubs on an incision, wrap the ACE wrap between your skin and the brace. With the bulky dressing off, the ice machine also works better.

3 Start bending your knee

Take the brace off for this.

- Lie on your back in bed. Use your hands to pull your thigh up toward you, letting your heel slide along the bed. Then use your hands or a towel to gently pull your shin toward your thigh.
- You will feel pressure in the knee. That's okay, but there is no need to force it. Use common sense.
- To straighten back out, put your other foot under your heel and lower the leg slowly. Repeat several times a day.

The two positions for your knee

Your knee should be in one of two positions: **out straight, or working on motion**. The most comfortable position is "slightly bent," with a pillow under the knee. **Avoid that position**. Either keep the leg straight or work on bending.

4 Wake up your quad

- **Quad sets:** With your leg straight, tighten the muscle on the front of your thigh by pushing the back of your knee down into the bed. Try it on your other leg first to feel what it should feel like. Hold 6 to 10 seconds, then relax. Do sets of 10 throughout the day, **every hour you are awake**.
- **Straight-leg raises:** With the leg straight, lift it 6 to 12 inches off the bed and hold for 10 seconds. You may not be able to do this at first. It is easier with the brace locked straight. Your strength will come back.
- **No hamstring curls** (bending the knee against resistance) for the first 6 weeks. They pull on the healing bone cut.

Crutches, brace, and sleep

Use **both crutches for every step**, with the brace **on and unlocked**. The hinge is set from 0 to 90° in week 1 and 0 to 105° in week 2, then opened fully. Take the brace off for your bending exercises, showering, and resting. **Sleep in it, unlocked**. When you start adding weight after 6 weeks, the brace stays unlocked if you can do a straight-leg raise without the knee sagging; if not, it is locked for walking until you can. **The crutches go first, then the brace**, usually around **10 to 12 weeks**.

DAYS 2–7

The Rest of the First Week

Goal: Straight knee, gentle bending, quad firing, physical therapy started.

- **Keep working on straightening** and bending with the technique above. Goals: **90° by the end of week 1** and **105° by the end of week 2**. Your therapist opens the brace hinge to match.
- **Quad sets every hour** you are awake, and straight-leg raises several times a day.
- **Start physical therapy 5 to 7 days after surgery**. Bring your PT prescription and protocol. At PT, your therapist will start electrical muscle stimulation (NMES) to help wake up your quad. You don't need a home unit. Take your pain medicine about 30 to 60 minutes before PT if motion is painful.

- **Shower starting 48 hours after surgery**, with the incision covered. See the Frequently Asked Questions.
- **Swelling peaks around days 2 and 3**, and bruising may creep down to your ankle. Both are normal. Keep icing and elevating.
- **Stay toe-touch on your crutches**. Short trips around the house only. Rest with the leg elevated in between.
- **Start cutting back the narcotic pain medicine** as the pain allows. See your Medication Guide.
- **Avoid all nicotine** (smoking, vaping, pouches, gum). It slows bone healing.

WEEK 2**Until Your PA Visit**

Goal: More motion, more strength, and staying toe-touch.

- **Keep the knee fully straight** when resting. Never rest with a pillow under your knee.
- **Bending:** aim for **105° by the end of week 2**, then 115° by 3 weeks and 125° by 4 weeks.
- **Still toe-touch**. The crutches stay until at least 6 weeks, even if the knee feels good.
- **X-ray at 6 weeks:** at your 6-week visit, an X-ray shows whether the bone cut is healing well enough to start adding weight.
- **Brace:** on and unlocked for walking and sleep, with the hinge open to 105°. You stop it after you are off crutches, usually around 10 to 12 weeks.
- **School or desk work:** most people are ready about 2 weeks after surgery, still on crutches. Keep icing and elevating when you can.
- **Keep going to PT** and doing your home exercises.

Your PA visit at 2 weeks

We will check your incisions, your motion, and your strength, review how PT is going, and answer your questions. Write your questions down as they come up, and bring this guide, your crutches, and your brace.

Managing Pain

Your medicines are explained on the separate **Medication Guide** that comes with this packet. Medicine is only one of the tools you have. These have been shown to lower pain and the amount of narcotic medicine people need:

- **Ice, elevation, and taking your Tylenol on schedule.** These are your best tools for pain and swelling. Take the Tylenol every 8 hours for the first 2 weeks, even if you feel okay.
- **No anti-inflammatory medicines for 6 weeks** (ibuprofen, naproxen, meloxicam, Celebrex, or gels like Voltaren). They can slow bone and cartilage healing. Keep taking your 81 mg aspirin.
- **Mindfulness meditation** has been shown to help with pain after surgery. Guided meditations are free at mindfulness-for-pain.mindful.org.
- **Listening to music** lowers pain levels and the need for narcotic pain medicine after surgery.
- **Accept that some pain is part of healing.** Your body sends blood flow and energy to the areas that hurt, and that is part of recovery. After the first couple of days, our goal is a pain level of about **6 out of 10 with medicine**. "Zero pain" is not the goal.

Expect pain to be worst on days 2 and 3. Most patients feel pretty good the day of surgery because of the numbing medicine used during surgery. Then things get sorer before they get better. This is normal and it passes. Without an anti-inflammatory, some people need the narcotic a little longer. Call us during business hours before you run out.

Constipation

Narcotic pain medicine commonly causes constipation. Try these in order:

1. Cut back on the narcotic pain medicine if your pain allows.
2. Drink plenty of water and other decaf fluids.
3. Eat dried prunes or drink prune juice.
4. Take Senna (Senokot), an over-the-counter laxative.
5. Add Miralax, a stronger over-the-counter laxative.
6. If you have not had a bowel movement in 5 days, call the office.

Your Ice Machine

If you have an ice machine (most of our patients have the **Breg Polar Wave**), **use it a lot**. It is one of the most effective tools you have for swelling and pain, especially in the first two weeks.

- **Use it 20 minutes on, 20 minutes off**, as often as you can while you are awake.
- **Day of surgery:** Put the pad on right over the ACE wrap and bandage. The dressing protects your skin.
- **Compression is fine from day one.** If your machine has a compression setting, use it. Cold plus compression controls swelling better than ice alone.
- **After the bulky dressing comes off:** Always keep a thin layer (a t-shirt, pillowcase, or the ACE wrap) between the pad and your skin. Check your skin each time you take the pad off.
- **Keep the leg elevated while icing.** Ice works best when the leg is above your heart.
- **No ice machine?** Bags of ice or frozen peas wrapped in a thin towel work well, on the same 20 minutes on, 20 minutes off schedule.

Eat to Heal

What you eat has a **direct effect on how well and how fast you recover**. After surgery your body breaks down muscle to get the building blocks it needs for healing. Good nutrition lets it rebuild instead.

- **Protein:** Aim for 1.6 to 2.0 grams per kilogram of your ideal body weight each day. Most people eat far less. A protein shake is an easy way to close the gap when your appetite is low.
- **Creatine:** 10 grams a day. It helps muscle energy and lowers inflammation, and it is one of the most studied and safest supplements. Let your other doctors know you take it, since it can raise a kidney number (creatinine) on blood work.
- **Vitamin D:** 2,000 to 5,000 IU a day. Important for bone healing and your immune system.
- **Vitamin C:** 500 mg twice a day. Your body needs it to make collagen, the protein that holds tendons, ligaments, and your repair together.
- **Collagen peptides:** 10 to 20 grams a day, taken with the vitamin C.
- **Water:** 8 to 10 glasses a day. Well-hydrated patients have less pain, nausea, and fatigue.

The full nutrition guide is at merrittsurgery.com/surgeries/nutritional-optimization

Is This Normal?

Use this page to decide whether to wait it out, call us, or call 911.

OK NORMAL

NORMAL — expected after surgery

- **More swelling on days 1 to 3** than on the day of surgery
- **Bruising** that spreads down the shin, calf, ankle, and even the foot over the first week (gravity pulls it down)
- Some **bloody fluid** on the bandage for the first 24 to 36 hours
- A **low fever up to 100.5°F** for the first 2 to 5 days. Deep breaths help bring it down
- **Numbness** around the incision and nearby skin. It usually improves, but can take 6 to 12 months
- A **warm** knee for several weeks
- Trouble sleeping, low energy, or feeling down for a few days

CALL CALL US

CALL US — (425) 656-5060

- **Temperature of 101.5°F or higher**, or shaking chills
- **Redness that spreads** away from an incision, or drainage that is cloudy, smells bad, or soaks the gauze
- Any drainage that **starts or continues after day 4**
- **Calf pain or swelling that keeps getting worse**, especially if it is only in one leg
- Pain that is **not controlled** by your medicines
- Nausea or vomiting that keeps you from keeping down fluids or medicine
- **Unable to urinate** for 8 hours after surgery
- **Black or tarry stools**, vomiting blood, or bleeding that won't stop
- **Foot that is numb, tingling, cold, or pale** and doesn't improve after loosening the brace and wrap

911 EMERGENCY

CALL 911

- **Chest pain**
- **Shortness of breath** or trouble breathing
- Coughing up blood
- Fainting or passing out
- **Very sleepy, hard to wake up, or slow or shallow breathing** (possible narcotic overdose)
- Swelling of the face, lips, or throat, or a widespread rash (allergic reaction)

Don't see an answer to your question here?

Call our office at **(425) 656-5060**, day or night
Learn more at **merritsurgery.com**

Frequently Asked Questions

How much weight can I put on my leg?

Toe-touch only for 6 weeks. Your crutches carry your weight; your foot touches the floor with only about 10 to 15 pounds, for balance. If your 6-week X-ray looks good, your therapist adds weight in steps: about **25% of your weight at week 6, 50% at week 8, 75% at weeks 9 to 10, and full weight at weeks 10 to 12.** Most people are off crutches around 10 to 12 weeks. This is the rule patients most often break once the knee feels good. Please don't.

When do I need the brace?

Whenever you are **up on your crutches** and **while you sleep**, unlocked so the hinge can bend (0 to 90° in week 1, 0 to 105° in week 2, then fully open). Take it off for your bending exercises, PT, and showering. When weight is added after 6 weeks, it stays unlocked if your straight-leg raise has no sag; if not, it is locked for walking until it does. You stop the brace after you are off crutches, usually around **10 to 12 weeks**.

Why do I need an X-ray at 6 weeks?

The X-ray shows whether the bone cut in your shin bone is healing on track. It is the green light for adding weight. If the bone needs more time, you stay toe-touch a little longer and we check again.

Does smoking or vaping matter?

Yes, a lot. Nicotine in any form (cigarettes, vapes, pouches, gum) slows bone healing and raises the chance that the bone cut does not heal. Please stay off all nicotine while you heal.

Will the plate and screws come out?

Usually not. The hardware that holds the bone cut stays in unless it bothers you. If it does, it can be removed once the bone is fully healed, usually a year or more after surgery.

When can I shower?

Starting **48 hours after surgery, with the incision covered** until your PA visit. Take off the brace, leave the glue alone, and cover the incisions with plastic wrap and tape or a waterproof cover from the pharmacy. A shower chair helps. If the incisions get wet, pat them dry. Put the brace back on after. **No baths, pools, or hot tubs for 4 weeks**, until the incisions are fully healed.

Do I need stitches out?

No. All of your stitches are under the skin and dissolve on their own, and the skin glue flakes off on its own. **Nothing needs to be removed.** We will check your incisions at your PA visit.

How do I do stairs on crutches?

"Up with the good, down with the bad." Going up, step up with your non-surgery leg first, then bring the crutches and surgery leg up. Going down, put the crutches and surgery leg down first, then step down with your good leg. Use a handrail whenever there is one. Going up and down on your bottom is also fine.

When can I drive?

Right knee: not until you are off crutches, your brace is unlocked or off, you are off narcotic pain medicine, and you can brake hard. That is usually about 10 to 12 weeks. **Left knee (automatic car):** usually about 4 weeks, once you are off all narcotic pain medicine. There is no set date, and it is not up to your surgical team to release you. You must be a safe, unimpaired driver, and surgery and pain medicine both cause impairment. Use good judgment.

How do I get a refill?

Call **(425) 656-5060** during business hours, Monday through Friday, a day or two before you run out. Narcotic pain medicine cannot be refilled after hours or on weekends. You can also ask at your PA visit.

YOUR MEDICATION GUIDE

Cartilage and Osteotomy

After surgery you go home with a small team of medicines. **Each one has a specific job**, and they work best together. This guide explains what each medicine is for, how to take it, and when to stop. Your prescription labels have your exact doses. If anything here differs from your label, follow the label and call us.

No anti-inflammatory medicines for 6 weeks

- Anti-inflammatory medicines can slow **bone and cartilage healing**. Do not take ibuprofen (Advil, Motrin), naproxen (Aleve), meloxicam, celecoxib (Celebrex), diclofenac, or anti-inflammatory creams and gels such as Voltaren.
- This includes any anti-inflammatory you usually take. You should have stopped it 7 days before surgery. We will talk about restarting it at your 6-week visit.
- **Keep taking your 81 mg aspirin** (unless we gave you a different blood thinner plan). It is a low dose that prevents blood clots, and it is part of your plan.
- Many cold, flu, and sleep medicines contain ibuprofen or naproxen. Check the label, or ask your pharmacist.

Your Medicines at a Glance

These are my standard medicines after this surgery

Your plan may be different because of your allergies, your health history, or a different plan for pain or blood thinners (anticoagulation). If we discussed a different plan with you, follow that plan and your prescription labels.

Type	Medicine	Its job	How to take it
PAIN	Acetaminophen (Tylenol)	Your main everyday pain medicine. Because you are not taking an anti-inflammatory, taking it on schedule matters more.	Every 8 hours for 2 weeks, then as needed
CLOTS	Aspirin 81 mg baby aspirin	Thins the blood slightly to prevent blood clots after surgery while you are less active.	Twice a day, unless you were given a different blood thinner plan
PAIN	Narcotic pain medicine usually oxycodone (or hydrocodone or Dilaudid)	Takes the edge off strong pain so you can rest, sleep, and do your exercises.	As needed
HELPER	Anti-nausea medicine ondansetron (Zofran) If prescribed	Settles nausea from anesthesia or the narcotic.	As needed
HELPER	Miralax and Senna	Treat constipation from the narcotic, if it happens.	Only if constipated
HELPER	Omeprazole 20 mg Prilosec	Protects your stomach if the aspirin upsets it.	Only if stomach upset

A Typical Day

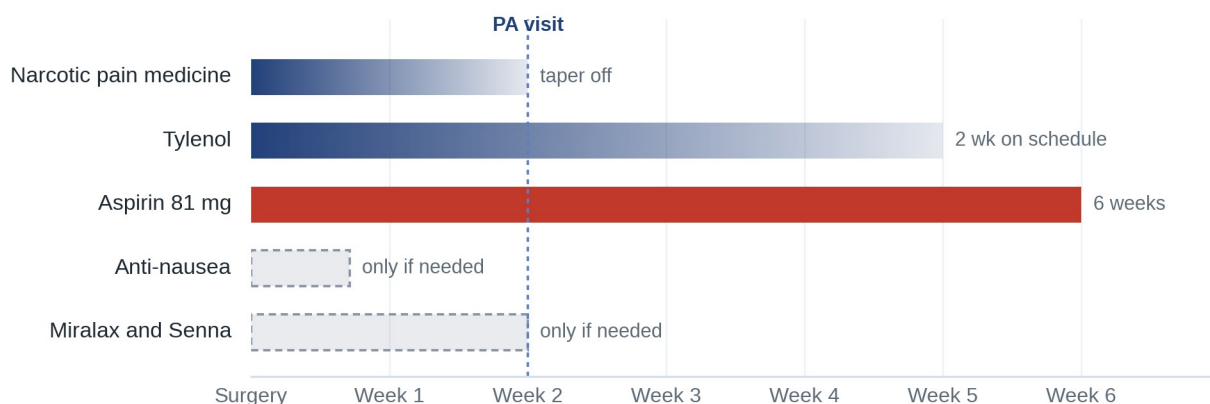
Scheduled medicines, spread through the day. Take the morning and bedtime doses with food or a snack.

Medicine	Morning with breakfast	Afternoon around 3 pm	Bedtime with a snack
Acetaminophen (Tylenol)	●	●	●
Aspirin 81 mg	●		●

Only when needed: Narcotic pain medicine; Anti-nausea medicine; Miralax and Senna; Omeprazole 20 mg.
Follow the label for how often.

How Long to Take Each One

Solid bars: take every day for the full time. Fading bars: taper off as you feel better. Dashed: only if needed.



Stop them in this order

- 1. Narcotic first.** Most people are off it within 1 to 2 weeks.
- 2. Tylenol on schedule for 2 weeks,** then only as needed until your pain is manageable without it.
- 3. Aspirin at 6 weeks. Always finish the full course.** It protects against clots while your weight bearing is limited or your bone is healing.
- 4. No anti-inflammatory until we say so** at your 6-week visit.

Each Medicine in Detail

Acetaminophen (Tylenol)

Its job: Your main everyday pain medicine. Because you are not taking an anti-inflammatory, taking it on schedule matters more.

How to take it: Take **1,000 mg (two 500 mg tablets) every 8 hours, on a schedule, for the first 2 weeks**. After that, take it as needed until your pain is manageable without it.

- **WARNING: Never take more than 3,000 mg of acetaminophen in a day from all sources combined.** Too much can seriously damage your liver.
- Some narcotic pills (such as Norco or Percocet) and many cold and flu medicines also contain acetaminophen. If yours does, it counts toward the 3,000 mg. We usually prescribe plain oxycodone for this reason. If you are not sure, ask your pharmacist or call us.

Aspirin 81 mg baby aspirin

Its job: Thins the blood slightly to prevent blood clots after surgery while you are less active.

How to take it: Unless we have discussed a different blood thinner plan with you, take **1 tablet twice a day** (morning and evening) for **6 weeks**. Finish the whole course, even if you feel great.

- **Some patients get a different blood thinner instead of aspirin**, for example if you already take one (such as Eliquis, Xarelto, or warfarin) or need a stronger one after surgery. If we have discussed a different plan with you, follow that plan instead of these aspirin instructions, and do not take aspirin on top of it unless we tell you to.
- If it upsets your stomach, take omeprazole (below).

Narcotic pain medicine usually oxycodone (or hydrocodone or Dilaudid)

Its job: Takes the edge off strong pain so you can rest, sleep, and do your exercises.

How to take it: Take as directed on the bottle, **only as needed** for pain. Use the lowest dose that keeps your pain around 6 out of 10.

- **Do not drive**, drink alcohol, or take sleeping pills or anxiety medicine (like Ambien or Xanax) while taking it.
- It causes constipation. See Miralax and Senna below.
- Without an anti-inflammatory, some people need it a little longer. **Call us during business hours before you run out** if you still need it.
- Store it out of reach, and take any leftovers to a pharmacy drop box when you are done.

Anti-nausea medicine ondansetron (Zofran)

If prescribed

Its job: Settles nausea from anesthesia or the narcotic.

How to take it: Take as directed, **only as needed** for nausea. The dissolving tablet goes on your tongue if you can't keep pills down.

Miralax and Senna (over the counter)

Its job: Treat constipation from the narcotic, if it happens.

How to take it: **Only if you become constipated**. Start with Senna, and add Miralax if you still need it. Follow the package directions, and see the constipation steps in your post-op packet. Stop when you stop the narcotic.

Omeprazole 20 mg (over the counter) Prilosec

Its job: Protects your stomach if the aspirin upsets it.

How to take it: **Only if you get an upset stomach or heartburn:** take 1 capsule once a day, 30 minutes before breakfast.

- If you already take a stomach medicine (Prilosec, Nexium, Protonix, Pepcid), keep taking yours instead.

Questions about your medicines?

Call our office at **(425) 656-5060**, day or night.

Refills: call during business hours, a day or two before you run out.

Call 911 for trouble breathing, or swelling of the face, lips, or throat after taking a medicine.