UW Medicine
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Paraesophageal Hernia

What it is and how it is treated

This handout explains a paraesophageal hernia, its symptoms, and how it is diagnosed and treated. It includes details about what to expect before and after surgery to repair your hernia.

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University of Washington Medical Center in Seattle, Washington

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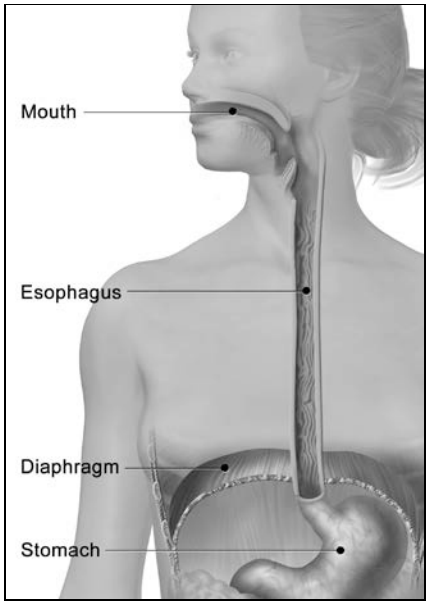
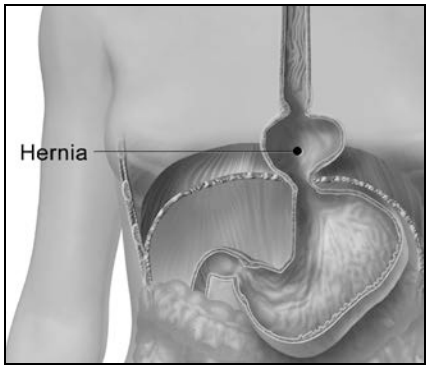


In normal digestion, food goes down the esophagus and into the stomach.

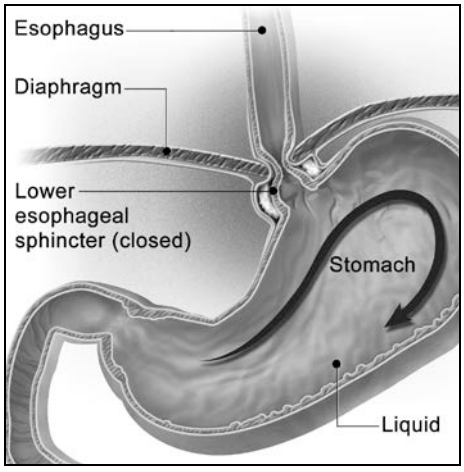


With a paraesophageal hernia, the upper stomach can slide up through a weak spot in the esophageal hiatus.

How does normal digestion work?

In normal digestion, food goes down the *esophagus* (the tube that goes from the throat to the stomach), past the *diaphragm* and into the stomach. The diaphragm is a flat muscle between the chest and the belly. The esophagus passes through an opening in the diaphragm called the *esophageal hiatus*.

The *lower esophageal sphincter* (LES) muscle is at the base of the esophagus. The LES lets food move into the stomach, but it keeps stomach acid from going up into the esophagus.



A healthy LES muscle closes to keep stomach acid from rising up into the esophagus.

What is a paraesophageal hernia?

There are different kinds of hernias. The most common is a *sliding hiatal hernia*. It is often linked to *gastroesophageal reflux disease* (GERD). In this type of hernia, the LES and esophagus slide through the hiatus together.

Sometimes, when there is a weak spot in the hiatus, part or all of the upper stomach slides up through the hiatus (with or without the LES sliding up). It ends up next to the esophagus. This is called a *paraesophageal hernia*. It is a more rare and severe type of hernia.

Symptoms

Many people who have a paraesophageal hernia do not have any symptoms. But, hernias that involve the LES can cause GERD because the LES cannot keep stomach acids from going up into the esophagus. This causes a burning feeling in the chest called *heartburn* or *acid indigestion*.

Other common symptoms of a paraesophageal hernia are:

- Problems getting food down (*dysphagia*)
- Feeling full quickly (early *satiety*)
- Food from the stomach backs up into the esophagus or mouth (*regurgitation*)

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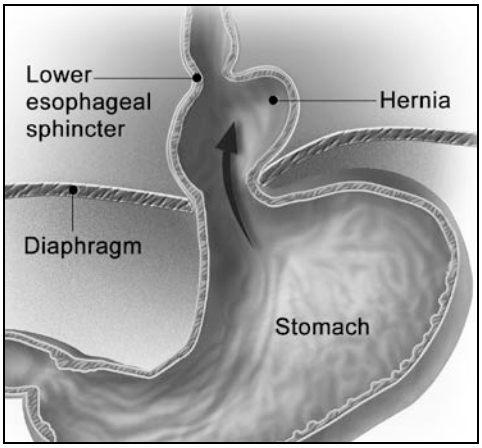
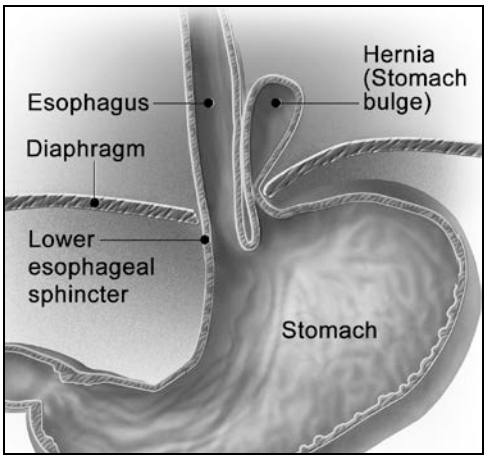


A type III paraesophageal hernia, also called a mixed paraesophageal hernia – the most common type



A type II paraesophageal hernia, with part of the upper stomach next to the esophagus

- Pain or discomfort in your chest or belly, either when you eat or afterward
- Bloating
- Hiccups, burping, and coughing
- Shortness of breath (*dyspnea*)
- *Anemia* (low blood level)

Some of these symptoms may get worse if you lie down or try to lift heavy objects.

What causes a paraesophageal hernia?

We do not know exactly why paraesophageal hernias occur. Some causes may be:

- Tissues in the diaphragm around the hiatus stretch or become weak.
- Tissue that connects the esophagus and the diaphragm loosens.
- The esophagus has become shorter from chronic GERD. This may pull on the stomach and the diaphragm.

Risk Factors

This condition occurs more often in Western nations. We believe this is because the usual Western diet contains less fiber. A low-fiber diet is linked with obesity, more constipation, and straining when having a bowel movement. All of these factors put pressure on the muscles and organs in the belly, and it may weaken them.

Other risk factors are:

- Being female (women have a slightly higher risk than men)
- Obesity
- Being over age 50

Problems

Some problems of a paraesophageal hernia are:

- Pain
- Ulcers, which can lead to bleeding
- Twisting of the stomach, which blocks blood flow
- Blockage, which can keep food from passing through

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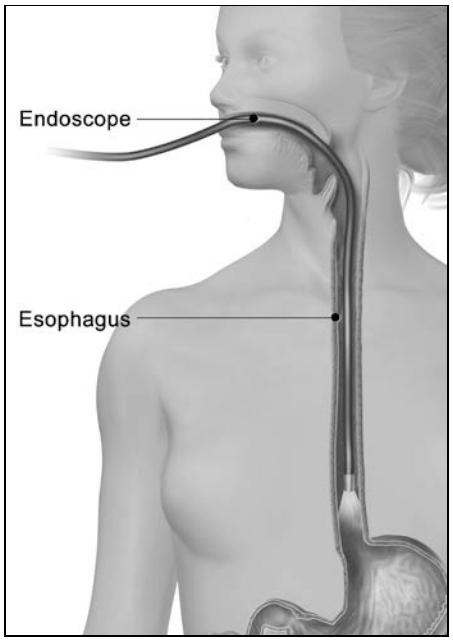


During an endoscopy, a thin flexible tube called an endoscope is put down your throat.

How is it diagnosed?

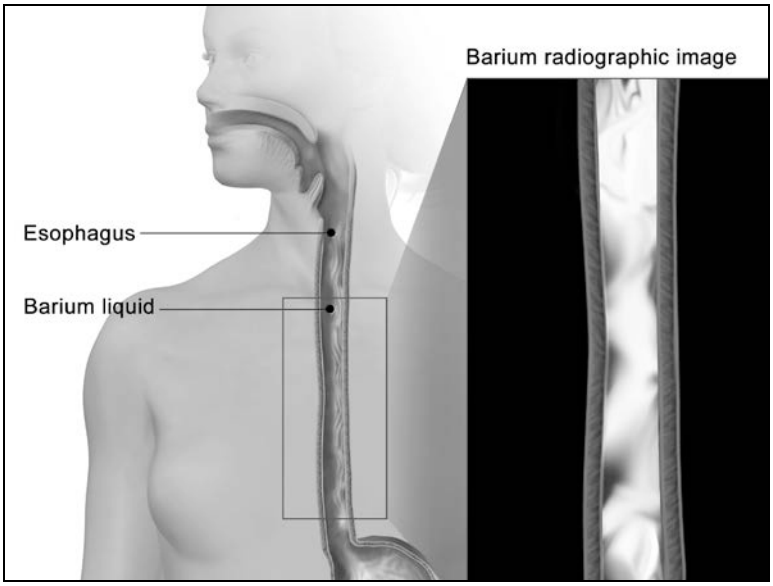
A paraesophageal hernia may be found when someone has a chest X-ray for other health conditions. But, they are usually diagnosed with one or more of these tests:

Endoscopy

During an *endoscopy*, a thin, flexible tube (*endoscope*) is put down your throat. The endoscope has a light and tiny camera at one end. The camera sends pictures of the inside of your esophagus to a monitor in the exam room. This lets the doctor see if you have a hernia.

Barium Swallow

For this test, you will swallow a fluid that contains barium. At the same time, the doctor uses *fluoroscopy* (a type of X-ray) to watch the fluid as it goes through your esophagus. The images show whether your stomach has moved up into your chest through the esophageal hiatus. They will also show how severe the condition is.



A barium swallow study

Other Studies

pH Study

Your doctor may want to do a *pH study* to test for acid reflux. This study is usually done by placing a wire through your nose and into your esophagus. *Electrodes* on the wire measure the acid level in your esophagus. This wire stays in place for 24 hours.

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Manometry

Your doctor may do a *manometry* to check the function (*peristalsis*) of the esophagus. During this test, you will have a wire down your esophagus while you are sipping liquid.

How is a paraesophageal hernia treated?

- If a paraesophageal hernia does not cause any symptoms, it may not need treatment, especially if you are over 70 years old. But, please meet with a surgeon to see if surgery is advised.
- If you have GERD, your doctor may prescribe:
  - Diet and lifestyle changes
  - Medicine
  - Surgery
- Surgery is most often used to treat large hernias. Large hernias cause problems other treatments cannot correct.

Diet and Lifestyle Changes

Small changes in your diet can lower the amount of acid your stomach makes. These changes ease symptoms for many people so that they do not need surgery.

- Avoid food and drink that could irritate your esophagus. This includes as hot peppers, citrus, tomatoes and tomato sauces, and other high-acid foods.
- Reduce or avoid alcohol, caffeine, and high-fat foods.
- Drink plenty of fluids. Eating a high-fiber diet may also help. A healthy diet is very important. Both constipation and obesity can make your hernia worse.
- Get plenty of exercise.
- Eat smaller meals throughout the day instead of 3 larger meals.
- Do not smoke or vape. Avoid using tobacco or nicotine in any form.
- If your job involves physical strain or heavy lifting, wear a support girdle or belt at work.

Medicines

Medicines cannot treat a paraesophageal hernia. But, if you have ulcers or bleeding because of your hernia, your doctor may prescribe medicines to help treat those problems.

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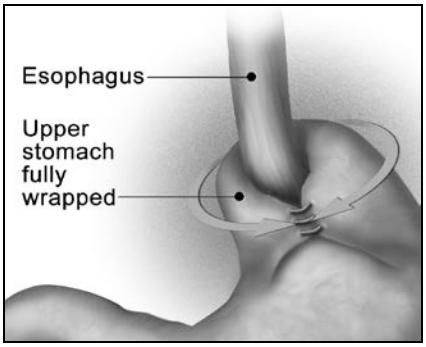
Surgery

Paraesophageal hernias that cause symptoms usually require surgery to repair them. It may be up to the patient whether or not to have surgery. This is called *elective* surgery. But, if the hernia is twisting the intestines or stomach, surgery is more urgent.

- Patients who are diagnosed with a life-threatening paraesophageal hernia may need surgery **right away**.
- Patients who have hernias with symptoms may also need surgery.

If you and your doctor decide that surgery is best for you, the goals of the surgery will be to:

- Put the stomach back into the belly below the diaphragm.
- Narrow the hiatus back to its normal size. This may include using a natural (*biologic*) mesh to make the area around the hiatus stronger.
- Create a new valve between the esophagus and stomach by wrapping part of the stomach around the esophagus. This is called a *Nissen fundoplication*.



In Nissen fundoplication surgery, your surgeon wraps the top part of your stomach around your esophagus.

About Nissen Fundoplication

Nissen fundoplication surgery has been used for a long time. Right now, it is the most common surgery for treating paraesophageal hernias and GERD.

In this procedure, your surgeon wraps the top part of your stomach around your esophagus. This creates a new valve to keep stomach acid from flowing back into your esophagus. It helps keep your hernia repair stable. For most patients, the surgeon wraps the upper stomach all the way around the esophagus (360 degrees).

Toupet Procedure

The surgeon can also do a partial wrap called a *Toupet procedure*. In this procedure, the upper stomach is wrapped most of the way around the esophagus (270 degrees), but not all the way. This puts less pressure on the lower esophagus. A Toupet may be done if your swallowing and peristalsis are very weak.

Paraesophageal Hernia Surgery

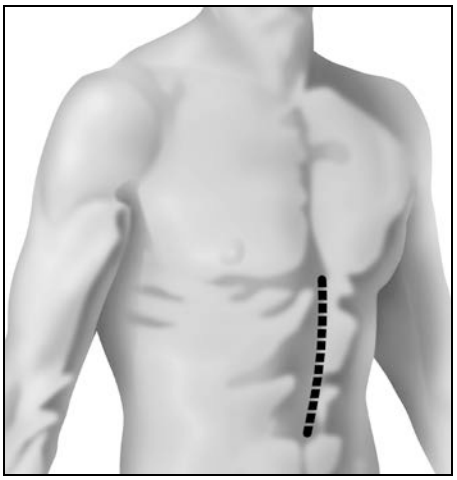
Almost all patients with a paraesophageal hernia can be treated with *laparoscopic surgery* at UWMC. Laparoscopic surgery is *minimally invasive* surgery. Instead of making a large incision in your belly, your

surgeon will make about 5 small incisions. Each cut will be 5 mm to 10 mm long (less than ¼ inch to ½ inch). Your surgeon will insert tiny instruments and a fiber-optic camera through these incisions.

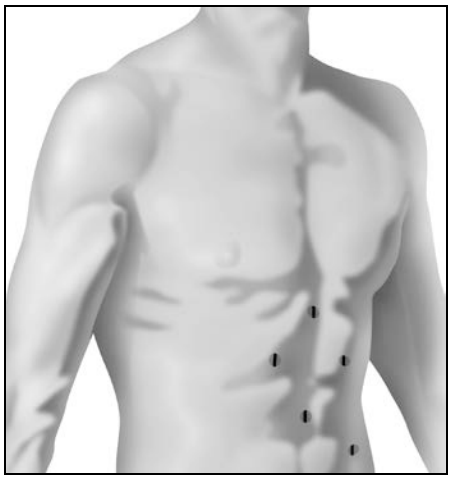
The camera projects images from inside your body onto a video monitor in the operating room (OR). This allows your surgeon to see the areas being worked on. Your surgeon uses these images and the small tools to do your surgery.

Laparoscopic surgery creates less scarring and involves a shorter recovery time than regular open surgery. Most laparoscopic patients can go home the first day after surgery. Patients who have open surgery usually stay in the hospital for 4 to 5 days.

These drawings show the different incisions used in open surgery and laparoscopic surgery:



Open incision



Laparoscopic incisions

Surgery Risks

Some risks of surgery to treat a paraesophageal hernia are:

- Pain
- Problems swallowing food (getting it past the new valve)
- *Perforation* (hole) or other damage to the esophagus or stomach
- Bleeding
- Infection
- Reaction to medicine
- Another hernia in the future

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During your laparoscopic surgery, a tiny camera will take images of the inside of your belly and project them onto a monitor. This helps your surgeons see the areas being worked on.

Side Effects of Surgery

These side effects can occur with fundoplication surgery:

Recurrent Reflux or Hiatal Hernia

With normal breathing, lifting, and eating, the area where fundoplication is done can stretch over time. Eighty percent of our patients (80 out of 100 patients) have relief after surgery that lasts longer than 10 years, but some have *break-through reflux* (when reflux comes back). If this happens, it is often easy to control it with medicine. Only 3% of our patients (3 out of 100 patients) need a second operation for problems that occur when a hernia comes back.

Dysphagia

You may feel resistance to food going down your esophagus. Most times, this can be managed by eating more slowly and chewing your food well.

Bloating or Gas

You may have a harder time belching (burping) after fundoplication. If you eat too much or swallow too much air, you may have some bloating until the gas passes. Usually, swallowed air is either belched or passed through the GI track as gas. Because it is harder to belch, you may have a little more gas.

Having Bowel Movements More Often

The stomach empties more quickly after fundoplication surgery. You may the need to have bowel movements more often. Many people with GERD find this helps their symptoms of bloating or gas.

In the Hospital After Surgery

Recovery

- You will be in the recovery room for about 2 hours after surgery. While you are waking up, nurses will monitor your pain level and give you medicines to make you comfortable.
- Your family may be able to visit you in the recovery room. This depends on how you are doing and the needs of other patients in the recovery room.
- When you wake up, you will have:
  - A **mask** over your face to give you extra oxygen. You will be switched to **nasal prongs** (oxygen under your nose) when your lungs are ready.

- **An intravenous (IV) tube** to give you fluids and medicines during and after surgery.
- **Leg wraps** called *sequential compression devices* (SCDs). You will feel these wraps squeeze and release from time to time. This improves blood flow and helps keep blood clots from forming.

- Some patients will have a **urinary catheter** in their bladder. This allows us to monitor your urine output during and after your surgery. The catheter will be removed at midnight.

On the Nursing Unit

- **Medicines:** All your medicines will be crushed or in liquid form.
- **Breathing exercises:** We will give you a device called an *incentive spirometer* to help you exercise your lungs. It is important to exercise your lungs to prevent lung infections (pneumonia) and other problems.

  To use the incentive spirometer:

  - Sit upright in a chair or in bed. Hold the incentive spirometer at eye level. You can hug or hold a pillow over your incisions for comfort.
  - Place the mouthpiece in your mouth and seal your lips around it.
  - Slowly breathe out fully. Then breathe in slowly, as deeply as you can, and then hold your breath as long as you can.
  - Your breathing will move a ball in the device. Try to get the ball as high as you can.
  - Exhale slowly through your mouth.
  - Rest for few seconds and repeat. Do this 10 times every hour while you are awake.
  - After you are done with your set of 10 deep breaths, be sure to cough to clear your lungs.
  - If you feel dizzy at any time, stop and rest.

Your nurse will show you how to use the incentive spirometer to exercise your lungs.

- **Activity:** It is important for you to get up and try to walk, even on the evening of your surgery. Your nurse will help you the first few times to make sure you are steady on your feet. **Please ask your nurse to help you walk. Do not wait to be asked if you want to walk.**
- **Diet:** A dietitian will visit you the day after surgery to talk about the diet you will need to follow when you leave the hospital.

- **Family and friends:** Family and friends can be important to your recovery. Plan to have a support person help you at home as you recover. They can help by doing things to help you be comfortable, such as fluffing your pillow, getting you a glass of water, or finding your remote control. Don't be afraid to reach out for help.

Going Home

Most patients are discharged by 11 a.m. the day after surgery. If you live more than a 2-hour drive from the hospital, we advise you to stay in the Seattle area an extra 1 or 2 nights. This extra rest time will help your recovery. You will also be nearby in case any problems occur.

Self-care at Home

For 24 hours after surgery and while you are taking medicines that contain opioids:

- Do **not** drive or travel alone
- Do **not** drink alcohol
- Do **not** be home alone
- Do **not** be responsible for the care of anyone else, such as children, pets, or an adult who needs care
- Do **not** use machinery
- Do **not** sign any legal papers or other important forms

Driving

- Do **not** drive for at least 2 weeks after surgery.
- Do **not** drive while you are taking prescription pain medicine (*opioids*). These drugs affect your reaction time and your ability to make decisions.
- You may drive when you are sure that your reaction time is normal.

Pain Control

- You will have some pain at your incision sites. We encourage you to take acetaminophen or ibuprofen as needed for pain relief.
- Cold packs on your incisions can help ease pain. If you use ice, do not place it directly on your skin. Wrap the ice in a towel first. Apply ice for 20 minutes at a time, then remove for 20 minutes.
- We will give you a prescription for *opioid* pills to help with moderate to severe pain. Use this medicine **only** if acetaminophen or ibuprofen do not control your pain.

- If you need a refill for opioids:
  - Before we can refill an opioid prescription, a provider must assess you, either over the phone or in person.
  - If you are approved for an opioid refill, we cannot send the prescription to your pharmacy. You must take it to your pharmacy in person. To get the prescription, you can either come to the hospital to pick it up, or you can call us and ask us to mail it to you. If you want us to mail you the prescription, be sure to call us several days before you will need your refill.
- You may also have shoulder pain for the first few days after your surgery. This is caused by the gas (carbon dioxide) that was used to inflate your belly during surgery. This pain usually lasts about 4 to 5 days. Opioids do not ease this shoulder pain. We advise walking, massaging the area, or using heating pads if this pain bothers you.
- Some pain medicines can make you dizzy. Ask for help when you get out of bed so that you do not fall.
- Some prescription pain medicines can cause constipation. Take the laxative as prescribed. Stop taking it if you start having loose stools.

Medicines

- **For 4 to 6 weeks after surgery, all of your medicines must be crushed or in a liquid form.** Do not swallow whole pills during this time. You will be given a pill crusher before you go home. Call your pharmacy if you have questions about crushing any of your pills.
- **Do not take any antacids**. If your GERD symptoms return, call your surgeon's office. Write your surgeon's office phone number in the "Questions" box on page 14.
- Take **all** of the medicines you received at discharge as prescribed. One of these medicines will help prevent nausea and vomiting. It is important not to vomit in the first few weeks after your surgery. Follow the instructions that come with your medicines.
- You may resume all of your other usual medicines, unless your provider tells you not to.

Activity

- For 6 weeks, do **not** lift anything that weighs more than 15 pounds. (A gallon of water weighs almost 9 pounds.)

Walking after surgery will help your body heal. Slowly increase how far you go.

- For 6 weeks, avoid strenuous activities, especially those that use your belly muscles. Slowly increase your activity as you heal.
- It is important to walk. Start walking as soon as you can after surgery. Walk 3 to 4 times a day, at least 1 mile total. Increase how far you walk as you recover.
- You may resume sexual activity 2 weeks after your surgery, as long as you follow all activity precautions.
- Let pain be your guide! If something causes you pain, stop doing it. Try it again another day.

Dressing and Skin Care

- Remove your gauze and Tegaderm dressings 48 hours after surgery.
- You will have white strips of tape called Steri-Strips under your dressings. Do **not** peel them off. They will fall off in 1 or 2 weeks.

Showering

- You may shower the day after surgery. The Tegaderm dressing is plastic and will repel water.
- Once you remove your dressings, it is OK to shower and get the Steri-Strips wet.
- Gently pat the Steri-Strips dry after showering. Do **not** rub them dry.
- For **2 weeks** after surgery, or until your incisions are fully healed, do **not** take a bath, sit in a hot tub, swim, or immerse your incision under water.

Diet and Nutrition

- In the hospital, you will be on a liquid diet after your surgery.
- Do **not** drink carbonated drinks or use straws to drink fluids.
- When you leave the hospital, you will start a soft esophageal diet. You will be on this diet for 4 to 6 weeks. This will help keep food from getting stuck in the area where your surgery was done. During this time, try eating soft foods like mashed potatoes, eggs, cottage cheese, and thick soups.
- Follow your dietitian's guidance on what foods to eat at home after your surgery. Read the handout your dietitian gave you. Call the dietitian if you have questions.

To reduce problems after surgery, eat small portions, about ½ cup of food at each meal.

- You will change to a regular diet in 4 to 6 weeks. When you are eating regular foods:
  - Try eating 5 to 6 small meals a day instead of 3 large meals.
  - Take small bites, chew them well, and eat slowly.
  - Stop eating when you feel full.
- Most patients lose about 10 pounds after this surgery. You will gain this weight back unless you try not to.

Bowel Movements

- You may have *diarrhea* (loose stools) after surgery due to the changes in your diet. This usually goes away in a few days.
- Call the surgical clinic if you have diarrhea for more than 3 days.
- Do not take any medicines for diarrhea unless your surgery team says it is OK.

When to Call Your Doctor

Call your primary care provider (PCP) if you have any of these symptoms in the next 7 days:

- Cannot swallow foods or can only handle liquids
- Cannot keep fluids down
- Problems swallowing
- Vomiting even if you are taking medicines to prevent nausea
- Your vomit is green, bloody, or looks like coffee grounds
- Chest pain or shortness of breath
- Severe, ongoing pain that is not eased by pain medicine and rest
- Back or shoulder pain that does not go away
- You feel very full and your belly is distended
- You cannot have a bowel movement
- You have diarrhea
- Your stools are black or tarry
- Dizziness or fainting when you stand up
- New onset or increased weakness, numbness, or tingling
- One of your legs or arms is warm, tender, painful, swollen, or red
- Increase in bleeding from your incisions

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- Any sign of infection around your incisions:
  - Fever higher than 100.5 F (37.8 C)
  - Shaking or chills
  - Increase in drainage, or drainage that is thick and smelly
  - Redness or swelling
  - Growing pain or tenderness

Questions?

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

Weekdays from 8 a.m. to 5 p.m., call Surgical Specialties at 206.598.4477.

After hours and on weekends and holidays, call 206.598.6190 and ask for the Resident on call for Surgery to be paged.

Or, call your surgeon's office:

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Published PFES: 2013, 2021
Clinician Review: 01/2021
Reprints on Health Online: https://healthonline.washington.edu

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