

Guide to Reflux



Welcome to St. Anthony's Hospital Heartburn and Swallowing Center. We offer a comprehensive, one-stop program to help treat heartburn, gastroesophageal reflux disease (GERD) and swallowing disorders to help you get back to enjoying life. Following the instructions in this guide will help ensure that you'll heal as fully and as quickly as possible.

Meet your Team

Nurse Navigator

The Nurse Navigator is your main point of contact. They'll guide you through the diagnostic testing and make sure all your questions are answered. A personalized plan of treatment will be designed and given to you. This plan includes direct referrals to specialists in our program who will help treat your condition. The Nurse Navigator will provide you with education and information before your surgery and follow you throughout the entire process.

Gastroenterologists

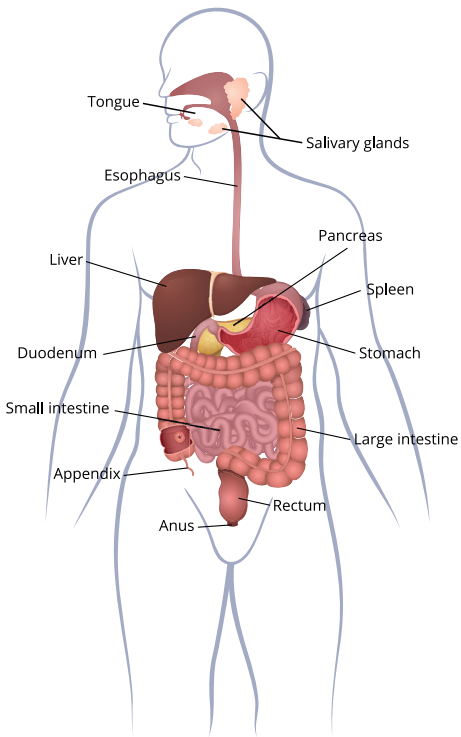
Gastroenterologists are doctors who specialize in treating problems with the gastrointestinal (GI) tract. This includes the esophagus, stomach, intestines, pancreas, gall bladder and liver. They'll also perform tests you may need.

General Surgeons

General surgeons are doctors who specialize in minimally invasive surgery like the LINX® and Nissen Fundoplication. These surgeries help stop stomach acid from moving up your esophagus (*the tube that connects your mouth to your stomach*) which causes the heartburn and GERD.



Reflux



Diagnostic Testing

Our Heartburn and Swallowing Center offers several tests to diagnose the cause of your heartburn symptoms. Your doctor may order one or more of the following tests. If your doctor has ordered a test not listed below, your nurse navigator will be happy to give you information about the test that has been ordered.

Barium Swallow

A barium swallow is an X-ray of your upper GI tract that helps the doctor diagnose conditions of your esophagus that might cause swallowing problems. You'll be asked to drink a white chalky substance called barium before X-rays are taken. Barium is absorbed so your doctor can see your esophagus, stomach and the first part of your small intestine. Your doctor may ask you to swallow a barium pill, marshmallow or bagel. This will help screen for problems with the way your esophagus works.

Esophageal Manometry

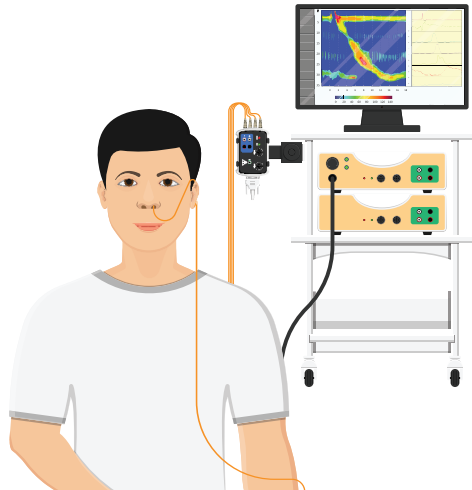
Esophageal manometry helps to see if your esophagus is working properly. We can see how well liquids or foods move from your mouth to your stomach. It measures pressure in your esophagus when you're resting and when you swallow. It's not a painful test but may be a little uncomfortable. A numbing lubricant medication will be applied inside your nose. A small, thin flexible tube will be inserted into your nostril and moved into your esophagus while you swallow. You'll be asked to take about 10 sips of water. As soon as enough information is collected, the nurse will remove the tube.

Upper Endoscopy

An upper endoscopy (EGD) uses a small flexible scope with a camera to look inside your esophagus, stomach and duodenum (*the first part of the small intestine*). Your doctor will look at the lining of the upper GI tract. A small sample of tissue may be removed to detect abnormal cells or precancerous changes in the esophagus or stomach. This is called a biopsy. During the test, you'll be given medication through an intravenous (IV) line to help you relax and rest comfortably.

Bravo Ph Monitoring

Bravo Ph monitoring measures how much acid is backing up (*refluxed*) into the esophagus and helps to diagnose gastroesophageal reflux disease (GERD). During an upper endoscopy, the doctor places a small capsule about the size of an eraser into the esophagus. The capsule will monitor the acid levels and send the information to a recorder for 48 hours. You can go about your daily activities after the capsule is inserted. The recorder has buttons to push if you're eating, when you go bed and if you have any GI symptoms. This will help the doctor figure out the results of the test. The capsule will fall off in about seven to 10 days and is passed in the stool. It's important to follow your doctor's instructions about stopping any blood thinners or medication used to treat your heartburn.



Esophageal Manometry: Diagnosis for problems with movement and pressure in the esophagus.



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Minimally Invasive Surgical Options

If medical management, such as medications, dietary and lifestyle changes, don't help your condition enough, we offer the most advanced and minimally invasive surgical options.

LINX

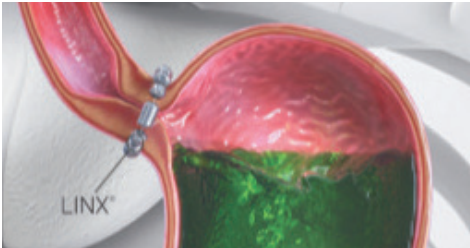
When the lower esophageal sphincter is weak, it allows acid from the stomach to come up the esophagus. The LINX is a ring of magnetic beads that's placed around the lower esophagus to prevent regurgitation of the stomach acid. Regurgitation is the return of partly digested food from the stomach to the mouth. The muscles of the esophagus open the beads to allow food to enter the stomach, while the force of the magnetic beads keeps the device closed at rest, to prevent acid from rising. If you have a hiatal hernia, this'll be repaired during your procedure.

Fundoplication (Nissen/Toupet)

This is a surgical procedure in which the surgeon wraps part of the stomach around the lower esophageal sphincter. This helps strengthen the sphincter and prevents acid from being refluxed. A hiatal hernia can also be corrected at this time.

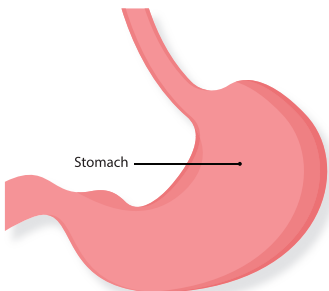
Benefits of surgery

Surgery will allow you to reduce or eliminate your heartburn medications. Surgery may also lower your risk of esophageal cancer.

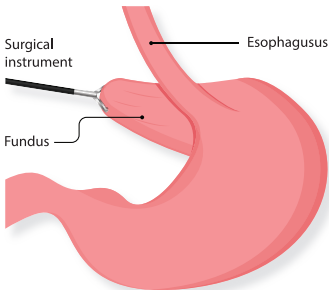


LINX device

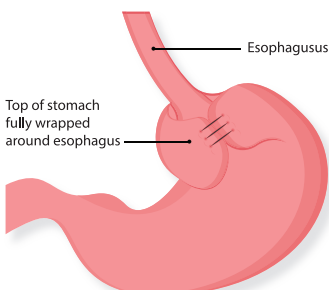
Nissen/Toupet Fundoplication



Before surgery



During surgery



After surgery

Presurgical Information

At Home Before Surgery

It's very important to review your postoperative diet instructions and buy any needed foods.

The Day Before Your Surgery

Report any changes in your physical condition to your doctors. There are a number of problems that may require your surgery be delayed. These include a sore throat, a cold, a fever, dental problems, difficulty urinating and skin conditions such as rashes or abrasions. It's very important to follow your anesthesia instructions about eating or drinking before your surgery. Your surgery can be delayed if you don't follow these instructions. If you have any questions about whether you're healthy enough to undergo surgery, call your surgeon's office.

The Morning of Your Surgery

If you've been instructed to take medications in the morning, swallow them with only a sip of water. Don't eat or drink anything else unless instructed by your doctor. Follow your preadmission testing instructions regarding showering with a special soap. Please no lotions, powders or colognes.

At the Hospital

Being in the hospital may be an unusual experience for you. This information may help you understand the hospital routine.

Presurgical Unit

When you arrive at the hospital, you'll meet with a nurse who'll ask your name and birth date. A white hospital ID band will be placed around your wrist. If you're allergic to any medications or food, a red wrist band will be applied.

- You'll change into a hospital gown and be given a bag to put your belongings in.
- Your vital signs (*temperature, heart rate, blood pressure, respiration rate*) will be taken. You'll be asked to rate your pain on a scale of 0–10.
- Your chart will be reviewed and any additional testing will be done at that time.
- An intravenous line (IV) will be started to give you fluids and medications.
- The nurse will answer your questions and make sure you're ready for surgery.
- You'll meet your surgical team and the surgeon will mark your site.

Operating Room

This is where you'll have your surgery. Surgery time varies and your family will be updated.

Recovery Room–Post-Anesthesia Care Unit (PACU)

After surgery, you'll be moved to the recovery room. Your nurse will check your surgery site and vital signs, and ask how you're feeling. Let the nurse know if you're having any pain so they can give you medications to make you more comfortable. You'll be in PACU about an hour, or until your room is ready. Once your room is ready, we'll take you to your room and your family can see you then.

When Will I Be Discharged?

How long you stay in the hospital will depend on the type of surgery and your general recovery. Some people go home the same day, but sometimes an overnight stay is required. Your surgeon or Nurse Navigator will review this with you.

Diet After Surgery

You'll be put on a special diet to give your body a chance to heal. The diet will depend on the type of surgery you have.

LINX Surgery Post-Op Diet

When Do I Start To Eat?

- Typically patients can start eating the day of surgery. You want to activate the LINX band right away, allowing it to open and close as food goes down your esophagus. Eat soft foods the day of surgery. **You can resume your regular diet the day after surgery, but you'll also want to eat more often to exercise your device.**
- Take a few sips of warm water before you take your first bite of food, or a bite of something soft like yogurt or pudding.
- Eat slowly, taking **small bites of food and chewing foods well.**
- You can take small sips of a drink between bites to help food pass.
- Eat when you wake up in the morning. This is very important.

How Often Should I Eat?

- While you're healing, **small, frequent meals are recommended (*every two to three hours*)** in order to exercise the LINX. This will be your physical therapy after surgery. Eating allows you to exercise your device. The opening and closing of the device will help decrease difficulty swallowing while you're healing.
- To help prevent dysphagia (*difficulty swallowing*), you should eat one tablespoon of yogurt, pudding, custard or applesauce every hour while you're awake. This is in addition to the small, frequent meals several times a day.
- Avoid taking large gulps of fluids at one time. This may cause tightness or discomfort.
- Stay hydrated by drinking regular sips of room temperature water or warm water throughout the day. **Don't drink ice-cold fluids.** This may cause the esophagus to spasm or tighten.
- Keep a drink nearby in case you need to sip fluids with food. Warm fluids often help with the passing of food.

10 Days After Surgery

- Approximately two to 10 days after surgery, you may have difficulty with food passing. Don't be alarmed as this is normal and due to swelling from surgery. As you heal, the dysphagia (*difficulty swallowing*) normally improves in four to eight weeks. The dysphagia should go away on its own within 12 weeks after surgery.
- Continue to eat solid foods **slowly** and use liquids to help foods pass. Continue to eat one tablespoon of yogurt, pudding, custard or applesauce every hour while you're awake.
- **DON'T switch to a liquid-only diet.**
- If discomfort persists or you regurgitate solid food more than twice, contact your surgeon's office.

| Diet After LINX | |
|---------------------------------|---|
| Day of LINX Surgery | A soft diet is recommended for the first 24 hours. |
| Acceptable Items | |
| Beverages | <ul style="list-style-type: none">– All except for carbonated drinks. They may cause gas and bloating.– Avoid serving beverages on ice or drinking cold beverages because it may cause the esophagus to tighten or spasm. Drinking warm or room-temperature water will help with the food to pass.– Take a few sips of water before your first bite of food, or a bite of something soft like pudding or yogurt. |
| Breads, cereals, rice and pasta | <ul style="list-style-type: none">– Saltine crackers moistened in soup or other liquid– Moist, dry or cooked cereal, muffins, pancakes or waffles moistened with butter, jelly or syrup– Refined white pasta or rice with butter, sauce or gravy |
| Dairy | <ul style="list-style-type: none">– Yogurt (<i>plain or with soft fruits</i>)– Cottage cheese or soft cheese |
| Fruits and vegetables | <ul style="list-style-type: none">– Applesauce or canned fruit without skins or seeds– Cooked fruits or ripe soft peel fruits, such as bananas or peaches– Well-cooked or soft vegetables– Potatoes: mashed, creamy or scalloped– Mashed or pureed hot dishes or casseroles– Avocados |
| Meat or other protein sources | <ul style="list-style-type: none">– Eggs: cooked, scrambled or poached– Soft beans– Tofu– Soft fish without breading– Canned chicken, tuna or lunch meat– Not recommended: Peanut butter (<i>it may be difficult to swallow</i>) |
| Desserts | <ul style="list-style-type: none">– Pudding, custard or gelatin desserts– Fig Newtons– Soft moist cake or a cookie that’s been moistened in milk, coffee or other liquid |

| Diet After LINX | |
|---------------------------------|---|
| Day After LINX Surgery | <ul style="list-style-type: none">– Regular solid food– A soft diet is recommended for the first 24 hours.– Avoid liquid-only meals– All except for carbonated drinks. They may cause gas and bloating.– Avoid serving beverages on ice or drinking cold beverages because it may cause the esophagus to tighten or spasm. Drinking warm or room-temperature water will help with the food to pass.– Take a few sips of water before your first bite of food, or a bite of something soft like pudding or yogurt. |
| Acceptable Items | |
| Breads, cereals, rice and pasta | <ul style="list-style-type: none">– High-fiber cereal– Whole grain pasta and rice– Yogurt (<i>plain or with soft fruits</i>)– Cottage cheese or soft cheese |
| Dairy | <ul style="list-style-type: none">– Yogurt with granola or nuts– Cheeses– Eggs - cooked, scrambled or poached– Soft beans– Tofu– Soft fish without breading– Canned chicken, tuna or lunch meat– Not recommended: Peanut butter (<i>it may be difficult to swallow</i>) |
| Fruits and vegetables | <ul style="list-style-type: none">– Salads– Cooked vegetables– Fresh or dried fruits– Fried potatoes |
| Meat or other protein sources | <ul style="list-style-type: none">– Fish– Shrimp/seafood– Chopped ground beef/poultry– Avoid: Grilled meats, steak and broiled chicken for three weeks after your procedure. If you want to eat these foods, moisten them in stews, liquids or sauces. |

General Tips for Eating After LINX

- For the first three weeks after your procedure, **avoid** eating breads (*bagels, donuts, muffins, etc.*), French fries, raw, hard vegetables, sticky rice and pizza. This'll help to prevent difficulty swallowing.
- If you have a gassy or bloating feeling, **avoid** things that give you gas, such as raw vegetables, beans, broccoli, etc., for three weeks. This should improve as the swelling goes down.
- It's **normal** to experience some difficulty swallowing, increased burping or chest pain. Your esophagus may occasionally spasm, causing a sharp or stabbing chest pain that lasts a few seconds. Continue eating frequently to exercise your device and reduce the symptoms.
- Wet foods are easier to swallow than dry ones.
- If you feel food is stuck when eating, drink warm water or tea to help relax the esophagus. Walking around will also help.
- If you're having any difficulty swallowing when trying a new food, hold off and try it again in a week.

Diet After Nissen Fundoplication Surgery

After surgery, normal postoperative swelling will prevent you from eating a regular diet, as the swelling will make it hard for you to swallow. It may also cause you to swallow more air when you eat. To help prevent problems after surgery, **your diet will be advanced over four to five weeks, and at that point you'll be able to eat most of the items in your regular diet.** Careful adherence to this diet will minimize postoperative pain and maximize the likelihood of long-term success after your surgery. Following this special diet will allow for necessary healing and will help control problems like nausea, swallowing problems, diarrhea or increased amounts of gas/bloating.

Your diet will progress slowly in stages*, from just liquids to a normal diet. After surgery, you'll have:

- One week of full liquids
- One week of pureed foods
- One week of a soft diet
- One week of small, regular food with finely chopped pieces and no bulky items
- You may then advance your diet as you're able to tolerate foods. Be patient!

**As you progress through these stages, if discomfort occurs, go back to the previous stage for a few days.*

Clear Liquid Diet

This diet will start while you're in the hospital. No carbonated beverages, juice with pulp, alcohol or citrus juice. Limit hot drinks. Sip liquids slowly.

- Water
- Ensure Clear
- Apple, grape or cranberry juice
- Crystal-Lite
- Broth, popsicles/Italian ice
- Jell-O
- Decaffeinated tea and decaffeinated coffee (*without cream*)

Week 1: Full Liquids

Anything from the previous clear liquid diet, plus:

- Regular milk, milkshakes, ice cream, frozen yogurt, sherbet
- Soy milk
- Custards, pudding (*no chocolate*)
- Thin cream of wheat, thin cream of rice
- Strained creamed soups (*no tomato or broccoli*)
- Flavored fruit drinks (*unsweetened*), fruit juice without pulp or seeds, vegetable juice (*not tomato based*)
- Smooth yogurt (*no fruit pieces or chunks*)
- You can get extra calories and protein from high-protein liquid supplements available in many health food stores (*Ensure, Boost, Carnation Instant Breakfast, etc.*).

Week 2: Pureed Foods

You should now be able to take in some thicker foods. Foods should be blenderized to allow for easier swallowing and minimal chewing. Be sure to strain the food to remove any chunks, seeds or fiber. Don't blenderize any bread, rice or pasta. These foods can expand and cause blockage in your esophagus. Eat six small meals a day.

- Warm cereals, cream of wheat, cooked oatmeal
- Pureed vegetables
- Baby food
- "Runny" smooth mashed potatoes
- Pureed fruit, smooth applesauce
- Cottage cheese
- All strained cream-based or broth-based soups

Week 3: Soft Food

Eat slowly, chew completely and thoroughly. Eat things that can be scooped rather than poured:

- Cold cereals that soften with milk
- Cooked and finely chopped pasta with gravy or sauce
- Moist rice with gravy or sauce
- Soft cooked and finely chopped vegetables
- Soft canned fruits, soft peeled ripe fruit without skin (*bananas*)

- Skinless baked or mashed potatoes, well moistened
- Soft flaky fish without bones
- Soft scrambled eggs
- Shredded soft cheeses that melt, or small curd cottage cheese
- Soft tofu
- Tender cooked meats, minced or ground, without skin or bones.
Moisten with gravy or sauce.

Foods to avoid include tough, chewy, stringy or fatty meats; fried meat, eggs, poultry or fish; peanut butter; nuts; dry breads such as muffins, pancakes, waffles, sliced bread, crackers, bagels, French bread; crackers; high fiber cereal or bran; raw fruits, dried fruits, cooked fruits with skin or seeds, coconut; raw, stringy or crunchy vegetables with skin or seeds, and cooked vegetables with skin or seeds; alcohol; hot beverages; crunchy or chewy foods of any kind such as deep-fried foods; foods with hard edges such as chips, popcorn; foods with nuts/seeds or dried fruits

Week 4: Regular Small Meals with no Large Chunks

You may resume a regular diet, but with no large bulky meats or large pieces of dry bread. You must chop your food into small pieces and chew it well. Continue to avoid very bulky roughage and very dry foods during this week. At this point, you may start taking small pills again, but only those smaller than the food chunks you're limited to.

Week 5 and Beyond: Regular Diet

Resume your regular diet as tolerated. It's still a good idea to eat small frequent meals (*five to six per day*) rather than just two to three large meals per day. Eat only until you feel full. Drink plenty of fluids in between meals, but limit fluids to 1/2 cup with meals to avoid stretching your stomach. You may take your usual medication pills, but you may not be able to take very large pills—every person is different.

General Tips for Eating After a Nissen Fundoplication

Medications

Your doctor may want you to take smaller pills. Review this with your surgeon

Gas and Bloating

Gas and bloating should be avoided. These actions can cause you to swallow air which would create more gas in your stomach. You should avoid:

- Chewing gum or tobacco
- Drinking from a straw or bottle
- Chewing with your mouth open or talking while eating
- Carbonated drinks (*avoid for six to eight weeks*)

Eating certain foods like broccoli, cauliflower, cabbage, corn, beans or legumes and onions can cause stomach distention and gas. Walking multiple times daily will improve digestion of food and help alleviate gas, prevent blood clots and promote healing.

Avoid Stretching Your Stomach and Swallowing Problems

After surgery, your stomach won't be able to hold large amounts of food and you don't want to stretch your stomach. You may have some trouble swallowing because of swelling.

- Eat small frequent meals (*five to six per day*) rather than two to three large meals a day.
- Take small bits, chew your food and eat slowly.
- Eat only until you feel full.
- Drink about ½ cup or 4 ounces of liquid with meals and 1 cup or 8 ounces with snacks. Make sure you drink plenty of fluids, about six to eight cups a day.
- Sit upright when eating or drinking. Remain in an upright position for 30 minutes after eating. Don't recline.
- Eat dessert or sweets at the end of your meal. These foods can cause “dumping syndrome” which occurs when sugar passes too rapidly from the stomach to the small intestines. Symptoms include cramping, diarrhea, nausea, weakness, increased heart rate and sweating.
- Use caution with caffeine, coffee, chocolate, alcohol, citrus, tomato products and spicy food, as they may cause heartburn.



