



Gastroparesis, (pronounced gas-tro-par-EES-is), also called delayed gastric emptying, is a disorder in which the stomach takes too long to empty its contents. This condition is very common and can be the cause of a number of abdominal complaints. It is usually not a serious problem and there are effective treatments available.

How the stomach works.

Normally, muscles in the wall of the stomach work to grind the food into smaller pieces and then push the churned and liquefied food into the duodenum, the first part of the small intestine. However, in gastroparesis, these stomach muscles work poorly or not at all, preventing your stomach from emptying properly. This can hold up digestion, cause increased reflux, nausea and vomiting, and interfere with blood sugar levels and nutrition.

What causes gastroparesis?

The most common known cause of gastroparesis is diabetes. People with diabetes have high blood sugar, which causes chemical changes in nerves and damages the blood vessels that carry oxygen and nutrients to those nerves. Over time, these changes can damage the vagus nerve – the nerve that controls the muscles of the stomach.

In addition, there are a number of other causes for gastroparesis:

- Viral infections
- Anorexia nervosa or bulimia
- Certain medications, such as calcium blockers and narcotics that weaken stomach contractions
- Neurological conditions such as Parkinson's disease, stroke or brain injury
- Metabolic disorders such as adrenal or thyroid gland problems (hypothyroidism)
- Previous stomach surgery

In up to 40% of cases, people have what is called idiopathic gastroparesis, meaning the cause is not known and cannot be found even after medical tests.

What are the symptoms?

The most common symptoms of gastroparesis are a feeling of fullness after only a few bites of food (early satiety), bloating, excessive belching and nausea. There may be vomiting of undigested food (even several hours after eating), heartburn, pain in the upper abdomen, lack of appetite, and weight loss due to poor calorie intake and poor absorption of nutrients.

Eating solid food, especially high-fiber foods such as raw fruits and vegetables, fatty foods, or drinks high in fat or carbonation may add to these symptoms.

How is gastroparesis diagnosed?

Doctors use several tests to help diagnose gastroparesis. Some of these rule out conditions that cause similar symptoms; others check for specific signs of gastroparesis.

- Gastric Emptying Study - This study is usually considered to be the most accurate way to diagnose gastroparesis. In this study, you eat a food item, most often egg salad,

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which contains a small amount of “tracer”. After eating, you lie flat on a table while a scanner is placed over your stomach to monitor the rate at which the food (tracer) leaves your stomach.

- Upper GI Endoscopy (EGD) – Instead of helping diagnose gastroparesis, this procedure is used to rule out other conditions that can cause delayed gastric emptying. During the procedure, the doctor passes a long, thin tube with a tiny camera through your mouth and down your throat, or esophagus, into your stomach and the first part of your small intestine to check for any abnormalities.

What are the complications?

- Weight loss and malnutrition - Problems can occur when slow emptying of the stomach affects your body’s ability to digest and absorb nutrients. Also, if food stays in the stomach too long, it can cause bacterial overgrowth from the fermentation of the food and disrupt the body’s normal balance of good and bad bacteria.
- Bezoars - Undigested food in the stomach can harden into a bezoar (pronounced BEE-zawr), a solid mass that’s similar to a hairball in a cat. Bezoars may cause nausea and vomiting and may become dangerous if they prevent food from passing into the small intestine.
- Blood sugar fluctuations – Diabetic gastroparesis can be a vicious cycle. Gastroparesis doesn’t cause diabetes, but inconsistent food absorption can play havoc with blood sugar levels, which makes diabetes worse. In turn, poor control of blood sugar levels makes gastroparesis worse.

What is the treatment?

First, controlling diabetes or any other underlying condition that may be causing gastroparesis, such as an underactive thyroid, is the first step in treating the condition. Beyond this, treatment usually involves dietary changes and medications. In most cases, treatment does not “cure” gastroparesis – it helps you manage the condition so you can be healthy and as comfortable as possible.

Dietary Changes

Changing how and what foods are eaten is helpful. The most common recommended dietary changes include:

- Smaller, more frequent meals. Eat six small meals per day, instead of three large meals.
- Avoid high-fiber foods. Foods high in fiber tend to stay in the stomach longer, so they should be restricted when symptoms are severe. Fibrous foods are also more likely to form bezoars than softer foods. Foods most likely to cause bezoars include dried figs, berries of all kinds, apples, coconut, corn, brussels sprouts, and potato and tomato peels.
- Cut back on high-fat foods or added fats. Foods high in fat naturally cause delay in emptying of the stomach.
- Nutritional supplements. Because gastroparesis interferes with digestion and absorption of nutrients, people with gastroparesis may be deficient in important vitamins and minerals such as vitamin B-12, iron and calcium. A liquid vitamin and mineral supplement may help supply missing nutrients.
- Pureed and liquid foods. Most people with gastroparesis find that they do best with soups or pureed foods. Liquid always leaves the stomach faster than solid food so liquid-type foods such as low-fat milkshakes may be helpful.

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- Avoid smoking, alcohol, coffee, spicy foods and mints. All of these things can irritate the lining of the stomach and create more acid reflux.

A registered dietitian can be very helpful in providing advice in severe cases.

Medications

The two most common types of drugs prescribed to treat gastroparesis are anti-emetics and prokinetics. Anti-emetics – When nausea is a predominant symptom, an anti-nausea drug such as prochlorperazine (Compazine) or ondansetron (Zofran) may be used to control nausea and vomiting. Prokinetics – These types of drugs are used to stimulate stomach contractions.

- Metoclopramide (Reglan) – This prokinetic drug increases the strength and frequency of the stomach muscle contractions and relaxes the valve that controls the release of food from your stomach to your small intestine. Side effects are common and include drowsiness, depression and muscle spasms.
- Domperidone – This drug is similar to metoclopramide, but without many of its side effects. It is available in Canada and Europe; it is not FDA approved in the USA.
- Erythromycin – This drug is not a prokinetic; instead, it's a common antibiotic that produces short bursts of strong stomach contractions. However, most people develop a tolerance to the drug fairly quickly so it is usually used only intermittently or when symptoms become worse.

Summary

Gastroparesis is a common condition that may affect anyone, but is most often seen as a complication of insulin-dependent diabetes. Many cases have no identifiable cause. Gastroparesis causes bloating, nausea, vomiting, a feeling of being full and contributes to poor blood sugar control. In severe cases, it can affect nutrition. Treatment is available, but as yet there is no cure. Treatment consists of treating any underlying problem, diet and medications. By working with a physician, most patients are able to reach a satisfactory treatment program.

Gastroparesis Diet

The purpose of the gastroparesis diet is to reduce symptoms and maintain adequate nutrition and fluid intake. Step 1 is used when symptoms are more severe and you may advance to Steps 2 and 3 as symptoms improve.

Step 1: Liquids

Liquids usually leave the stomach quickly by gravity alone. Gatorade, soft drinks and broths prevent dehydration and keep the body supplied with vital salts and minerals. Try to sip 1-2 ounces at a time with the goal of drinking at least 4 ounces an hour. You may also try plain saltine crackers. Avoid all citrus and highly sweetened drinks.

Note: Step 1 is nutritionally inadequate and should not be followed for more than three days without additional nutritional support.

Step 2: Soups & Breads

Try various soups with noodles, rice or crackers. This step provides additional calories by adding small amounts of dietary fats. While fatty foods and oils can delay stomach emptying, you may be able to tolerate small amounts of fats such as peanut butter and cheese (less than 40 grams each day). Food should be divided into at least six small meals per day. Avoid milkbased soups and drinks.

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Step 3: Solid Foods

The goal of this step is to find a diet containing foods that you enjoy and can maintain long-term without significant nausea and vomiting. Add starches such as noodles, pasta, rice and potatoes back into your diet. Chicken breast is usually well-tolerated. Fat is limited to 50 grams each day and raw, fibrous fruits and vegetables should also be restricted. Food should be divided into at least six small meals per day. Avoid red meat. A liquid multivitamin supplement is recommended in all steps of the diet.