**Stomach Information**

**Helicobacter Pylori**

H. pylori infection occurs when a type of bacteria called Helicobacter pylori (H. pylori) infects your stomach, usually during childhood. A common cause of peptic ulcers, H. pylori infection is present in about half the people in the world.

Most people don’t realize they have H. pylori infection, because they never get sick from it. If you develop signs and symptoms of a peptic ulcer, your doctor will probably test you for H. pylori infection, because it can be treated with antibiotics.

**What are the symptoms of H. pylori infection?**

Most people with H. pylori infection will never have any signs or symptoms. It’s not clear why this is, but scientists believe some people may be born with more resistance to the harmful effects of H. pylori.

When signs or symptoms do occur with H. pylori infection, they may include:

- An ache or burning pain in your abdomen
- Nausea
- Vomiting
- Frequent burping
- Bloating
- Weight loss

**When to see a doctor**

Make an appointment with your doctor if you notice any persistent signs and symptoms that worry you. Seek immediate medical help if you experience:

- Severe or persistent abdominal pain
- Difficulty swallowing
- Bloody or black tarry stools
- Bloody or black vomit or vomit that looks like coffee grounds

**What are the causes of H. pylori infection?**

H. pylori bacteria can be passed from person to person through direct contact with saliva, vomit or fecal matter. H. pylori can also be spread through contaminated food or water. The infection is usually acquired during childhood.

**What is the risk factor?**

Many people contract H. pylori as children. Contracting H. pylori in adulthood is much less common.
Risk factors for H. pylori infection are related to living conditions in your childhood, such as:

**Living in crowded conditions.** You have a greater risk of H. pylori infection if you live in a home with many other people.

**Living without a reliable supply of hot water.** Having a reliable hot water supply can help you keep your living area clean and reduce your risk of H. pylori.

**Living in a developing country.** People living in developing countries, where crowded and unsanitary living conditions may be more common, have a higher risk of H. pylori infection.

**Living with someone who has an H. pylori infection.** If someone you live with has H. pylori, you’re more likely to also have H. pylori.

**What complications could you have?**

Complications associated with H. pylori infection include:

**Ulcers.** H. pylori can damage the protective lining of your stomach and small intestine. This can allow stomach acid to create an open sore (ulcer).

**Inflammation of the stomach lining.** H. pylori infection can irritate your stomach, causing inflammation (gastritis).

**Stomach cancer.** H. pylori infection is a strong risk factor for certain types of stomach cancer.

**Tests and diagnosis**

Tests and procedures used to determine whether you have an H. pylori infection include:

**Blood test.** Analysis of a blood sample may reveal evidence of an active or previous H. pylori infection in your body. A blood sample is usually collected by pricking your finger.

**Breath test.** During a breath test, you swallow a pill, liquid or pudding that contains radioactive carbon molecules. If you have an H. pylori infection, the radioactive carbon is released when the solution is broken down in your stomach. Your body absorbs the radioactive carbon and expels it when you exhale. You exhale into a bag and your doctor uses a special device to detect the radioactive carbon.

**Stool test.** A laboratory test called a stool antigen test looks for foreign proteins (antigens) associated with H. pylori infection in your stool.

**Scope test.** During an endoscopy exam, your doctor threads a long flexible tube equipped with a tiny camera (endoscope) down your throat and esophagus and into your stomach and duodenum. Using this instrument, your doctor can view any irregularities in your upper digestive tract and remove tissue samples (biopsy). These samples are analyzed for H. pylori infection.

**Treatments and drugs**

H. pylori infections are usually treated with two varieties of antibiotics at once, to help prevent the bacteria from developing a resistance to one particular antibiotic. Your doctor also will prescribe an acid suppression drug, to help your stomach lining heal.

Your doctor may recommend that you undergo testing for H. pylori several weeks after your treatment. If the tests show the treatment was unsuccessful, you may undergo another round of treatment with a different combination of antibiotic medications.
Gastroparesis

Gastroparesis is a condition in which the muscles in your stomach don’t function normally.

Ordinarily, strong muscular contractions propel food through your digestive tract. But in gastroparesis, the muscles in the wall of your stomach work poorly or not at all. This prevents your stomach from emptying properly. Gastroparesis can interfere with digestion, cause nausea and vomiting, and cause problems with blood sugar levels and nutrition.

There is no cure for gastroparesis. Making changes to your diet may help you cope with gastroparesis signs and symptoms, but that’s not always enough. Gastroparesis medications may offer some relief, but some can cause serious side effects.

What are the symptoms of Gastroparesis?

Signs and symptoms of gastroparesis include:
- Vomiting
- Nausea
- A feeling of fullness after eating just a few bites
- Abdominal bloating
- Heartburn or gastroesophageal reflux
- Changes in blood sugar levels
- Lack of appetite
- Weight loss and malnutrition

**When to see a doctor**

Make an appointment with your doctor if you have any signs or symptoms that worry you.

What are the causes of Gastroparesis?

It’s not always clear what leads to gastroparesis. But in many cases, gastroparesis is believed to be caused by damage to a nerve that controls the stomach muscles (vagus nerve).

The vagus nerve helps manage the complex processes in your digestive tract, including signaling the muscles in your stomach to contract and push food into the small intestine. A damaged vagus nerve can’t send signals to your stomach muscles. This may cause food to remain in your stomach longer, rather than move normally into your small intestine to be digested.

The vagus nerve can be damaged by diseases, such as diabetes, or by surgery to the stomach or small intestine.

What is the risk factor?

Factors that can make it difficult for your stomach to empty properly include:
- Diabetes
Abdominal surgery
Infection
Certain medications that slow the rate of stomach emptying, such as narcotic pain medications and antidepressants
Certain cancer treatments
Anorexia
Bulimia
Scleroderma
Parkinson’s disease
Hypothyroidism

What complications could you have?

Gastroparesis can cause several complications, such as:

**Bacteria overgrowth in the stomach.** Food that stays in the stomach can begin to ferment and disrupt the balance of good and bad bacteria. This can allow harmful microorganisms to grow out of control.

**Undigested food that hardens and remains in your stomach.** Undigested food in your stomach can harden into a solid mass called a bezoar. Bezoars can cause nausea and vomiting and may be life-threatening if they prevent food from passing into your small intestine.

**Blood sugar fluctuations.** Although gastroparesis doesn't cause diabetes, inconsistent food absorption can cause erratic changes in blood sugar levels, which make diabetes worse. In turn, poor control of blood sugar levels makes gastroparesis worse.

Tests and diagnosis

Doctors use several tests to help diagnose gastroparesis and rule out conditions that may cause similar symptoms. Tests may include:

**Measuring the time it takes for your stomach to empty.** A gastric-emptying study measures how long it takes for food to move through your stomach. There are several ways to measure stomach emptying. In the most common test, you eat food that contains a small amount of radioactive material. A scanner that detects the movement of the radioactive material is placed over your abdomen to monitor the rate at which food leaves your stomach.

**Using a scope to see inside your stomach.** An upper endoscopy may help rule out other conditions that can cause delayed gastric emptying. During an endoscopy, your doctor passes a thin tube equipped with a camera down your throat and into your stomach and small intestine. The camera transmits images your doctor uses to evaluate your digestive system for abnormalities.

Treatments and drugs

Treating gastroparesis begins with identifying and treating the underlying condition. For instance, if diabetes is causing your gastroparesis, your doctor can work with you to help you control your diabetes. Beyond this, other gastroparesis treatments may include:

**Changes to your diet**
Your doctor may refer you to a dietitian who can work with you to find foods that are easier for you to digest, so that you’re more likely to get enough calories and nutrients from the food you eat. A dietitian might suggest that you try to:

- Eat smaller meals more frequently.
- Eat low-fiber forms of high-fiber foods, such as well-cooked fruits and vegetables rather than raw fruits and vegetables.
- Choose mostly low-fat foods, but if you can tolerate them, add small servings of fatty foods to your diet.
- Avoid fibrous fruits and vegetables, such as oranges and broccoli, that may cause bezoars.
- If liquids are easier for you to ingest, try soups and pureed foods.
- Drink water throughout each meal.
- Try gentle exercise after you eat, such as going for a walk.

Some people with gastroparesis may be unable to tolerate any food or liquids. In these situations, doctors may recommend a feeding tube (jejunostomy tube) be placed in the small intestine.

Feeding tubes can be passed through your nose or mouth or directly into your small intestine through your skin. The tube is usually temporary and is only used when gastroparesis is severe or when blood sugar levels can’t be controlled by any other method.

**Medications**

Medications to treat gastroparesis may include:

- **Medications to control nausea and vomiting.** Anti-emetic medications include prochlorperazine (Compro), diphenhydramine (Benadryl, Unisom) and lorazepam (Ativan).
- **Medications to stimulate the stomach muscles.** These medications include metoclopramide (Reglan) and erythromycin. There is a risk of serious side effects with these medications, so discuss the benefits and risks with your doctor.

**Surgery**

If treatment doesn’t help control your nausea, vomiting or malnutrition, you may consider gastroparesis surgery. During surgery, the lower part of the stomach may be stapled or bypassed to help improve stomach emptying.

**Experimental treatments**

Researchers are working on new ways of treating gastroparesis, such as:

- **Injecting a nerve toxin to allow the stomach to release food.** Botulinum toxin type A (Botox) is a nerve toxin most commonly known for its use in treating skin wrinkles. Researchers have found that Botox injections relax the pyloric muscle in some people, thereby allowing the stomach to release more food into the small intestine. The benefits are temporary, however, and more studies are needed to determine the overall usefulness of this treatment.
- **Implanting an electrical device to control the stomach muscles.** Electrical gastric stimulation uses an electric current to cause stomach contractions. Working much like a heart pacemaker, this stomach pacemaker, consisting of a tiny generator and two electrodes, is placed in a pocket that
surgeons create on the stomach’s outer edge. Stomach pacemakers have been shown to improve stomach emptying and reduce nausea and vomiting in some people with gastroparesis, but more studies are needed.

**Dumping syndrome**

Dumping syndrome is a group of symptoms that are most likely to develop if you’ve had surgery to remove all or part of your stomach, or if your stomach has been surgically bypassed to help lose weight. Also called rapid gastric emptying, dumping syndrome occurs when the undigested contents of your stomach move too rapidly into your small bowel. Common symptoms include abdominal cramps, nausea and diarrhea.

Most people with dumping syndrome experience symptoms soon after eating. In others, symptoms may occur one to three hours after eating. Some people experience both early and late symptoms.

Dumping syndrome is managed by adjusting your diet. In more-serious cases of dumping syndrome, you may need medications or surgery.

**What are the symptoms of Dumping syndrome?**

Symptoms of dumping syndrome are most common during a meal or within 15 to 30 minutes following a meal. They include:

**Gastrointestinal**

Nausea
Vomiting
Abdominal cramps
Diarrhea
Feeling of fullness

**Cardiovascular**

Flushing
Dizziness, lightheadedness
Heart palpitations, rapid heart rate

Signs and symptoms also can develop later, usually one to three hours after eating. This is due to the dumping of large amount of sugars into the small intestine (hyperglycemia). In response, the body releases large amounts of insulin to absorb the sugars, leading to low levels of sugar in the body (hypoglycemia). Symptoms of late dumping can include:

Sweating
Hunger
Fatigue
Dizziness, lightheadedness
Confusion
Heart palpitations, rapid heart rate
Fainting
A study of more than 1,100 people who had their stomachs surgically removed found that about two-thirds experienced early symptoms and about a third experienced late symptoms of dumping syndrome. Some people experience both early and late signs and symptoms.

No matter when problems develop, however, they may be worse following a high-sugar meal, especially one that’s rich in table sugar (sucrose) or fruit sugar (fructose).

**When to see a doctor**
Contact your doctor if any of the following apply to you.

You develop signs and symptoms that might be due to dumping syndrome, even if you haven’t had surgery.
Your symptoms are not controlled by dietary changes.
You are losing large amounts of weight due to dumping syndrome. Your doctor may refer you to a registered dietitian to help you create the most appropriate eating plan.

**What are the causes of Dumping syndrome?**
In dumping syndrome, food and gastric juices from your stomach move to your small intestine in an uncontrolled, abnormally fast manner. This is most often related to changes in your stomach associated with surgery, such as when the opening (pylorus) between your stomach and the small intestine (duodenum) has been removed during an operation.
The pylorus acts as a brake so that stomach emptying is gradual. When it’s removed, stomach material dumps rapidly into the small intestine. The ill effects of this are thought to be caused by the release of gastrointestinal hormones in the small intestine, as well as insulin secreted to process the sugar (glucose).

Dumping syndrome can occur after any operation on the stomach as well as after removal of the esophagus (esophagectomy). Gastric bypass surgery for weight loss is the most common cause today. It develops most commonly within weeks after surgery, or as soon as you return to your normal diet. The more stomach removed or bypassed, the more likely that the condition will be severe. It sometimes becomes a chronic disorder.

**What is the risk factor?**
Several types of surgery increase your risk of dumping syndrome. These include:
**Gastrectomy**, in which a portion or all of your stomach is removed. It typically includes removing the pylorus.
**Gastroenterostomy or gastrojejunostomy**, in which your stomach is surgically connected directly to your small intestine. Stomach contents then enter the small intestine directly, bypassing the pylorus. Doctors sometimes perform this operation in people with cancer of the stomach.
**Vagotomy**, in which the fibers of the vagus nerve to your stomach are cut in order to lower the levels of acid produced by your stomach. The vagus nerve is important in coordinating emptying of stomach contents into the small intestine.
**Fundoplication**, which is an operation sometimes performed on people with gastroesophageal
reflux disease. It involves wrapping the upper portion of your stomach around the lower esophagus to apply pressure that reduces the reflux of gastric contents into the esophagus. However, on rare occasions, certain nerves to the stomach are unintentionally damaged during surgery, leading to dumping syndrome.

**Gastric bypass surgery (Roux-en-Y operation),** which is performed to treat morbid obesity. It surgically creates a stomach pouch smaller than the entire stomach, meaning you’re no longer able to eat as much as you once did. It connects the small intestine to this pouch in the form of a gastrojejunostomy.

**Esophagectomy,** where all or part of the tube between the mouth and the stomach is removed. Certain underlying conditions and medications also may make you more susceptible to dumping syndrome. These include:

- Diabetes
- Cyclic vomiting syndrome (CVS)
- Zollinger-Ellison syndrome, which causes severe peptic ulcers
- Metoclopramide (Reglan, Metozolv), sometimes prescribed to ease nausea, vomiting and heartburn

**What complications could you have?**

In people with severe cases of dumping syndrome, marked weight loss and malnutrition may occur. Sometimes people who lose a lot of weight may also develop a fear of eating, related to the discomfort associated with the rapid dumping of undigested food. They may also avoid outdoor physical activity in order to stay close to a toilet. Some have difficulty keeping a job because of their chronic symptoms.

**Tests and diagnosis**

Your doctor may use some of the following methods to determine if you have dumping syndrome.

**Medical history and evaluation.** Your doctor can often diagnose dumping syndrome by taking a careful medical history and then evaluating your signs and symptoms. If you have undergone stomach surgery, that may help lead your doctor to a diagnosis of dumping syndrome.

**Blood sugar test.** Because low blood sugar is sometimes associated with dumping syndrome, your doctor may order a test (oral glucose tolerance test) to measure your blood sugar level at the peak time of your symptoms to help confirm the diagnosis.

**Gastric emptying test.** A radioactive material is added to food to measure how quickly food moves through your stomach.

**Treatments and drugs**

Most cases of dumping syndrome improve as people learn to eat better for the condition and as the digestive system adjusts. There’s a good chance that changing your diet will resolve your symptoms. (See recommendations under Lifestyle and home remedies.) If it doesn’t, your doctor may advise medications or surgery to address the problem.

**Medications**

Your doctor may prescribe certain medications to slow the passage of food out of your stomach, and
relieve the signs and symptoms associated with dumping syndrome. These drugs are most appropriate for people with severe signs and symptoms, and they don’t work for everyone.

The medications that doctors most frequently prescribe are:

**Acarbose (Precose).** This medication delays the digestion of carbohydrates. Doctors prescribe it most often for the management of type 2 diabetes, and it has also been found to be effective in people with late-onset dumping syndrome. Side effects may include sweating, headaches, sudden hunger and weakness.

**Octreotide (Sandostatin).** This anti-diarrheal drug can slow down the emptying of food into the intestine. You take this drug by injecting it under your skin (subcutaneously). Be sure to talk with your doctor about the proper way to self-administer the drug, including optimal choices for injection sites. Long-acting formulations of this medication are available. Because octreotide carries the risk of side effects (diarrhea, bulky stools, gallstones, flatulence, bloating) in some people, doctors recommend it only for people who haven’t responded to other treatments and who are not candidates for surgery.

**Surgery**

Doctors use a number of surgical procedures to treat difficult cases of dumping syndrome that are resistant to more conservative approaches. Most of these operations are reconstructive techniques, such as reconstructing the pylorus, or they’re intended to reverse gastric bypass surgery.

**Feeding tube**

A last resort for people who are not helped by any other treatment is to insert a tube into the small intestine through which nutrients can be delivered.

**Lifestyle and home remedies**

Here are some dietary treatment strategies that your doctor may recommend and that you can do on your own. They can help maintain good nutrition and minimize your symptoms.

**Eat smaller meals.** Try consuming about six small meals a day rather than three larger ones.

**Avoid fluids with meals.** Drink liquids only between meals. Avoid liquids for a half-hour before eating and a half-hour after eating.

**Change your diet.** Limit your intake of foods and drinks with high sugar content. Milk contains a natural sugar — lactose — which may cause dumping symptoms. A small serving (half a cup) of milk, cheese or yogurt is tolerable to many people. Consume more protein-rich foods such as meat, fish and chicken. Including fat with a meal — for example, margarine, mayonnaise or oil — adds calories and may help dumping symptoms. It may help to see a registered dietitian.

**Chew well.** Chewing food thoroughly before you swallow can ease digestion.

**Increase fiber intake.** Psyllium, guar gum and pectin in food or supplements can delay the absorption of carbohydrates in the small intestine. Pectin is found in many fruits, such as peaches, apples and plums.

**Avoid alcohol.**

**Stay away from acidic foods.** Tomatoes and citrus fruits are harder for some people to digest.

**Use low-fat cooking methods.** Prepare meat and other foods by broiling, baking or grilling.
Consume adequate vitamins, iron and calcium. These can sometimes become depleted following stomach surgery. Discuss this nutritional issue with a dietitian.

Lie down after eating. This may slow down the movement of food into your intestines. Even with dietary changes, you may continue to experience symptoms associated with dumping syndrome.

Alternative medicine

Some people use supplements such as pectin, guar gum, black psyllium and blond psyllium to thicken the digestive contents and slow its progress through the intestines. If you decide to try a supplement, discuss it with your doctor to learn about any potential side effects or interactions with other medications you’re taking.

Food allergy

Food allergy is an immune system reaction that occurs soon after eating a certain food. Even a tiny amount of the allergy-causing food can trigger signs and symptoms such as digestive problems, hives or swollen airways. In some people, a food allergy can cause severe symptoms or even a life-threatening reaction known as anaphylaxis.

Food allergy affects an estimated 6 to 8 percent of children under age 3 and up to 3 percent of adults. While there’s no cure, some children outgrow their food allergy as they get older.

It’s easy to confuse a food allergy with a much more common reaction known as food intolerance. While bothersome, food intolerance is a less serious condition that does not involve the immune system.

What are the symptoms of Food allergy?

For some people, an allergic reaction to a particular food may be uncomfortable but not severe. For other people, an allergic food reaction can be frightening and even life-threatening. Food allergy symptoms usually develop within a few minutes to two hours after eating the offending food. The most common food allergy signs and symptoms include:

- Tingling or itching in the mouth
- Hives, itching or eczema
- Swelling of the lips, face, tongue and throat or other parts of the body
- Wheezing, nasal congestion or trouble breathing
- Abdominal pain, diarrhea, nausea or vomiting
- Dizziness, lightheadedness or fainting

Anaphylaxis

In some people, a food allergy can trigger a severe allergic reaction called anaphylaxis. This can
cause life-threatening signs and symptoms, including:

Constriction and tightening of airways
A swollen throat or the sensation of a lump in your throat that makes it difficult to breathe
Shock with a severe drop in blood pressure
Rapid pulse
Dizziness, lightheadedness or loss of consciousness
Emergency treatment is critical for anaphylaxis. Untreated, anaphylaxis can cause a coma or even death.

**Exercise-induced food allergy**

Some people have an allergic reaction to a food triggered by exercise. Eating certain foods may cause you to feel itchy and lightheaded soon after you start exercising. In serious cases, an exercise-induced food allergy can cause certain reactions such as hives or anaphylaxis.

Not eating for a couple of hours before exercising and avoiding certain foods may help prevent this problem.

**Pollen-food allergy syndrome**

In many people who have hay fever, fresh fruits and vegetables and certain nuts and spices can trigger an allergic reaction that causes the mouth to tingle or itch. In some people, pollen-food allergy syndrome — sometimes called oral allergy syndrome — can cause swelling of the throat or even anaphylaxis.

This is an example of cross-reactivity. Proteins in fruits and vegetables cause the reaction because they’re similar to those allergy-causing proteins found in certain pollens. For example, if you’re allergic to ragweed, you may also react to melons; if you’re allergic to birch pollen, you may also react to apples.

Cooking fruits and vegetables can help you avoid this reaction. Most cooked fruits and vegetables generally don’t cause cross-reactive oral allergy symptoms.

Common cross-reactivity between pollens and fruits and vegetables:

**When to see a doctor**

See a doctor or allergist if you have food allergy symptoms shortly after eating. If possible, see your doctor when the allergic reaction is occurring. This will help your doctor make a diagnosis.

Seek emergency treatment if you develop any signs or symptoms of anaphylaxis, such as:

Constriction of airways that makes it difficult to breathe
Shock with a severe drop in blood pressure
Rapid pulse
Dizziness or lightheadedness
What are the causes of Food allergy?

When you have a food allergy, your immune system mistakenly identifies a specific food or a substance in food as something harmful. Your immune system triggers cells to release antibodies known as immunoglobulin E (IgE) antibodies to neutralize the culprit food or food substance (the allergen). The next time you eat even the smallest amount of that food, the IgE antibodies sense it and signal your immune system to release a chemical called histamine, as well as other chemicals, into your bloodstream. These chemicals cause a range of allergy signs and symptoms. They are responsible for causing allergic responses that include dripping nose, itchy eyes, dry throat, rashes and hives, nausea, diarrhea, labored breathing, and even anaphylactic shock.

The majority of food allergies are triggered by certain proteins in:

- Shellfish, such as shrimp, lobster and crab
- Peanuts
- Tree nuts, such as walnuts and pecans
- Fish
- Eggs

In children, food allergies are commonly triggered by proteins in:

- Eggs
- Milk
- Peanuts
- Tree nuts
- Wheat

Food intolerance and other reactions

There are a number of reactions to food that cause similar symptoms to a food allergy. Depending on the type of food intolerance you have, you may be able to eat small amounts of problem foods without a reaction. By contrast, if you have a true food allergy, even a tiny amount of food may trigger an allergic reaction.

Because a food intolerance may involve some of the same signs and symptoms as a food allergy does — such as nausea, vomiting, cramping and diarrhea — people may confuse the two.

One of the tricky aspects of diagnosing food intolerance is that some people are sensitive not to the food itself but to a substance or ingredient used in the preparation of the food.

Common conditions that can cause symptoms mistaken for a food allergy include:

**Absence of an enzyme needed to fully digest a food.** You may not have adequate amounts of some enzymes needed to digest certain foods. Insufficient quantities of the enzyme lactase, for example, reduce your ability to digest lactose, the main sugar in milk products. Lactose intolerance
can cause bloating, cramping, diarrhea and excess gas. **Food poisoning.** Sometimes food poisoning can mimic an allergic reaction. Bacteria in spoiled tuna and other fish also can make a toxin that triggers harmful reactions. **Sensitivity to food additives.** Some people have digestive reactions and other symptoms after eating certain food additives. For example, sulfites used to preserve dried fruit, canned goods and wine can trigger asthma attacks in sensitive people. Other food additives that could trigger severe reactions include monosodium glutamate (MSG), artificial sweeteners and food colorings. **Histamine toxicity.** Certain fish, such as tuna or mackerel, that are not refrigerated properly and that contain high amounts of bacteria may contain high levels of histamine that trigger symptoms similar to those of food allergy. Rather than an allergic reaction, this is known as histamine toxicity or scombroid poisoning. **Celiac disease.** While celiac disease is sometimes referred to as a gluten allergy, it isn’t a true food allergy. Like a food allergy, it does involve an immune system response, but it’s a unique immune system reaction that’s more complex than a simple food allergy. This chronic digestive condition is triggered by eating gluten, a protein found in bread, pasta, cookies, and many other foods containing wheat, barley or rye. If you have celiac disease and eat foods containing gluten, an immune reaction occurs that causes damage to the surface of your small intestine, leading to an inability to absorb certain nutrients.

### What is the risk factor?

Food allergy risk factors include:

**Family history.** You’re at increased risk of food allergies if asthma, eczema, hives or allergies such as hay fever are common in your family.

**A past food allergy.** Children may outgrow a food allergy, but in some cases it returns later in life.

**Other allergies.** If you’re already allergic to one food, you may be at increased risk of becoming allergic to another. Likewise, if you have other types of allergic reactions, such as hay fever or eczema, your risk of having a food allergy is greater.

**Age.** Food allergies are most common in children, especially toddlers and infants. As you grow older, your digestive system matures and your body is less likely to absorb food or food components that trigger allergies. Fortunately, children typically outgrow allergies to milk, soy, wheat and eggs. Severe allergies and allergies to nuts and shellfish are more likely to be lifelong.

**Asthma.** Asthma and food allergy commonly occur together. When they do, both food allergy and asthma symptoms are more likely to be severe.

Factors that may increase your risk of developing an anaphylactic reaction include:

- Having a history of asthma
- Being a teenager or younger
- Waiting longer to use epinephrine to treat your food allergy symptoms
- Not having hives or other skin symptoms

### What complications could you have?

Complications of food allergy can include:

**Anaphylaxis.** This is a life-threatening allergic reaction.

**Atopic dermatitis (eczema).** Food allergy may cause a skin reaction, such as eczema.
Migraines. Histamines, released by your immune system during an allergic reaction, have been shown to trigger migraines in some people.

Tests and diagnosis

There’s no standard test used to confirm or rule out a food allergy. Your doctor will consider a number of things before making a diagnosis. The following may help determine if you’re allergic to a food or if your symptoms are caused by something else:

**Description of your symptoms.** Be prepared to tell your doctor a history of your symptoms — which foods, and how much, seem to cause problems — and whether you have a family history of food allergies or other allergies.

**Physical examination.** A careful exam can often identify or exclude other medical problems.

**Food diary.** Your doctor may ask you to keep a food diary of your eating habits, symptoms and medications to pinpoint the problem.

**Skin test.** A skin prick test can determine your reaction to a particular food. In this test, a small amount of the suspected food is placed on the skin of your forearm or back. Your skin is then pricked with a needle to allow a tiny amount of the substance beneath your skin surface. If you’re allergic to a particular substance being tested, you develop a raised bump or reaction. Keep in mind, a positive reaction to this test alone isn’t enough to confirm a food allergy.

**Elimination diet.** You may be asked to eliminate suspect foods for a week or two and then add the food items back into your diet one at a time. This process can help link symptoms to specific foods. However, this isn’t a foolproof method. Psychological factors as well as physical factors can come into play. For example, if you think you’re sensitive to a food, a response could be triggered that may not be a true allergic one. If you’ve had a severe reaction to a food in the past, this method may not be safe.

**Blood test.** A blood test can measure your immune system’s response to particular foods by checking the amount of allergy-type antibodies in your bloodstream known as immunoglobulin E (IgE) antibodies. For this test, a blood sample taken in your doctor’s office is sent to a medical laboratory, where different foods can be tested. However, these blood tests aren’t always accurate.

**Oral food challenge.** During this test, done in the doctor’s office, you’ll be given small but increasing amounts of the suspect food. If you don’t have a reaction during this test, you may be able to include this food in your diet again.

Treatments and drugs

The only way to avoid an allergic reaction is to avoid the foods that cause signs and symptoms. However, despite your best efforts, you may come into contact with a food that causes a reaction.

**For a minor allergic reaction,** over-the-counter or prescribed antihistamines may help reduce symptoms. These drugs can be taken after exposure to an allergy-causing food to help relieve itching or hives. However, antihistamines can’t treat a severe allergic reaction.

**For a severe allergic reaction,** you may need an emergency injection of epinephrine and a trip to the emergency room. Many people with allergies carry an epinephrine autoinjector (EpiPen, Twinject, Auvi-Q). This device is a combined syringe and concealed needle that injects a single dose of medication when pressed against your thigh.
If your doctor has prescribed an epinephrine autoinjector:

**Be sure you know how to use the autoinjector.** Also, make sure the people closest to you know how to administer the drug — if they’re with you in an anaphylactic emergency, they could save your life.

**Carry it with you at all times.** It may be a good idea to keep an extra autoinjector in your car or in your desk at work.

**Always be sure to replace epinephrine before its expiration date** or it may not work properly.

### Experimental treatments

While there’s ongoing research to find better treatments to reduce food allergy symptoms and prevent allergy attacks, there isn’t any proven treatment that can prevent or completely relieve symptoms. Unfortunately, allergy shots (immunotherapy), a series of injections used to reduce the effect of other allergies such as hay fever, aren’t effective for treating food allergies.

Two treatments being studied are:

**Anti-IgE therapy.** The medication omalizumab (Xolair) interferes with the body’s ability to use IgE. The drug is currently being studied for treatment of allergic asthma and food allergies. However, this treatment is still considered experimental, and more research needs to be done on the drug’s long-term safety. It has been associated with a potential increased risk of anaphylaxis.

**Oral immunotherapy.** Researchers have been studying the use of oral immunotherapy (OIT) as a treatment for food allergy. Small doses of the food you’re allergic to are swallowed or placed under your tongue (sublingual). The dose of the allergy-provoking food is gradually increased. Initial results look promising, even in people with peanut allergy. But more research needs to be done to ensure that this treatment is safe.

### Lifestyle and home remedies

One of the keys to preventing an allergic reaction is to completely avoid the food that causes your symptoms.

**Don’t assume.** Always read food labels to make sure they don’t contain an ingredient you’re allergic to. Even if you think you know what’s in a food, check the label. Ingredients sometimes change. Food labels are required to clearly list whether they contain any common food allergens. Read food labels carefully to avoid the most common sources of food allergens: milk, eggs, peanuts, tree nuts, fish, shellfish, soy, and wheat.

**When in doubt, say no thanks.** At restaurants and social gatherings, you’re always taking a risk that you might eat a food you’re allergic to. Many people don’t understand the seriousness of an allergic food reaction and may not realize that a tiny amount of a food can cause a severe reaction in some people. If you have any suspicion at all that a food may contain something you’re allergic to, steer clear.

**Involve caregivers.** If your child has a food allergy, enlist the help of relatives, baby sitters, teachers and other caregivers. Make sure they understand how important it is for your child to avoid the allergy-causing food and that they know what to do in an emergency. It’s also important to let caregivers know what steps they can take to prevent a reaction in the first place, such as careful hand-washing and cleaning any surfaces that might have come in contact with the allergy-causing...
Alternative medicine

Research on alternative food allergy treatments is limited. However, many people do try them and claim that certain treatments help.

**Herbal remedies.** A few small studies of herbal remedies have shown some benefit in reducing symptoms and preventing anaphylaxis, including some Chinese medicine formulas. However, there’s no reliable proof yet that these work. In addition, concerns exist about the quality of some herbal preparations from China. If you do take an herbal remedy, be sure to tell your doctor about it. It may affect test results or interact with other medications you take.

**Acupuncture and acupressure.** There’s little academic research on acupuncture for food allergies, and the studies that do exist don’t show a clear benefit from these techniques. If you decide to try one of these treatments, be sure you work with an experienced and certified provider.

Food poisoning

Food poisoning, also called food-borne illness, is illness caused by eating contaminated food. Infectious organisms — including various bacteria, viruses and parasites — or their toxins are the most common causes of food poisoning.

Infectious organisms or their toxins can contaminate food at any point during its processing or production. Contamination can also occur at home if food is incorrectly handled or cooked.

Food poisoning symptoms often include nausea, vomiting or diarrhea, which can start just hours after eating contaminated food. Most often, food poisoning is mild and resolves without treatment. But some cases are severe, requiring hospitalization.

**What are the symptoms of Food poisoning?**

Food poisoning symptoms vary with the source of contamination. Most types of food poisoning cause one or more of the following signs and symptoms:

- Nausea
- Vomiting
- Watery diarrhea
- Abdominal pain and cramps
- Fever

Signs and symptoms may start within hours after eating the contaminated food, or they may begin days or possibly even weeks later. Sickness caused by food poisoning generally lasts from one to 10 days.

**When to see a doctor**
If you experience any of the following signs or symptoms, seek medical attention.

Frequent episodes of vomiting that interfere with your ability to keep liquids down
Vomiting blood
Severe diarrhea for more than three days
Blood in your bowel movements
Extreme pain or severe abdominal cramping
An oral temperature higher than 101.5 F (38.6 C)
Signs or symptoms of dehydration — excessive thirst, dry mouth, little or no urination, severe weakness, dizziness or lightheadedness
Difficulty speaking
Trouble swallowing
Double vision
Muscle weakness that progresses downward

If you suspect food poisoning, also contact your local health department. Your report can help the health department identify a potential outbreak and may help prevent other people from getting sick. You may need to describe what you ate, where got the food you think is making you sick, when you got sick and your symptoms.

**What are the causes of Food poisoning?**

Contamination of food can happen at any point during its production: growing, harvesting, processing, storing, shipping or preparing. Cross-contamination — the transfer of harmful organisms from one surface to another — is often the cause. This is especially troublesome for raw, ready-to-eat foods, such as salads or other produce. Because these foods aren’t cooked, harmful organisms aren’t destroyed before eating and can cause food poisoning.

Many bacterial, viral or parasitic agents cause food poisoning. The following table shows some of the possible contaminants, when you might start to feel symptoms and common ways the organism is spread.

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Onset of symptoms</th>
<th>Foods affected and means of transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campylobacter</td>
<td>2 to 5 days</td>
<td>Meat and poultry. Contamination occurs during processing if animal feces contact meat surfaces. Other sources include unpasteurized milk and contaminated water.</td>
</tr>
<tr>
<td>Clostridium botulinum</td>
<td>12 to 72 hours</td>
<td>Home-canned foods with low acidity, improperly canned commercial foods, smoked or salted fish, potatoes baked in aluminum foil and other foods kept at warm temperatures for too long.</td>
</tr>
<tr>
<td>Clostridium perfringens</td>
<td>8 to 16 hours</td>
<td>Meats, stews and gravies. Commonly spread when serving dishes don’t keep food hot enough or food is chilled too slowly.</td>
</tr>
<tr>
<td>Escherichia coli (E. coli) O157:H7</td>
<td>1 to 8 days</td>
<td>Beef contaminated with feces during slaughter. Spread mainly by undercooked ground beef. Other sources include unpasteurized milk and apple cider, alfalfa sprouts and contaminated water.</td>
</tr>
<tr>
<td>Giardia lamblia</td>
<td>1 to 2 weeks</td>
<td>Raw, ready-to-eat produce and contaminated water. Can be spread by an infected food handler.</td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>28 days</td>
<td>Raw, ready-to-eat produce and shellfish from contaminated water. Can be spread by an infected food handler.</td>
</tr>
</tbody>
</table>
### What is the risk factor?

Whether you become ill after eating contaminated food depends on the organism, the amount of exposure, your age and your health. High-risk groups include:

**Older adults.** As you get older, your immune system may not respond as quickly and as effectively to infectious organisms as when you were younger.

**Pregnant women.** During pregnancy, changes in metabolism and circulation may increase the risk of food poisoning. Your reaction may be more severe during pregnancy. Rarely, your baby may get sick, too.

**Infants and young children.** Their immune systems haven’t fully developed.

**People with chronic disease.** Having a chronic condition — such as diabetes, liver disease or AIDS — or receiving chemotherapy or radiation therapy for cancer reduces your immune response.

### What complications could you have?

The most common serious complication of food poisoning is dehydration — a severe loss of water and essential salts and minerals. If you’re a healthy adult and drink enough to replace fluids you lose from vomiting and diarrhea, dehydration shouldn’t be a problem. But infants, older adults and people with suppressed immune systems or chronic illnesses may become severely dehydrated when they lose more fluids than they can replace. In that case, they may need to be hospitalized and receive intravenous fluids. In extreme cases, dehydration can be fatal.

Some types of food poisoning have potentially serious complications for certain people. These include:

**Listeria monocytogenes.** Complications of a listeria food poisoning may be most severe for an unborn baby. Early in pregnancy, a listeria infection may lead to miscarriage. Later in pregnancy, a listeria infection may lead to stillbirth, premature birth or a potentially fatal infection in the baby after birth — even if the mother was only mildly ill. Infants who survive a listeria infection may experience long-term neurological damage and delayed development.

**Escherichia coli (E. coli).** Certain E. coli strains can cause a serious complication called hemolytic uremic syndrome. This syndrome damages the lining of the tiny blood vessels in the kidneys, sometimes leading to kidney failure. Older adults, children under the age of 5 and people with
weakened immune systems have a higher risk of developing this complication. If you’re at high risk of hemolytic uremic syndrome, see your doctor at the first sign of profuse or bloody diarrhea.

**Tests and diagnosis**

Food poisoning is often diagnosed based on a detailed history, including how long you’ve been sick, characteristics of your symptoms and specific foods you’ve eaten. Your doctor will also perform a physical exam, looking for signs of dehydration. Depending on your symptoms and health history, your doctor may conduct diagnostic tests, such as a blood test, stool culture or examination for parasites, to identify the cause and confirm the diagnosis. For a stool culture, your doctor will ask for a stool sample and send it to a laboratory, where a technician will try to grow and identify the infectious organism. In some cases, the cause of the food poisoning cannot be identified.

**Treatments and drugs**

Treatment for food poisoning typically depends on the source of the illness, if known, and the severity of your symptoms. For most people, the illness resolves without treatment within a few days, though some types of food poisoning may last a week or more. Treatment of food poisoning may include:

**Replacement of lost fluids.** Fluids and electrolytes — minerals such as sodium, potassium and calcium that maintain the balance of fluids in your body — lost to persistent diarrhea need to be replaced. Children and adults who are severely dehydrated need treatment in a hospital, where they can receive salts and fluids through a vein (intravenously), rather than by mouth. Intravenous hydration provides the body with water and essential nutrients much more quickly than oral solutions do.

**Antibiotics.** Your doctor may prescribe antibiotics if you have certain kinds of bacterial food poisoning and your symptoms are severe. Food poisoning caused by listeria needs to be treated with intravenous antibiotics in the hospital. And the sooner treatment begins, the better. During pregnancy, prompt antibiotic treatment may help keep the infection from affecting the baby.

**Lifestyle and home remedies**

Food poisoning often improves on its own within 48 hours. To help keep yourself more comfortable and prevent dehydration while you recover, try the following:

**Let your stomach settle.** Stop eating and drinking for a few hours.

**Try sucking on ice chips or taking small sips of water.** You might also try drinking clear soda, such as 7UP or Sprite; clear broths; or noncaffeinated sports drinks, such as Gatorade. Affected adults should try to drink at least eight to 16 glasses of liquid every day, taking small, frequent sips. You’ll know that you’re getting enough fluid when you’re urinating normally, and your urine is clear and not dark.

**Ease back into eating.** Gradually begin to eat bland, easy-to-digest foods, such as soda crackers, toast, gelatin, bananas and rice. Stop eating if your nausea returns.

**Avoid certain foods and substances until you’re feeling better.** These include dairy products, caffeine, alcohol, nicotine, and fatty or highly seasoned foods.
Get plenty of rest. The illness and dehydration may have made you weak and tired.

Don’t use anti-diarrheal medications. Drugs intended to treat diarrhea, such as loperamide (Imodium, others) and diphenoxylate with atropine (Lomotil, Lonox), may slow elimination of bacteria or toxins from your system and can make your condition worse.

Gastritis

Gastritis describes a group of conditions with one thing in common: inflammation of the lining of the stomach. The inflammation of gastritis is often the result of infection with the same bacterium that causes most stomach ulcers. However, other factors — such as injury, regular use of certain pain relievers or drinking too much alcohol — also can contribute to gastritis.

Gastritis may occur suddenly (acute gastritis) or it can occur slowly over time (chronic gastritis). In some cases, gastritis can lead to ulcers and an increased risk of stomach cancer. For most people, however, gastritis isn’t serious and improves quickly with treatment.

What are the symptoms of Gastritis?

The signs and symptoms of gastritis include:
A gnawing or burning ache or pain (indigestion) in your upper abdomen that may become either worse or better with eating
Nausea
Vomiting
A feeling of fullness in your upper abdomen after eating

Gastritis doesn’t always cause signs and symptoms.

When to see a doctor

Nearly everyone has experienced a bout of indigestion and stomach irritation. Most cases of indigestion are short-lived and don’t require medical care. But if you experience signs and symptoms of gastritis consistently for a week or longer, see your doctor. And be sure to tell your doctor if you experience stomach problems after taking any prescription or over-the-counter drugs, especially aspirin or other pain relievers.

If you are vomiting blood, you have blood in your stools or your stool appears black, see your doctor right away to determine the cause.

What are the causes of Gastritis?

Gastritis usually develops when your stomach’s protective layer becomes weakened or damaged. A mucus-lined barrier protects the wall of your stomach from the acids that help digest your food. Weaknesses in the barrier allow your digestive juices to damage and inflame your stomach lining. A number of diseases and conditions can make your stomach’s protective layer vulnerable to damage.
and increase your risk of gastritis. Gastritis can occur suddenly or develop over weeks and months:

**Acute gastritis** is stomach inflammation that develops quickly and lasts for a short period of time. **Chronic gastritis** develops gradually and may last for an extended period of time.

**What is the risk factor?**

Factors that increase your risk of gastritis include:

**Bacterial infection.** People infected with *Helicobacter pylori* can experience gastritis — most commonly chronic gastritis. Half the world’s population is thought to be infected with this bacterium, which is thought to pass from person to person. But the majority of those infected don’t experience any complications of *H. pylori* infection. In some people, *H. pylori* may break down the stomach’s inner protective coating, causing changes in the stomach’s lining. The reason why some people experience complications from *H. pylori* infection, such as gastritis and ulcers, and others don’t isn’t clear. However, doctors believe vulnerability to the bacterium could be inherited or it could be caused by lifestyle choices, such as smoking and high stress levels.

**Regular use of pain relievers.** Common pain relievers, such as aspirin, ibuprofen (Advil, Motrin, others) and naproxen (Aleve, Anaprox), can cause both acute gastritis and chronic gastritis. Using these pain relievers regularly or taking too much of these drugs may reduce a key substance that helps preserve the protective lining of your stomach. Stomach problems are less likely to develop if you take pain relievers only occasionally.

**Older age.** Older adults have an increased risk of gastritis because the stomach lining tends to thin with age and because older adults are more likely to have *H. pylori* infection or autoimmune disorders than younger people are.

**Excessive alcohol use.** Alcohol can irritate and erode your stomach lining, which makes your stomach more vulnerable to digestive juices. Excessive alcohol use is more likely to cause acute gastritis. Stress. Severe stress due to major surgery, injury, burns or severe infections can cause acute gastritis.

**Bile reflux disease.** Bile — a substance that helps you digest fats — is produced in your liver and stored in your gallbladder. When it’s released from the gallbladder, bile travels to your small intestine through a series of thin tubes. Normally, a ring-like sphincter muscle (pyloric valve) prevents bile from flowing into your stomach from your small intestine. But if this valve doesn’t work properly, or if it has been surgically removed, bile can flow into your stomach, leading to gastritis.

**Your own body attacking cells in your stomach.** Called autoimmune gastritis, this type of gastritis occurs when your body attacks the cells that make up your stomach lining. This produces a reaction by your immune system that can wear away at your stomach’s protective barrier. Autoimmune gastritis is more common in people with other autoimmune disorders, including Hashimoto’s disease and type 1 diabetes. Autoimmune gastritis can also be associated with vitamin B-12 deficiency.

**Other diseases and conditions.** Gastritis may be associated with other medical conditions, including HIV/AIDS, Crohn’s disease and parasitic infections.

**What complications you could have?**
Left untreated, gastritis may lead to stomach ulcers and stomach bleeding. Some forms of chronic gastritis may increase your risk of stomach cancer, especially if you have extensive thinning of the stomach lining and changes in the lining’s cells.

Tell your doctor if your signs and symptoms aren’t improving despite treatment for gastritis.

**Tests and diagnosis**

Although your doctor is likely to suspect gastritis after talking to you about your medical history and performing a thorough exam, you may also have tests to pinpoint the exact cause. These tests include:

**Tests for H. pylori.** Your doctor may recommend tests to determine whether the bacterium H. pylori is present in your body. Which type of test you undergo depends on your situation. H. pylori may be detected in a blood test, a stool test or a breath test. For the breath test, you drink a small glass of clear, tasteless liquid that contains radioactive carbon. H. pylori breaks down the test liquid in your stomach. Later, you blow into a bag, which is then sealed. If you’re infected with H. pylori, your breath sample will contain the radioactive carbon.

**Using a scope to examine your upper digestive system (endoscopy).** During endoscopy, your doctor passes a hollow tube equipped with a lens (endoscope) down your throat and into your esophagus, stomach and small intestine. Using the endoscope, your doctor looks for signs of inflammation. If a suspicious area is found, your doctor may remove small tissue samples (biopsy) for laboratory examination. A biopsy can also identify the presence of H. pylori in your stomach lining.

**X-ray of your upper digestive system.** Sometimes called a barium swallow or upper gastrointestinal series, this series of X-rays creates images of your esophagus, stomach and small intestine to look for abnormalities. During the X-ray, you swallow a white, metallic liquid (containing barium) that coats your digestive tract and makes an ulcer more visible.

**Treatments and drugs**

Treatment of gastritis depends on the specific cause. Acute gastritis caused by NSAIDs or alcohol may be relieved by stopping use of those substances. Chronic gastritis caused by H. pylori infection is treated by eradicating the bacteria. Most gastritis treatment plans also incorporate medications that treat stomach acid in order to reduce signs and symptoms you’re experiencing and promote healing in your stomach.

Medications used to treat gastritis include:

**Antibiotic medications to kill H. pylori.** If H. pylori is found in your digestive tract, your doctor may recommend a combination of antibiotics to kill the bacterium. Antibiotic regimens are different throughout the world. In the United States, antibiotics prescribed for treatment of H. pylori include amoxicillin, clarithromycin (Biaxin), metronidazole (Flagyl) and tetracycline. You’ll likely need to take antibiotics for two weeks, depending on their type and number.

**Medications that block acid production and promote healing.** Proton pump inhibitors reduce acid by blocking the action of the parts of cells that produce acid. These drugs include the prescription and over-the-counter medications omeprazole (Prilosec), lansoprazole (Prevacid), rabeprazole (Aciphex), esomeprazole (Nexium), dexlansoprazole (Dexilant) and pantoprazole (Protonix). Long-term use of proton pump inhibitors, particularly at high doses, may increase your risk of hip, wrist and spine fractures. Ask your doctor whether a calcium supplement may reduce...
this risk.

**Medications to reduce acid production.** Acid blockers — also called histamine (H-2) blockers — reduce the amount of acid released into your digestive tract, which relieves gastritis pain and encourages healing. Available by prescription or over-the-counter, acid blockers include ranitidine (Zantac), famotidine (Pepcid), cimetidine (Tagamet) and nizatidine (Axid).

**Antacids that neutralize stomach acid.** Your doctor may include an antacid in your drug regimen. Antacids neutralize existing stomach acid and can provide rapid pain relief. Side effects can include constipation or diarrhea, depending on the main ingredients.

**Lifestyle and home remedies**

You may find some relief from signs and symptoms if you:

- **Eat smaller, more frequent meals.** If you experience frequent indigestion, eat smaller, more frequent meals to help ease the effects of stomach acid.
- **Avoid irritating foods.** Avoid foods that irritate your stomach, especially those that are spicy, acidic, fried or fatty.
- **Drink alcohol in moderation, if at all.** Excessive use of alcohol can irritate the mucous lining of your stomach. Limit yourself to one drink per day if you’re a woman or two drinks per day if you’re a man.
- **Consider switching pain relievers.** If you use pain relievers regularly, ask your doctor whether acetaminophen (Tylenol, others) may be an option for you. This medication is less likely to aggravate your stomach problem.
- **Manage stress.** Stress may make your gastritis symptoms worse. Stress may be unavoidable, but you can learn to cope with it. If you have trouble relaxing, consider trying calming activities, such as meditation, yoga or tai chi.

**Indigestion**

Indigestion — also called dyspepsia or an upset stomach — is a general term that describes discomfort in your upper abdomen. Indigestion is not a disease, but rather some symptoms you experience, including abdominal pain and a feeling of fullness soon after you start eating. Although indigestion is common, how you experience indigestion may differ from other people. Symptoms of indigestion may be felt occasionally or as often as daily.

Indigestion can be a symptom of another digestive disease. Indigestion that isn’t caused by an underlying disease may be eased with lifestyle changes and medication.

**What are the symptoms of Indigestion?**

People with indigestion may have one or more of the following symptoms:

- **Early fullness during a meal.** You haven’t eaten much of your meal, but you already feel full and may not be able to finish eating.
- **Uncomfortable fullness after a meal.** Fullness lasts longer than it should.
- **Discomfort in the upper abdomen.** You feel a mild to severe pain in the area between the bottom of your breastbone (sternum) and your navel.
- **Burning in the upper abdomen.** You feel an uncomfortable heat or burning sensation between the bottom of the breastbone and navel.
- **Bloating in the upper abdomen.** You feel an uncomfortable sensation of tightness.
- **Nausea.**

Less frequent symptoms include vomiting and belching.

Sometimes people with indigestion also experience heartburn, but heartburn and indigestion are two separate conditions. Heartburn is a pain or burning feeling in the center of your chest that may radiate into your neck or back during or after eating.

**When to see a doctor**

Mild indigestion is usually nothing to worry about. Consult your doctor if discomfort persists for more than two weeks. Contact your doctor right away if pain is severe or accompanied by:

- Unintentional weight loss or loss of appetite
- Repeated vomiting or vomiting with blood
- Black, tarry stools
- Trouble swallowing that gets progressively worse
- Fatigue or weakness, which may be symptoms of anemia

Seek immediate medical attention if you have:

- Shortness of breath, sweating or chest pain radiating to the jaw, neck or arm
- Chest pain on exertion or with stress

**What are the causes of Indigestion?**

Indigestion has many possible causes. Often, indigestion is related to lifestyle and may be triggered by food, drink or medication. Common causes of indigestion include:

- Overeating or eating too quickly
- Fatty, greasy or spicy foods
- Too much caffeine, alcohol, chocolate or carbonated beverages
- Smoking
- Anxiety
- Certain antibiotics, pain relievers and iron supplements

Sometimes indigestion is caused by other digestive conditions, including:

- Gastritis
- Peptic ulcers
- Celiac disease
- Gallstones
- Constipation
Pancreas inflammation (pancreatitis)
Stomach cancer
Intestinal blockage
Reduced blood flow in the intestine (intestinal ischemia)

Indigestion with no obvious cause is known as functional dyspepsia or nonulcer stomach pain.

What complications could you have?

Although indigestion doesn't usually have serious complications, it can affect your quality of life by making you feel uncomfortable and causing you to eat less. When indigestion is caused by an underlying condition, that condition can also have its own complications.

Tests and diagnosis

Your doctor is likely to start with a health history and a thorough physical exam. Those evaluations may be sufficient if your indigestion is mild and you're not experiencing certain symptoms, such as weight loss and repeated vomiting.

But if your indigestion began suddenly, and you are experiencing severe symptoms or are older than age 50, your doctor may recommend:

- **Laboratory tests**, to check for thyroid problems or other metabolic disorders.
- **Breath and stool tests**, to check for Helicobacter pylori (H. pylori), the bacteria associated with peptic ulcers, which can cause indigestion. H. pylori testing is controversial because studies suggest limited benefit from treating the bacterium.
- **Endoscopy**, to check for abnormalities in your upper digestive tract. A tissue sample (biopsy) may be taken for analysis.
- **Imaging tests (X-ray or CT scan)**, to check for intestinal obstruction.

If initial testing fails to provide a cause, your doctor may diagnose functional dyspepsia.

Treatments and drugs

Lifestyle changes may help ease indigestion. Your doctor may recommend:

- Avoiding foods that trigger indigestion
- Eating five or six small meals a day instead of three large meals
- Reducing or eliminating the use of alcohol and caffeine
- Avoiding certain pain relievers, such as aspirin, ibuprofen and naproxen
- Finding alternatives for medications that trigger indigestion
- Controlling stress and anxiety

If your indigestion persists, medications may help. Over-the-counter antacids are generally the first choice. Other options include:

- **Proton pump inhibitors (PPIs)**, which can reduce stomach acid. PPIs may be recommended if you experience heartburn along with indigestion.
- **H-2-receptor antagonists (H2RAs)**, which also can reduce stomach acid.
- **Prokinetics**, which may be helpful if your stomach empties slowly.
Antibiotics, if H. pylori bacteria are causing your indigestion.

Antidepressants or anti-anxiety medications, which may ease the discomfort from indigestion by decreasing your sensation of pain.

**Lifestyle and home remedies**

Mild indigestion can often be helped with lifestyle changes, including:

- **Eating smaller, more frequent meals.** Chew your food slowly and thoroughly.
- **Avoiding triggers.** Fatty and spicy foods, processed foods, carbonated beverages, caffeine, alcohol and smoking can trigger indigestion.
- **Maintaining a healthy weight.** Excess pounds put pressure on your abdomen, pushing up your stomach and causing acid to back up into your esophagus.
- **Exercising regularly.** Exercise helps you keep off extra weight and promotes better digestion.
- **Managing stress.** Create a calm environment at mealtime. Practice relaxation techniques, such as deep breathing, meditation or yoga. Spend time doing things you enjoy. Get plenty of sleep.
- **Changing your medications.** With your doctor’s approval, stop or cut back on pain relievers or other medications that may irritate your stomach lining. If that’s not an option, be sure to take these medications with food.

**Alternative medicine**

Alternative and complementary treatments may help ease indigestion, although none of these treatments has been well studied. These treatments include:

- Herbal tea with peppermint.
- STW5 (iberogast), a liquid supplement that contains extracts of herbs including bitter candytuft, peppermint leaves, caraway and licorice root. STW5 may work by reducing the production of gastric acid.
- Artichoke leaf extract, available as a supplement. Artichoke leaf extract may work by stimulating the flow of bile from the liver to improve digestion. Some people may experience flatulence or an allergic reaction.
- Psychological treatment, including behavior modification, relaxation techniques, cognitive behavioral therapy and hypnotherapy.
- Acupuncture, which may work by blocking the pathways of nerves that carry sensations of pain to the brain.

Always check with your doctor before taking any supplements to be sure you are taking a safe dose and that the supplement won’t adversely interact with any medications you’re taking.

**Hiatal hernia**

A hiatal hernia occurs when part of your stomach pushes upward through your diaphragm. Your diaphragm normally has a small opening (hiatus) through which your food tube (esophagus) passes
on its way to connect to your stomach. The stomach can push up through this opening and cause a hiatal hernia.

In most cases, a small hiatal hernia doesn't cause problems, and you may never know you have a hiatal hernia unless your doctor discovers it when checking for another condition. But a large hiatal hernia can allow food and acid to back up into your esophagus, leading to heartburn. Self-care measures or medications can usually relieve these symptoms, although a very large hiatal hernia sometimes requires surgery.

What are the symptoms of Hiatal hernia?

**Small hiatal hernias**
Most small hiatal hernias cause no signs or symptoms.

**Large hiatal hernias**
Larger hiatal hernias can cause signs and symptoms such as:
- Heartburn
- Belching
- Difficulty swallowing
- Fatigue

When to see a doctor
Make an appointment with your doctor if you have any persistent signs or symptoms that worry you.

What are the causes of Hiatal hernia?
A hiatal hernia occurs when weakened muscle tissue allows your stomach to bulge up through your diaphragm. It’s not always clear why this happens, but pressure on your stomach may contribute to the formation of hiatal hernia.

How a hiatal hernia forms
Your diaphragm is a large dome-shaped muscle that separates your chest cavity from your abdomen. Normally, your esophagus passes into your stomach through an opening in the diaphragm called the hiatus. Hiatal hernias occur when the muscle tissue surrounding this opening becomes weak, and the upper part of your stomach bulges up through the diaphragm into your chest cavity.

Possible causes of hiatal hernia
Hiatal hernia could be caused by:
- Injury to the area
- Being born with an unusually large hiatus
- Persistent and intense pressure on the surrounding muscles, such as when coughing, vomiting, or straining during a bowel movement or while lifting heavy objects
What is the risk factor?
Hiatal hernia is most common in people who are:

- Age 50 or older
- Obese

Tests and diagnosis
A hiatal hernia is often discovered during a test or procedure to determine the cause of heartburn or chest or upper abdominal pain. Such tests or procedures include:

- **An X-ray of your upper digestive tract.** During a barium X-ray, you drink a chalky liquid containing barium that coats your upper digestive tract. This provides a clear silhouette of your esophagus, stomach and the upper part of your small intestine (duodenum) on an X-ray.

- **Using a scope to see inside your digestive tract.** During an endoscopy exam, your doctor passes a thin, flexible tube equipped with a light and video camera (endoscope) down your throat and into your esophagus and stomach to check for inflammation.

Treatments and drugs
Most people with hiatal hernia don’t experience any signs or symptoms and won’t need treatment. If you experience signs and symptoms, such as recurrent heartburn and acid reflux, you may require treatment, which can include medications or surgery.

Medications for heartburn
If you experience heartburn and acid reflux, your doctor may recommend medications, such as:

- **Antacids that neutralize stomach acid.** Over-the-counter antacids, such as Gelusil, Maalox, Mylanta, Rolaids and Tums, may provide quick relief.

- **Medications to reduce acid production.** Called H-2-receptor blockers, these medications include cimetidine (Tagamet HB), famotidine (Pepcid AC), nizatidine (Axid AR) and ranitidine (Zantac 75). Stronger versions of these medications are available in prescription form.

- **Medications that block acid production and heal the esophagus.** Proton pump inhibitors block acid production and allow time for damaged esophageal tissue to heal. Over-the-counter proton pump inhibitors include lansoprazole (Prevacid 24HR) and omeprazole (Prilosec OTC). Stronger versions of these medications are available in prescription form.

Surgery to repair a hiatal hernia
In a small number of cases, a hiatal hernia may require surgery. Surgery is generally reserved for emergency situations and for people who aren’t helped by medications to relieve heartburn and acid reflux. Hiatal hernia repair surgery is often combined with surgery for gastroesophageal reflux disease.

An operation for a hiatal hernia may involve pulling your stomach down into your abdomen and making the opening in your diaphragm smaller, reconstructing a weak esophageal sphincter, or removing the hernia sac. In some cases, this is done using a single incision in your chest wall.
(thoracotomy) or abdomen (laparotomy). In other cases, your surgeon may insert a tiny camera and special surgical tools through several small incisions in your abdomen. The operation is then performed while your surgeon views images from inside your body that are displayed on a video monitor (laparoscopic surgery).

**Lifestyle and home remedies**

Lifestyle changes may help control the signs and symptoms of acid reflux caused by a hiatal hernia. Consider trying to:

- Eat several smaller meals throughout the day rather than a few large meals.
- Avoid foods that trigger heartburn, such as chocolate, onions, spicy foods, citrus fruits and tomato-based foods.
- Avoid alcohol.
- Eat at least two hours before bedtime.
- Lose weight if you’re overweight or obese.
- Stop smoking.
- Elevate the head of your bed 6 inches (about 15 centimeters).

**Alternative medicine**

Some alternative medicine practitioners claim to have discovered a way to cure a hiatal hernia by pushing the stomach back to its normal position below the diaphragm. Practitioners may use their hands to apply pressure to the abdomen and manipulate the stomach. There’s no evidence that such manipulation works to cure hiatal hernia. No clinical trials of the technique have been conducted.

**Peptic ulcer**

Peptic ulcers are open sores that develop on the inside lining of your esophagus, stomach and the upper portion of your small intestine. The most common symptom of a peptic ulcer is abdominal pain.

Peptic ulcers include:

- **Gastric ulcers** that occur on the inside of the stomach
- **Esophageal ulcers** that occur inside the hollow tube (esophagus) that carries food from your throat to your stomach
- **Duodenal ulcers** that occur on the inside of the upper portion of your small intestine (duodenum)

It’s a myth that spicy foods or a stressful job can cause peptic ulcers. Doctors now know that a bacterial infection or some medications — not stress or diet — cause most peptic ulcers.
What are the symptoms of Peptic ulcer?

**Pain is the most common symptom**

Burning pain is the most common peptic ulcer symptom. The pain is caused by the ulcer and is aggravated by stomach acid coming in contact with the ulcerated area. The pain typically may:

- Be felt anywhere from your navel up to your breastbone
- Be worse when your stomach is empty
- Flare at night
- Often be temporarily relieved by eating certain foods that buffer stomach acid or by taking an acid-reducing medication
- Disappear and then return for a few days or weeks

**Other signs and symptoms**

Less often, ulcers may cause severe signs or symptoms such as:

- The vomiting of blood — which may appear red or black
- Dark blood in stools or stools that are black or tarry
- Nausea or vomiting
- Unexplained weight loss
- Appetite changes

**When to see a doctor**

See your doctor if you have persistent signs and symptoms that worry you. Over-the-counter antacids and acid blockers may relieve the gnawing pain, but the relief is short-lived. If your pain persists, see your doctor.

What are the causes of Peptic ulcer?

Peptic ulcers occur when acid in the digestive tract eats away at the inner surface of the esophagus, stomach or small intestine. The acid can create a painful open sore that may bleed. Your digestive tract is coated with a mucous layer that normally protects against acid. But if the amount of acid is increased or the amount of mucus is decreased, you could develop an ulcer. Common causes include:

- **A bacterium.** Helicobacter pylori bacteria commonly live in the mucous layer that covers and protects tissues that line the stomach and small intestine. Often, H. pylori causes no problems, but it can cause inflammation of the stomach’s inner layer, producing an ulcer. It’s not clear how H. pylori spreads. It may be transmitted from person to person by close contact, such as kissing. People may also contract H. pylori through food and water.
- **Regular use of certain pain relievers.** Certain over-the-counter and prescription pain medications can irritate or inflame the lining of your stomach and small intestine. These medications include aspirin, ibuprofen (Advil, Motrin IB, others), naproxen (Aleve, Anaprox, others), ketoprofen and others. Peptic ulcers are more common in older adults who take these pain medications frequently or in people who take these medications for osteoarthritis.
Other medications. Other prescription medications that can also lead to ulcers include medications used to treat osteoporosis called bisphosphonates (Actonel, Fosamax, others) and potassium supplements.

What is the risk factor?
You may have an increased risk of peptic ulcers if you:

- **Smoke.** Smoking may increase the risk of peptic ulcers in people who are infected with H. pylori.
- **Drink alcohol.** Alcohol can irritate and erode the mucous lining of your stomach, and it increases the amount of stomach acid that’s produced.

What complications could you have?
Left untreated, peptic ulcers can result in:

- **Internal bleeding.** Bleeding can occur as slow blood loss that leads to anemia or as severe blood loss that may require hospitalization or a blood transfusion. Severe blood loss may cause black or bloody vomit or black or bloody stools.
- **Infection.** Peptic ulcers can eat a hole through the wall of your stomach or small intestine, putting you at risk of serious infection of your abdominal cavity (peritonitis).
- **Scar tissue.** Peptic ulcers can also produce scar tissue that can block passage of food through the digestive tract, causing you to become full easily, to vomit and to lose weight.

Tests and diagnosis
In order to detect an ulcer, you may have to undergo diagnostic tests, such as:

**Tests for H. pylori**
Your doctor may recommend tests to determine whether the bacterium H. pylori is present in your body. Tests can test for H. pylori using your:

- Blood
- Breath
- Stool

Which type of test you undergo depends on your situation.

For the breath test, you drink or eat something that contains radioactive carbon. H. pylori breaks down the substance in your stomach. Later, you blow into a bag, which is then sealed. If you’re infected with H. pylori, your breath sample will contain the radioactive carbon in the form of carbon dioxide.

**Using a scope to examine your upper digestive system (endoscopy)**
During endoscopy, your doctor passes a hollow tube equipped with a lens (endoscope) down your throat and into your esophagus, stomach and small intestine. Using the endoscope, your doctor looks
for ulcers.

If your doctor detects an ulcer, small tissue samples (biopsy) may be removed for examination in a lab. A biopsy can also identify the presence of H. pylori in your stomach lining.

Your doctor is more likely to recommend endoscopy if you are older, have signs of bleeding, or have experienced recent weight loss or difficulty eating and swallowing.

**X-ray of your upper digestive system**

Sometimes called a barium swallow or upper gastrointestinal series, this series of X-rays creates images of your esophagus, stomach and small intestine. During the X-ray, you swallow a white liquid (containing barium) that coats your digestive tract and makes an ulcer more visible.

**Treatments and drugs**

Treatment for peptic ulcers depends on the cause. Treatments can include:

- **Antibiotic medications to kill H. pylori.** If H. pylori is found in your digestive tract, your doctor may recommend a combination of antibiotics to kill the bacterium. You’ll likely need to take antibiotics for two weeks, as well as additional medications to reduce stomach acid.

- **Medications that block acid production and promote healing.** Proton pump inhibitors reduce stomach acid by blocking the action of the parts of cells that produce acid. These drugs include the prescription and over-the-counter medications omeprazole (Prilosec), lansoprazole (Prevacid), rabeprazole (Aciphex), esomeprazole (Nexium) and pantoprazole (Protonix). Long-term use of proton pump inhibitors, particularly at high doses, may increase your risk of hip, wrist and spine fracture. Ask your doctor whether a calcium supplement may reduce this risk.

- **Medications to reduce acid production.** Acid blockers — also called histamine (H-2) blockers — reduce the amount of stomach acid released into your digestive tract, which relieves ulcer pain and encourages healing. Available by prescription or over-the-counter, acid blockers include the medications ranitidine (Zantac), famotidine (Pepcid), cimetidine (Tagamet) and nizatidine (Axid).

- **Antacids that neutralize stomach acid.** Your doctor may include an antacid in your drug regimen. Antacids neutralize existing stomach acid and can provide rapid pain relief. Side effects can include constipation or diarrhea, depending on the main ingredients. Antacids can provide symptom relief, but generally aren’t used to heal your ulcer.

- **Medications that protect the lining of your stomach and small intestine.** In some cases, your doctor may prescribe medications called cytoprotective agents that help protect the tissues that line your stomach and small intestine. Options include the prescription medications sucralfate (Carafate) and misoprostol (Cytotec). Another nonprescription cytoprotective agent is bismuth subsalicylate (Pepto-Bismol).

**Follow-up after initial treatment**

Treatment for peptic ulcers is often successful, leading to ulcer healing. But if your symptoms are severe or if they continue despite treatment, your doctor may recommend endoscopy to rule out other possible causes for your symptoms.

If an ulcer is detected during endoscopy, your doctor may recommend another endoscopy after your
treatment to make sure your ulcer has healed. Ask your doctor whether you should undergo follow-up tests after your treatment.

**Ulcers that fail to heal**

Peptic ulcers that don’t heal with treatment are called refractory ulcers. There are many reasons why an ulcer may fail to heal. These reasons may include:

- Not taking medications according to directions.
- The fact that some types of H. pylori are resistant to antibiotics.
- Regular use of tobacco.
- Regular use of pain relievers that increase the risk of ulcers.

Less often, refractory ulcers may be a result of:

- Extreme overproduction of stomach acid, such as occurs in Zollinger-Ellison syndrome
- An infection other than H. pylori
- Stomach cancer
- Other diseases that may cause ulcer-like sores in the stomach and small intestine, such as Crohn’s disease

Treatment for refractory ulcers generally involves eliminating factors that may interfere with healing, along with using different antibiotics.

**Lifestyle and home remedies**

You may find relief from the pain of a stomach ulcer if you:

- **Choose a healthy diet.** Choose a healthy diet full of fruits, vegetables and whole grains. Not eating vitamin-rich foods may make it difficult for your body to heal your ulcer.
- **Consider switching pain relievers.** If you use pain relievers regularly, ask your doctor whether acetaminophen (Tylenol, others) may be an option for you.
- **Control stress.** Stress may worsen the signs and symptoms of a peptic ulcer. Examine your life to determine the sources of your stress and do what you can to address those causes. Some stress is unavoidable, but you can learn to cope with stress with exercise, spending time with friends or writing in a journal.
- **Don’t smoke.** Smoking may interfere with the protective lining of the stomach, making your stomach more susceptible to the development of an ulcer. Smoking also increases stomach acid.
- **Limit or avoid alcohol.** Excessive use of alcohol can irritate and erode the mucous lining in your stomach and intestines, causing inflammation and bleeding.

**Vitamin deficiency anemia**

Vitamin deficiency anemia is a lack of healthy red blood cells caused by lower than normal amounts of certain vitamins. Vitamins linked to vitamin deficiency anemia include folate, vitamin B-12 and
Vitamin deficiency anemia can occur if you don’t eat enough folate, vitamin B-12 or vitamin C. Or vitamin deficiency anemia can occur if your body has trouble absorbing or processing these vitamins.

Not all anemias are caused by a vitamin deficiency. Other causes include iron deficiency and certain blood diseases. That’s why it’s important to have your doctor diagnose and treat your anemia. Vitamin deficiency anemia can usually be corrected with vitamin supplements and changes to your diet.

What are the symptoms of Vitamin deficiency anemia?

Signs and symptoms of vitamin deficiency anemia include:
- Fatigue
- Shortness of breath
- Dizziness
- Pale or yellowish skin
- Irregular heartbeats
- Weight loss
- Numbness or tingling in your hands and feet
- Muscle weakness
- Personality changes
- Unsteady movements
- Mental confusion or forgetfulness

Vitamin deficiencies usually develop slowly over several months to years. Vitamin deficiency symptoms may be subtle at first, but they increase as the deficiency worsens.

What are the causes of Vitamin deficiency anemia?

Vitamin deficiency anemia occurs when your body doesn’t have enough of the vitamins needed to produce adequate numbers of healthy red blood cells. Red blood cells carry oxygen from your lungs throughout your body. If your diet is lacking in certain vitamins, vitamin deficiency anemia can develop. Or vitamin deficiency anemia may develop because your body can’t properly absorb the nutrients from the foods you eat.

Causes of vitamin deficiency anemias, also known as megaloblastic anemias, include:

- **Folate deficiency anemia.** Folate, also known as vitamin B-9, is a nutrient found mainly in fruits and leafy green vegetables. A diet consistently lacking in these foods can lead to a deficiency. An inability to absorb folate from food can also lead to a deficiency. Most nutrients from food are absorbed in your small intestine. People with diseases of the small intestine, such as celiac disease, or those who have had a large part of the small intestine surgically removed or bypassed may have difficulty absorbing folate or its synthetic form, folic acid. Alcohol decreases absorption of folate, so drinking alcohol to excess may lead to a deficiency. Certain prescription drugs, such as some anti-seizure medications, can interfere with absorption of this nutrient. Pregnant women and women who are breast-feeding have an increased demand for folate, as do people undergoing
hemodialysis for kidney disease. Failure to meet this increased demand can result in a deficiency.

- **Vitamin B-12 deficiency anemia (pernicious anemia).** Vitamin B-12 deficiency can result from a diet lacking in vitamin B-12, which is found mainly in meat, eggs and milk. Vitamin B-12 deficiency anemia can also occur if your small intestine can’t absorb vitamin B-12. This may be due to surgery to your stomach or small intestine (such as gastric bypass surgery), abnormal bacterial growth in your small intestine, or an intestinal disease, such as Crohn’s disease or celiac disease, that interferes with absorption of the vitamin. Vitamin B-12 deficiency can also be caused by a tapeworm ingested from contaminated fish because the tapeworm saps nutrients from your body. However, a vitamin B-12 deficiency is most often due to a lack of a substance called intrinsic factor. Intrinsic factor is a protein secreted by the stomach that joins vitamin B-12 in the stomach and escorts it through the small intestine to be absorbed by your bloodstream. Without intrinsic factor, vitamin B-12 can’t be absorbed and leaves your body as waste. Lack of intrinsic factor may be due to an autoimmune reaction in which your immune system mistakenly attacks the stomach cells that produce it. Vitamin B-12 deficiency anemia caused by a lack of intrinsic factor is called pernicious anemia.

- **Vitamin C deficiency anemia.** Vitamin C deficiency can develop if you don’t get enough vitamin C from the foods you eat. Vitamin C deficiency is also possible if something impairs your ability to absorb vitamin C from food. For instance, smoking impairs your body’s ability to absorb vitamin C.

**What is the risk factor?**

Risk factors for vitamin deficiency anemia vary by type of vitamin deficiency.

**Folate deficiency anemia**

Your risk of folate deficiency anemia may be increased if:

- **You’re pregnant,** and you aren’t taking a multivitamin containing folic acid.
- **You have intestinal problems** that interfere with absorption of folate.
- **You abuse alcohol** because alcohol interferes with the absorption of folate.
- **You take certain prescription medications,** such as some anti-seizure drugs, that can block absorption of folate.
- **You’re undergoing hemodialysis** for kidney failure. Ask your doctor whether you need supplemental folic acid to prevent a deficiency.
- **You’re undergoing cancer treatment.** Some drugs used to treat cancer can interfere with the metabolism of folate.
- **You don’t eat many fruits and vegetables.** If your diet is greatly lacking in fresh fruits and vegetables, or you consistently overcook your food, you may be at risk of folate deficiency anemia.

**Vitamin B-12 deficiency anemia (pernicious anemia)**

Your risk of vitamin B-12 deficiency anemia may be increased if:

- **You don’t eat meat and dairy products,** foods that contain a lot of vitamin B-12. Vegetarians who don’t eat dairy products and vegans, who don’t eat any foods from animals, may fall into this category.
- **You have an intestinal disease** or abnormal bacterial growth in your stomach or have had
surgery to your intestines or stomach that interferes with the absorption of vitamin B-12.

- **You lack intrinsic factor.** Most people with a vitamin B-12 deficiency anemia lack intrinsic factor—a protein secreted by the stomach that is necessary for absorption of vitamin B-12. Lack of intrinsic factor may be due to an autoimmune reaction, or it may be inherited.

- **You take certain medications.** Antacids and some drugs used to treat type 2 diabetes may interfere with B-12 absorption.

- **You have another autoimmune disorder.** People with endocrine-related autoimmune disorders, such as diabetes or thyroid disease, may have an increased risk of developing a specific type of vitamin B-12 deficiency anemia called pernicious anemia.

### Vitamin C deficiency anemia

Your risk of vitamin C deficiency anemia may be increased if:

- **You’re malnourished** and you’re not getting the nutrients and vitamins you need.
- **You smoke.** Smoking can lead to vitamin C deficiency because it decreases the absorption of this vitamin.
- **You abuse alcohol.** People who drink heavily don’t absorb vitamin C as effectively, putting them at risk of vitamin C deficiency anemia.
- **You have a chronic illness.** Certain chronic illnesses, such as cancer or chronic kidney disease, increase your risk of vitamin D deficiency anemia by affecting the absorption of vitamin C.

### What complications could you have?

Being deficient in vitamins increases your risk of many health problems:

- **Pregnancy complications.** Pregnant women with folate deficiency may be more likely to experience complications, such as premature birth. A developing fetus that doesn’t get enough folate from its mother can develop birth defects of the brain and spinal cord. If you’re thinking of becoming pregnant, ask your doctor whether you should consider taking folic acid supplements so that your body’s stores of folate will be enough to support your baby.

- **Nervous system disorders.** While vitamin B-12 is important for the production of red blood cells, it’s also important for a healthy nervous system. Untreated, vitamin B-12 deficiency can lead to neurological problems, such as persistent tingling in your hands and feet or problems with balance. It can lead to mental confusion and forgetfulness because vitamin B-12 is necessary for healthy brain function. Without treatment for vitamin B-12 deficiency, neurological complications can become permanent. Vitamin B-12 deficiency can cause these and other health problems before it leads to anemia.

- **Scurvy.** Vitamin C deficiency can lead to scurvy. Signs and symptoms of this rare disease include bleeding under the skin and around the gums.

### Tests and diagnosis

Doctors diagnose vitamin deficiency anemias through blood tests that check:

- **The number and appearance of red blood cells.** People with anemia have fewer red blood cells than normal. In vitamin deficiency anemias related to a lack of vitamin B-12 and folate, the red blood cells appear large and underdeveloped. In advanced deficiencies, the numbers of white blood
cells and platelets also might be decreased and look abnormal under a microscope.

- **The amount of folate, vitamin B-12 and vitamin C in your blood.** Folate and vitamin B-12 levels are measured at the same time because these deficiencies can cause similar signs and symptoms.

**Additional tests for B-12 deficiency**

If blood tests reveal a vitamin deficiency, your doctor may perform other tests to determine the type and cause, such as:

- **Antibodies test.** Your doctor may draw a sample of your blood to check for antibodies to intrinsic factor. Their presence indicates pernicious anemia.

- **Methylmalonic acid test.** You may undergo a blood test to measure the presence of a substance called methylmalonic acid. The level of this substance is higher in people with vitamin B-12 deficiency.

- **Schilling test.** In this test, you first ingest a tiny amount of radioactive vitamin B-12. Then your blood is checked to see if your body absorbed the vitamin B-12. After that, you ingest a combination of radioactive vitamin B-12 and intrinsic factor. If the radioactive B-12 is absorbed only when taken with intrinsic factor, it confirms that you lack your own intrinsic factor.

**Treatments and drugs**

Treatment for vitamin deficiency anemia includes supplements and changes in diet.

- **Folate deficiency anemia.** Treatment involves eating a healthy diet and taking folic acid supplements as prescribed by your doctor. In most cases, folic acid supplements are taken orally. Once your body’s level of folate increases to normal, you may be able to stop taking the supplements. But if the cause of your folate deficiency can’t be corrected, you may need to take folic acid supplements indefinitely.

- **Vitamin B-12 deficiency anemia (pernicious anemia).** For milder cases of vitamin B-12 deficiency, treatment may involve changes to your diet and vitamin B-12 supplements in pill form or as a nasal spray. Your doctor may suggest vitamin B-12 injections, particularly if your vitamin B-12 deficiency is severe. At first, you may receive the shots as often as every other day. Eventually, you’ll need injections just once a month, which may continue for life, depending on your situation.

- **Vitamin C deficiency anemia.** Treatment for anemia related to vitamin C deficiency is with vitamin C tablets. Additionally, you increase your intake of foods and beverages that contain vitamin C.

**Pyloric stenosis**

Pyloric stenosis is an uncommon condition affecting the opening (pylorus) between the stomach and small intestine in infants. The pylorus is a muscular valve that holds food in the stomach until it is ready for the next stage in the digestive process.
In pyloric stenosis, the pylorus muscles thicken, blocking food from entering the baby’s small intestine. Pyloric stenosis can lead to forceful vomiting, dehydration and weight loss. Babies with this condition may seem to always be hungry.

Pyloric stenosis can be fixed with surgery.

**What are the symptoms of Pyloric stenosis?**

Signs of pyloric stenosis usually appear within three to six weeks after birth. Pyloric stenosis is rare in babies older than age 3 months.

Watch for these signs and symptoms:

- **Projectile vomiting.** Pyloric stenosis often causes projectile vomiting — the forceful ejection of milk or formula up to several feet away. Vomiting occurs within 30 minutes after your baby eats. Vomiting may be mild at first and gradually become more severe as the pylorus opening narrows. The vomit may sometimes contain blood.

- **Persistent hunger.** Babies who have pyloric stenosis often want to eat soon after vomiting.

- **Stomach contractions.** You may notice wave-like contractions (peristalsis) that ripple across your baby’s upper abdomen soon after feeding but before vomiting. This is caused by stomach muscles trying to force food through the narrowed pylorus.

- **Dehydration.** Your baby may cry without tears or become lethargic. You may find yourself changing fewer wet diapers or diapers that aren’t as wet as you expect.

- **Changes in bowel movements.** Since pyloric stenosis prevents food from reaching the intestines, babies with this condition may be constipated.

- **Weight problems.** Pyloric stenosis can keep a baby from gaining weight, and sometimes can cause weight loss.

**When to see a doctor**

Contact your baby’s doctor if your baby is:

- Frequently vomiting after feeding
- Projectile vomiting
- Less active or seems unusually irritable
- Urinating much less frequently or is having noticeably fewer bowel movements
- Not gaining weight, or even losing weight

**What are the causes of Pyloric stenosis?**

The causes of pyloric stenosis are unknown, but genetic and environmental factors probably play a role.

**What is the risk factor?**

Risk factors for pyloric stenosis include:

- **Sex.** Pyloric stenosis occurs more often in males than in females.
- **Family history.** Studies found higher rates of this disorder among certain families and also among offspring of mothers who had pyloric stenosis.
• **Early antibiotic use.** Babies given certain antibiotics, such as erythromycin, in the first weeks of life for whooping cough (pertussis) have an increased risk of pyloric stenosis. In addition, babies born to mothers who were given certain antibiotics in late pregnancy also may have an increased risk of pyloric stenosis.

**What complications could you have?**

Pyloric stenosis can lead to:

• **Failure to grow** and develop at a normal, healthy rate.

• **Dehydration** from frequent vomiting. One effect of dehydration is an electrolyte imbalance. Electrolytes are minerals, such as chloride and potassium, that circulate in the body’s fluids to help regulate many vital functions. When a baby loses more fluid from vomiting than he or she takes in from eating, an imbalance of electrolytes eventually occurs.

• **Stomach irritation.** Repeated vomiting can irritate your baby’s stomach. This irritation may even cause mild bleeding.

• **Jaundice.** Rarely, infants who have pyloric stenosis develop a yellowish discoloration of the skin and eyes (jaundice) caused by a buildup of a substance secreted by the liver called bilirubin.

**Tests and diagnosis**

Often, your baby’s doctor can feel an olive-shaped lump — the enlarged pyloric muscle — when examining your baby’s abdomen. The peristaltic waves in the baby’s abdomen are another telltale sign of pyloric stenosis.

Your doctor may also order blood tests to look for signs of dehydration.

An ultrasound will usually confirm the diagnosis.

**Treatments and drugs**

Pyloric stenosis is typically treated with a surgical procedure known as pyloromyotomy (pie-lor-o-my-OT-uh-me). The surgeon cuts through the outside layer of the thickened pylorus muscle, allowing the inner lining to bulge out. This opens a channel for food to pass through to the small intestine. Results of surgery are generally excellent with few complications.

Surgery is often scheduled on the same day as the diagnosis. If your baby is dehydrated or has an electrolyte imbalance, he or she will receive fluid replacement before surgery.

Pyloromyotomy is often done using minimally invasive surgery. The surgeon operates through a slender viewing instrument (laparoscope) inserted through a small incision near your baby’s navel. Recovery from the laparoscopic procedure is quicker than is recovery from a traditional open surgery, and the procedure leaves a smaller scar.

After surgery, your baby may receive IV fluids for a few hours or until he or she can eat. It’s common for some vomiting to occur for a few days after surgery.

Potential complications of surgery include bleeding and infection, but the rate of complications is low. Pyloromyotomy doesn’t increase the risk of future stomach or intestinal problems.
Most infants return home within 48 hours. Recovery from surgery takes about a week. Your baby may want to feed more often following surgery — this is normal.

**Zollinger-Ellison syndrome**

Zollinger-Ellison syndrome is a complex condition in which one or more tumors form in your pancreas or the upper part of your small intestine (duodenum). These tumors, called gastrinomas, secrete large amounts of the hormone gastrin, which causes your stomach to produce too much acid. The excess acid, in turn, leads to peptic ulcers.

Zollinger-Ellison syndrome (ZES) is rare. The disease may occur at any time in life, but people are usually diagnosed between ages 30 and 50. Medications to reduce stomach acid and heal the ulcers is the usual treatment for Zollinger-Ellison syndrome.

**What are the symptoms of Zollinger-Ellison syndrome?**

Signs and symptoms of Zollinger-Ellison syndrome may include:

- Abdominal pain
- Diarrhea
- Burning, aching, gnawing or discomfort in your upper abdomen
- Acid reflux and heartburn
- Nausea and vomiting
- Weakness
- Bleeding in your digestive tract
- Unintended weight loss
- Decreased appetite
- Anemia

**When to see a doctor**

See your doctor if you have a persistent, burning, aching or gnawing pain in your upper abdomen, especially if you’ve also been experiencing nausea, vomiting and diarrhea.

Tell your doctor if you’ve used over-the-counter acid-reducing medications such as omeprazole (Prilosec), cimetidine (Tagamet), famotidine (Pepcid) or ranitidine (Zantac) for long periods of time. These medications may mask your symptoms, which could delay your diagnosis. If you have Zollinger-Ellison syndrome, early detection and treatment are important.

**What are the causes of Zollinger-Ellison?**

The exact cause of Zollinger-Ellison syndrome remains unknown. But the sequence of events that occurs in Zollinger-Ellison syndrome is clear. The syndrome begins when a tumor (gastrinoma) or tumors form in your pancreas, duodenum or the lymph nodes adjacent to your pancreas.
Your pancreas sits behind and below your stomach. It produces enzymes that are essential to digesting food. The pancreas also produces several hormones, including gastrin, a hormone that controls stomach acid production. Digestive juices from the pancreas, liver and gallbladder mix in the duodenum, the part of the small intestine next to your stomach. This is where digestion reaches its peak.

The tumors that occur with Zollinger-Ellison syndrome are made up of cells that secrete large amounts of gastrin, which in turn causes the stomach to produce far too much acid. The excessive acid then leads to peptic ulcers and sometimes to diarrhea.

Besides causing excess acid production, the tumors may be cancerous (malignant). The tumors themselves grow slowly, but the cancer can spread elsewhere — most commonly to nearby lymph nodes or your liver.

**Association with MEN I**

Zollinger-Ellison syndrome may be caused by an inherited condition called multiple endocrine neoplasia, type I (MEN I). People with MEN I have multiple tumors in the endocrine system in addition to pancreatic tumors. They also have tumors in the parathyroid glands and may have tumors in their pituitary glands. About 25 percent of people who have gastrinomas have them as part of MEN I.

**Tests and diagnosis**

Your doctor will base a diagnosis on the following:

- **Medical history.** Your doctor will ask about your signs and symptoms and review your medical history. If you have a blood relative, such as a sibling or parent, with MEN I, it's more likely that you have Zollinger-Ellison syndrome.

- **Blood tests.** A sample of your blood is analyzed to see whether you have elevated gastrin levels. While elevated gastrin may indicate tumors in your pancreas or duodenum, it also can be caused by other conditions. You’ll have to fast before this test and may need to stop taking any acid-reducing medications to get the most accurate measure of your gastrin levels. Because gastrin levels can fluctuate, this test may be repeated a few times.

- **Gastrin level measurement.** Since elevated gastrin levels can be caused by conditions other than Zollinger-Ellison, your doctor may test the acidity of the stomach to clarify which condition is elevating your gastrin levels. Gastrin levels also can be elevated if your stomach doesn’t make acid or if you’re taking medications that block acid. If your stomach is making acid, your doctor may perform a secretin stimulation test. For this test, your doctor measures your gastrin levels, gives you an injection of the hormone secretin and measures gastrin levels again. If you have Zollinger-Ellison, your gastrin levels will increase even more.

- **Upper gastrointestinal endoscopy.** After you’re sedated, your doctor inserts a thin, flexible instrument with a light and video camera (endoscope) down your throat and into your stomach and duodenum to look for ulcers. Through the endoscope, your doctor may remove a tissue sample (biopsy) from your duodenum for examination to help detect the presence of gastrin-producing tumors. To prepare for the test, your doctor will ask you not to eat anything after midnight the night before the test.
• **Imaging studies.** Your doctor may use imaging techniques such as a nuclear scan — which uses radioactive tracers to help locate tumors — CT, ultrasound or MRI.

• **Endoscopic ultrasound.** In this procedure, your doctor examines your stomach and duodenum with an endoscope fitted with an ultrasound probe. The probe allows closer inspection of the digestive tract, making it easier to spot tumors. It’s also possible to remove a tissue sample through the endoscope. You’ll need to fast after midnight the night before this test, and you’ll be sedated during the test.

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**Treatments and drugs**

In treating Zollinger-Ellison syndrome, doctors treat the tumors as well as the ulcers. If your doctor can remove the tumors, then ulcer treatment may no longer be needed.

**Treatment of tumors**

An operation to remove the tumors that occur in Zollinger-Ellison requires a skilled surgeon because the tumors are often small and difficult to locate. If you have just one tumor, your doctor may be able to remove it surgically, but surgery may not be an option if you have multiple tumors or tumors that have spread to your liver. On the other hand, even if you have multiple tumors, your doctor still may recommend removing a single large tumor.

In some cases, doctors advise other treatments to control tumor growth, including:

- Removing as much of a liver tumor as possible (debulking)
- Attempting to destroy the tumor by cutting off the blood supply (embolization) or by using heat to destroy cancer cells (radiofrequency ablation)
- Injecting drugs into the tumor to relieve cancer symptoms
- Using chemotherapy to try to slow tumor growth
- A liver transplant

More radical surgical approaches, such as severing the nerves that promote acid secretion or removing the entire stomach, aren’t generally done today because medications are usually successful in controlling acid production and ulcers.

**Treatment of excess acid**

Excess acid production can almost always be controlled. Medications known as proton pump inhibitors are the first line of treatment. These are the most effective medications for decreasing acid production in Zollinger-Ellison syndrome. Proton pump inhibitors are powerful drugs that reduce acid by blocking the action of the tiny “pumps” within acid-secreting cells. Commonly prescribed medications include lansoprazole (Prevacid), omeprazole (Prilosec, Zegerid), pantoprazole (Protonix), rabeprazole (Aciphex) and esomeprazole (Nexium). Long-term use of prescription proton pump inhibitors, especially in people age 50 and older, has been associated with an increased risk of fractures of the hip, wrist and spine, according to the Food and Drug Administration. This risk is small and should be weighed against the acid-blocking benefits of these medications.

Your doctor may also suggest one of several operations to treat peptic ulcers, such as surgery to:
- Stop an ulcer from bleeding
- Relieve an obstruction caused by an ulcer
- Close up the hole (perforation) that an ulcer has made in the wall of your stomach or duodenum