

Diverticulosis and Diverticulitis of the Colon

What is diverticulosis and diverticulitis?

Diverticulosis and diverticulitis are two conditions that occur in your large intestine (also called your colon). Together they are known as diverticular disease. Both share the common feature of diverticula. Diverticula are one or more pockets or bulges that form in the wall of your colon.

Diverticula are like expanded areas or bubbles that form when you fill the inner tube of a bike tire with too much air. The increase in pressure from too much air being pumped into the inner tube causes the bubble to form where the rubber is the weakest. Similarly, an increase in pressure inside the colon causes pockets or bulges (diverticula) to form in weakened areas of your colon's walls.

Diverticula can range from pea-size to much larger. Although they can form anywhere in the inner lining of your colon, they are most commonly found in your lower left-side, in the S-shaped segment of your colon called the sigmoid colon.

What's the difference between diverticulosis and diverticulitis?

Diverticulosis is simply the presence of these tiny bulges or pockets (diverticula) in your colon. They usually don't cause any symptoms or need to be treated. However, diverticulosis can lead to diverticulitis.

Diverticulitis is inflammation (swelling) and infection in one or more diverticula. You may feel pain, nausea, fever and have other symptoms. This is a much more serious and potentially dangerous condition.

How common is diverticulosis?

Diverticulosis is very common in Western populations and occurs in 10% of people over age 40 and in 50% of people over age 60. The rate of diverticulosis increases with age, and it affects almost everyone over age 80.

Who is most likely to get diverticulosis and diverticulitis?

You are at increased risk of diverticular disease (diverticulosis or diverticulitis) if you:

- Are over 40 years of age.
- Are male.
- Are overweight.

- Eat a low-fiber diet. You don't eat a lot of fruits, vegetables, beans and legumes, breads and grains or nuts.
- Eat a diet high in fat and red meat.
- Don't exercise.
- Take nonsteroidal anti-inflammatory drugs (NSAIDs), like aspirin, ibuprofen (Advil®, Motrin®) and naproxen (Aleve®); steroids; or opioids.
- Smoke.

What causes diverticulosis and diverticulitis?

Scientists aren't really sure what causes diverticulosis, but they think it's caused by not eating enough fiber. Not eating enough fiber causes a buildup of waste (constipation) in your colon. Constipation puts extra strain on the walls of the colon. This increased pressure causes the little pockets — the diverticula — to form in weak areas in your colon.

Again, scientists aren't sure what causes diverticulitis, but they think the infection starts due to the bacteria in stool that gets pushed into the diverticula. Another theory is that the walls of the diverticula itself erode from the increased pressure on the colon walls.

What are the symptoms of diverticulosis?

Usually diverticulosis does not cause any troublesome symptoms. However, some people report:

- Tenderness over the affected area
- Mild abdominal cramps
- Swelling or bloating
- Constipation

Keep in mind that having one or more of these symptoms doesn't mean you have diverticulosis. These symptoms are common symptoms of other gastrointestinal disorders such as irritable bowel syndrome, celiac disease, inflammatory bowel disease, appendicitis, gallstones and stomach ulcers.

What are the symptoms of diverticulitis?

The symptoms of diverticulitis include:

- Pain, tenderness, or sensitivity in the left lower side of your abdomen. Pain can start out mild and increase over several days or come on suddenly. (Pain is the most common symptom.)
- Fever.

- Nausea and/or vomiting.
- Chills.
- Cramps in the lower abdomen.
- Constipation or diarrhea (less common).
- Rectal bleeding.

How is diverticulosis diagnosed?

Because most people with diverticulosis don't have symptoms, it's usually found from other tests that are done for an unrelated reason.

How is diverticulitis diagnosed?

If you have symptoms of diverticulitis, it's important to be seen by your healthcare provider to get the correct diagnosis.

First, your healthcare provider will ask you about your medical history including your current symptoms, the types of foods you normally eat, how often you have bowel movements and other questions about your bowel movements, and will review any medications you are currently taking. Your healthcare provider will check your abdomen for pain and tenderness.

Other tests that may be performed or ordered to help diagnose your condition include:

- **Blood test:** Your blood is checked for signs of infection, such as a high white blood cell count.
- **Stool sample:** Your stool sample is checked for the presence of abnormal bacteria or parasites as possible causes of your infection, abdominal pain, blood in stool, diarrhea or your other symptoms.
- **Digital rectal exam:** In this physical exam, your healthcare provider gently inserts a gloved, lubricated finger into your rectum to feel for any problems in your anus or rectum.
- **CT scan:** A CT scan can show infected or inflamed diverticula and also reveal the severity of diverticulitis.
- **Barium enema (also called a lower gastrointestinal tract radiography):** In this test, a liquid containing barium is injected into your anus. The liquid coats the inside of your colon, which helps make any problems in your colon more visible on X-rays.
- **Sigmoidoscopy:** In this exam, a thin flexible tube with a light on the end is inserted into your rectum and moved into your sigmoid colon. The tube is connected to a video camera. The camera allows a visual inspection of your sigmoid colon (where most diverticula form) and rectum.
- **Colonoscopy:** In this exam, the full length of your colon can be examined. A thin, flexible, lighted tube with a camera, called a colonoscope, is inserted through your rectum and into your colon. During a colonoscopy, your colon is checked for

abnormal growths, sores, ulcers, bleeding, or other problems that could cause changes in bowel habits or abdominal pain. Tissue samples can be taken and polyps can be removed.

- **Angiography:** If you have rapid, heavy rectal bleeding, this procedure helps find where the bleeding is coming from. During this test, the arteries that supply the colon are injected with a harmless dye that allows the source of the bleeding to be seen.

How is diverticulosis treated?

If you have diverticulosis, you likely don't have symptoms and don't need treatment. However, since diverticulosis could lead to diverticulitis, you should eat a diet high in fiber as a preventive measure. This means eating more fruits, vegetables, grains, nuts, seeds, beans, legumes, and less red meat.

How is diverticulitis treated?

If your diverticulitis is mild, your healthcare provider will prescribe an oral antibiotic, such as metronidazole (Flagyl®), trimethoprim-sulfamethoxazole (Bactrim®), ciprofloxacin (Cipro®) or amoxicillin and clavulanic acid (Augmentin®). Rest, taking over-the-counter medications for pain and following a low-fiber diet or a liquid diet may be recommended until your symptoms improve. Once your symptoms improve, you can slowly return to soft foods, then a more normal diet, which should be one that includes many high-fiber foods. You and your healthcare provider will discuss the specifics of your treatment plan.

If your diverticulitis is severe, you have rectal bleeding or are having a repeat bout of diverticulitis, you may be admitted to the hospital to receive intravenous (IV) antibiotics, IV fluids or possibly be considered for surgery.

When is surgery for diverticulitis considered?

Surgery for diverticulitis is considered if you have:

- **Abscesses:** An abscess is a contained or "walled-off" infection in the abdomen. If the fluid in an abscess (a collection of bacteria and white blood cells) is not successfully drained with a needle or catheter, surgery is needed. In surgery, the abscess is cleaned up and the affected part of the colon is removed.
- **Perforation/peritonitis:** A tear (perforation) in your colon allows pus or stool to leak into your abdominal cavity, resulting in peritonitis. This is a life-threatening infection that requires emergency surgery to clean the cavity and remove the damaged part of the colon.

- **Blockages or strictures:** Previous infections in your colon can cause scars to form, which can result in a partial or complete blockage or strictures (narrowing of sections of the colon). A complete blockage requires surgery (partial blockage does not).
- **Fistulas:** A fistula is an abnormal passageway or tunnel that forms and connects with another organ. An abscess that erodes into the surrounding tissue creates these passageways. A fistula in the colon can connect to the skin, bladder, vagina, uterus, or another part of the colon. Most fistulas don't close on their own so surgery is needed.
- **Continued rectal bleeding (also called diverticular bleeding):** Diverticular bleeding occurs when a small blood vessel near the diverticula bursts. Mild bleeding usually stops on its own, but about 20% of cases require treatment. Surgery may be needed if other attempts to stop the bleeding fail, such as clipping, drug infusion or cauterizing the bleeding artery. If bleeding is heavy and rapid, emergency surgery is a needed.
- Severe diverticulitis that has not responded to other treatment methods.
- Multiple attacks despite following a high-fiber diet. You and your surgeon may decide surgery to remove the diseased part of the colon is the best method to prevent future attacks.

What does the surgery for diverticulitis entail?

Surgery usually involves removing part of the colon. During surgery, the diseased section of the colon is removed, and the colon is reattached to the rectum.

Depending on the extent and severity of disease, surgery can be performed in a single surgery, in two surgeries, in an open procedure (tradition surgery performed through a large incision) or by a minimally invasive laparoscopic procedure (surgery performed through small holes in your abdomen). You may or may not need a colostomy. A colostomy involves bringing the healthy end of your colon to the surface of your skin through a hole made in your abdominal wall. A colostomy bag attaches to the colon on the surface of your skin to collect colon waste. The colostomy bag may be needed for several months while your colon heals. Once healed, the colon is reattached to the rectum (at which time the colostomy bag is removed).

You and your surgeon will discuss the details of your specific surgery including risks, complications and what to expect after surgery.

How can diverticulosis be prevented?

Having regular bowel movements and avoiding constipation and straining is important to prevent diverticular disease and reduce its complications.

To accomplish this:

- **Eat more fiber:** Fiber pulls more water into stool, making it bulkier, softer, and easier to move — and move more quickly — through your colon.
- **Drink plenty of water:** Eating more fiber absorbs more water, so you'll need to increase the amount of water you drink to keep stool soft and on the move. Many healthcare providers suggest drinking half your body's weight in ounces. For example, if you weigh 160 pounds, you should drink 80 ounces of water each day.
- **Exercise daily:** Physical movement helps food pass through your intestinal system. Exercise for 30 minutes on most days if you can.

How much fiber should I eat?

The National Institute of Diabetes and Digestive and Kidney Disease recommends eating 14 grams per 1,000 calories consumed per day. For example, if you follow a 2,000 calorie diet every day, you should try to eat 28 grams of fiber each day. Every person, regardless of whether they have diverticula, should try to consume this much fiber every day. Fiber is the part of plant foods that can't be digested.

What foods are high in fiber?

High-fiber foods include:

- Whole grain foods such as breads, pasta, crackers, barley, brown rice, and oatmeal.
- Berries and other fruit.
- Vegetables, such as broccoli, cabbage, spinach, carrots, asparagus, squash, and beans.
- Brown rice.
- Bran products, made from rice, corn, wheat, oats, barley rye and millet.
- Cooked dried peas and beans.

Besides preventing constipation, eating a high-fiber diet helps lower blood pressure, reduces blood cholesterol, improves blood sugar, and reduces the risk of developing certain intestinal disorders such as colorectal cancer.

Should I avoid eating nuts, seeds, and popcorn if I have diverticular disease?

Until recently, your healthcare provider may have told you to avoid eating nuts, seeds, corn, and popcorn. Newer research shows that these foods do not appear to cause flare-ups.

What's most important is to figure out what foods do and don't cause symptoms and avoid the foods that cause symptoms or make your symptoms worse.

What should I expect if I have been diagnosed with diverticular disease?

If you've been told you have diverticulosis, this is usually not cause for concern. This condition is very common and increases with age. It is present in about 50% of people over age 60 and in almost everyone over age 80. You likely won't even have symptoms if you have diverticulosis. If you have a mild case of diverticulosis, it may go away on its own without treatment.

Up to 30% of people with diverticulosis do develop diverticulitis. Between 5% and 15% will develop rectal bleeding.

Most people who have diverticulitis will recover with about a seven to 10-day course of antibiotics and rest. Severe complication of diverticulitis occurs in about the following percent of people: perforation of the colon (1% to 2% of patients), obstruction (rare), fistula (14%) or abscess (30%).

The best self-treatment is to eat a high-fiber diet (one filled with fruits and vegetables, cereals and whole grains, nuts, beans, and legumes. Also, drink more fluids (half your body weight in ounces each day) and exercise (helps speed waste through your colon).

What are the dangers of diverticulitis? Is diverticulitis a life-threatening condition?

Diverticulitis can be a serious, and even a potentially life-threatening complication. Health problems that can arise from diverticulitis include:

- Rectal bleeding.
- Abscesses and fistulas.
- Obstructions and strictures.
- Perforation, leading to peritonitis.

If I've had one bout of diverticulitis, how likely am I to have a repeat bout?

If you've had a previous episode of diverticulitis, you have up to about a 20% chance of having a repeat episode. However, fewer than 6% of patients will develop complicated disease or need emergency surgery.

Can diverticulitis be cured?

Diverticulitis can be treated and be healed with antibiotics. Surgery may be needed if you develop complications or if other treatment methods fail and your diverticulitis is severe. However, diverticulitis is generally considered to be a lifelong condition.

Can I still get diverticulitis if I've had the affected part of my colon removed?

If the affected area of your colon is removed, another surgery is usually not needed. The most common location for diverticulitis is the sigmoid colon, which is the S-shaped near end portion of your colon. Although this is the most common location, it's possible for diverticula to form in other areas of your colon. Because each person is different, be sure to ask your healthcare provider, surgeon, or colon specialist about your risk for return appearance of diverticulitis.

When should I call my healthcare provider?

Call your healthcare provider:

- If you have constant, unexplained pain in your abdomen and especially if you also have fever and change in your bowel habit (newly developed constipation or diarrhea).
- If your symptoms return or get worse.
- If you see bright red or maroon colors in your stool or see blood in the toilet.

If I can't get enough fiber from my diet, can I take a fiber supplement?

Yes, you can take a fiber supplement. Available products include FiberCon®, Citrucel®, Metamucil® and generics of these branded products and other fiber products. Be sure to drink at least 8 ounces of liquids with your supplement.

Are probiotics helpful in preventing diverticulitis?

Some researchers believe not having the proper balance of “good bacteria” in your gut may play a role in the development of diverticulitis. However, right now, there's not enough scientific evidence to prove that probiotics can help prevent diverticulitis. Probiotics may be helpful in preventing constipation however.