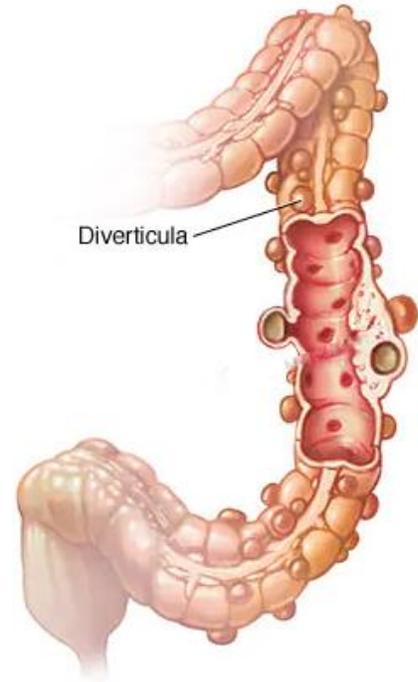




## Diverticulosis. Diverticulitis. What's the difference?

### The Digestive Tract

To understand diverticulosis, it may be helpful to learn something about anatomy. The digestive tract is a 20-foot-long tube-like passageway that runs from your mouth to your body's exit and contains the digestive system's major segments. Each segment has a specific job associated with processing food within your body. After chewing, food is broken down by churning **stomach** muscles and powerful stomach acid, enabling the absorption of nutrients into your body via the 30 ft of the **small intestine**. Once digestion is complete, any residual liquid waste is soaked up by the large intestine, or **colon**, where it is purified and recycled into the bloodstream. The remaining solid waste, or stool, eventually enters the rectum, where it is stored until it is excreted as a bowel movement. The sigmoid portion of the colon is close to the end of the digestive tract, in the lower-left abdomen, and is where diverticulosis most commonly occurs. (See diagram)



### What Is Diverticulosis?

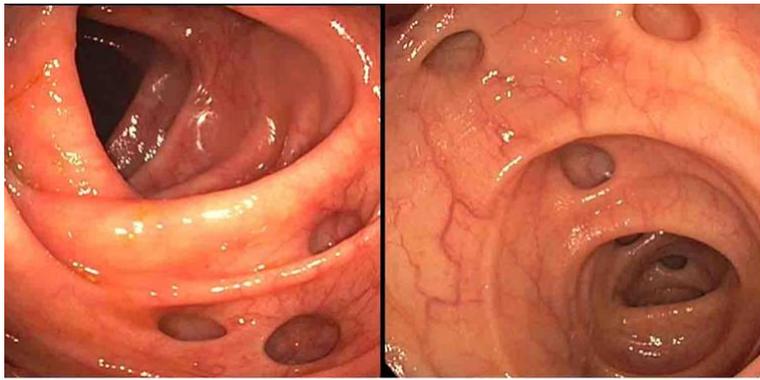
Diverticulosis of the colon is a condition rather than a disease. The inner wall of a healthy colon is strong and relatively smooth. The colon wall affected by diverticulosis forms weak, balloon-like sacs or pouches that protrude outward like a bulge forming on a worn inner tube. Diverticula are often quite small – about the size of a pea – but can be larger. Once you get diverticula, they don't go away. The presence of these pouches in the colon is called **diverticulosis**. Some people may have several small pouches on the left side of the colon, while most of the colon may be affected in others. When the pouches become inflamed or infected, it is called **diverticulitis**. (In medicine, the suffix “-itis” refers to inflammation or infection...like appendicitis.)

### Who Gets Diverticulosis

Diverticular disease continues to be a growing health problem in the United States, affecting both men and women. About 200,000 people are hospitalized because of the complications of the condition each year. It usually develops over a long time and, therefore, appears later in life. It affects half of all people over 60 years of age and almost everyone over 80. It is a rare condition for someone under the age of 40, but it is a more aggressive problem for those individuals when it does. Diverticulosis is primarily a disorder of Western Society. It is scarce in rural Africa or India, where diets are very high in dietary fiber. Many researchers believe that a typical low-fiber American diet is accountable for the high incidence of diverticulosis. A diet deficient in fiber induces constipation, leading to straining hard during bowel movements, possibly worsening diverticulosis. Approximately 50% of diverticulosis cases may also have a hereditary component, as studies have shown that the risk in siblings is three times more likely.

### Diagnosis of Diverticulosis

Diverticulosis does not usually cause any symptoms, which is why people are often not aware they have it. It is often found incidentally during an abdominal examination performed for other reasons. This may include tests such as an abdominal CT scan, abdominal MRI scan, or colonoscopy. When symptoms suggest the possibility of diverticulitis, a CT scan is usually performed.



Examples of diverticulosis "pockets" as seen during colonoscopy

### **Complications of Diverticulosis**

Most people with diverticulosis experience no symptoms. However, complications can occur, including abdominal pain, rectal bleeding, and diverticulitis.

#### Abdominal pain

Most diverticular pouches are painless. But over time, individuals may experience intermittent dull or crampy pain in the left lower abdomen. Pain is usually associated with a change in bowel habits. When diverticulosis is advanced, the lower colon may become restricted and distorted, causing thin or pellet-shaped stools and persistent bouts of constipation, with occasional rushes of diarrhea.

#### Rectal bleeding

Bleeding can result in a gush of red blood from the rectum or maroon-colored stools caused by a ruptured blood vessel in one of the pouches. Bleeding often stops on its own, without treatment, but it requires careful evaluation and may include brief hospitalization until it's stabilized. Emergency surgery is rarely necessary to stop the loss of blood.

#### Diverticulitis

Many beneficial bacteria reside in the colon - they are helpful as long as they stay there. Sometimes, the bacteria inside the colon can seep through the wall and cause infection outside the colon when one of the diverticular pouches becomes thin. This is called diverticulitis. Diverticulitis can be mild, accompanied by slight discomfort in the left lower abdomen, or extreme, with abscess formation, perforation, severe tenderness, and fever. Although diverticulosis leads to diverticulitis in only a tiny percentage of individuals, it remains a common disease in the United States, generating approximately 1.9 million outpatient visits and over 200,000 inpatient hospitalizations annually.

### **How about colon cancer?**

The presence or absence of diverticulosis or diverticulitis does NOT increase or decrease your risk of developing colon polyps or colorectal cancer. However, colorectal cancer may mimic diverticulitis. If a recent colonoscopy hasn't been performed, it is a recommended procedure six or eight weeks after the first attack of diverticulitis. The purpose is to make sure you do not have an underlying condition, such as Inflammatory Bowel Disease or, much less likely, colorectal cancer.

### **Treatment**

Treatment of diverticulosis varies. There is no specific treatment if there are no symptoms, but a fiber-rich diet is recommended. When diverticulitis does occur, treatment depends upon the severity of the attack, which can be characterized as either uncomplicated or complicated. Your doctor can determine which one you have by reviewing a combination of symptoms, physical examination, blood tests, and imaging studies such as a CT scan.

### **Uncomplicated Diverticulitis**

As the name implies, uncomplicated diverticulitis is the less serious of the two. It indicates that the infection or inflammation is limited to the colon and that no signs of a complicating condition, such as a fistula, abscess, or intestinal blockage, are present. These patients usually respond to a few days of bowel rest with a liquid or low-fiber diet and a week or two of powerful broad-spectrum oral antibiotics. A low-fiber diet lowers the stress on your digestive system during the period of inflammation. Once your symptoms subside, resumption of a high-fiber diet is recommended. The antibiotics target the infection found in your colon. Be sure to complete the full course of antibiotics even though you are feeling better. Surgery is seldom required in uncomplicated diverticulitis. However, repeated or frequent attacks are often an indication for an elective surgical resection *between* attacks. Elective surgery for recurrent diverticulitis is usually performed through tiny incisions with minimally invasive “Band-Aid surgery” and does not require a temporary ileostomy.

### **Complicated Diverticulitis**

Of the two forms of diverticulitis, complicated diverticulitis is more dangerous. People with complicated diverticulitis may initially have many of the same symptoms as those with uncomplicated diverticulitis. However, they also develop serious issues that require hospitalization for intravenous antibiotics. This could be a diverticular abscess, which is a collection of pus outside of the intestinal wall, or an intestinal perforation, which causes a hole to form in the wall of the colon that allows bowel content to spill into the abdominal cavity.

Another kind of complication is a fistula which is an abnormal connection that tunnels between the inflamed colon and adjacent organs, such as other parts of the intestine, vagina, or bladder. Abscesses can often be treated with needle drainage of the abscess and antibiotics. Perforation and fistulas always require surgical intervention.

### **Can You Prevent Complications?**

Unfortunately, there is no guaranteed way to prevent the complications of diverticulosis. The likelihood of complications increases with the severity of the diverticulosis. Sometimes, the attacks of abdominal pain, rectal bleeding, and diverticulitis are random. While some individuals with extensive diverticulosis remain asymptomatic, others with very few diverticula develop one of the complications.

You need to know that there are certain risk factors you can alter to reduce your risk of diverticulitis. A high-fiber Mediterranean-type diet has been shown to reduce the risk. More vigorous physical activity, weight reduction, and nonsmoking may also be helpful. Avoid regular use of non-steroidal anti-inflammatory drugs (NSAIDs like Advil, Aleve, and Motrin), steroids, and opiates, as they increase the risk of complications of diverticulosis. (Low-dose aspirin taken for cardiac prophylaxis is not a problem.) Studies have shown that a low vitamin D blood level can increase the risk of diverticulitis. Therefore, vitamin D3 supplementation is often recommended.

### **How About Probiotics?**

The microbiome is the collection of all microbes that naturally live on and inside our bodies. Although microbes such as bacteria, fungi, viruses, and their genes are so small that they can only be seen using a microscope, they contribute in big ways to human health and wellness: They protect us against pathogens, help to develop our immune system, and enable us to digest food to produce energy.

Manufactured probiotics are a multi-billion industry often touted as a one-size-fix-all for our various microbiomes. However, probiotics aren't considered a drug in the U.S., so most aren't regulated by the U.S. Food and Drug Administration. There are many different products and varying levels of quality. It was hoped that taking probiotics may help prevent or treat diverticulitis. The reality is much more complicated, and coaxing the gut to accept a probiotic is difficult. Unfortunately, both over-the-counter and prescription probiotics are *not* as worthwhile as anticipated. Research is ongoing on the microbiome's role in diverticulitis.

## How About Surgery?

For some patients, the best course of action is surgery. Known as surgical resection, the sigmoid colon is removed before reattaching the remaining colon to the rectum. It is somewhat like splicing an old garden hose. Elective surgical referral is considered on an individualized basis.

Asymptomatic patients and most patients with complications of diverticulosis do not require surgery. Surgery is rarely necessary for bleeding as the episodes are often infrequent and stop on their own. Patients who develop chronic lower left abdominal pain can benefit from surgical resection.



The most common reason for surgery is to stop recurrent attacks of diverticulitis. After the first attack, the recurrence rate is 8% in the first year and 20% within ten years. After a second episode, the recurrence risk is 18% in the first year and 55% by ten years. After a third episode, the recurrence risk is 40% within three years. After three significant, well-documented attacks of diverticulitis, surgical resection of the sigmoid colon is often recommended. If it is necessary, it is always best to perform elective surgery between attacks. Most elective surgery cases for diverticulitis can be completed with minimally invasive techniques that require only small incisions without the need for a colostomy. Emergency surgery during an attack is a much more complicated procedure resulting in a larger incision, greater risk of infection, longer recovery, and often requiring a temporary colostomy. It is best to recover from your acute episode and then plan elective surgery later whenever feasible. Patients immunosuppressed due to illness or prescription medication should consider surgical resection after the first documented episode, as immunosuppression increases the risk of severe progressive disease.

## Can Diverticulitis Occur After Surgical Resection?

Yes, but after elective surgery for diverticulitis, the recurrence rate is quite low. Scientific trials estimate about a 10% chance of recurrent diverticulitis in the five years following surgical resection. In real-world clinical experience, the risk is much lower.

## High-Fiber Diet

Most health experts agree that a typical low-fiber American diet is the leading cause of chronic constipation and diverticular disease. In addition, as our foods are now more highly refined, an increasing number of the population is suffering from symptoms of irreversible diverticular disease. Once diverticula pouches have formed, they are there for the rest of your life.

Statistically speaking, the probability is high that you are not getting enough fiber in your diet. People in the United States generally average 10-15 g of dietary fiber per day instead of 25-35 g per day, used by most dietitians as the minimum benchmark for a “high-fiber diet.” Consuming enough fiber helps support the health of your digestive system. Fiber aids in the bulking up of stools and the passage of waste through the intestines, ensuring that your bowel movements remain regular and healthy. A diet low in fiber increases the likelihood of constipation, which puts more strain on the digestive tract during bowel movements. This may eventually damage the digestive tract's walls and raise the possibility of diverticula forming.

Include foods rich in fiber, such as bran cereals, whole wheat bread, various beans, fresh fruits, and vegetables to keep your stools soft and bulky. We can all benefit by making an effort to include more fiber or roughage in our diet. An excellent way to get more fiber in your diet is to fill half your plate with high-fiber foods. But don't get too carried away! Don't add too much fiber too soon. Otherwise, troublesome side effects such as increased gas and bloating may occur. *The golden rule regarding fiber is to go slow.* Start with small amounts and gradually increase the extra fiber in your diet.

Your doctor may also recommend a supplemental fiber product such as Metamucil or Benefiber. Adding a stool softener such as MiraLAX is often helpful when constipation persists. These products may be combined indefinitely without fear of dependency or side effects.

An essential part of a high-fiber diet and supplements is hydration. Four 8-ounce glasses of water daily (32 ounces) is the minimum amount for normal bowel function. Drinking too little water is the most common reason for failure in a high-fiber diet.

### **How About Seeds?**

Many patients ask about seeds. It's a common misconception that eating seeds, nuts, or corn can worsen diverticulosis and precipitate an attack of diverticulitis, but there is no scientific evidence to support this belief. In fact, a 2008 Harvard Medical School study that followed 47,288 men for 18 years demonstrated that individuals who frequently consume such items had a 28% **decrease** in the risk of diverticulitis and bleeding. So, enjoy a high-fiber diet without restricting your favorite nuts and seeds intake.

Robert Fusco, MD  
January 2024

The following list illustrates various categories of foods high in dietary fiber. Try to include foods from each group in your daily diet.



#### **Grains**

Bran cereals  
Shredded wheat  
Grape Nuts  
Whole wheat  
Fiber One  
Oatmeal

#### **Vegetables**

Green peas  
Carrots  
Winter squash  
Broccoli  
Brussel sprouts  
Sweet potatoes  
Artichokes  
Lima Beans

#### **Fruits**

Apples  
Pears  
Prunes  
Oranges

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