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## Health Information Sheet

### Diverticulitis

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## What is Diverticulitis?

Diverticulitis is a medical condition related to small pouches that can develop in the wall of your colon and become inflamed, painful and infected.

These outward-leaning pouches, called diverticula, can exist without causing any significant symptoms or problems — in which case the condition is referred to as "diverticulosis." It's when an inflammation or infection develops that it's called "diverticulitis." As a group, these conditions may be referred to as diverticular disease.

After food is eaten and begins to travel through your intestinal tract, it is progressively broken down in the stomach, the small intestine (where most of the food's nutrients are absorbed) and the large intestine, a broad, four-to-six-foot long muscular tube that continues to absorb water and nutrients and that passes along waste to the rectum and anus for elimination from the body. Your colon is divided into four parts — progressively, the ascending colon, the transverse colon, the descending colon and the sigmoid colon. The rectum is the final six to eight inches of the large intestine, connecting the sigmoid colon to the anus, through which waste is excreted.

Technically, diverticula can develop in many parts of the digestive system but the vast majority occur in the descending and sigmoid sections of your colon. Your likelihood of developing these pouches increases with age, and it's estimated that more than half of all people over 60 have them. Most, however, don't experience any symptoms and only learn they have them during a sigmoidoscopy or colonoscopy to screen for colorectal cancer.

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## What Causes Diverticula to Develop?

Diverticula can range in size from as thin as a penny nail to as large as a small marble. It's believed that they develop at naturally weak points in your colon wall that are vulnerable to pressure — often locations where blood vessels pass through to supply the inner tissue. They begin as small protrusions but can increase in size over time.

Aging is considered a major factor because your colon's interior tends to narrow as the muscular wall thickens with age, increasing pressure within the colon and slowing down the movement of waste through your intestine. The slower waste moves, the harder and drier it becomes and the more pressure it exerts on the wall.

Diet that includes too little fiber is also considered a major factor in the development of diverticula. The development of diverticulitis essentially mirrored the advance of 20th Century food manufacturing technology that emphasized foods from which fiber has been removed — processed foods generally and especially bread made with refined, white flour rather than whole grain flour. Diverticulitis is common today in industrialized nations and rare in less-developed societies in Asia and Africa, where high-fiber diets are more the norm.

A low-fiber diet can be harmful by helping to create hard, dry, slower-moving stools within the intestine that maximize pressure on weak spots within the colon wall.

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## How Does Diverticulitis Develop?

While many people have the condition of diverticulosis — that is, the presence of diverticula without any complications or symptoms — diverticulitis develops when diverticula become infected or inflamed. It's estimated that about 20 percent of individuals with diverticulosis develop diverticulitis.

While the cause of this is not proven, it is believed that infection most often begins when bacteria, or, perhaps, particles of stool material become trapped in the diverticula pouches.

Once an inflammation develops, you may experience abdominal pain, cramping, fever and/or erratic bowel function — constipation or diarrhea.

Complications that can result can include bleeding, abscesses, peritonitis, fistulas and intestinal blockage.

- Bleeding is a rare complication that usually develops when a blood vessel in a diverticula pouch bursts. Bleeding often stops by itself, but if it is severe or continues, you should consult your physician.
- An abscess is a situation in which an inflamed pouch may develop a tear, allowing intestinal waste to leak out and spread infection in the colon wall. Swelling and damage to tissue may result from the resulting pus.
- If the infection leaks outside the intestine into the abdomen, there is a serious danger of peritonitis, an infection of the lining of the abdominal cavity.
- A fistula is an abnormal passage that can result between different parts of the intestine or between two separate organs when infected tissues come into contact and heal connected to each other. Fistulas resulting from diverticulitis infections most often involve the small intestine, the bladder, the vagina or the skin.
- Blockage of the large intestine — interfering with the colon's ability to move waste appropriately — can result from the scarring caused by significant infection. A complete obstruction is an emergency that requires immediate surgery. A partial blockage will need to be dealt with surgically, but not necessarily on an emergency basis.

The seriousness of these complications can vary from minor to extreme. In minor cases, a course of anti-biotics may be sufficient to resolve the infection and allow damaged tissue to heal. Some cases can be major, even life-threatening medical emergencies.

If you seem to be experiencing any of the symptoms of diverticulitis or its complications, you should consult a physician right away.

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## What are the Symptoms of Diverticulitis?

As stated, the mere presence of pouches without accompanying problems or symptoms is called diverticulosis. Many people have these diverticula without any effects at all. Some people may experience mild cramps, gas and/or constipation — symptoms that may also reflect a number of other problems, including irritable bowel syndrome and stomach ulcers. Their presence is worth a visit to your physician.

Diverticulitis results when one or more pouches becomes inflamed or infected. Symptoms here can include tenderness or pain,

especially on the left side of the abdomen. The pain may fluctuate over a period of days.

Fever, nausea, chills, cramping or constipation may be present, reflecting the severity of any infection. Vomiting, frequent urination and pain while urinating, and blood in your stool may also be symptoms.

Because diverticulosis is often symptom-free, diverticulitis is usually not diagnosed until a serious attack occurs. Again, these symptoms can reflect potentially serious problems, and warrant a visit to your doctor.

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## How is Diverticulitis Tested For?

While your doctor may conduct some routine tests such as fecal occult stool sample to check for blood in the stool, and a urinalysis to check for urinary tract infection (which could present the same symptoms), if symptoms warrant he or she may order more sophisticated tests.

### These can include:

- Computerized tomography (CT) to scan for the presence of an abscess or ruptured diverticulum
- Contrast enema x-ray, using barium or another substance to obtain an outline image of your colon in order to visualize any diverticula
- Sigmoidoscopy or colonoscopy, using flexible fiberoptic tubes to visually examine your colon for signs of diverticula or bleeding. Eendoscopy of your stomach and the upper section of your small intestine may be performed to determine if any problems may be present in those areas.

If intestinal bleeding is serious, additional special tests may be done to identify the source.

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## How is Diverticulitis Treated?

Depending on the severity of your case, treatment can be as varied as dietary therapy, treatment with antibiotics, or significant surgery to remove diseased sections of intestine. Whether your attack is your first or part of a series of incidents will also be a factor.

- If your symptoms are mild and probably still in the stage of diverticulosis, shifting to a high fiber diet and the use of pain relievers such as acetaminophen may be sufficient to bring your difficulties under control. Fiber helps to keep stool soft, helps it to move more quickly through the intestine and helps to keep

pressure on the colon walls lower.

The American Dietetic Association recommends you ingest 20 to 35 grams of fiber daily. This includes the soluble fiber that is found in fruits and vegetables and can be digested, and the insoluble fiber found in whole grains that is not digested and passes through the intestinal tract.

- Treatment for diverticulitis that hasn't developed complications is likely to involve clearing up the infection through the use of antibiotics and resting the colon — that is, bed rest and a liquid diet. A more serious attack may require a hospital stay with antibiotics delivered via injection.
- Surgery may be required for severe or repeated attacks, or if there are complications such as abscesses, fistulas or blockages.

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## What Are the Surgical Options for Severe Diverticulitis?

The standard surgical procedure for dealing with diverticulitis is bowel resection, in which the surgeon removes the diseased part of your colon and reattaches the healthy adjacent sections to reestablish normal bowel function. In the past this was always done with a traditional open incision in your abdomen.

At Connecticut Surgical Group, your surgeon may be able to deal with your problem through laparoscopic surgery, without the need for an open incision. In this technique, he or she uses flexible fiberoptic instruments to perform the procedure through three or four tiny incisions in your abdomen without the need for an open incision. Because laparoscopic surgery is less traumatic to the body, pain, healing time and overall length of recovery are significantly less than with traditional surgery. Certain medical issues may make this option inappropriate for some patients.

If the inflammation in your colon is too severe and your intestine cannot be reconnected to your rectum, your surgeon may have to perform a bowel resection with a colostomy, connecting your colon to an artificial opening in the abdomen through which body waste is collected in a special bag. This could be permanent, or it could be reversible once the inflammation has subsided.

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## How Can Diverticulitis be Prevented?

The most important element in preventing diverticulosis and diverticulitis is a diet containing sufficient fiber. Fiber keeps stool material soft and reduces pressure on the colon wall as bowel contents move through more quickly and easily.

- High fiber foods such as fruits, legumes, vegetables and whole grain breads are far preferable to a diet of processed foods, white bread and foods high in fat and sugar.

To avoid gas and abdominal discomfort, you should increase the amount of fiber in your diet gradually. The American Dietetic Association recommends you ingest 20 to 35 grams of fiber daily. This includes the soluble fiber that is found in fruits and vegetables and can be digested, and the insoluble fiber found in whole grains that is not digested and passes through the intestinal tract. If eating 25 grams of fiber daily is a problem for you, you may want to think about using a fiber supplement.

- Drinking at least eight glasses of water or other fluids (other than those with caffeine and alcohol) is important. Water is absorbed by fiber and helps create larger, softer stools.
- Regular exercise — at least 30 minutes four or five days a week — helps in maintaining normal bowel function.

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## Frequently Asked Questions

### **What factors may make me ineligible for laparoscopic surgery?**

Excessive scarring from infections in colon tissue is one issue; extensive inflammation and obesity may also represent problems.

### **What are some foods that are high in fiber?**

Grains include whole wheat breads, brown rice, oatmeal and bran flake cereals. High fiber fruits include apples, oranges, figs, peaches, pears and

tangerines. Fiber-rich vegetables include acorn squash, asparagus, broccoli, brussels sprouts, cabbage, carrots, romaine lettuce, raw tomatoes and zucchini. Legumes include lima beans, kidney beans and black beans.

**What about fiber supplements?**

If you have trouble ingesting 20 grams of fiber a day, you may want to consider a fiber supplement. Supplements on the market include psyllium (such as Metamucil and Perdiem) and methylcellulose (such as Citrucel and Cologel).

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You can find much additional information about diverticulitis at web sites sponsored by government agencies, societies and healthcare institutions. It should perhaps be noted that the World Wide Web is open to many sources posting questionable information and promises, and you are encouraged to seek information from established, reputable organizations.

**Likely sources include:**

The National Digestive Diseases  
Information Clearinghouse  
[www.niddk.nih.gov](http://www.niddk.nih.gov)

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