



Crohn's Disease

What is Crohn's disease?

Crohn's disease is an ongoing disorder that causes inflammation of the digestive tract, also referred to as the gastrointestinal (GI) tract. Crohn's disease can affect any area of the GI tract, from the mouth to the anus, but it most commonly affects the lower part of the small intestine, called the ileum. The swelling extends deep into the lining of the affected organ. The swelling can cause pain and can make the intestines empty frequently, resulting in diarrhea.

Crohn's disease is an **inflammatory bowel disease**, the general name for diseases that cause swelling in the intestines. Because the symptoms of Crohn's disease are similar to other intestinal disorders, such as irritable bowel syndrome and ulcerative colitis, it can be difficult to diagnose. Ulcerative colitis causes inflammation and ulcers in the top layer of the lining of the large intestine. In Crohn's disease, all layers of the intestine may be involved, and normal healthy bowel can be found between sections of diseased bowel.

Crohn's disease affects men and women equally and seems to run in some families. About 20 percent of people with Crohn's disease have a blood relative with some form of inflammatory bowel disease, most often a brother or sister and sometimes a parent or child. Crohn's disease can occur in people of all age groups, but it is more often diagnosed in people between the ages of 20 and 30. People of Jewish heritage have an increased risk of developing Crohn's disease, and African Americans are at decreased risk for developing Crohn's disease.

Crohn's disease may also be called ileitis or enteritis.

What causes Crohn's disease?

Several theories exist about what causes Crohn's disease, but none have been proven. The human immune system is made from cells and different proteins that protect people from infection. The most popular theory is that the body's immune system reacts abnormally in people with Crohn's disease, mistaking bacteria, foods, and other substances for being foreign. The immune system's response is to attack these "invaders." During this process, white blood cells accumulate in the lining of the intestines, producing chronic inflammation, which leads to ulcerations and bowel injury.

Scientists do not know if the abnormality in the functioning of the immune system in people with Crohn's disease is a cause, or a result, of the disease. Research shows that the inflammation seen in the GI tract of people with Crohn's disease involves several factors: the genes the patient has inherited, the immune system itself, and the environment. Foreign substances, also referred to as antigens, are found in the environment. One possible cause for inflammation may be the body's reaction to these antigens, or that the antigens themselves are the cause for the inflammation. Some scientists think that a protein produced by the immune system, called anti-tumor necrosis factor (TNF), may be a possible cause for the inflammation associated with Crohn's disease.

What are the symptoms?

The most common symptoms of Crohn's disease are abdominal pain, often in the lower right area, and diarrhea. Rectal bleeding, weight loss, arthritis, skin problems, and fever may also occur. Bleeding may be serious and persistent, leading to anemia. Children with Crohn's disease may suffer delayed development and stunted growth. The range and severity of symptoms varies.

How is Crohn's disease diagnosed?

A thorough physical exam and a series of tests may be required to diagnose Crohn's disease.

Blood tests may be done to check for anemia, which could indicate bleeding in the intestines. Blood tests may also uncover a high white blood cell count, which is a sign of inflammation somewhere in the body. By testing a stool sample, the doctor can tell if there is bleeding or infection in the intestines.

The doctor may do an upper GI series to look at the small intestine. For this test, the person drinks barium, a chalky solution that coats the lining of the small intestine, before x rays are taken. The barium



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shows up white on x-ray film, revealing inflammation or other abnormalities in the intestine. If these tests show Crohn's disease, more x rays of both the upper and lower digestive tract may be necessary to see how much of the GI tract is affected by the disease.

The doctor may also do a visual exam of the colon by performing a colonoscopy. This test consists of the doctor inserting a long, flexible, lighted tube into the anus. A colonoscopy allows the doctor to examine the lining of the entire large intestine. The doctor will be able to see any inflammation or bleeding during either of these exams, although a colonoscopy is usually a better test because the doctor can see the entire large intestine. The doctor will also do a biopsy, which involves taking a sample of tissue from the lining of the intestine to view with a microscope.

What are the complications of Crohn's disease?

The most common complication is blockage of the intestine. Blockage occurs because the disease tends to thicken the intestinal wall with swelling and scar tissue, narrowing the passage. Crohn's disease may also cause sores, or ulcers, that tunnel through the affected area into surrounding tissues, such as the bladder, vagina, or skin. The areas around the anus and rectum are often involved. The tunnels, called fistulas, are a common complication and often become infected. Sometimes fistulas can be treated with medicine, but in some cases they may require surgery. In addition to fistulas, small tears called fissures may develop in the lining of the mucus membrane of the anus.

Nutritional complications are common in Crohn's disease. Deficiencies of proteins, calories, and vitamins are well documented. These deficiencies may be caused by inadequate dietary intake, intestinal loss of protein, or poor absorption, also referred to as malabsorption.

Other complications associated with Crohn's disease include arthritis, skin problems, inflammation in the eyes or mouth, kidney stones, gallstones, or other diseases of the liver and biliary system. Some of these problems resolve during treatment for disease in the digestive system, but some must be treated separately.

What is the treatment for Crohn's disease?

Treatment may include drugs, nutrition supplements, surgery, or a combination of these options. The goals of treatment are to control inflammation, correct nutritional deficiencies, and relieve symptoms like abdominal pain, diarrhea, and rectal bleeding. At this time, treatment can help control the disease by lowering the number of times a person experiences a recurrence, but there is no cure. Treatment for Crohn's disease depends on the location and severity of disease, complications, and the person's response to previous medical treatments when treated for reoccurring symptoms.

Some people have long periods of remission, sometimes years, when they are free of symptoms. However, the disease usually recurs at various times over a person's lifetime. This changing pattern of the disease means one cannot always tell when a treatment has helped. Predicting when a remission may occur or when symptoms will return is not possible.

Drug Therapy

Anti-Inflammation Drugs. Most people are first treated with drugs containing mesalamine, a substance that helps control inflammation. Sulfasalazine is the most commonly used of these drugs. Patients who do not benefit from it or who cannot tolerate it may be put on other mesalamine-containing drugs, generally known as 5-ASA agents, such as Asacol, Dipentum, or Pentasa. Possible side effects of mesalamine-containing drugs include nausea, vomiting, heartburn, diarrhea, and headache.

- **Cortisone or Steroids.** Cortisone drugs and steroids—called corticosteroids—provide very effective results. Prednisone is a common generic name of one of the drugs in this group of medications. In the beginning, when the disease is at its worst, prednisone is usually prescribed in a large dose. The dosage is then lowered once symptoms have been controlled. These drugs can cause serious side effects, including greater susceptibility to infection.
- **Immune System Suppressors.** Drugs that suppress the immune system are also used to treat



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Crohn's disease. Most commonly prescribed are 6-mercaptopurine or a related drug, azathioprine. Immunosuppressive agents work by blocking the immune reaction that contributes to inflammation. These drugs may cause side effects like nausea, vomiting, and diarrhea and may lower a person's resistance to infection. When patients are treated with a combination of corticosteroids and immunosuppressive drugs, the dose of corticosteroids may eventually be lowered. Some studies suggest that immunosuppressive drugs may enhance the effectiveness of corticosteroids.

- **Infliximab (Remicade).** This drug is the first of a group of medications that blocks the body's inflammation response. The U.S. Food and Drug Administration approved the drug for the treatment of moderate to severe Crohn's disease that does not respond to standard therapies (mesalamine substances, corticosteroids, immunosuppressive agents) and for the treatment of open, draining fistulas. Infliximab, the first treatment approved specifically for Crohn's disease is a TNF substance. Additional research will need to be done in order to fully understand the range of treatments Remicade may offer to help people with Crohn's disease.
- **Antibiotics.** Antibiotics are used to treat bacterial overgrowth in the small intestine caused by stricture, fistulas, or prior surgery. For this common problem, the doctor may prescribe one or more of the following antibiotics: ampicillin, sulfonamide, cephalosporin, tetracycline, or metronidazole.
- **Anti-Diarrheal and Fluid Replacements.** Diarrhea and crampy abdominal pain are often relieved when the inflammation subsides, but additional medication may also be necessary. Several antidiarrheal agents could be used, including diphenoxylate, loperamide, and codeine. Patients who are dehydrated because of diarrhea will be treated with fluids and electrolytes.

Surgery

Two-thirds to three-quarters of patients with Crohn's disease will require surgery at some point in their lives. Surgery becomes necessary when medications can no longer control symptoms. Surgery is used either to relieve symptoms that do not respond to medical therapy or to correct complications such as blockage, perforation, abscess, or bleeding in the intestine. Surgery to remove part of the intestine can help people with Crohn's disease, but it is not a cure. Surgery does not eliminate the disease, and it is not uncommon for people with Crohn's Disease to have more than one operation, as inflammation tends to return to the area next to where the diseased intestine was removed.

Some people who have Crohn's disease in the large intestine need to have their entire colon removed in an operation called a colectomy. A small opening is made in the front of the abdominal wall, and the tip of the ileum, which is located at the end of the small intestine, is brought to the skin's surface. This opening, called a stoma, is where waste exits the body. The stoma is about the size of a quarter and is usually located in the right lower part of the abdomen near the beltline. A pouch is worn over the opening to collect waste, and the patient empties the pouch as needed. The majority of colectomy patients go on to live normal, active lives.

Sometimes only the diseased section of intestine is removed and no stoma is needed. In this operation, the intestine is cut above and below the diseased area and reconnected.

Because Crohn's disease often recurs after surgery, people considering it should carefully weigh its benefits and risks compared with other treatments. Surgery may not be appropriate for everyone. People faced with this decision should get as much information as possible from doctors, nurses who work with colon surgery patients (enterostomal therapists), and other patients. Patient advocacy organizations can suggest support groups and other information resources. (See [For More Information](#) for the names of such organizations.)

People with Crohn's disease may feel well and be free of symptoms for substantial spans of time when their disease is not active. Despite the need to take medication for long periods of time and occasional hospitalizations, most people with Crohn's disease are able to hold jobs, raise families, and function successfully at home and in society.



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Is there a diet for Crohn's disease?

There is no one single diet or eating plan that will do the trick for everyone with IBD. Dietary recommendations must be individualized. They should be tailored just for you -- depending on which disease you have and what part of your intestine is affected. Furthermore, these diseases are not static; they change over time, and eating patterns should reflect those changes. The key point is to strive for a well-balanced, healthy diet. Healthy eating habits, of course, are desirable for everyone but they're especially important for people with IBD.

With diseases like Crohn's disease, the only way to see if any treatment has widespread value is by appropriate, rigorous testing. The diet itself is not particularly unbalanced, but many patients find it particularly onerous to maintain. Decreasing poorly digestible carbohydrates may decrease symptoms of gas, bloat, cramps, and diarrhea in patients with IBD, but that is not the same thing as decreasing the inflammation, or affecting the disease process. Unlike the gluten-free diet for celiac sprue, which has a well-researched basis, and well-demonstrated track record for affecting the underlying mechanisms at work in the disease process, the SCD does not. Bottom line: it may be worth a try (there are plenty of other diets being touted in the marketplace), but do not abandon your conventional treatment, and keep in touch with your doctor.

Which foods should be avoided?

Again, there are no blanket rules or recommendations. If a particular kind of food causes digestive problems, then try to avoid it. But it's important to distinguish between an actual allergy to one kind of food and an intolerance. Many people have food intolerances -- far more than really have true food allergies. Elimination tests are better at diagnosing which foods must be avoided or modified than the standard allergy skin or blood testing. Many good books discuss the proper way to follow such an "elimination diet," which involves keeping a food and symptom diary over several weeks.

In fact, a food diary can not only help pinpoint which foods are troublesome for you, but it can also reveal whether or not your diet is providing an adequate supply of nutrients. By reviewing your food diary, your dietitian can see if you are getting the recommended daily allowances (RDAs) for a person of your age, sex, and size. If not, the dietitian can suggest ways to amend your diet so that your intake of nutrients is improved. That may mean increasing the amount of food you eat, changing what you eat, or adding supplements to your diet.

It's important to remember that it's not just the amount of food you consume that guarantees a healthy diet. Your daily intake needs to include an adequate amount of calories, proteins, and nutrients. A balanced diet should contain a variety of foods from all food groups. Meat, fish, poultry, and dairy products, if tolerated, are sources of protein; bread, cereal, starches, fruits, and vegetables are sources of carbohydrate; margarine and oils are sources of fat.

Hope Through Research

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) conducts and supports research into many kinds of digestive disorders, including Crohn's disease. Several clinical trials are currently evaluating the efficacy and safety of different therapies for the treatment of Crohn's disease. For a complete listing of trials being conducted, visit www.clinicaltrials.gov.

For More Information

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