INTRODUCTION — Chronic diarrhea refers to the persistence of loose stools (with or without an increase in stool frequency) for at least four weeks. At any given time, up to 5 percent of people in the United States are affected.

There are many possible causes of chronic diarrhea, and it is important to identify the underlying cause to ensure that a person receives the appropriate treatment. Treatment is aimed at correcting the cause of diarrhea (whenever possible), alleviating loose stools, and addressing any complications of long-standing or severe diarrhea.

Chronic diarrhea can have a substantial impact on quality of life and overall health. At its mildest, the condition may be an inconvenience; at its worst, it may be disabling and even life-threatening. It is important to learn as much as you can about chronic diarrhea and to work with your doctor to identify the cause of diarrhea and to effectively treat the condition.

WHAT CAUSES CHRONIC DIARRHEA? — A wide range of conditions can cause chronic diarrhea. In developed countries such as the United States, the most common causes are irritable bowel syndrome, inflammatory bowel disease (Crohn's disease and ulcerative colitis), malabsorption syndromes, and chronic infections. There are also many other less common causes of chronic diarrhea.

HOW IS CHRONIC DIARRHEA EVALUATED? — The evaluation of chronic diarrhea entails a careful review of your medical history, a physical examination, and diagnostic tests selected on the basis of the most likely cause of diarrhea.

Medical history — A medical history often points to the underlying cause of chronic diarrhea. Your doctor will ask about the time and nature of the onset of diarrhea; the physical characteristics of the diarrhea; factors that worsen or alleviate diarrhea; and your diet. You should mention food intolerances or allergies. Other important questions surround recent travel and exposure to potentially contaminated food or water; drugs that you may take; medical conditions that you may have; and any prior chemotherapy, or abdominal surgery or radiation. It is also important to tell your doctor if you experience fecal incontinence (involuntary passage of stools with the soiling of underwear) because the evaluation and treatment of this condition may differ from those for diarrhea.
Physical examination — In most people with chronic diarrhea, a thorough physical exam is normal or provides nonspecific information about the cause of diarrhea; only occasionally do signs and symptoms noted during the exam strongly point to an underlying cause. The examination nonetheless provides helpful information about the severity of diarrhea.

During the physical examination, your doctor will check for signs of nutrient deficiencies, vitamin deficiencies, and dehydration, as well as signs of specific conditions associated with diarrhea. He or she will also perform a rectal examination to determine if the anal sphincter contracts normally and if there are any signs of inflammation or infection of the anorectal area.

DIAGNOSTIC TESTS — Diagnostic tests can confirm the presence of chronic diarrhea and help diagnose the underlying cause. Although many tests are available, in most people, several carefully chosen tests are usually sufficient to establish a diagnosis. The list of possible tests is long. Thus, it is important that you see a doctor who is familiar with the evaluation of diarrheal illness. This may be your primary care doctor or a specialist in gastrointestinal disorders (a gastroenterologist).

Your doctor may recommend a trial of treatment before proceeding with more invasive tests if your symptoms and preliminary diagnostic tests strongly suggest a specific cause of chronic diarrhea. More extensive testing may not be necessary if this trial relieves your diarrhea.

Blood tests — Blood tests can sometimes provide information about the cause of chronic diarrhea and the secondary effects of diarrhea on overall health.

Complete blood count — A complete blood count (CBC) can detect the anemia that results from long-standing blood loss or inflammation. It can also detect an elevated number of white blood cells, which may signal that diarrhea is being caused by inflammation, infections, allergies, or cancer.

Blood chemistry — Blood chemistry tests can detect dehydration and electrolyte (salt and mineral) imbalances, as well as liver problems and nutritional deficiencies.

Peptides — Certain rare tumors (such as carcinoid or tumors producing "vasoactive intestinal polypeptide") can produce hormones called peptides that promote diarrhea and can be detected in a blood sample.

Antibodies — Tests can detect elevated blood levels of antibodies directed at infectious organisms or antibodies directed at the body's own tissues (called autoantibodies). An example of the latter is an antibody test against tissue transglutaminase. Presence of this autoantibody frequently indicates the presence of celiac disease, a disorder caused by allergy to wheat proteins.

Inflammatory markers — The erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) levels are nonspecific markers of inflammation. Elevation of these markers may signal inflammatory bowel disease (Crohn's disease or ulcerative colitis).
**Genetic markers** — Genetic tests are rarely needed in the evaluation of chronic diarrhea. However, these tests may identify specific genetic markers that are associated with celiac sprue, Crohn's disease, and ulcerative colitis, and they may be particularly helpful when other tests are inconclusive.

**Hormone tests** — Hormone tests can detect conditions of the thyroid gland or adrenal glands that cause diarrhea.

**Stool tests** — Stool tests can help determine if chronic diarrhea is watery, inflammatory, or fatty diarrhea. These tests can also determine the severity of diarrhea and the most likely cause of diarrhea.

Some stool tests can be performed on a single stool specimen, but detailed information may require collecting all stools over a 48- or 72-hour period. Your doctor's office or the laboratory will provide you with the instructions and the equipment needed to collect the specimen. During the collection period, you may be asked to carefully record everything that you eat and drink and your bowel habits; you may also be asked to avoid antidiarrheal drugs and nonessential drugs.

**Stool weight** — Stool weight may indicate which part of the intestine is affected and may help narrow down the possible causes of diarrhea. Because water accounts for much of the weight of stools, very heavy stools may also indicate that a person is at risk for dehydration. Occasionally, your doctor may also wish to determine stool weight while you fast.

**Stool electrolytes** — Stool electrolyte tests help differentiate between different types of watery diarrhea.

**Stool pH** — A low stool pH signals malabsorption of carbohydrates (sugars and starches).

**Fecal occult blood test** — The fecal occult blood test detects microscopic amounts of blood in a stool specimen. The presence of blood in stools suggests that diarrhea is being caused by inflammation, celiac sprue, sprue-like syndromes, or cancer.

**Stool white blood cell test** — A high number of white blood cells in a stool specimen suggests that diarrhea is being caused by an inflammatory condition.

**Microscopic examination for parasites** — Parasites are relatively large infectious organisms, such as worms, that can be identified in a stool specimen. The eggs of these parasites can also be identified microscopically. Parasites are most commonly found in people from tropical countries. They are a very uncommon cause of chronic diarrhea in people living in the United States.

**Stool fat tests** — Stool fat tests can detect fat malabsorption, the inability to absorb fats. A qualitative fat test determines the size and number of fat globules and the chemical class of fat present in a stool specimen. A quantitative fat test determines the amount of fat that is present. The presence of large amounts of fat in a stool specimen may indicate pancreatic or liver disease, or diseases of the small intestine that interfere with fat absorption.
**Stool carbohydrate and protein tests** — Stool carbohydrate and protein tests can detect malabsorption of carbohydrates (sugars and starches) and proteins.

**Stool magnesium test** — A stool magnesium test may detect high stool magnesium levels, which suggest that excess dietary magnesium is causing diarrhea. This mineral is found in supplements, antacids, and laxatives.

**Stool cultures** — Stool cultures can reveal infections with organisms that are particularly difficult to identify using other tests. This test is most helpful for evaluating chronic diarrhea in immunocompromised people (people who have poor immune function) because they are more likely to have certain types of infections.

**Stool antigen and toxin tests** — Currently available stool tests can detect antigens (protein fragments) associated with Giardia lamblia infection and toxins produced by Clostridium difficile infection.

**Stool pancreatic enzyme tests** — Tests can determine levels of two pancreatic enzymes (chymotrypsin and elastase) in a stool specimen. Abnormal levels of these enzymes suggest that chronic diarrhea is being caused by pancreatic conditions.

**Stool tests for laxatives** — Routine stool tests may suggest that laxatives are causing chronic diarrhea, and more detailed tests can confirm the presence of specific laxatives.

**Urine tests** — Urine tests can detect chemical components of laxatives and diarrhea-causing substances produced by tumors. Urine tests can also help determine if a person with chronic diarrhea is either dehydrated or retaining water.

**Sigmoidoscopy and colonoscopy** — Sigmoidoscopy and colonoscopy allow direct visual examination of the lining of the rectum and colon (the large intestine). These procedures also allow collection of biopsies (small tissue samples), which can be sent to the laboratory for more detailed testing.

Sigmoidoscopy allows examination of the bottom third of the colon, whereas colonoscopy allows examination of the entire colon. Sigmoidoscopy detects about 90 percent of diarrhea-causing conditions detected by colonoscopy and is thus frequently performed first.

**Upper endoscopy** — Upper endoscopy allows direct visual examination of the stomach and the first part of the small intestine. The procedure also allows the collection of biopsies (small tissue samples) and intestinal fluid, which can be sent to the laboratory for more detailed testing. Upper endoscopy can help diagnose some causes of chronic diarrhea such as celiac disease.

**Imaging tests** — Several imaging tests can provide information about structural abnormalities that may be associated with chronic diarrhea.

**Small intestine barium examination** — During a small intestine barium examination, barium is used to outline the profile of the stomach and small intestine on x-rays. This test can help diagnose conditions that alter the structure of the small intestine, such as Crohn’s disease.
**Computed tomography (CT) scan** — A CT scan can detect structural changes associated with inflammatory bowel disease, tumors, and infections. A CT scan can be particularly useful for identifying tumors and structural abnormalities of the pancreas.

**Physiological tests** — Physiological tests provide detailed information about the digestive and absorptive function of the small intestine.

**d-Xylose test** — The d-Xylose test can detect malabsorption of carbohydrates (sugars and starches), which can cause watery diarrhea.

**Schilling test** — The Schilling test can detect malabsorption of vitamin B12.

**Fluid and electrolyte tests** — Fluid and electrolyte tests can detect abnormal levels of these substances in the small intestine, which can cause watery diarrhea.

**Bile acid tests** — Bile acid tests can detect poor absorption of bile acids from the small intestine.

**Breath tests** — Some malabsorption syndromes produce high levels of specific gases in exhaled air, and these gases can be detected on breath tests. Breath tests can detect malabsorption of the sugar lactose, which can cause watery diarrhea. They can also detect malabsorption caused by overgrowth of bacteria in the small intestine, which can cause chronic diarrhea in children, older adults, patients who have had certain types of intestinal surgery, and those with certain diseases that affect the intestines such as scleroderma.

**Pancreatic function tests** — Pancreatic enzymes have a key role in the digestion and absorption of food, and several different tests are used to assess pancreatic function. These tests include the secretin test, the bentiromide test, and tests of stool enzyme levels.

**HOW IS CHRONIC DIARRHEA TREATED?** — The treatment of chronic diarrhea is directed at correcting the underlying cause, relieving the diarrhea, and addressing any complications that result from long-standing or severe diarrhea.

**Treatment of the underlying cause** — The underlying cause of chronic diarrhea is identified and treated, whenever possible. As examples, infections may be treated with antibiotics while inflammatory bowel diseases (such as ulcerative colitis and Crohn's disease) require treatment with specific medications. In some cases the solution may be as simple as eliminating an offending food (such as lactose-containing products or sugar-free candies) or medication known to cause diarrhea (such as antacids).

**Treatment of diarrhea** — In some people, the main goal of treatment may simply be the relief of diarrhea. This approach is used to treat diarrhea before diagnostic testing, to treat diarrhea when the results of diagnostic tests are normal or inconclusive, and to treat diarrhea caused by chronic medical conditions.

**Treatment trials** — If your doctor strongly suspects a specific cause of chronic diarrhea, but the results of diagnostic tests are normal or inconclusive, he or she
may recommend trials of various treatments to determine if they alleviate the diarrhea. For example, your doctor may recommend a trial of antibiotics (for presumed infection), discontinuation of specific drugs (for presumed drug-induced diarrhea), or dietary changes (for presumed food allergies or malabsorption syndromes).

**Oral substances that alleviate loose stools** — Certain oral substances remain in the digestive tract and can firm up loose stools. These substances include absorbents, such as activated charcoal and resins that bind bile acids. They also include bismuth and stool modifiers, such as the fiber psyllium. These agents may control chronic diarrhea in some people, although their effectiveness remains unproven.

**Antidiarrheal drugs** — Several antidiarrheal drugs can help control chronic diarrhea. In many people, over-the-counter drugs such as loperamide (Imodium) effectively relieve loose stools, but some people may require stronger, prescription drugs. Patients with severe intractable diarrhea and those with diarrhea due to certain peptide-producing tumors may benefit from a drug called octreotide. Octreotide must be given by injection.

**Treatment of complications** — Chronic or severe diarrhea can lead to potentially serious complications, including dehydration and malnutrition. Several measures can help counter these complications.

**Rehydration** — Rehydration replenishes the fluids and electrolytes (salts) lost in diarrhea. Your doctor may recommend oral solutions or, in cases of severe diarrhea, intravenous fluids.

**Parenteral nutrition** — Parenteral nutrition refers to feeding through an intravenous line placed in the chest. In cases of severe diarrhea, this type of feeding helps ensure that a person is getting adequate amounts of nutrients, vitamins, and minerals. In most cases, parenteral nutrition is used only as a temporary measure.

**WHERE TO GET MORE INFORMATION** — Your doctor is the best resource for finding out important information related to your particular case. Not all patients with chronic diarrhea are alike, and it is important that your situation is evaluated by someone who knows you as a whole person.

This discussion will be updated as needed every four months on our web site ([www.uptodate.com](http://www.uptodate.com)). Additional topics as well as selected discussions written for health care professionals are also available for those who would like more detailed information.

A number of other sites on the internet have information about chronic diarrhea. Information provided by the National Institutes of Health, national medical societies, and some other well-established organizations are often reliable sources of information, although the frequency with which their information is updated is variable.

- National Library of Medicine
REFERENCES