

Chronic Diarrhea in Children

National Digestive Diseases Information Clearinghouse



National Institute of
Diabetes and Digestive
and Kidney Diseases

What is chronic diarrhea?

Diarrhea is loose, watery stools. Chronic, or long lasting, diarrhea typically lasts for more than 4 weeks. Children with chronic diarrhea may have loose, watery stools continually, or diarrhea may come and go. Chronic diarrhea may go away without treatment, or it may be a symptom of a chronic disease or disorder. Treating the disease or disorder can relieve chronic diarrhea.

Chronic diarrhea can affect children of any age:

- infants—ages 0 to 12 months
- toddlers—ages 1 to 3 years
- preschool-age children—ages 3 to 5 years
- grade school-age children—ages 5 to 12 years
- adolescents—ages 12 to 18 years

Diarrhea that lasts only a short time is called acute diarrhea. Acute diarrhea, a common problem, usually lasts a few days

and goes away on its own. Read more about acute diarrhea in these publications at www.digestive.niddk.nih.gov:

- *Diarrhea*
- *What I need to know about Diarrhea*

What causes chronic diarrhea in children?

Many diseases and disorders can cause chronic diarrhea in children. Common causes include

- infections
- functional gastrointestinal (GI) disorders
- food allergies and intolerances
- inflammatory bowel disease (IBD)

Infections, food allergies and intolerances, and IBD may cause chronic diarrhea along with malabsorption, meaning the small intestine does not absorb nutrients from food. If children do not absorb enough nutrients from the food they eat, they may become malnourished. Functional GI disorders do not cause malabsorption.

Infections

Infections from viruses, bacteria, or parasites sometimes lead to chronic diarrhea. After an infection, some children have problems digesting carbohydrates, such as lactose, or proteins, such as milk or soy proteins. These problems can cause prolonged diarrhea—often for up to 6 weeks—after an infection. Also, some bacteria and parasite infections that cause diarrhea do not go away quickly without treatment.

Read more about infections that cause diarrhea in these publications at www.digestive.niddk.nih.gov:

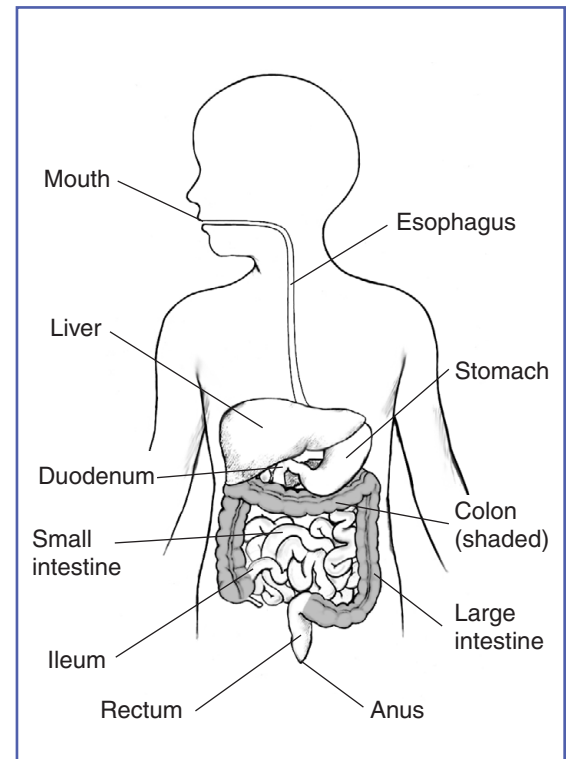
- *Viral Gastroenteritis*
- *Foodborne Illnesses*

Small intestinal bacterial overgrowth may also cause chronic diarrhea. Normally, few bacteria live in the small intestine, and many bacteria live in the large intestine. Small intestinal bacterial overgrowth is an increase in the number of bacteria or a change in the type of bacteria in the small intestine. These bacteria can cause diarrhea, gas, cramping, and weight loss. Small intestinal bacterial overgrowth is often related to diseases or disorders that damage the digestive system or affect how it works, such as Crohn's disease or diabetes. Small intestinal bacterial overgrowth is also more common in people who have had abdominal surgery or who have slow-moving intestines.

Functional Gastrointestinal Disorders

In functional GI disorders, symptoms are caused by changes in how the GI tract works. The GI tract is a series of hollow organs joined in a long, twisting tube from the mouth to the anus—the opening through which stool leaves the body. The GI tract digests, or breaks down, food and processes solid waste.

Children with a functional GI disorder have frequent symptoms, yet the GI tract does not become damaged. Functional GI disorders are not diseases; they are groups of symptoms that occur together.



The organs of the GI tract

Two functional GI disorders that cause chronic diarrhea in children are toddler's diarrhea and irritable bowel syndrome (IBS).

Toddler's diarrhea. Toddler's diarrhea—also called functional diarrhea or chronic nonspecific diarrhea of childhood—is a common cause of chronic diarrhea in toddlers and preschool-age children. Children with this disorder pass three or more loose stools a day and do not have any other symptoms. They typically are growing well and gaining weight, and are healthy.

Toddler's diarrhea develops between the ages of 6 months and 3 years, and it usually goes away on its own by the time children begin grade school. Researchers think a diet with too much sugar—such as the sugar found in fruit juice—relative to the amount of fat and fiber may cause toddler's diarrhea.

IBS. The most common symptoms of IBS are abdominal pain or discomfort, often reported as cramping, along with changes in bowel habits, such as diarrhea. The pain or discomfort of IBS typically gets better with the passage of stool or gas. IBS does not cause symptoms such as weight loss, vomiting, or blood in the stool.

Possible causes include problems with nerves in the intestines, problems with nerve signals between the brain and the intestines, changes in how food moves through the intestines, and hypersensitivity to pain. Psychological problems, such as anxiety and depression, or food sensitivity may also play a role.

IBS is a common cause of chronic diarrhea in grade school-age children and adolescents. Health care providers rarely diagnose IBS in younger children because younger children

are not able to report symptoms of pain or discomfort. Read more in these publications at www.digestive.niddk.nih.gov:

- *Irritable Bowel Syndrome*
- *Irritable Bowel Syndrome in Children*
- *What I need to know about Irritable Bowel Syndrome*

Food Allergies and Intolerances

Food allergies, celiac disease, lactose intolerance, and dietary fructose intolerance are common causes of chronic diarrhea.

Food allergies. A food allergy is a reaction by the immune system, the body's natural defense system, to one or more proteins in certain foods. The immune system normally protects the body from infection by identifying and destroying bacteria, viruses, and other potentially harmful foreign substances that can cause illness. In food allergies, however, the immune system responds abnormally to certain foods.

Cow's milk and soy allergies are the most common food allergies that affect the GI tract in children. Food allergies usually appear in the first year of life. Many children outgrow cow's milk and soy allergies by age 3. Allergies to other foods, such as cereal grains, eggs, or seafood, may also affect the GI tract.

Symptoms of food allergies may include diarrhea, vomiting, and weight loss or poor weight gain. Some children have mild symptoms, while others have severe or life-threatening symptoms. For example, some children have severe vomiting and diarrhea that lead to dehydration, which means the body lacks enough fluid and electrolytes—minerals in salts, including sodium, potassium, and chloride—to function properly.

Celiac disease. Celiac disease is an autoimmune disease in which people cannot tolerate gluten. A chronic reaction to gluten damages the lining of their small intestine and prevents absorption of nutrients. Gluten is a protein found in wheat, rye, and barley and in vitamin and nutrient supplements, lip balms, communion wafers, and certain medications.

Children of any age can experience digestive symptoms of celiac disease or have symptoms in other parts of the body. Digestive symptoms can include

- chronic diarrhea
- abdominal bloating
- stomach pain
- gas
- vomiting
- constipation
- pale, foul-smelling, or fatty stool

Malabsorption of nutrients during the years when nutrition is critical to a child's normal growth and development can result in other health problems. These problems may include

- failure to thrive in infants
- slowed growth and short stature
- weight loss
- irritability or mood changes
- delayed puberty
- dental enamel defects of the permanent teeth
- anemia, a condition in which red blood cells are fewer or smaller than normal, which prevents the body's cells from getting enough oxygen

- low levels of important nutrients such as iron and calcium

Read more in these publications at www.digestive.niddk.nih.gov:

- *Celiac Disease*
- *What I need to know about Celiac Disease*

Lactose intolerance. Lactose intolerance is a condition in which people have digestive symptoms—such as bloating, gas, and diarrhea—after consuming milk or milk products. Lactose is a sugar found in milk or milk products. Lactase, an enzyme produced by the small intestine, breaks down lactose into two simpler forms of sugar: glucose and galactose. The bloodstream then absorbs these simpler sugars.

Some children have a lactase deficiency, meaning the small intestine produces low levels of lactase and cannot digest much lactose. Lactase deficiency may cause lactose malabsorption. In children with lactose malabsorption, undigested lactose passes to the colon, where bacteria break down the lactose and create fluid and gas.

Not all children with lactase deficiency and lactose malabsorption have digestive symptoms. Experts use the term lactose intolerance when lactase deficiency and lactose malabsorption cause digestive symptoms.

The most common type of lactase deficiency develops over time, beginning after about age 2, when the body begins to produce less lactase. Children who have lactase deficiency may not experience symptoms of lactose intolerance until late adolescence or adulthood.

Infants rarely have lactose intolerance at birth. People sometimes mistake cow's milk allergy, which can cause diarrhea in infants, for lactose intolerance. Congenital lactase deficiency—an extremely rare inherited genetic disorder in which the small intestine produces little or no lactase enzyme at birth—can cause lactose intolerance in infants. Premature infants may experience lactose intolerance for a short time after birth. Children of any age may develop temporary lactose intolerance after a viral diarrheal episode or other infection.

Read more in these publications at www.digestive.niddk.nih.gov:

- *Lactose Intolerance*
- *What I need to know about Lactose Intolerance*

Dietary fructose intolerance. Dietary fructose intolerance is a condition in which people have digestive symptoms—such as bloating, gas, and diarrhea—after consuming foods that contain fructose. Fructose is a sugar found in fruits, fruit juices, and honey. Fructose is also added to many foods and soft drinks as a sweetener called high fructose corn syrup.

Fructose malabsorption causes dietary fructose intolerance. The small intestine absorbs fructose, and, when a person consumes more fructose than the small intestine can absorb, fructose malabsorption results. Unabsorbed fructose passes to the colon, where bacteria break down the fructose and create fluid and gas.

The amount of fructose that a child's small intestine can absorb varies. The capacity of the small intestine to absorb fructose increases with age. Some children may be able to tolerate more fructose as they get older.

Another type of fructose intolerance, hereditary fructose intolerance, is not related to fructose malabsorption. Hereditary fructose intolerance is an extremely rare inherited genetic disorder. Children with this disorder lack an enzyme needed to break down fructose. Symptoms of hereditary fructose intolerance may include abdominal pain, vomiting, and diarrhea. This disorder can also damage the liver and kidneys.

Inflammatory Bowel Disease

Inflammatory bowel disease causes irritation and inflammation in the intestines. The two main types of IBD are ulcerative colitis and Crohn's disease. These disorders can affect children at any age; however, they commonly begin in the grade school years or in adolescence. The causes of IBD are unknown. Researchers believe they result from an abnormal immune system reaction.

Ulcerative colitis. Ulcerative colitis is a disease that causes inflammation, or swelling, and ulcers in the inner lining of the large intestine. The large intestine includes the colon and the rectum—the lower end of the large intestine leading to the anus. Normally, the large intestine absorbs water from stool and changes it from a liquid to a solid. In ulcerative colitis, the inflammation causes loss of the lining of the large intestine, leading to bleeding, production of pus, diarrhea, and abdominal discomfort.

Read more in *Ulcerative Colitis* at www.digestive.niddk.nih.gov.

Crohn's disease. Crohn's disease is a disease that causes inflammation and irritation of any part of the GI tract. The end part of the small intestine, called the ileum, is most commonly affected. In Crohn's disease, inflammation can extend through the entire wall of the GI tract, leading to possible complications. Swelling can cause pain and can make the intestine empty frequently, resulting in diarrhea.

Read more in these publications at www.digestive.niddk.nih.gov:

- *Crohn's Disease*
- *What I need to know about Crohn's Disease*

What other symptoms may accompany chronic diarrhea in children?

Symptoms that accompany chronic diarrhea in children depend on the cause of the diarrhea. Symptoms can include

- cramping
- abdominal pain
- nausea or vomiting
- fever
- chills
- bloody stools

Children with chronic diarrhea who have malabsorption can experience

- bloating and swelling, also called distention, of the abdomen
- changes in appetite
- weight loss or poor weight gain

Consult a Health Care Provider

A child's parent or caretaker should consult a health care provider if the child

- has diarrhea for more than 24 hours
- is younger than 6 months old
- has received treatment and the diarrhea persists

Children with any of the following symptoms should see a health care provider right away:

- signs of malabsorption—bloating and swelling of the abdomen, changes in appetite, and weight loss or poor weight gain
- severe abdominal or rectal pain
- a fever of 102 degrees or higher
- stools containing blood or pus

Read more in these publications at www.digestive.niddk.nih.gov:

- *Diarrhea*
- *What I need to know about Diarrhea*

How do health care providers determine the cause of chronic diarrhea in children?

To determine the cause of chronic diarrhea in children, the health care provider will take a complete medical and family history and conduct a physical exam, and may perform tests.

Medical and family history. Taking a medical and family history is one of the first things a health care provider may do to help determine the cause of chronic diarrhea. He or she will ask for information about symptoms, such as

- how long the child has had diarrhea
- the amount of stool passed
- the frequency of diarrhea
- the appearance of the stool
- the presence of other symptoms that accompany diarrhea

The health care provider will ask about the child's diet and may recommend keeping a diary of the child's diet and bowel habits. If the health care provider suspects a food allergy or intolerance, he or she may recommend changing the child's diet to see if symptoms improve.

The health care provider may also ask about family medical history. Some of the conditions that cause chronic diarrhea, such as celiac disease and lactose intolerance, run in families.

Physical exam. After taking a medical history, a health care provider will perform a physical exam, which may help determine the cause of chronic diarrhea. During a physical exam, a health care provider usually

- examines a child's body
- uses a stethoscope to listen to bodily sounds
- taps on specific areas of the child's body

Tests. The health care provider may perform one or more of the following tests:

- **Stool test.** A stool test is the analysis of a sample of stool. The health care provider will give the parent or caretaker a container for catching and storing the stool. The parent or caretaker returns the sample to the health care provider or a commercial facility that will send the sample to a lab for analysis. Stool tests can show the presence of blood, bacteria, or parasites or signs of diseases and disorders. The health care provider may also do a rectal exam, sometimes during the physical exam. For a rectal exam, the health care provider inserts a gloved, lubricated finger into the rectum to check for blood in the stool.
- **Blood test.** A blood test involves drawing blood at a health care provider's office or a commercial facility and sending the sample to a lab for analysis. The blood test can show signs of certain diseases and disorders that can cause chronic diarrhea in children, including
 - high levels of white blood cells, which may be a sign of inflammation or infection somewhere in the body
 - anemia, which may be a sign of bleeding in the GI tract or of malabsorption

- the presence of certain antibodies—proteins that react against the body’s own cells or tissues—which may be a sign of celiac disease

- **Hydrogen breath test.** This test measures the amount of hydrogen in a child’s breath. Normally, only a small amount of hydrogen is detectable in the breath. However, bacteria break down sugars—such as lactose and fructose—that are not digested by the small intestine and produce high levels of hydrogen. In small intestinal bacterial overgrowth, bacteria break down sugars in the small intestine and produce hydrogen.

For this test, the child breathes into a balloonlike container that measures hydrogen. Then, the child drinks a lactose-loaded beverage, and the child’s breath is analyzed at regular intervals to measure the amount of hydrogen. In most cases, a health care provider performs this test at a hospital, on an outpatient basis. A health care provider may use a hydrogen breath test to check for signs of lactose intolerance, fructose intolerance, or small intestinal bacterial overgrowth.

- **Upper GI endoscopy.** This procedure involves using an endoscope—a small, flexible tube with a light—to see the upper GI tract, which includes the esophagus, stomach, and duodenum, the first part of the small intestine. A gastroenterologist—a doctor who specializes in digestive diseases—performs the test at a hospital or an outpatient center. The endoscope is carefully fed down the esophagus and into the stomach and duodenum. A small camera mounted on the

endoscope transmits a video image to a monitor, allowing close examination of the intestinal lining. A child may receive a liquid anesthetic that is gargled or sprayed on the back of the throat. A health care provider will place an intravenous (IV) needle in a vein in the arm if general anesthesia is given.

The health care provider may use instruments passed through the endoscope to perform a biopsy or collect fluid. A biopsy is a procedure that involves taking a piece of tissue for examination with a microscope. A pathologist—a doctor who specializes in diagnosing diseases—examines the tissues in a lab. This test can show problems in the upper GI tract that may cause chronic diarrhea. For example, a biopsy of the small intestine can show signs of celiac disease. A health care provider may use a fluid sample from the small intestine to check for bacteria to diagnose small intestinal bacterial overgrowth.

- **Flexible sigmoidoscopy or colonoscopy.** While these tests are similar, a health care provider uses a colonoscopy to view the rectum and entire colon and a flexible sigmoidoscopy to view just the rectum and lower colon. A gastroenterologist performs these tests at a hospital or an outpatient center. For both tests, the health care provider will give written bowel prep instructions for the child to follow at home. The health care provider may ask that the child follow a clear liquid diet the day before either test. The child may require a laxative for 4 days before either test or only the day before either test. The child may require an enema the day before either test. These

medications cause diarrhea, so the child should stay close to a bathroom during the bowel prep.

In most cases, light anesthesia, and possibly pain medication, helps the child relax. For either test, the child will lie on a table while the gastroenterologist inserts a flexible tube into the anus. A small camera on the tube sends a video image of the intestinal lining to a computer screen. The gastroenterologist may also perform a biopsy by taking a small piece of tissue from the intestinal lining. The child will not feel the biopsy. These tests can show problems in the rectum or colon, such as signs of IBD.

Cramping or bloating may occur during the first hour after these tests. The child should recover fully by the next day and be able to return to a normal diet.

How is chronic diarrhea in children treated?

The treatment for chronic diarrhea will depend on the cause. Some common causes of chronic diarrhea are treated as follows:

- **Infections.** If a child has prolonged problems digesting certain carbohydrates or proteins after an acute infection, a health care provider may recommend changes in diet. A child may need antibiotics or medications that target parasites to treat infections that do not go away on their own. A health care provider may also prescribe antibiotics to treat small intestinal bacterial overgrowth.

- **Functional GI disorders.** For toddler's diarrhea, treatment is usually not needed. Most children outgrow toddler's diarrhea by the time they start school. In many children, limiting fruit juice intake and increasing the amount of fiber and fat in the diet may improve symptoms of toddler's diarrhea.

A health care provider may treat IBS with

- changes in diet.
- medication.
- probiotics—live microorganisms, usually bacteria, that are similar to microorganisms normally found in the GI tract. Studies have found that probiotics, specifically *Bifidobacteria* and certain probiotic combinations, improve symptoms of IBS when taken in large enough amounts. However, researchers are still studying the use of probiotics to treat IBS.
- psychological therapy.

To help ensure coordinated and safe care, people should discuss their use of complementary and alternative medical practices, including their use of dietary supplements and probiotics, with their health care provider. Read more at www.nccam.nih.gov/health/probiotics.

- **Food allergies and intolerances.** A health care provider will recommend changes in diet to manage symptoms of food allergies and intolerances. To treat food allergies, the child's parent or caretaker should remove the food that triggers the allergy from the child's diet.

For children with celiac disease, following a gluten-free diet will stop symptoms, heal existing intestinal damage, and prevent further damage.

The child's parent or caretaker can manage the symptoms of lactose intolerance with changes in the child's diet and by using products that contain the lactase enzyme. Most children with lactose intolerance can tolerate some amount of lactose in their diet. The amount of change needed in the diet depends on how much lactose a child can consume without symptoms.

For children with dietary fructose intolerance, reducing the amount of fructose in the diet can relieve symptoms.

- **IBD.** A health care provider may use medications, surgery, and changes in diet to treat IBD.

Eating, Diet, and Nutrition

A health care provider may recommend changing a child's diet to treat the cause of chronic diarrhea. Making sure that children receive proper nutrition is important for growth and development. A child's parent or caretaker should talk with a health care provider about changing the child's diet to treat chronic diarrhea.

Points to Remember

- Diarrhea is loose, watery stools. Chronic, or long lasting, diarrhea typically lasts for more than 4 weeks.
- Many diseases and disorders can cause chronic diarrhea in children. Common causes include infections, functional gastrointestinal (GI) disorders, food allergies and intolerances, and inflammatory bowel disease (IBD).
- Symptoms that accompany chronic diarrhea in children depend on the cause of the diarrhea. Symptoms can include cramping, abdominal pain, nausea or vomiting, fever, chills, or bloody stools.
- Children with chronic diarrhea who have malabsorption can experience bloating and swelling of the abdomen, changes in appetite, or weight loss or poor weight gain.
- Children with any of the following symptoms should see a health care provider right away: signs of malabsorption, severe abdominal or rectal pain, a fever of 102 degrees or higher, or stools containing blood or pus.
- To determine the cause of chronic diarrhea, the health care provider will take a complete medical and family history and conduct a physical exam, and may perform tests.
- The treatment for chronic diarrhea will depend on the cause.
- A child's parent or caretaker should talk with a health care provider about changing the child's diet to treat chronic diarrhea.

Hope through Research

The Division of Digestive Diseases and Nutrition at the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) supports basic and clinical research into GI diseases, including diarrhea.

Clinical trials are research studies involving people. Clinical trials look at safe and effective new ways to prevent, detect, or treat disease. Researchers also use clinical trials to look at other aspects of care, such as improving the quality of life for people with chronic illnesses. To learn more about clinical trials, why they matter, and how to participate, visit the NIH Clinical Research Trials and You website at www.nih.gov/health/clinicaltrials. For information about current studies, visit www.ClinicalTrials.gov.

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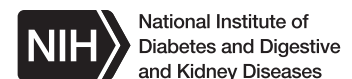
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You may also find additional information about this topic by visiting MedlinePlus at www.medlineplus.gov.

This publication may contain information about medications and, when taken as prescribed, the conditions they treat. When prepared, this publication included the most current information available. For updates or for questions about any medications, contact the U.S. Food and Drug Administration toll-free at 1-888-INFO-FDA (1-888-463-6332) or visit www.fda.gov. Consult your health care provider for more information.

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