

Diarrhea

National Digestive Diseases Information Clearinghouse



National Institute of
Diabetes and Digestive
and Kidney Diseases

What is diarrhea?

Diarrhea is loose, watery stools. Having diarrhea means passing loose stools three or more times a day. Acute diarrhea is a common problem that usually lasts 1 or 2 days and goes away on its own.

Diarrhea lasting more than 2 days may be a sign of a more serious problem. Chronic diarrhea—diarrhea that lasts at least 4 weeks—may be a symptom of a chronic disease. Chronic diarrhea symptoms may be continual or they may come and go.

Diarrhea of any duration may cause dehydration, which means the body lacks enough fluid and electrolytes—chemicals in salts, including sodium, potassium, and chloride—to function properly. Loose stools contain more fluid and electrolytes and weigh more than solid stools.

People of all ages can get diarrhea. In the United States, adults average one bout of acute diarrhea each year,¹ and young children have an average of two episodes of acute diarrhea each year.²

What causes diarrhea?

Acute diarrhea is usually caused by a bacterial, viral, or parasitic infection. Chronic diarrhea is usually related to a functional disorder such as irritable bowel syndrome or an intestinal disease such as Crohn's disease.

The most common causes of diarrhea include the following:

- **Bacterial infections.** Several types of bacteria consumed through contaminated food or water can cause diarrhea. Common culprits include *Campylobacter*, *Salmonella*, *Shigella*, and *Escherichia coli* (*E. coli*).
- **Viral infections.** Many viruses cause diarrhea, including rotavirus, norovirus, cytomegalovirus, herpes simplex virus, and viral hepatitis. Infection with the rotavirus is the most common cause of acute diarrhea in children. Rotavirus diarrhea usually resolves in 3 to 7 days but can cause problems digesting lactose for up to a month or longer.
- **Parasites.** Parasites can enter the body through food or water and settle in the digestive system. Parasites that cause diarrhea include *Giardia lamblia*, *Entamoeba histolytica*, and *Cryptosporidium*.

¹DuPont HL, Practice Parameters Committee of the American College of Gastroenterology. Guidelines on acute infectious diarrhea in adults. *The American Journal of Gastroenterology*. 1997;92(11):1962–1975.

²Ramaswamy K, Jacobson K. Infectious diarrhea in children. *Gastroenterology Clinics of North America*. 2001;30(3):611–624.

- **Functional bowel disorders.** Diarrhea can be a symptom of irritable bowel syndrome.
- **Intestinal diseases.** Inflammatory bowel disease, ulcerative colitis, Crohn's disease, and celiac disease often lead to diarrhea.
- **Food intolerances and sensitivities.** Some people have difficulty digesting certain ingredients, such as lactose, the sugar found in milk and milk products. Some people may have diarrhea if they eat certain types of sugar substitutes in excessive quantities.
- **Reaction to medicines.** Antibiotics, cancer drugs, and antacids containing magnesium can all cause diarrhea.

Some people develop diarrhea after stomach surgery, which may cause food to move through the digestive system more quickly.

People who visit certain foreign countries are at risk for traveler's diarrhea, which is caused by eating food or drinking water contaminated with bacteria, viruses, or parasites. Traveler's diarrhea can be a problem for people traveling to developing countries in Africa, Asia, Latin America, and the Caribbean. Visitors to Canada, most European countries, Japan, Australia, and New Zealand do not face much risk for traveler's diarrhea.

In many cases, the cause of diarrhea cannot be found. As long as diarrhea goes away on its own within 1 to 2 days, finding the cause is not usually necessary.

What other symptoms accompany diarrhea?

Diarrhea may be accompanied by cramping, abdominal pain, nausea, an urgent need to use the bathroom, or loss of bowel control. Some infections that cause diarrhea can also cause a fever and chills or bloody stools.

Dehydration

Diarrhea can cause dehydration. Loss of electrolytes through dehydration affects the amount of water in the body, muscle activity, and other important functions.

Dehydration is particularly dangerous in children, older adults, and people with weakened immune systems. Dehydration must be treated promptly to avoid serious health problems, such as organ damage, shock, or coma—a sleeplike state in which a person is not conscious.

Signs of dehydration in adults include

- thirst
- less frequent urination than usual
- dark-colored urine
- dry skin
- fatigue
- dizziness
- light-headedness

Signs of dehydration in infants and young children include

- dry mouth and tongue
- no tears when crying
- no wet diapers for 3 hours or more
- sunken eyes, cheeks, or soft spot in the skull
- high fever
- listlessness or irritability

Also, when people are dehydrated, their skin does not flatten back to normal right away after being gently pinched and released.

Anyone with signs of dehydration should see a health care provider immediately. Severe dehydration may require hospitalization.

Although drinking plenty of water is important in preventing dehydration, water does not contain electrolytes. Adults can prevent dehydration by also drinking liquids that contain electrolytes, such as fruit juices, sports drinks, caffeine-free soft drinks, and broths. Children with diarrhea should be given oral rehydration solutions such as Pedialyte, Naturalyte, Infalyte, and CeraLyte to prevent dehydration.

When should adults with diarrhea see a health care provider?

Adults with any of the following symptoms should see a health care provider:

- signs of dehydration
- diarrhea for more than 2 days
- severe pain in the abdomen or rectum
- a fever of 102 degrees or higher
- stools containing blood or pus
- stools that are black and tarry

Diarrhea is not usually harmful, but it can become dangerous or signal a more serious problem.

When should children with diarrhea see a health care provider?

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

- signs of dehydration
- diarrhea for more than 24 hours
- a fever of 102 degrees or higher
- stools containing blood or pus
- stools that are black and tarry

If children have diarrhea, parents or caregivers should not hesitate to call a health care provider for advice. Diarrhea is especially dangerous in newborns and infants, leading to severe dehydration in just a day or two. Children can die from dehydration within a day.

How is the cause of diarrhea diagnosed?

If acute diarrhea lasts 2 days or less, diagnostic tests are usually not necessary. If diarrhea lasts longer or is accompanied by symptoms such as fever or bloody stools, a doctor may perform tests to determine the cause.

Diagnostic tests to find the cause of diarrhea may include the following:

- **Medical history and physical examination.** The doctor will ask about eating habits and medication use and will perform a physical examination to look for signs of illness.
- **Stool culture.** A sample of stool is analyzed in a laboratory to check for bacteria, parasites, or other signs of disease and infection.
- **Blood tests.** Blood tests can be helpful in ruling out certain diseases.
- **Fasting tests.** To find out if a food intolerance or allergy is causing the diarrhea, the doctor may ask a person to avoid foods with lactose, carbohydrates, wheat, or other ingredients to see whether the diarrhea responds to a change in diet.
- **Sigmoidoscopy or colonoscopy.** These tests may be used to look for signs of intestinal diseases that cause chronic diarrhea. For sigmoidoscopy, the doctor uses a thin, flexible, lighted tube with a lens on the end to look at the inside of the rectum and lower part of the colon. Colonoscopy is similar to sigmoidoscopy, but it allows the doctor to view the entire colon.

How is diarrhea treated?

In most cases of diarrhea, the only treatment necessary is replacing lost fluids and electrolytes to prevent dehydration.

Over-the-counter medicines such as loperamide (Imodium) and bismuth subsalicylate (Pepto-Bismol and Kaopectate) may help stop diarrhea in adults. However, people with bloody diarrhea—a sign of bacterial or parasitic infection—should not use these medicines. If diarrhea is caused by bacteria or parasites, over-the-counter medicines may prolong the problem, so doctors usually prescribe antibiotics instead.

Medications to treat diarrhea in adults can be dangerous for infants and children and should only be given with a doctor's guidance.

Eating, Diet, and Nutrition

Until diarrhea subsides, avoiding caffeine and foods that are greasy, high in fiber, or sweet may lessen symptoms. These foods can aggravate diarrhea. Some people also have problems digesting lactose during or after a bout of diarrhea. Yogurt, which has less lactose than milk, is often better tolerated. Yogurt with active, live bacterial cultures may even help people recover from diarrhea more quickly.

As symptoms improve, soft, bland foods can be added to the diet, including bananas, plain rice, boiled potatoes, toast, crackers, cooked carrots, and baked chicken without the skin or fat. For children, the health care provider may also recommend a bland diet. Once the diarrhea stops, the health care provider will likely encourage children to return to a normal and healthy diet if it can be tolerated. Infants with diarrhea should be given breast milk or full-strength formula as usual, along with oral rehydration solutions. Some children recovering from viral diarrheas have problems digesting lactose for up to a month or more.

Can diarrhea be prevented?

Two types of diarrhea can be prevented—rotavirus diarrhea and traveler’s diarrhea.

Rotavirus Diarrhea

Two oral vaccines have been approved by the U.S. Food and Drug Administration to protect children from rotavirus infections: rotavirus vaccine, live, oral, pentavalent (RotaTeq); and rotavirus vaccine, live, oral (Rotarix). RotaTeq is given to infants in three doses at 2, 4, and 6 months of age. Rotarix is given in two doses. The first dose is given when infants are 6 weeks old, and the second is given at least 4 weeks later but before infants are 24 weeks old.

Parents of infants should discuss rotavirus vaccination with a health care provider. For more information, parents can visit the Centers for Disease Control and Prevention rotavirus vaccination webpage at www.cdc.gov/vaccines/vpd-vac/rotavirus.

Traveler’s Diarrhea

To prevent traveler’s diarrhea, people traveling from the United States to developing countries should avoid

- drinking tap water, using tap water to brush their teeth, or using ice made from tap water

- drinking unpasteurized milk or milk products
- eating raw fruits and vegetables, including lettuce and fruit salads, unless they peel the fruits or vegetables themselves
- eating raw or rare meat and fish
- eating meat or shellfish that is not hot when served
- eating food from street vendors

Travelers can drink bottled water, soft drinks, and hot drinks such as coffee or tea.

People concerned about traveler’s diarrhea should talk with a health care provider before traveling. The health care provider may recommend that travelers bring medicine with them in case they develop diarrhea during their trip. Health care providers may advise some people—especially people with weakened immune systems—to take antibiotics before and during a trip to help prevent traveler’s diarrhea. Early treatment with antibiotics can shorten a bout of traveler’s diarrhea.

Points to Remember

- Diarrhea is loose, watery stools. Having diarrhea means passing loose stools three or more times a day.
- Diarrhea is a common problem that usually goes away on its own.
- The most common causes of diarrhea include bacterial, viral, and parasitic infections; functional bowel disorders; intestinal diseases; food intolerances and sensitivities; and reactions to medicines.
- Diarrhea can cause dehydration, which is particularly dangerous in children, older adults, and people with weakened immune systems.
- Treatment involves replacing lost fluids and electrolytes. Depending on the cause of the problem, medication may also be needed to stop the diarrhea or treat an infection.
- Children with diarrhea should be given oral rehydration solutions to replace lost fluids and electrolytes.
- Adults with any of the following symptoms should see a health care provider: signs of dehydration, diarrhea for more than 2 days, severe pain in the abdomen or rectum, a fever of 102 degrees or higher, stools containing blood or pus, or stools that are black and tarry.
- Children with any of the following symptoms should see a health care provider: signs of dehydration, diarrhea for more than 24 hours, a fever of 102 degrees or higher, stools containing blood or pus, or stools that are black and tarry.
- People can take steps to prevent two types of diarrhea—rotavirus diarrhea and traveler’s 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 gastrointestinal diseases, including diarrhea. Among other areas, researchers are studying

- vaccines to prevent diarrhea caused by viruses
- new treatments for diarrhea, such as zinc supplements and probiotics
- medicines to prevent and treat traveler’s diarrhea

Participants in clinical trials can play a more active role in their own health care, gain access to new research treatments before they are widely available, and help others by contributing to medical research. For information about current studies, visit www.ClinicalTrials.gov.

For More Information

American College of Gastroenterology
P.O. Box 342260
Bethesda, MD 20827-2260
Phone: 301-263-9000
Internet: www.acg.gi.org

Centers for Disease Control and Prevention
1600 Clifton Road
Atlanta, GA 30333
Phone: 1-800-CDC-INFO
(1-800-232-4636)
TTY: 1-888-232-6348
Email: cdcinfo@cdc.gov
Internet: www.cdc.gov

**International Foundation for Functional
Gastrointestinal Disorders**
P.O. Box 170864
Milwaukee, WI 53217-8076
Phone: 1-888-964-2001 or 414-964-1799
Fax: 414-964-7176
Email: iffgd@iffgd.org
Internet: www.iffgd.org

**North American Society for Pediatric
Gastroenterology, Hepatology and Nutrition**
P.O. Box 6
Flourtown, PA 19031
Phone: 215-233-0808
Fax: 215-233-3918
Email: naspghan@naspghan.org
Internet: www.naspghan.org

Acknowledgments

Publications produced by the Clearinghouse are carefully reviewed by both NIDDK scientists and outside experts. This publication was reviewed by Mark Donowitz, M.D., Johns Hopkins University School of Medicine, and John S. Fordtran, M.D., Baylor University Medical Center.

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

This publication may contain information about medications. 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.

The U.S. Government does not endorse or favor any specific commercial product or company. Trade, proprietary, or company names appearing in this document are used only because they are considered necessary in the context of the information provided. If a product is not mentioned, the omission does not mean or imply that the product is unsatisfactory.

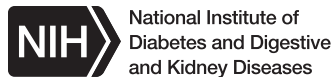
National Digestive Diseases Information Clearinghouse

2 Information Way
Bethesda, MD 20892-3570
Phone: 1-800-891-5389
TTY: 1-866-569-1162
Fax: 703-738-4929
Email: nddic@info.niddk.nih.gov
Internet: www.digestive.niddk.nih.gov

The National Digestive Diseases Information Clearinghouse (NDDIC) is a service of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The NIDDK is part of the National Institutes of Health of the U.S. Department of Health and Human Services. Established in 1980, the Clearinghouse provides information about digestive diseases to people with digestive disorders and to their families, health care professionals, and the public. The NDDIC answers inquiries, develops and distributes publications, and works closely with professional and patient organizations and Government agencies to coordinate resources about digestive diseases.

This publication is not copyrighted. The Clearinghouse encourages users of this publication to duplicate and distribute as many copies as desired.

This publication is available at
www.digestive.niddk.nih.gov.



NIH Publication No. 11-2749
January 2011