

Irritable Bowel Syndrome in Children

National Digestive Diseases Information Clearinghouse



National Institute of
Diabetes and Digestive
and Kidney Diseases

What is irritable bowel syndrome (IBS)?

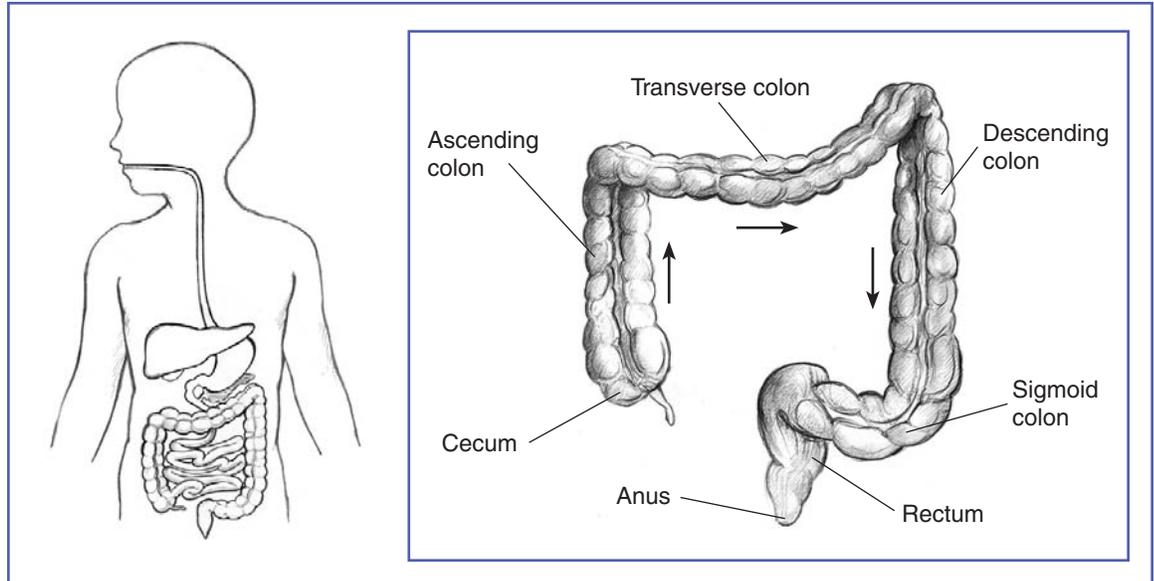
Irritable bowel syndrome is a functional gastrointestinal (GI) disorder, meaning it is a problem caused by changes in how the GI tract works. Children with a functional GI disorder have frequent symptoms, but the GI tract does not become damaged. IBS is not a disease; it is a group of symptoms that occur together. The most common symptoms of IBS are abdominal pain or discomfort, often reported as cramping, along with diarrhea, constipation, or both. In the past, IBS was called colitis, mucous colitis, spastic colon, nervous colon, and spastic bowel. The name was changed to reflect the understanding that the disorder has both physical and mental causes and is not a product of a person's imagination.

IBS is diagnosed when a child who is growing as expected has abdominal pain or discomfort once per week for at least 2 months without other disease or injury that could explain the pain. The pain or discomfort of IBS may occur with a change in stool frequency or consistency or may be relieved by a bowel movement.

What is the GI tract?

The GI tract is a series of hollow organs joined in a long, twisting tube from the mouth to the anus. The movement of muscles in the GI tract, along with the release of hormones and enzymes, allows for the digestion of food. Organs that make up the GI tract are the mouth, esophagus, stomach, small intestine, large intestine—which includes the appendix, cecum, colon, and rectum—and anus. The intestines are sometimes called the bowel. The last part of the GI tract—called the lower GI tract—consists of the large intestine and anus.

The large intestine absorbs water and any remaining nutrients from partially digested food passed from the small intestine. The large intestine then changes waste from liquid to a solid matter called stool. Stool passes from the colon to the rectum. The rectum is located between the last part of the colon—called the sigmoid colon—and the anus. The rectum stores stool prior to a bowel movement. During a bowel movement, stool moves from the rectum to the anus, the opening through which stool leaves the body.



The lower GI tract

How common is IBS in children?

Limited information is available about the number of children with IBS. Older studies have reported prevalence rates for recurrent abdominal pain in children of 10 to 20 percent.¹ However, these studies did not differentiate IBS from functional abdominal pain, indigestion, and abdominal migraine. One study of children in North America found that 14 percent of high school students and 6 percent of middle school students have IBS. The study also found that IBS affects boys and girls equally.²

What are the symptoms of IBS in children?

The symptoms of IBS include abdominal pain or discomfort and changes in bowel habits. To meet the definition of IBS, the pain or discomfort should be associated with two of the following three symptoms:

- start with bowel movements that occur more or less often than usual
- start with stool that appears looser and more watery or harder and more lumpy than usual
- improve with a bowel movement

¹Di Lorenzo C, Rasquin A, Forbes D, et al. Childhood functional gastrointestinal disorders: child/adolescent. In: Drossman DA, ed. *Rome III: The Functional Gastrointestinal Disorders*. 3rd ed. Lawrence: Allen Press, Inc.; 2006: 739.

²Hyams JS, Burke G, Davis PM, Rzepski B, Adrulonis PA. Abdominal pain and irritable bowel syndrome in adolescents: a community-based study. *The Journal of Pediatrics*. 1996;129(2):220–226.

Other symptoms of IBS may include

- diarrhea—having loose, watery stools three or more times a day and feeling urgency to have a bowel movement
- constipation—having hard, dry stools; two or fewer bowel movements in a week; or straining to have a bowel movement
- feeling that a bowel movement is incomplete
- passing mucus, a clear liquid made by the intestines that coats and protects tissues in the GI tract
- abdominal bloating

Symptoms may often occur after eating a meal. To meet the definition of IBS, symptoms must occur at least once per week for at least 2 months.

What causes IBS in children?

The causes of IBS are not well understood. Researchers believe a combination of physical and mental health problems can lead to IBS. The possible causes of IBS in children include the following:

- **Brain-gut signal problems.** Signals between the brain and nerves of the small and large intestines, also called the gut, control how the intestines work. Problems with brain-gut signals may cause IBS symptoms, such as changes in bowel habits and pain or discomfort.
- **GI motor problems.** Normal motility, or movement, may not be present in the colon of a child who has IBS. Slow motility can lead to constipation and fast motility can lead to diarrhea. Spasms, or sudden strong muscle contractions that come and go, can cause abdominal pain. Some children with IBS also experience hyperreactivity, which is an excessive increase in contractions of the bowel in response to stress or eating.

- **Hypersensitivity.** Children with IBS have greater sensitivity to abdominal pain than children without IBS. Affected children have been found to have different rectal tone and rectal motor response after eating a meal.
- **Mental health problems.** IBS has been linked to mental health, or psychological, problems such as anxiety and depression in children.
- **Bacterial gastroenteritis.** Some children who have bacterial gastroenteritis—an infection or irritation of the stomach and intestines caused by bacteria—develop IBS. Research has shown a connection between gastroenteritis and IBS in adults but not in children. But researchers believe postinfectious IBS does occur in children. Researchers do not know why gastroenteritis leads to IBS in some people and not others.
- **Small intestinal bacterial overgrowth (SIBO).** Normally, few bacteria live in the small intestine. SIBO is an increase in the number of bacteria or a change in the type of bacteria in the small intestine. These bacteria can produce excess gas and may also cause diarrhea and weight loss. Some researchers believe that SIBO may lead to IBS, and some studies have shown antibiotics to be effective in treating IBS. However, the studies were weak and more research is needed to show a link between SIBO and IBS.
- **Genetics.** Whether IBS has a genetic cause, meaning it runs in families, is unclear. Studies have shown that IBS is more common in people with family members who have a history of GI problems. However, the cause could be environmental or the result of heightened awareness of GI symptoms.

How is IBS in children diagnosed?

To diagnose IBS, a health care provider will conduct a physical exam and take a complete medical history. The medical history will include questions about the child's symptoms, family members with GI disorders, recent infections, medications, and stressful events related to the onset of symptoms. IBS is diagnosed when the physical exam does not show any cause for the child's symptoms and the child meets all of the following criteria:

- has had symptoms at least once per week for at least 2 months
- is growing as expected
- is not showing any signs that suggest another cause for the symptoms

Further testing is not usually needed, though the health care provider may do a blood test to screen for other problems. Additional diagnostic tests may be needed based on the results of the screening blood test and for children who also have signs such as

- persistent pain in the upper right or lower right area of the abdomen
- joint pain
- pain that wakes them from sleep
- disease in the tissues around the rectum
- difficulty swallowing
- persistent vomiting
- slowed growth rate
- GI bleeding
- delayed puberty
- diarrhea at night

Further diagnostic tests may also be needed for children with a family history of

- inflammatory bowel disease—long-lasting disorders that cause irritation and ulcers, or sores, in the GI tract
- celiac disease—an immune disease in which people cannot tolerate gluten, a protein found in wheat, rye, and barley, because it will damage the lining of their small intestine and prevent absorption of nutrients
- peptic ulcer disease—a sore in the lining of the esophagus or stomach

Additional diagnostic tests may include a stool test, ultrasound, and flexible sigmoidoscopy or colonoscopy.

Stool tests. A stool test is the analysis of a sample of stool. The health care provider will give the child's caretaker a container for catching and storing the child's stool. The sample is returned to the health care provider or a commercial facility and sent to a lab for analysis. The health care provider may also do a rectal exam, sometimes during the physical exam, to check for blood in the stool. Stool tests can show the presence of parasites or blood.

Ultrasound. Ultrasound uses a device, called a transducer, that bounces safe, painless sound waves off organs to create an image of their structure. The procedure is performed in a health care provider's office, outpatient center, or hospital by a specially trained technician, and the images are interpreted by a radiologist—a doctor who specializes in medical imaging; anesthesia is not needed. The images can show problems in the GI tract causing pain or other symptoms.

Flexible sigmoidoscopy or colonoscopy. The tests are similar, but a colonoscopy is used to view the rectum and entire colon, while a flexible sigmoidoscopy is used to view just the rectum and lower colon. These tests are performed at a hospital or outpatient center by a gastroenterologist—a doctor who specializes in digestive diseases. For both tests, a health care provider will give written bowel prep instructions to follow at home. The child may be asked to follow a clear liquid diet for 1 to 3 days before either test. The night before the test, the child may need to take a laxative. One or more enemas may also be required the night before and about 2 hours before the test.

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 test can show signs of problems in the lower GI tract.

The gastroenterologist may also perform a biopsy, a procedure that involves taking a piece of intestinal lining for examination with a microscope. The child will not feel the biopsy. A pathologist—a doctor who specializes in diagnosing diseases—examines the tissue in a lab.

Cramping or bloating may occur during the first hour after the test. Full recovery is expected by the next day.

How is IBS in children treated?

Though there is no cure for IBS, the symptoms can be treated with a combination of the following:

- changes in eating, diet, and nutrition
- medications
- probiotics
- therapies for mental health problems

Eating, Diet, and Nutrition

Large meals can cause cramping and diarrhea, so eating smaller meals more often, or eating smaller portions, may help IBS symptoms. Eating meals that are low in fat

and high in carbohydrates, such as pasta, rice, whole-grain breads and cereals, fruits, and vegetables may help.

Certain foods and drinks may cause IBS symptoms in some children, such as

- foods high in fat
- milk products
- drinks with caffeine
- drinks with large amounts of artificial sweeteners, which are substances used in place of sugar
- foods that may cause gas, such as beans and cabbage

Children with IBS may want to limit or avoid these foods. Keeping a food diary is a good way to track which foods cause symptoms so they can be excluded from or reduced in the diet.

Dietary fiber may lessen constipation in children with IBS, but it may not help with lowering pain. Fiber helps keep stool soft so it moves smoothly through the colon. The Academy of Nutrition and Dietetics recommends children consume “age plus 5” grams of fiber daily. A 7-year-old child, for example, should get “7 plus 5,” or 12 grams, of fiber a day.³ Fiber may cause gas and trigger symptoms in some children with IBS. Increasing fiber intake by 2 to 3 grams per day may help reduce the risk of increased gas and bloating.

³Slavin, JL. Position of the American Dietetic Association: health implications of dietary fiber. *Journal of the American Dietetic Association*. 2008;108:1716–1731.

Medications

The health care provider will select medications based on the child's symptoms. Caregivers should not give children any medications unless told to do so by a health care provider.

- **Fiber supplements.** Fiber supplements may be recommended to relieve constipation when increasing dietary fiber is ineffective.
- **Laxatives.** Constipation can be treated with laxative medications. Laxatives work in different ways, and a health care provider can provide information about which type is best. Caregivers should not give children laxatives unless told to do so by a health care provider. More information about different types of laxatives can be found in the National Digestive Diseases Information Clearinghouse fact sheet *Constipation* at www.digestive.niddk.nih.gov.
- **Antidiarrheals.** Loperamide has been found to reduce diarrhea in children with IBS, though it does not reduce pain, bloating, or other symptoms. Loperamide reduces stool frequency and improves stool consistency by slowing the movement of stool through the colon. Medications to treat diarrhea in adults can be dangerous for infants and children and should only be given if told to do so by a health care provider.

- **Antispasmodics.** Antispasmodics, such as hyoscine, cimetropium, and pinaverium, help to control colon muscle spasms and reduce abdominal pain.
- **Antidepressants.** Tricyclic antidepressants and selective serotonin reuptake inhibitors in low doses can help relieve IBS symptoms including abdominal pain. These medications are thought to reduce the perception of pain, improve mood and sleep patterns, and adjust the activity of the GI tract.

Probiotics

Probiotics are 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. But more research is needed. Probiotics can be found in dietary supplements, such as capsules, tablets, and powders, and in some foods, such as yogurt. A health care provider can give information about the right kind and right amount of probiotics to take to improve IBS symptoms. More information about probiotics can be found in the National Center for Complementary and Alternative Medicine fact sheet *An Introduction to Probiotics* at www.nccam.nih.gov/health/probiotics/introduction.htm.

Therapies for Mental Health Problems

The following therapies can help improve IBS symptoms due to mental health problems:

- **Talk therapy.** Talking with a therapist may reduce stress and improve IBS symptoms. Two types of talk therapy used to treat IBS are cognitive behavioral therapy and psychodynamic, or interpersonal, therapy. Cognitive behavioral therapy focuses on the child's thoughts and actions. Psychodynamic therapy focuses on how emotions affect IBS symptoms. This type of therapy often involves relaxation and stress management techniques.
- **Hypnotherapy.** In hypnotherapy, the therapist uses hypnosis to help the child relax into a trancelike state. This type of therapy may help the child relax the muscles in the colon.

Points to Remember

- Irritable bowel syndrome (IBS) is a functional gastrointestinal (GI) disorder, meaning it is a problem caused by changes in how the GI tract works. Children with a functional GI disorder have frequent symptoms, but the GI tract does not become damaged.
- IBS is not a disease; it is a group of symptoms that occur together.
- The most common symptoms of IBS are abdominal pain or discomfort, often reported as cramping, along with diarrhea, constipation, or both.

- The causes of IBS are not well understood. The possible causes of IBS in children include brain-gut signal problems, GI motor problems, hypersensitivity, mental health problems, bacterial gastroenteritis, small intestinal bacterial overgrowth, and genetics.
- To diagnose IBS, a health care provider will conduct a physical exam and take a complete medical history. The medical history will include questions about the child's symptoms, family members with GI disorders, recent infections, medications, and stressful events related to the onset of symptoms. IBS is diagnosed when the physical exam does not show any cause for the child's symptoms and the child meets all of the following criteria:
 - has had symptoms at least once per week for at least 2 months
 - is growing as expected
 - is not showing any signs that suggest another cause for the symptoms
- Though there is no cure for IBS, the symptoms can be treated with a combination of the following:
 - changes in eating, diet, and nutrition
 - medications
 - probiotics
 - therapies for mental health problems

Hope through Research

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) conducts and supports basic and clinical research studies on abdominal pain conditions in children, including IBS. A study of recurrent abdominal pain in children, funded under National Institutes of Health (NIH) clinical trial number NCT00526903, aims to determine if fiber versus placebo improves symptoms in children with recurrent abdominal pain or IBS and, if so, the mechanism of action. Abdominal Symptom Phenotype Study in Children, funded under NIH clinical trial number NCT01204515, is an observational study to learn about the causes, treatments, and management of IBS in children. The investigators are particularly interested in whether there is more than one type of IBS in children, which could have an important effect on treatment decisions. The investigators also want to learn how children with IBS differ from those who do not have recurrent abdominal pain.

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.

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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.

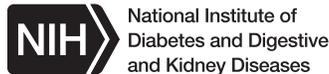
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The National Digestive Diseases Information Clearinghouse (NDDIC) is a service of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The NIDDK is part of the National Institutes of Health of the U.S. Department of Health 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.

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