Gas in the Digestive Tract
Information from the National Digestive Disease Information Clearinghouse

What is gas?
Gas is air in the digestive or intestinal tract. Gas leaves the body when people burp through the mouth or pass gas through the anus. Intestinal gas is primarily composed of carbon dioxide, oxygen, nitrogen, hydrogen, and sometimes methane. Flatus, gas passed through the anus, may also contain small amounts of gasses that contain sulfur. Sulfur has more odor. Everyone has gas. However, many people think they burp or pass gas too often and that they have too much gas. Actually having too much gas is rare.

What causes gas?
Gas in the digestive tract is usually caused by swallowing air and by the breakdown of certain foods in the colon (large intestine) by bacteria. Everyone swallows some air when eating and drinking. The amount of air swallowed increases when people

- eat or drink too fast
- smoke
- chew gum
- suck on hard candy
- drink carbonated or “fizzy” drinks
- wear loose-fitting dentures

Burping allows some gas to leave the stomach. The rest moves into the small intestine, where it is partially absorbed. A small amount travels into the large intestine and is passed through the anus as flatus.

Some carbohydrates—sugars, starches, and fibers - pass undigested through the small intestine into the large intestine where large numbers of bacteria normally reside. These carbohydrates are broken down by some of these bacteria which releases hydrogen and carbon dioxide gasses. Other bacteria take in hydrogen and create methane gas or hydrogen sulfide gas. Some of the gas produced in the intestines is absorbed by the bloodstream and carried to the lungs, where it is released in the breath.

Normally, few bacteria live in the small 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 produce excess gas and may also cause diarrhea and weight loss. Small intestinal bacterial overgrowth is usually related to disorders that damage the digestive system or affect how it works, such as Crohn’s disease or diabetes.

Which foods cause gas?
Most foods that contain carbohydrates can cause gas. In contrast, fats and proteins cause little gas. Foods that produce gas in one person may not cause gas in someone else, depending on how well they
digest carbohydrates and the types of bacteria present in their intestines.

Some foods that may cause gas include:
- beans
- vegetables such as broccoli, cauliflower, cabbage, brussels sprouts, onions, mushrooms, artichokes, and asparagus
- fruits such as pears, apples, and peaches
- whole grains such as whole wheat and bran
- soda pop; fruit drinks, especially apple juice and pear juice; and other drinks that contain high-fructose corn syrup, a sweetener made from corn
- milk and milk products such as cheese, ice cream, and yogurt
- packaged foods such as bread, cereal, and salad dressing that contain small amounts of lactose, a sugar found in milk
- sugar-free candies and gums that contain sugar alcohols such as sorbitol, mannitol, and xylitol

What are the symptoms of gas?
The most common symptoms of gas are burping, passing gas, bloating, and abdominal pain or discomfort.

**Burping** Burping, or belching, once in a while, especially during and after meals, is normal. However, people who burp frequently may be swallowing too much air. Some upper intestinal disorders, such as gastroesophageal reflux disease (GERD), may increase burping.

**Passing gas** Passing gas around 10 to 20 times a day is normal. Flatulence is excessive gas in the stomach or intestine that can cause bloating and flatulence. Flatulence may be the result of problems digesting certain carbohydrates.

**Bloating** Bloating is a feeling of fullness and swelling in the abdomen ("stomach"). Problems digesting carbohydrates may cause increased gas and bloating. However, bloating is not always caused by too much gas. Bloating may result from diseases that affect how gas moves through the intestines or from intestinal obstruction such as colon cancer. People who have had many operations or bands of internal scar tissue called adhesions may experience bloating. Commonly, disorders such as irritable bowel syndrome (IBS) can affect how gas moves through the intestines or increase pain sensitivity in the intestines. Eating a lot of fatty food can delay stomach emptying and cause a feeling of bloating and discomfort.

**Abdominal pain and discomfort** People may feel abdominal pain or discomfort when gas does not move through the intestines normally. People with IBS may be more sensitive to gas and feel pain. This is not necessarily related to too much gas in the intestines.

How is the cause of these symptoms found?
People can try to find the cause of gas on their own by keeping a diary of what they eat and drink and how often they burp, pass gas, or have other symptoms. A diary may help identify specific foods that cause gas.

A health care provider should be consulted if:
- symptoms are persistent and bothersome
• symptoms change suddenly
• new symptoms occur, especially in people older than age 40
• gas is accompanied by other symptoms, such as constipation, diarrhea, or weight loss

The health care provider will ask about dietary habits and symptoms and may ask a person to keep a food diary. Careful review of diet and the amount of burping or gas passed may help relate specific foods to symptoms and determine the severity of the problem.

If milk products are causing gas blood or breath tests may be used to check for lactose intolerance, the inability or insufficient ability to digest lactose. Lactose intolerance is caused by a deficiency of the enzyme lactase. Avoiding all milk products often improves symptoms.

Other tests may be ordered to rule out serious health problems.

How is gas treated?
Gas can be treated by reducing swallowed air, making dietary changes, or taking over-the-counter or prescription medications. People who think they have too much gas can try to reduce gas on their own as outlined below. If symptoms persist, see a health care providers for evaluation and treatment.

**Reducing swallowed air** Swallowing less air may help reduce gas symptoms, especially for people who burp frequently. Eating more slowly, avoiding gum and hard candies, or checking with a dentist to make sure dentures fit correctly may be helpful.

**Dietary changes** People may be able to reduce gas by eating less of the foods that cause gas. However, many healthy foods may cause gas, such as fruits and vegetables, whole grains, and milk products. The amount of gas caused by certain foods varies from person to person. Effective dietary changes depend on learning through trial and error which foods cause symptoms and how much of the offending foods one can handle. While fat does not cause gas, limiting high-fat foods can help reduce bloating and discomfort. Less fat in the diet helps the stomach empty faster, allowing gases to move more quickly into the small intestine.

**Over-the-counter medications** Some over-the-counter medications can help reduce gas or the symptoms associated with gas:

- Alpha-galactosidase (Beano) contains the sugar-digesting enzyme that the body lacks to digest the sugar in beans and many vegetables. It comes in liquid and tablet form. Five drops are added per serving or one tablet is swallowed just before eating to break down the gas-producing sugars. Beano has no effect on gas caused by lactose or fiber.
- Simethicone (Gas-X, Mylanta Gas) may relieve bloating and abdominal pain or discomfort.
- Lactase tablets or drops can help people with lactose intolerance digest milk and milk. Lactase tablets are taken just before eating foods that contain lactose; lactase drops can be added to liquid milk products. Lactose-free and lactose-reduced milk and milk products are also available at most grocery stores.

**Prescription medications** Health care providers may prescribe medications to help reduce symptoms, especially for people with small intestinal bacterial overgrowth or IBS.
Eating, Diet, and Nutrition

People’s eating habits and diet affect the amount of gas they have. Eating and drinking too fast may increase the amount of air swallowed, and foods that contain carbohydrates may cause more gas. Tracking eating habits and symptoms can help identify the foods that cause more gas. Avoiding or eating less of these foods may help reduce gas symptoms.

Points to Remember

- Gas is air in the digestive tract.
- Everyone has gas. However, many people think they pass gas too often and that they have too much gas. Having too much gas is rare.
- Gas in the digestive tract is caused by swallowing air and by the breakdown of certain foods in the large intestine by bacteria.
- Most foods that contain carbohydrates can cause gas. In contrast, fats and proteins cause little gas.
- Foods that produce gas in one person may not cause gas in someone else.
- The most common symptoms of gas are burping, passing gas, bloating, and abdominal pain or discomfort.
- Gas can be treated by reducing swallowed air, making dietary changes, or taking over-the-counter or prescription medications.

Patient information materials developed in the Section of Colon and Rectal Surgery at Rush University Medical Center.

This document is adapted from materials developed by the National Digestive Disease Information Clearinghouse, a branch of the National Institutes of Health of the United States of America. The original material may be found at www.digestive.niddk.nih.gov/

The information contained in this brochure is believed to be accurate; however, questions about your individual health should be referred to your physician.

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