



International Foundation for Functional Gastrointestinal Disorders

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Gas (155)

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Controlling Intestinal Gas

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Controlling Intestinal Gas

Everybody produces gas, and everybody needs to pass gas. The amount depends on the individual, and there is a wide range of “normal.” Passing gas is normal; nevertheless, it can be embarrassing or cause discomfort.

Gas in the digestive tract (the esophagus, stomach, small intestine, and large intestine) comes from two sources – swallowed air and the normal breakdown of certain undigested foods by harmless bacteria that are naturally present in the large intestine.

Air swallowing (aerophagia) is a common cause of gas in the stomach. Everyone swallows small amounts of air when eating and drinking. However, eating or drinking rapidly, talking while eating, chewing gum, smoking, or wearing loose dentures can cause some people to take in more air.

Burping, or belching, is the way most swallowed air leaves the stomach. The remaining gas moves into the small intestine where it is partially absorbed. A small amount travels into the large intestine for release through the rectum. (The stomach also releases carbon dioxide when stomach acid and bicarbonate mix, but most of this gas is absorbed into the bloodstream and does not enter the large intestine.)

Gases are produced as a by-product when certain food materials are digested by naturally occurring bacteria in the large intestine, or colon. These bacteria are responsible for digesting materials like complex carbohydrates (sugar, starches, and fiber found in many foods) and cellulose, which are not normally digested in the upper gastrointestinal tract.

The quantity and mixture of gases depend on the types of bacteria in the colon; everyone has a unique assortment of bacteria from the time of birth. These gases include hydrogen, carbon dioxide, and, in some people methane. Trace gases, such as hydrogen sulfide, are responsible for the odor. Foods that produce gas in one person may not cause gas in another.

Foods that May Cause Gas

Most foods that contain carbohydrates can cause gas. By contrast, fats and proteins cause little gas (although certain proteins may intensify the odor of gas).

Sugars – The sugars that cause gas are raffinose, lactose, fructose, and sorbitol.

- **Raffinose** – Beans contain large amounts of this complex sugar. Smaller amounts are found in cabbage, Brussels sprouts, broccoli, asparagus, other vegetables, and whole grains.

- **Lactose** – Lactose is the natural sugar in milk. It is also found in milk products, such as cheese and ice cream, and processed foods, such as bread, cereal, and salad dressing. Many people, particularly those of African, Native American, or Asian background, have low levels of the enzyme lactase needed to digest lactose. Also, as people age, their enzyme levels decrease. As a result, over time people may experience increasing amounts of gas after eating food containing lactose.
- **Fructose** – Fructose is naturally present in onions, artichokes, pears, and wheat. It is also used as a sweetener in some soft drinks and fruit drinks.
- **Sorbitol** – Sorbitol is a sugar found naturally in fruits, including apples, pears, peaches, grapes, and prunes. It is also used as an artificial sweetener in many dietetic foods and sugarfree candies and gums.

Starches – Most starches, including potatoes, corn, noodles, and wheat, produce gas as they are broken down in the large intestine. Rice is the only starch that does not cause gas.

Fiber – Dietary fiber is carbohydrate that is indigestible in the small intestine and reaches the colon relatively intact. In the colon, certain bacteria digest fiber (fermentation), which produces gas. Dietary fiber can be classified as either soluble or insoluble.

Soluble fiber dissolves in water and becomes a soft gel. It is found in oat bran, beans, barley, nuts, seeds, lentils, peas, and most fruits. Insoluble fiber does not dissolve or gel in water. It absorbs liquid and adds bulk to stool. Cellulose (found in legumes, seeds, root vegetables, and vegetables in the cabbage family), wheat bran, and corn bran are examples of insoluble fiber.

High fiber substances containing both soluble and insoluble fibers have the properties of both. They include oat bran, psyllium, and soy fiber. Methylcellulose is a semi-synthetic fiber. It is soluble and gel forming, but not fermentable.

Types of fiber differ in the speed and extent to which they are digested in the GI tract, and in the process of fermentation. The solubility and fermentation of a particular fiber affects how it is handled in the GI tract. However, the effect of identical fibers varies from person to person.

A gradual increase in dietary fiber can modify and improve symptoms. But individual responses vary and too

much of a type of fiber can worsen symptoms. It may be necessary to try different types of fiber. With any dietary fiber it is best to start low and go slow.

Treatment

The most common ways to reduce the discomfort of gas are changing diet, taking medicines, and reducing the amount of air swallowed. Avoiding fermentable vegetables/carbohydrates like beans, broccoli, cabbage, and some artificial sweeteners like sorbitol (which is found in gum, candies, and some soft drinks) can lessen the amount of gas produced. Those who are truly lactose intolerant may improve if they avoid milk products.

Alcohol may impair intestinal digestion so that more food is available for gas production. Certain proteins may enhance the odor of gas. If gas is a problem for you, try monitoring your diet (time of day and description of foods eaten and drinks ingested, and times of each episode of gas) for a week or so to identify what may cause increased gas production or what may affect odor.

Doctors may tell people to eat fewer foods that cause gas. However, for some people this may mean cutting out healthy foods, such as fruits and vegetables, whole grains, and milk products. Doctors may also suggest limiting high-fat foods to reduce bloating and discomfort. This helps the stomach empty faster, allowing gases to move into the small intestine.

The amount of gas caused by certain foods varies from person to person. Effective dietary changes depend on learning through trial and error how much of the offending foods one can handle.

Many nonprescription, over-the-counter medicines are available to help reduce symptoms. Products containing chlorophyllin copper (e.g., Nullo, Derifil) can help minimize offending odor. Digestive enzymes, such as lactase supplements, actually help digest carbohydrates and may allow people to eat foods that normally cause gas.

Simethicone (e.g., Gas-X, Mylanta Gas, Phazyme) is a foaming agent that joins gas bubbles in the stomach so that gas is more easily belched away. However, these medicines have no effect on intestinal gas.

The enzyme lactase, which aids with lactose digestion, is available in liquid and tablet form without a prescription (e.g., Dairy Ease, Lactaid). Adding a few drops of liquid lactase to milk before drinking it or chewing lactase tablets just before eating helps digest foods that contain lactose. Also, lactose-reduced milk and other products are available at many grocery stores.

Beano, an over-the-counter digestive aid, contains the sugar-digesting enzyme that the body lacks to digest the sugar in beans and many vegetables. The enzyme comes in liquid or tablet form. Beano has no effect on gas caused by lactose or fiber. Heat degrades the enzyme in Beano so it cannot be added to food while it is being cooked.

Beano is made from an enzyme (alpha-galactosidase) extracted from a food-grade mold; if you are allergic to molds you may react to Beano. Those with *galactosemia* (an inherited disorder characterized by the inability to metabolize galactose) should **not** use Beano without first consulting their physician.

For those who have chronic belching, doctors may suggest ways to reduce the amount of air swallowed.

Recommendations are to avoid chewing gum and to avoid eating hard candy. Eating at a slow pace and checking with a dentist to make sure dentures fit properly should also help.

Conclusion

Although gas may be uncomfortable and embarrassing, it is not life threatening. However, uncontrolled gas can seriously disrupt daily life. Understanding causes and ways to reduce symptoms, as well as seeking treatment advice will help most people find some relief.

Tips on Controlling Gas

1. Everyone has gas in the digestive tract.
2. People often believe normal passage of gas to be excessive.
3. Gas comes from two main sources: swallowed air and normal breakdown of certain foods by harmless bacteria naturally present in the large intestine.
4. Swallowed air can be affected by a number of contributing factors. Dentures that do not fit well can cause people to swallow more saliva which carries air bubbles; postnasal drip tends to make people swallow more often, carrying more air to the stomach; smoking a cigar or pipe may increase the amount of saliva produced and swallowed; eating too fast increases the amount of air swallowed; gum chewing and sucking on hard candies also increases the amount of air swallowed.
5. Many foods with carbohydrates can cause gas. Fats and proteins cause little gas.

6. Foods **more likely** to cause gas include:
- Beans (Presoaking reduces the gas-producing potential of beans if you discard the soaking water and cook using fresh water)
 - Vegetables such as artichokes, asparagus, broccoli, cabbage, Brussels sprouts, cauliflower, cucumbers, green peppers, onions, radishes, celery, carrots
 - Fruits such as apples, peaches, raisins, bananas, apricots, prune juice, pears
 - Whole grains and bran (Adding them slowly to your diet can help reduce gas forming potential)
 - Carbonated drinks (Allowing carbonated drinks, which contain a great deal of gas, to stand open for several hours allows the carbonation/gas to escape)
 - Milk and milk products, such as cheese and ice cream
 - Packaged foods prepared with lactose, such as bread, cereal, and salad dressing
 - Foods containing sorbitol, such as dietetic foods and sugarfree candies and gums
 - Beverages such as wine and dark beer
7. **Odor forming** foods may include: alcohol, asparagus, beans, cabbage, chicken, coffee, cucumbers, dairy products, eggs, fish, garlic, nuts, onions, prunes, radishes, and highly seasoned foods.
8. Foods **less likely** to cause gas include:
- Meat, poultry, fish
 - Eggs
 - Vegetables such as lettuce, tomatoes, zucchini, okra
 - Fruits such as cantaloupe, grapes, berries, cherries, avocado, olives
 - Carbohydrates such as gluten-free bread, rice bread, rice

9. The most common symptoms of gas are belching, flatulence, bloating, and abdominal pain. However, an intestinal disorder, such as irritable bowel syndrome, rather than too much gas often cause some of these symptoms.
10. The most common ways to reduce the discomfort of gas are changing diet, taking nonprescription or prescription medicines, and reducing the amount of air swallowed.
11. Digestive enzymes, such as lactase supplements, actually help digest carbohydrates and may allow people to eat foods that normally cause gas.
12. How we respond to dietary components varies from person to person. For one week try eliminating foods or beverages in your diet that you suspect most likely are causing you gas or odor problems. Then gradually reintroduce them one at a time to help identify the offenders.

Adapted from:

National Digestive Diseases Information Clearinghouse, NIH Publication No. 02-883, January 2008.

International Foundation for Functional Gastrointestinal Disorders, *Education Program Guide for Functional GI Disorders*, 1997.

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This article is in no way intended to replace the knowledge or diagnosis of your doctor. We advise seeing a physician whenever a health problem arises requiring an expert's care.

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