

Background:

Gas can be embarrassing and uncomfortable. Most of the time, gas occurs naturally as a result of the digestive process, produced by a mix of bacteria in the colon. While most of the gases produced in the colon are odorless, including hydrogen, oxygen and nitrogen, there are small amounts of sulfide gases created, which are responsible for odorous flatulence. These sulfide gases are created as a result of sulfur in the water, food and beverages ingested by the body.

Normal Flatus Production:

There isn't a specific amount of daily gas production that is considered normal. The amount of flatus produced per day can range from less than one pint to several quarts. On average, around 10-13 gas passages per day is considered healthy. Men and smokers generally create more gas than females and nonsmokers; although there are no definitive medical reasons why.

Causes of Excessive Gas:

- Swallowing air due to eating or drinking rapidly, smoking, chewing gum or sucking hard candies, using straws
- Stress and anxiety
- Food sensitivities
- Peptic ulcer disease
- Gastroesophageal reflux disease (GERD)
- Gastroparesis
- Irritable Bowel Syndrome (IBS)
- Bowel disease (Celiac disease, Crohn's disease, Ulcerative colitis)
- Lactose or fructose intolerance
- High fat diets

Dietary Fiber and Gas:

There are two main types of dietary fiber:

- **Soluble fiber:** This fiber consists of carbohydrates and dissolves in water. These fibers are fermented by colon bacteria and, as a result, produce some colon gas.
- **Insoluble fiber:** This fiber does not dissolve in water. It retains water and helps to promote softer, bulkier stool. These fibers are not fermented by colon bacteria and do not produce colon gas.

Rapid introduction of any high fiber foods into the diet can lead to gas. Beginning a high fiber diet must be done slowly and gradually. Plenty of fluids must be consumed when dietary fiber is increased.

Causes of Smelly Gas:

Sulfate in the foods we eat is the cause of most foul smelling flatus. Certain bacteria in the colon make sulfide gases in very tiny amounts and these gases have a distinct odor when passed by the body. Controlling flatus smell starts with monitoring the amount of sulfate containing foods and supplements you take in. Sulfate is found in many common foods:

- **Drinking water** – sulfate may be present in drinking water depending on where it originates
- **Beverages** – beer, red and white wine, apple, grape, and tomato juices, and milk have significant amounts of sulfate.
- **Animal protein** – Meat, fish, and poultry have amino acids which contain sulfate and can cause odorous gas.
- **Supplements** – Many supplements for bone and joint disorders, like glucosamine contain sulfates.

Foods Most Likely to Cause Gas:

- Apples
- Artichokes
- Asparagus
- Beer
- Broccoli
- Brussels sprouts
- Cabbage
- Carbonated beverages
- Carrots
- Cauliflower
- Celery
- Corn
- Cucumbers

- Dried beans, peas and lentils
- Eggs
- Onions
- Pears
- Peas
- Potatoes
- Radishes
- Red wine
- Rutabaga
- Sorbitol
- Turnips
- Wheat
- Whole grains
- Xylitol

Treatments:

- Digestive enzymes (Lactase, Beano ®)
- Exercise
- Food sensitivity testing and elimination diet protocol (LEAP)
- Probiotics (in prebiotic-rich yogurt or prebiotic supplements)
- Antacids or H2 blockers if reflux is present

Colon Acidity Preventing Gas:

Bacteria in the colon responsible for producing sulfide, and smelly flatus, cannot survive in an acidic environment. As a result, acidifying the colon using prebiotics may not change the amount of colon gas produced, but can reduce odorous flatus.

If you suspect you may be producing too much, or too little gas, you need to discuss dietary and medication changes with your physician. Your healthcare provider is the best source of information for questions and concerns related to your health. To find a physician near you, please see our [locations page](#). To learn more about treatment options for gas, schedule an appointment with our Registered Dietitian Nutritionist by calling **(602) 422-9800**.