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Editorial

Obnoxious gas causes burping is due to unnatural food habit

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INTRODUCTION

Burping (belching) means expelling of the air or other gases from stomach through mouth. Many healthy people expel some *non-smelling air* after eating or drinking. Various health disorders can cause **excessive burping**. The smell of sulfur or rotten egg burps comes from **hydrogen sulfide (H_2S)**, a gas originating from **sulfur-containing proteins** in certain foods after they are broken down in the stomach or small intestine by **sulfur-reducing microbes**. These microbes may be normal intestinal bacteria or pathogenic bacteria.

(a) Sulfur Containing Foods: Removing sulfur containing foods from the diet may reduce the smell of sulfur burps.
(1) Sulfur containing food preservatives, like guacamola, often used on dried fruits, salads in hotels, meat in fast-food restaurants or in pre-prepared canned foods. (2) Poultry (3) Red meats (4) Eggs (5) Dairy products, especially milk (6) Vegetables: asparagus, broccoli, cabbage, garlic, mustard, onions, pack choi, parsley, sweet potatoes, Swiss chard, tomatoes, watercress, yams (7) Legumes: beans, peas, lentils, soy, carob, jicama, alfalfa (8) Fruits: avocado, bananas, watermelon (9) Grains, nuts and seeds: corn, sunflower seeds, oats, cashews, walnuts, almonds, sesame seeds, coconut. (10) Tea and coffee (11) Whey proteins (12) Amino acids: cysteine, methionine (13) Vitamins B_1 (thiamine) and H (biotin) (14) Certain medicines may contain sulfur (also check labels for amino acids cysteine or methionine that contain sulfur).[1]

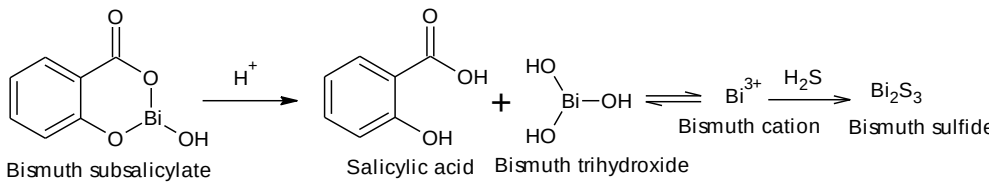
(b) Sulfur Reducing Microbes: Examples of sulfur reducing bacteria and some other microbes that can use sulfur compounds from the food and yield hydrogen sulfide as an end product:

Helicobacter pylori, a bacterium causing chronic gastritis, gastric or duodenal ulcer, upper abdominal bloating, heartburn and

burping. *H. pylori* is diagnosed by urea breath test; treatment is by antibiotics.
Giardia lamblia, a one-cell parasite, usually contracted by food or water poisoning, causing diarrhea, bloating, foul smelling burps or farts.

Intestinal bacteria that are part of normal intestinal flora but can cause bloating, burping, flatulence or diarrhea when they overgrow; condition is called small intestinal bacterial overgrowth (SIBO). SIBO may be also present in lactose intolerance or fructose mal-absorption. In certain diseases like celiac disease or Crohn's disease, foods may not be digested completely and can be therefore broken down by sulfur reducing bacteria that produce hydrogen sulfide.

(c) How to get rid of sulfur burps?
1. Remove as much as possible sulfur containing foods from your diet. This may reduce sulfur smell of burps and gas in a day or two. After that, you will still need to find the cause of belching or gas themselves. 2. If you suspect you might have celiac disease, besides the low-sulfur diet, try a gluten-free diet (no wheat, barley and rye). If your symptoms disappear or lessen considerably within a week or two, this speaks for celiac disease. 3. If you have history of peptic ulcer, stomach burning, gastric reflux and heartburn, visit a gastroenterologist and ask for a breath test for *Helicobacter pylori*. This bacterium is a common cause of sulfur burps. Treatment is with 7 or 10 day course of antibiotics. 4. If you are bloated and have excessive foul smelling gas or loose stools with mucus, ask your doctor for a stool test for ova and parasites since you may have infection with a parasite giardia. Treatment is with anti-parasitic drugs. 5. If you suspect Crohn's disease – symptoms include low grade temperature, nausea, fatigue, blood in the stool, diarrhea, bloating – visit gastroenterologist and ask for appropriate tests that may include colonoscopy. 6. If all above tests are negative, ask for breath test for small intestinal bacterial overgrowth (SIBO). 7. Gastric emptying test may reveal slow stomach emptying (gastroparesis). 8. Some people with gallstones reported that sulfur burps disappeared after gallbladder removal. Diagnosis of gallstones is with abdominal ultrasound or other gallbladder tests.[2]



To get rid of sulfur burps, sometimes you only need to remove some particular food(s) rich in sulfur, for example, Pina Colada, containing coconut cream. If you have sulfur burps but NOT sulfur gas (flatulence) the cause is probably in your stomach (*H. pylori* infection, gastroparesis). If you suffer from both sulfur burps and gas or only sulfur gas you may have small intestinal or gallbladder disorder. Pepto Bismol (bismuth subsalicylate), a popular antidiarrheal drug, binds hydrogen sulfide and removes it from the gastrointestinal tract thus reducing sulfur burps and gas. Pepto Bismol should not be used in children and no longer then 2-3 weeks in adults. Pepto Bismol usually colors your tongue and stool black.

Hydrogen Sulfide: Hydrogen sulfide gas produces an offensive "rotten egg" or "sulfur water" odor and taste in the water. In some cases, the odor may be noticeable only when the water is initially turned on or when hot water is run. Heat forces the

gas into the air which may cause the odor to be especially offensive in a shower. Occasionally, a hot water heater is a source of hydrogen sulfide odor. The magnesium corrosion control rod present in many hot water heaters can chemically reduce naturally occurring sulfates to hydrogen sulfide. A nuisance associated with hydrogen sulfide includes its corrosiveness to metals such as iron, steel, copper and brass. It can tarnish silverware and discolor copper and brass utensils. Hydrogen sulfide also can cause yellow or black stains on kitchen and bathroom fixtures. Coffee, tea and other beverages made with water containing hydrogen sulfide may be discolored and the appearance and taste of cooked foods can be affected. High concentrations of dissolved hydrogen sulfide also can foul the resin bed of an ion exchange water softener. When a hydrogen sulfide odor occurs in treated water (softened or filtered) and no hydrogen sulfide is detected in the non-treated water, it usually indicates the presence of some form of sulfate-reducing bacteria in the system. Water softeners provide a convenient environment for these bacteria to grow. A "salt-loving" bacteria, that uses sulfates as an energy source, may produce a black slime inside water softeners.[3]

Potential Health Effects: Hydrogen sulfide is flammable and poisonous. Usually it is not a health risk at concentrations present in household water, except in very high concentrations. While such concentrations are rare, hydrogen sulfide's presence in drinking water when released in confined areas has been known to cause nausea, illness and, in extreme cases, death. Water with hydrogen sulfide alone does not cause disease. In rare cases, however, hydrogen sulfide odor may be from sewage pollution which can contain disease-producing contaminants.

Therefore, testing for bacterial contamination and Sulfate Reducing Bacteria is highly recommended. Although many impurities are regulated by Primary or Secondary Drinking Water Standards set by the EPA, hydrogen sulfide is not regulated because a concentration high enough to be a drinking water health hazard also makes the water unpalatable. The odor of water with as little as 0.5 ppm of hydrogen sulfide concentration is detectable by most people. Concentrations less than 1 ppm give the water a "musty" or "swampy" odor. A 1-2 ppm hydrogen sulfide concentration gives water a "rotten egg" odor and makes the water very corrosive to plumbing. Generally, hydrogen sulfide levels are less than 10 ppm, but have been reported as high as 50-75 ppm. Hydrogen sulfide may be temporarily controlled by conducting a shock chlorination/disinfection of the well or water source. If the problem with the well is because of Sulfate Reducing Bacteria, a high level of chlorination, mixing and turbulence may be needed. If hydrogen sulfide odor is associated primarily with the hot water system, a hot water heater modification may reduce the odor. Replacing the water heater's magnesium corrosion control rod with one made of aluminum or another metal may improve the situation. To remove low levels of hydrogen sulfide, install an activated carbon filter. The filter must be replaced periodically to maintain performance. Frequency of replacement will depend on daily water use and concentration of hydrogen sulfide in the water. Hydrogen sulfide concentrations up to about 5-7 ppm can be removed using an oxidizing filter. These filters are similar to the units used for iron treatment. This filter

contains sand with a manganese dioxide coating that changes hydrogen sulfide gas to tiny particles of sulfur that are trapped inside the filter. The sand filter must be backwashed regularly and treated with potassium permanganate to maintain the coating.[4]

$$MnO_2 + 2H_2S \longrightarrow S + 2H_2O + MnS$$

Hydrogen sulfide concentrations exceeding 7-10 ppm can be removed by injecting an oxidizing chemical such as household bleach or potassium permanganate followed up by filtration. The oxidizing chemical should enter the water upstream from the storage or mixing tank to provide at least 30-45 minutes of contact time between the chemical and water. The length of the holding time is a function of the chemical dosage, tank configuration and water temperature. Sulfur particles can then be removed using a sediment filter and the excess chlorine can be removed by activated carbon filtration. When potassium permanganate is used a manganese greensand filter is recommended.

Hot water Heater Treatment (w/o chemicals). Sulfates and hydrogen sulfide are both common nuisance contaminants. Although neither is usually a significant health hazard, sulfates can have a temporary laxative effect on humans and young livestock. Sulfates also may clog plumbing and stain clothing. Hydrogen sulfide produces an offensive "rotten egg" odor and taste in the water, especially when the water is heated. If the odor is stronger in the hot water, we recommend the following:

a. Turn off the system and drain.
b. Allow the tank to refill, but raise the temperature to a level above 140°F.
c. Allow the tank to be set at this level for at least 6 hours
d. Turn off the system and reduce to normal temperature.
e. Allow the tank to refill.

If you have a well, it is recommend that you also shock disinfect the well and distribution system. We recommend using Well Sanitizer over chlorine or peroxide. Treatment options depend on the form and quantities in which sulfates and/or hydrogen sulfide occur in untreated water. Therefore, it is critical that a comprehensive water analysis be conducted. Small quantities of sulfate may be removed from water using distillation or reverse osmosis, while large quantities may be removed using ion exchange treatment. Hydrogen sulfide gas may be associated with the presence of Sulfate Reducing Bacteria. Hydrogen sulfide may be reduced or removed by shock chlorination, water heater modification, activated carbon filtration, oxidizing filtration or oxidizing chemical injection. Often treatment for hydrogen sulfide is the same as for iron and manganese, allowing the removal of all three contaminants in one process.[5]

Conclusion: Belching and burping after a meal can be quite embarrassing, especially if you are on a date. What causes this stomach wind - and how can you prevent it? Occasional belching or burping is normal and nothing to worry about. But persistent belching and burping could indicate underlying digestive system disorders. "In most instances, burping is due to excess air intake. By making simple lifestyle changes, you can help control stomach wind and alleviate the discomfort of belching"

What causes stomach wind?

There are two main causes of belching and burping:

•Swallowing excess air: Eating or drinking too quickly can cause you to swallow too much air. Belching or burping is the body's way of releasing that excess air. Sucking on sweets, drinking through straws, chewing gum and wearing loose

dentures may all trigger swallowing of excess air. Belching is common in people with heartburn or acid reflux. When stomach acids rise up the oesophagus, it's natural to swallow more to lessen the discomfort. Belching helps to release the excess air associated with constant swallowing.

•Underlying digestive problems: Persistent belching could be a sign of digestive conditions that require medical treatment. Some examples are delayed gastric emptying (gastroparesis) and peptic ulcer disease (painful sores in the stomach lining). Gallstones and gallbladder problems can, in some cases, cause symptoms such as belching. Even more rarely, cancer of the stomach or the oesophagus can explain the severe burping. If the burping is persistent and accompanied by symptoms such as nausea, pain, bloody stools, weight loss or fever, you should consult a doctor.

7 tips to prevent excessive belching and burping:

(1) Eat and drink slowly to avoid swallowing excess air. Avoid talking when you chew. (2) Avoid sucking on hard candy. (3) Cut down on carbonated drinks and beer. These drinks release carbon dioxide gas which may worsen belching and burping. (4) Don't use straws. Drink beverages, especially carbonated drinks, directly from a glass. (5) Stop smoking. Inhaling cigarette smoke results in excess swallowed air. (6) If you wear dentures, get them checked to make sure they are well fitting. (7) Manage your stress. Excess tension can cause you to swallow air.

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