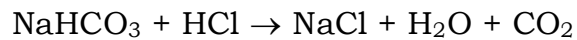


## TESTING FOR STOMACH ACID & FOR STOMACH ULCERS

### The “Burp Test” of Stomach Function

Much easier than invasive and expensive laboratory testing for adequate stomach hydrochloric acid is the baking soda challenge. Quite simply, baking soda in water is taken on an empty stomach (after at least a 10-hour over-night fast), and the subject awaits an uncontrollable BURP. This test is probably as reliable as the Heidelberg test. When sodium bicarbonate reacts with hydrochloric acid in the stomach it produces water, sodium chloride, and carbon dioxide. --- The carbon dioxide is belched up. The simple chemical equation is:



Why does this simple test work? Most people (including most doctors) do not realize that a healthy stomach, even when empty, is extremely acidic. In fact, the normal stomach has a pH below 2, and ideally very close to 1 at all times when it is empty. So, adding baking soda to an empty stomach should yield a burp within a few minutes.

There are actually 2 variables in a stomach that contains no food. One is the hydrochloric acid content of the stomach fluid, and the second is the quantity of stomach fluid. Any healthy person has an empty stomach pH of between 1 and 2, but some have a very dry stomach, and some have more fluid secretion at rest. (Generally, those who have higher secretion are your Parasympathetic types.)

**For the test, a person must be fasting for at least 10 hours. The patient drinks ¼-½ tsp. of baking soda in 4-6 oz. of water, then times how long until a big burp, or a series of small burps.**

**People with normal acidity and normal quantity of stomach contents will belch within 2 or 3 minutes. Those with normal acidity but high fluid content will burp sooner. Those with low stomach acid will not burp for 4 or 5 minutes, and those with rather marked hypochlorhydria will never burp, and may need to supplement with Proton Plus.**

Additional notes:

Those with low hydrochloric acid are those who are subject to H. pylori infections (and stomach ulcers), as well as yeast overgrowth of the GI tract. (Note that H. pylori is the cause of stomach ulcers, and H. pylori infection is both caused by and causes hypochlorhydria. Treating gastric/peptic ulcers with antacids is absolute insanity.)

Keep in mind, the acid burn associated with Esophageal reflux (GERD) is not a case of “too much stomach acid.” It is a matter of stomach acid being in the wrong place. For one of several possible reasons, there is dysfunction in the valve at the top of the stomach where food enters from the esophagus. When that valve does not seal properly, the acidic contents of the stomach can be pushed up into the esophagus, causing the burning sensation.

There can be many causes for the valve to be pushed open. One of the most common is that the valve at the bottom end of the stomach does not open when it should, allowing the food to be retained in the stomach far too long. A full meal should exit the stomach entirely within 4 or 5 hours. Some individuals with upper GI distress will hold food in the stomach for 10 hours or more, with pressure pressing up to the valve at the top of the stomach.

GERD is never caused by excess stomach acid, but frequently involves low stomach acid. Most cases of GERD have either insufficient stomach acid, which slows stomach emptying time and allows the stomach contents to be forced up into the esophagus. Some GERD cases have delayed stomach emptying for some other reason (such as the generalized autonomic failure that occurs as part of the aging process).

Some individuals (the Parasympathetic types) have an overabundance of fluid secretion into the stomach accompanied by a cardiac sphincter (where the esophagus empties into the stomach) that is “stuck” partially open. Food or drink entering that stomach with an already high fluid pressure, forces the stomach contents up through the open sphincter ⇒ GERD. (The PPI drugs work, not because they decrease acid, but because they force the stomach to empty prematurely, thus relieving the pressure.)

One common cause of this is insufficient hydrochloric acid, since the stomach acidity from adequate hydrochloric acid is a signal for the stomach to empty.

Another cause is a Sympathetic/Parasympathetic Imbalance in the autonomic nervous system that controls the motility of the GI tract and the function of the valve entering the top of the stomach and the valve exiting the bottom of the stomach.

Perhaps the most common cause and the simplest to remedy is that people eat too often. Ingesting food when the previous meal is still in the stomach is certain to cause fermentation of carbohydrates, which produces a tremendous amount of gas pressure.

How do Proton Pump Inhibitors relieve symptoms? Those drugs do 2 things. First, they neutralize stomach acid; second, they force the stomach to empty prematurely. The symptom relief comes from forcing the stomach to empty, which relieves any pressure on the valve up to the esophagus.

The neutralization of acid is a terrible thing. Stomach acid is absolutely required for protein digestion, and also for absorption of critical mineral and trace mineral nutrients such as calcium, magnesium, copper, selenium, and manganese. In people who take drugs that inhibit stomach acid over a period of years, the deficiency of magnesium can be so severe as to cause heart attacks.

[Some cases of GERD have nothing to do with stomach function at all, but rather are misdiagnosed as GERD when they are actually Eosinophilic Esophagitis (--- a first cousin to Eosinophilic Bronchitis (asthma), and Eosinophilic Fungal Rhinosinusitis.)]

The production of adequate hydrochloric acid in the stomach is dependent upon the formation of carbon dioxide metabolically produced in cells throughout the body. The carbon dioxide is converted by carbonic anhydrase to form carbonic acid, which in turn dissociates into bicarbonate ions and hydrogen ions. The hydrogen is transported into the stomach, as are chloride ions, to form the stomach hydrochloric acid.

----- Insufficient carbon dioxide production for any reason (--- thyroid insufficiency, Respiratory Alkalosis, Ketogenic or Anaerobic Metabolic Imbalances, insufficient intestinal microbiota to produce CO<sub>2</sub> in the colon, etc.) will decrease stomach hydrochloric acid production --- yielding hypochlorhydria and the consequent inefficient digestion and likely upper GI symptoms.

Note that histamine parallels Parasympathetic activity, so that antihistamine drugs inhibit gastric secretion, and thus cause inefficient digestion and upper GI symptoms. Of course, this is the mechanism by which histamine 2 blocker drugs give temporary relief of upper GI symptoms while actually perpetuating the cause of those symptoms. The antihistamine drugs decrease stomach acid and prematurely empty the stomach, thus relieving symptoms --- all the while they further decrease the essential production of hydrochloric acid, thus assuring that the symptoms will return as soon as the drug effect wears off.

----- In other words, the more a person takes these drugs, the more the person feels the need for them. (--- Nice game for the drug companies to play.)

Many GERD symptoms are associated with excess nitric oxide. Excess nitric oxide will cause inappropriate relaxation of the gastroesophageal sphincter valve (as will excess parasympathetic nerve activity). Nutrition supplements designed to inhibit nitric oxide biosynthesis include melatonin, along with

tryptophan, vitamin B6, folic acid, vitamin B12, methionine, and betaine. Research shows this supplementation achieves symptomatic relief in 100% of the patients with GERD, compared to only 66% symptom improvement in those taking proton pump inhibitors. ----- Another effective combination of supplements includes melatonin 6 mg, 5-HTP 100 mg, betaine 400 mg, taurine 50 mg, riboflavin 1.7 mg, vitamin B6 0.8 mg, folic acid 400 mcg, and calcium 50 mg. Reduction of melatonin to 3 mg results in the return of symptoms.

### **The Bromelain Test for Peptic/Duodenal Ulcers:**

An effective test to confirm the presence of peptic and duodenal ulcers is to have the patient swallow bromelain tablets on an empty stomach. If upper GI symptoms are due to an ulcer they will be provoked by the bromelain, a protein digesting enzyme.

Instructions: Take one tablet on an empty stomach (First thing in the morning is an ideal time.). If ulcer pain occurs, then stop. If no reaction, then the next time the stomach is empty (at least 5 hours after eating, or better yet, the next morning) take 2 tablets. Repeat, if necessary with 3 tablets, then with 4. Within a few days you will have confirmed presence of an ulcer or not. (No enteric coated tablets.)

The mechanism behind bromelain as a diagnostic aid for upper GI ulcers is simple --- bromelain is a proteolytic enzyme. When there is an ulcer the mucosal tissue is exposed and unprotected --- essentially, it is raw meat. The bromelain will literally begin to “digest” the lesioned tissues on a small scale. (For your information, most meat tenderizers are either bromelain or papain --- and the way they work is by digesting the meat protein.)

You must understand that you will actually be exacerbating the ulcer in a very minor way --- that is why you start with one tablet, looking for a mild but definitive response. Go no higher than four tablets.