



Using Betaine Hydrochloride & Digestive Enzymes for Indigestion

©2014 Huntington College of Health Sciences

Literature Education Series On Dietary Supplements

By Gene Bruno, MS, MHS, RH(AHG)

Smart Supplementation™ is a free series of educational literature created by Huntington College of Health Sciences (HCHS) as a public service. Although copyrighted, it may be freely photocopied and distributed, but may not be altered in any way. Smart Supplementation™ is not intended as medical advice. For diagnosis and treatment of any medical condition, consult your physician.

Indigestion, or dyspepsia, commonly refers to general abdominal discomfort during and after meals and may be the result of specific diseases of the stomach or the intestines. The most frequently occurring symptoms are diarrhea, heartburn, abdominal cramps and pain, gas distress, and nausea. Some common causes of indigestion in the stomach include swallowing air in large amounts and ulcers. In the intestine, indigestion can arise from colitis, viral or bacterial infections, and chronic inflammation. Other causes include gallstones, malignant growths, and emotional tension. A physician should be consulted when the indigestion is persistent.

Heartburn is a mild to severe burning pain in the upper abdomen or beneath the breastbone. It usually results from regurgitation into the esophagus of the stomach contents, the gastric-acid levels of which cause irritation. Heartburn typically occurs after meals, often after those containing fatty foods, or when a person is lying down. Persistent or severe heartburn may be associated with a disorder of the lower esophageal sphincter, which normally prevents stomach contents from entering the esophagus, or with hiatus hernia, a protrusion of part of the stomach through a weak spot in the diaphragm.

If you have indigestion or heartburn, you might easily assume your stomach is overproducing acid, since nearly everyone and everything tells us so. Television, radio, newspapers and doctors will tell us “take antacids” and gas-reducing medication and possibly tell us to cut down on spicy and greasy foods. When antacids don’t work, drugs that inhibit acid secretion are used, or medication which “foams up” to buffer and protect the stomach lining from acid. Bloating, belching, indigestion and burning after meals are just assumed by sufferers and doctors alike to be due to “excess stomach acid.” Many clinicians, however, have discovered that after supervising literally thousands of very precise stomach tests for people with these symptoms, excess acidity is the cause in only a very small minority. In the overwhelming majority of individuals with heartburn, indigestion, bloating and belching after meals, careful testing confirms just the opposite, underproduction, not overproduction of acid. The good news is that there are natural digestive aids that can help.

Betaine Hydrochloride

To address the issue of low stomach acid (aka, hypochlorhydria), the use of betaine hydrochloride as supplemental sources of hydrochloric acid is indicated. Based upon clinical experience¹, these supplemental sources of hydrochloric acid often relieve the symptoms of heartburn and improve digestion in people who have hypochlorhydria. The amount used varies with the size of the meal and with the amount of protein ingested. Furthermore, the importance of maintaining healthy levels of hydrochloric acid is underscored by other key roles that this digestive aid plays in the body.

For example, hydrochloric-acid secretion from the stomach, pancreatic enzymes, and bile all inhibit the overgrowth of *Candida* and prevent its penetration into the absorptive surfaces of the small intestine.^{2 3 4} Likewise, many minerals and vitamins require adequate concentrations of stomach acid to be optimally absorbed from food or supplements.^{5 6 7 8 9 10}

So if you're low in hydrochloric acid, how do you know how much to supplement with? One way is the use of a self-test is to estimate the amount of supplemental hydrochloric acid (HCl) you need to reestablish adequate stomach acid. Here's how you do it:

1. Begin by taking 1 capsule at your next large meal. At every meal after that of the same size, take 1 more capsule (1 capsule at the next meal, 2 at the meal after that, then 3 at the next meal, and so on).
2. Continue to increase the dose until you reach 7 capsules or you feel a warmth in your stomach, whichever occurs first. A feeling of warmth in the stomach means that you have taken too many capsules for a meal of that size. Take 1 less capsule the next time. However, it is a good idea to try the larger dose again at another meal to make sure that it was the hydrochloric acid that caused the warmth and not something else.
3. After you have determined the largest dose that you can take at your large meals without feeling any warmth, maintain that dose at all meals of similar size. Take fewer capsules with smaller meals.
4. When taking several capsules, it is best to take them throughout the meal rather than all at once.
5. As your stomach begins to regain the ability to produce the amount of hydrochloric acid needed to properly digest your food, you will notice the warm feeling again. This is the time to start decreasing the dose level.
6. Every 3 days, decrease by 1 capsule per meal. If the warmth continues, decrease more rapidly. If maldigestion symptoms return, add capsules back until digestion improves again.

Multi-Digestive Enzyme

Both human and animal research has demonstrated that certain digestive enzymes produced by the pancreas reduce with age.^{11 12} In addition, pancreatic insufficiency may occur for other reasons, including pancreatic and non-pancreatic diseases—both of which may cause an impaired production of pancreatic digestive enzymes, resulting in poor digestion and malnutrition. In fact, there's a very exact and not-too-expensive "stool analysis" test you can get through your doctor to determine pancreatic enzyme function. If your enzymes are low, than you may want to consider a pancreatic enzyme supplement which has been successful in improving digestion in these situations.

In one study, previously housebound patients with pancreatic insufficiency who used a digestive enzyme supplement were able to return to a near-normal social and work life-style.¹³ In another study, patients with impaired digestion due to severe pancreatic insufficiency also experienced impaired secretion of cholecystokinin (CCK)¹⁴—an intestinal hormone that stimulates bile secretion and consequent fat digestion. Supplementation with digestive enzymes caused these patients to experience a significant increase in their CCK levels.¹⁵ A number of studies have shown that patients with cystic fibrosis (who also have impaired digestion due to pancreatic insufficiency), experienced improved digestion after supplementation with a digestive enzyme supplement.^{16 17 18} Research has also shown that individuals with chronic pancreatitis (a inflammatory condition of the pancreas leading to insufficient enzyme and hormone secretion) also experienced digestive improvement with digestive enzyme supplements.^{19 20} In addition, several studies have shown that inadequate digestive enzyme production can be caused by various non-pancreatic digestive diseases, and responds well to digestive enzyme supplements.²¹

Diet and/or other considerations

In a very small minority of individuals with heartburn and indigestion, stomach testing reveals normal or over acidity. In these few

people, both diet changes and supplemental items can help. Elimination of caffeine, refined sugar, alcohol and cigarette smoking are all recommended, even though sometimes hard to do. For some, identification and elimination of food allergies or sensitivities reduces heartburn and indigestion. There are other problems that may cause or be associated with heartburn, bloating and belching after meals, and indigestion. These can include peptic ulcer, malfunction of the sphincter muscle at the end of the esophagus and other much more rare problems. If you have these symptoms, it's best to work with a doctor to establish what the cause might be before accepting the popular but usually-mistaken belief that indigestion, bloating and heartburn are all just due to "too much stomach acid."

References

- ¹ Wright JV. *Dr. Wright's Guide to Healing with Nutrition*. New Canaan, CT: Keats Publishing, 1990, 155.
- ² Boero M, Pera A, Andriulli A, et al. Candida overgrowth in gastric juice of peptic ulcer subjects on short- and long-term treatment with H₂-receptor antagonists. *Digestion* 1983;28:158–63.
- ³ Rubinstein E. Antibacterial activity of the pancreatic fluid. *Gastroenterology* 1985;88:927–32 [review].
- ⁴ Sarker SA, Gyr R. Non-immunological defense mechanisms of the gut. *Gut* 1990;33:1331–7 [review].
- ⁵ Murray MJ, Stein N. A gastric factor promoting iron absorption. *Lancet* 1968;1:614.
- ⁶ Sturniolo GC, Montino MC, Rossetto L, et al. Inhibition of gastric acid secretion reduces zinc absorption in man. *J Am Coll Nutr* 1991;10:372–5.
- ⁷ Allison JR. The relation of hydrochloric acid and vitamin B complex deficiency in certain skin conditions. *South Med J* 1945;38:235–41.
- ⁸ Russell RM, Krasinski SD, Samloff IM. Correction of impaired folic acid (Pte Glu) absorption by orally administered HCl in subjects with gastric atrophy. *Am J Clin Nutr* 1984;39:656.
- ⁹ Schade SG, Cohen RJ, Conrad ME. Effect of hydrochloric acid on iron absorption. *N Engl J Med* 1968;279:672–4.
- ¹⁰ Bezwoda W, Charlton R, Bothwell T, et al. The importance of gastric hydrochloric acid in the absorption of nonheme food iron. *J Lab Clin Med* 1978;92:108–16.
- ¹¹ Laugier R, et al, *Digestion* (1991) 50(3-4):202-11.
- ¹² Wang CS, Floyd RA, Kloer HU, *Pancreas* (1986) 1(5):438-42.

- ¹³ Valerio D, et al, *JPEN J Parenter Enteral Nutr* (1981) 5(2):110-4.
- ¹⁴ Jansen JB, et al, *Regul Pept* (1989) 25(3):333-42
- ¹⁵ Ibid.
- ¹⁶ Hillel PG, et al, *Nucl Med Commun* (1998) 19(8):761-9.
- ¹⁷ Benabdeslam H, et al, *Am J Clin Nutr* (1998) 67(5):912-8.
- ¹⁸ Ansaldi-Balocco N, Santini B, Sarchi C, *J Pediatr Gastroenterol Nutr* (1988) 7 Suppl 1:S40-5.
- ¹⁹ Van Hoozen CM, et al, *Pancreas* (1997) 14(2):174-80.
- ²⁰ Delhaye M et al, *Eur J Gastroenterol Hepatol* (1996) 8(7):699-703.
- ²¹ Gullo L, *Digestion* (1993) 54 Suppl 2:43-7.



For more than two decades, Huntington College of Health Sciences (HCHS) has offered more than a conventional undergraduate or graduate education. Our accredited*, distance learning degrees and diploma programs also include the breadth of responsible complementary and alternative medicine viewpoints, providing our students with a well-rounded and comprehensive approach to nutrition and the health sciences:

- Doctor of Health Science in Integrative Healthcare
- Master of Science in Nutrition
- Healthcare Master of Business Administration
- Bachelor of Health Science in Nutrition
- Associate of Science in Applied Nutrition
- Diploma in Comprehensive Nutrition
- Diploma in Dietary Supplement Science
- Diploma in Integrated Personal Training
- Diploma in Sports Nutrition
- Diploma in Women's Nutrition
- Diploma in Small Business Management

117 Legacy View Way
 Knoxville, TN 37918
 865-524-8079 • 800-290-4226
 E-Mail: studentservices@hchs.edu
www.hchs.edu

*Accredited member Distance Education & Training Council.