DR. AUBURN'S ADVANCED NUTRITIONALS

BETAINE WITH PEPSIN

CLINICAL APPLICATIONS

- Provides Hydrochloric Acid to Help Maintain Gastric pH
- Promotes Healthy Digestion, Especially of Dietary Protein
- Supports Overall Nutrient Absorption

Betaine & Pepsin provides two essential components of healthy digestion: hydrochloric acid (HCl) and the digestive enzyme, pepsin. Hydrochloric acid is vital for the proper digestion of protein and the absorption of vitamins and minerals (especially vitamin B12, calcium, magnesium, copper and zinc). HCl also plays an important role in signaling the pancreas to release digestive enzymes. Pepsin is one of the first enzymes to initiate protein digestion and works in synergy with HCl to provide complete protein digestive support. Betaine & Pepsin contains 1,040 mg betaine HCl USP and 208 mg pepsin per serving.

Overview

Symptoms of indigestion are often mistaken for excessive gastric acid. This leads many to take acid blockers in attempt to lower stomach acid, when the true culprit is likely to be insufficient levels of HCl. The resulting reduction in stomach acidity can lead to impaired protein digestion and mineral breakdown over time, as well as changes in the gut flora and promotion of unwanted bacteria such as *H.pylori*. Maintaining adequate levels of HCl is fundamental to healthy protein digestion, nutrient availability and maintenance of beneficial gastric flora.[1-3] Betaine HCl and pepsin are produced by the hormone gastrin. Gastrin signals the gastric glands and parietal cells to produce HCl, and stimulates chief cells to produce pepsin. Once the pH of the stomach reaches around 2.0, the gastrin mechanism slows and the negative feedback causes parietal cells to decrease production of HCl. Since pepsin is most active in low pH values, gastric juices must be acidic for the enzyme to function. Support of natural gastric secretions and acidity with Betaine & Pepsin supports normal digestion, absorption and optimal immune health.[4] In addition, maintaining an acidic pH in the stomach helps support normal gastric and intestinal flora.[5-7]

Deficiency†

An estimated 30% of Americans suffer from low levels of acidity, which can result in the incomplete digestion of foods and displacement of food from the stomach. Studies have shown that HCl production decreases with age. According to one study, 30% of men and women suffer from low acid production.[8] A second found that 40% of post-menopausal women lacked basal acid secretions.[9] Since HCl and healthy digestive enzyme status is essential for access to nutrients from foods, depletion of enzymes and HCl can result in suboptimal nutritional status. Ongoing use of acid- reducing medications can also deplete stomach acid and lead to malabsorption of certain vitamins and minerals.

Betaine†

Betaine (also known as trimethylglycine) is a natural substance found in foods such as beets and spinach. Research suggests that betaine supports cell health by acting as a methyl donor, This, in turn, supports healthy methionine, homocysteine and hepatic fat metabolism. Betaine also functions as an osmolyte, which supports the integrity of cells and proteins during fluctuations in hydration, salinity and temperature. Betaine HCl, the acidic form of betaine, has been used for years to support digestion and absorption due to its ability to lower gastric pH.[10,11] HCl also serves as the body's primary mechanism against pathogens found in food.

Pepsin†

One of the first enzymes to initiate protein digestion, pepsin is synthesized in the parietal cells of the gastric mucosa and secreted as the inactive precursor, pepsinogen. HCl activates pepsinogen to convert it to pepsin once it is outside the cell. Pepsin is released by the chief cells and is responsible for breaking down proteins into peptides. This activation sets up a chain reaction that produces more pepsin, allowing for better protein digestion.

Directions
1-2 capsules before each meal, or as recommended by your health care professional.

Does Not Contain
Gluten, corn, yeast, artificial colors and flavors.

Cautions
If you are pregnant or nursing, consult your physician before taking this product.

Supplement Facts V2

Serving Size: 2 Capsules
Servings Per Container: 112

2 capsules contain	Amount Per Serving	% Daily Value
Betaine HCl USP	1,040 mg	*
Pepsin 1:3,000 Powder	208 mg	*

* % Daily Value not established

References

1. Bland J, Liska D, Jones DS, et al. Clinical Nutrition A Functional Approach. 2nd ed. Gig Harbor, WA: The Institute for Functional Medicine. 2004.
2. Giannella RA, Broitman SA, Zamcheck N. Gastric acid barrier to ingested microorganisms in man: studies in vivo and in vitro. *Gut*. 1972 Apr;13(4):251-6. [PMID: 4556018].
3. Lovat LB. Age related changes in gut physiology and nutritional status. *Gut*. 1996 Mar;38(3):306-9. [PMID: 8675079].
4. Untersmayr E, Jensen-Jarolim E. The effect of gastric digestion on food allergy. *Curr Opin Allergy Clin Immunol*. 2006 Jun;6(3):214-9. Review. [PMID: 16670517].
5. Smolin LA, Grosvenor MB. Nutrition: Science and Applications. 2nd ed. Hoboken, NJ: John Wiley & Sons, Inc. 2010.
6. Canani RB, Terrin G. Gastric acidity inhibitors and the risk of intestinal infections. *Curr Opin Gastroenterol*. 2010 Jan;26(1):31-5. Review. [PMID: 19907324].
7. Kanno T, Matsuki T, Oka M, et al. Gastric acid reduction leads to an alteration in lower intestinal microflora. *Biochem Biophys Res Commun*. 2009 Apr 17;381(4):666-70. [PMID: 19248769].
8. Krasinski SD, Russell RM, Samloff IM, Jacob RA, Dallal GE, McGandy RB, Hartz SC. Effect on hemoglobin and several serum nutritional indicators. J Am Geriatr Soc. 1986 Nov;34(11):800-6. Fundic atrophic gastritis in an elderly population.
9. Grossman MI, Kirsner JB, Gillespie IE. Basal and histalogstimulated gastric secretion in control subjects and in patients with peptic ulcer or gastric cancer. *Gastroenterology* 1963;45:15-26.
10. Craig SA. Betaine in human nutrition. Am J Clin Nutr. 2004 Sep;80(3):539-49. *Review*. [PMID: 15321791].
11. New York University Langone Medical Center. Betaine Hydrochloride. http://www.med.nyu.educontent?ChunkIID=21560. Last Reviewed 2011. Accessed March 23, 2012.