

Digestive Support

Enzymes - HCl™

Description

Enzymes-HCl™ is a comprehensive enzyme formula designed to support both gastric and intestinal digestive functions.* Contains plant-sourced betaine HCl and pancreatin.

Features & Benefits

- Supports all major phases of digestion
- Includes a full spectrum of protease enzymes
- May improve endogenous digestive enzyme release
- Enhances nutrient bioavailability*

Suggested Usage

As a dietary supplement, 1-2 capsules should be taken with each meal or as directed by a healthcare professional.

Allergen Checklist

Contains no sugar, salt, starch, yeast, wheat, gluten, corn, soy, milk, egg or preservatives.

Cautions / Interactions

Digestive enzymes may interact with some diabetes medications.⁸ Caution should be exercised when used in conjunction with Arcarbose. Not recommended for use where there is hypersecretion of gastric acid or related gastric conditions.



Technical Summary

Enzymes-HCl™ is a comprehensive blend of enzymes that supports healthy digestive functions. Bromelain, Ox Bile, Pancreatin and Papain have been formulated to optimize the breakdown of fats, carbohydrates and protein for maximum assimilation.*

Mechanisms of Action

Betaine HCl acts as a carrier for hydrochloric acid and may improve or promote healthy digestion by supporting proper stomach pH and the release of endogenous pancreatin into the small intestine.^{2,7} Lower stomach pH subsequently triggers a larger release of bicarbonates and other factors conducive to enzyme actions. In addition, betaine is a metabolite of choline, an important lipotropic agent.* Choline is a methyl donor and supports liver function. Moreover, choline is involved in bile metabolism in general, including the removal of many toxins that are disposed of via this route. Similarly, choline supports the digestion of fats through emulsification by bile.*

Systemic effects such as balancing effects on immunity and inflammatory response, as well as overall healing time have been suggested but are without complete supporting data. It sometimes is argued that supplemental digestive enzymes, for instance, can reduce affect the overall burden of circulating immune complexes.*

Clinical Applications

With advancing age, the release of hydrochloric acid in the stomach and of pancreatin in the small intestine declines and this negatively affects digestion and nutrient absorption.^{4-6, 9-10} Hypochlorhydria (lower stomach acid)⁹⁻¹⁰ occurs with increasing frequency as individuals advance into old age.⁹⁻¹⁰

One-half of adults may present severely reduced stomach acid by age 60.¹⁰ (Fig. 1) Betaine HCl either alone or in combination with other agents commonly is recommended for digestive support in such cases.*

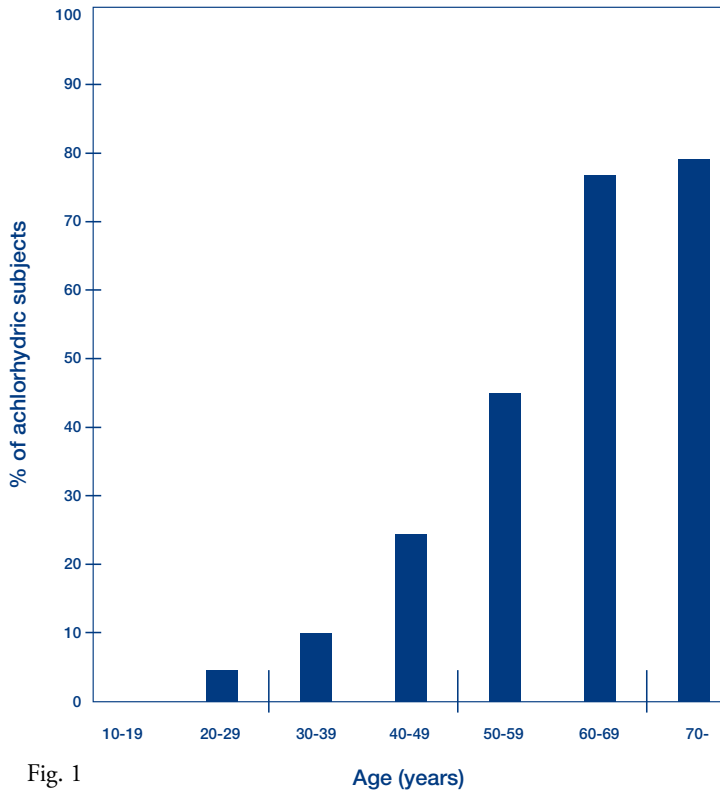


Fig. 1 Age (years)

Whether the decline in the release of hydrochloric acid reflects an age-related reduction in production (i.e., a decline in basal and stimulated acid production) or rather is the result of increasing rates of atrophic gastritis, infection with *H. pylori*, etc. continues to be debated. Proponents of a role for *H. pylori* point to age-related increases in infection in industrialized countries. In the U nited States, for example, two different surveys estimated infection rates by age 60 to range between approximately 50 percent and more than 80 percent.¹¹ Regardless of the source of diminution of digestive function, supplementary digestive enzymes may enhance the breakdown of foods, especially protein and fat, and thereby increase nutrient absorption.^{3*}

Complementary Products

Dairy Digestion™ (Product Code P2956) may be used in conjunction with Enzymes-HCl by those who desire to supplement with lactase due to lactose intolerance. **Peppermint Oil G.I.™ (Product Code P4727)** may be used to calm gastrointestinal upset. **PepZin GI® Soothe™ (Product Code P3345)** is designed to protect and support healthy stomach and intestinal linings.

Supplement Facts

Serving Size 1 Capsule	
Amount Per Serving	
Betaine HCl (from Beets and Molasses)	200 mg*
Pancreatin 4X	200 mg*
Supplying:	Amylase 20,000 USP units*
	Protease 20,000 USP units*
	Lipase 3,400 USP units*
Ox Bile Extract (45% Cholic Acid)	100 mg*
Bromelain 2,400 GDU/g (from Pineapple)	50 mg*
Papain 2M USP units/mg Powder (from Papaya)	50 mg*
Pepsin NF 1:10M units Powder	50 mg*
Papaya Fruit Powder	45 mg*
Pineapple Juice Powder	45 mg*
Cellulase 1M FCC/g Powder	10 mg*

Other Ingredients: Gelatin (capsule), Cellulose, Magnesium Stearate and Silica.

Free of: sugar, salt, starch, yeast, wheat, gluten, corn, soy, milk, egg or preservatives.

Suggested Use: As a dietary supplement, take 1-2 capsules with or between each meal.

REFERENCES

- Zentler-Munro PL, Northfield TC. Aliment Pharmacol Ther. 1987 Dec;1(6):575-91. Review. <http://www.ncbi.nlm.nih.gov/pubmed/2979686>
- Sitrin MD. Section II, Nutritional Physiology, Chapters 6-8. In: Gastrointestinal, Hepatobiliary, and Nutritional Physiology. Chang EB, Sitrin MD, Black DD. 1996. Lippincott-Raven, Philadelphia.
- Farges MC, Vasson MP, Davot P, Villie F, Meunier MT, Marcollet M, Cynober L. Nutrition 12(3):189-194. <http://www.ncbi.nlm.nih.gov/pubmed/8798223>
- Laugier R, Bernard JP, Berthezene P, Dupuy P. Digestion. 1991;50(3-4):202-11. <http://www.ncbi.nlm.nih.gov/pubmed/1812045>
- Morley JE. The Aging Gut: Physiology. Clin Geriatr Med. 2007 Nov;23(4):757-67. <http://www.ncbi.nlm.nih.gov/pubmed/17923336>
- Holt PR. Intestinal malabsorption in the elderly. Dig Dis. 2007;25(2):144-50. <http://www.ncbi.nlm.nih.gov/pubmed/17468550>
- Guyton AC, Hall JE. Chapter 63, Propulsion and Mixing of Food in the Alimentary Tract. Textbook of Medical Physiology, 11th Ed. 2006, Elsevier, Inc., Philadelphia.
- Martindale: The Extra Pharmacopoeia. Martindale W. and Westcott W. Eds. Pharmaceutical Press, London, 1999.
- Davies DT, Illtyd TG. QJ Med 1930, 23:-10.
- Morihara M, Aoyagi N, Kaniwa N, Kojima S, Ogata H. Biol Pharm Bull. 2001 Mar;24(3):313-5. <http://www.ncbi.nlm.nih.gov/pubmed/11256493>
- Taylor DN, Blaser MJ. Epidemiol Rev. 1991;13:42-59. Review. <http://www.ncbi.nlm.nih.gov/pubmed/1765119>

Formulated by doctors and clinical scientists exclusively for licensed healthcare practitioners. Manufactured in an A-rated Good Manufacturing (GMP) Certified facility.



Protocol For Life Balance™

Manufactured by NHG, Bloomingdale, IL 60108 Made in the U.S.A.

Toll Free 877.PROT010 / Fax 800.886.1045 / www.protocolforlife.com



*This statement has not been evaluated by the FDA. This product is not intended to diagnose, treat, cure or prevent any disease.