

PaleoZyme™

Novel, Paleo-compliant formulation to support healthy digestion and a proper inflammatory response



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PaleoZyme™ is a Paleo-friendly, allergen-free enzyme formulation designed to support digestion and a healthy inflammatory response.

Highlights

- Allergen-free enzymes which are derived from porcine pancreatic enzymes and bromelain from pineapple.
- Enteric coating protects enzymes from being denatured by stomach acid and pepsin, while also protecting the lining of stomach and esophagus from proteolytic action.
- Targets a delayed release in the less acidic environment of the duodenum for maximal efficacy.
- Includes ox bile to support emulsification of fats.

PaleoZyme™ may benefit those with:¹³⁻¹⁹

- ▶ Pancreatic exocrine insufficiency due to aging and individual pathologies
- ▶ Chronic pancreatitis due to excessive alcohol consumption
- ▶ Cystic fibrosis
- ▶ Pancreatic cancer or resection
- ▶ Conditions associated with excess accumulation of immune complexes, potentially resulting in a chronically activated immune system and autoimmunity. This phenomenon may involve joints or other tissues, causing pain and inflammation.

Unlike in modern times, in Paleolithic times our hominid ancestors likely consumed organ meats on a regular basis. This may have provided them a direct source of nutrients and enzymes that are not as plentiful in our current diet, such as pancreatic enzymes. The pancreatic enzymes in this product are of porcine origin, which are nearly bioidentical to human enzymes. PaleoZyme™ is free of grain, legume, and dairy-sourced ingredients, making it ideal for those with sensitivities to these common allergens and those who prefer to maintain a strict Paleo diet.

PaleoZyme™ is specifically formulated to aid in the digestion of protein (with enzyme action from trypsin, chymotrypsin and bromelain), carbohydrates (enzyme action from amylase), and fat (enzyme action from lipase and emulsification from ox bile).^{1,13-19} The synergistic actions of bromelain, trypsin and chymotrypsin provide enhanced protein digestion, since each of these has distinct cleavage specificity for particular amino acids. Proper breakdown of proteins and peptides may ultimately result in reduced allergenicity of food proteins.

Bromelain is a family of sulfhydryl-containing proteolytic enzymes obtained from *Ananas comosus*, the pineapple plant. Bromelain has been used as a digestive enzyme following pancreatectomy, in cases of exocrine pancreas insufficiency, and in other intestinal disorders.⁴ The combination of ox bile, pancreatin, and bromelain has been shown to be an effective enzyme replacement therapy in patients with pancreatic steatorrhea, resulting in symptomatic improvements in pain, flatulence and stool frequency.⁵

Advantages of Enteric Coating

- The enteric coating protects digestive enzymes from being denatured by stomach acid, preserving their activity for the higher pH of the duodenum, where pancreatic enzymes are normally released and are intended to function.²⁰⁻²²
- Enteric coating is the preferred delivery for patients with various types of stomach irritations due to hyperchlorhydria, H. pylori, gastritis, stomach ulcer, or esophageal problems caused by acid reflux or excessive alcohol consumption. For these individuals, microbial enzymes are not recommended if they are acid resistant, because they may have undesirable proteolytic action on the lining of the stomach or the esophagus.

Bile Benefits

The addition of ox bile aids in emulsification of fats, which in turn supports improved fat absorption. This is especially important for patients with steatorrhea caused by impaired pancreatic lipase secretion.

Why is this formula free of HCl and pepsin?

Since multiple factors unrelated to pancreatic function may affect stomach acid production and secretion, it is prudent to dose HCl separately. Additionally, since PaleoZyme™ is specifically suited for patients with stomach and esophageal problems, additional HCl may be problematic. Pepsin was also excluded from this formula because it is meant to work in the acidic environment of the stomach; it loses its activity at higher pH, the condition under which PaleoZyme™ capsules are formulated to be activated.

Systemic Anti-Inflammatory Effects

PaleoZyme™ may have significant systemic anti-inflammatory effects, especially when taken on an empty stomach. This is because both pancreatic proteases and bromelain have been proven to be partially absorbed intact in the blood. One study estimated that trypsin and chymotrypsin may be absorbed through the GI tract at a rate of 10%,² while bromelain has been shown to be absorbed intact in the bloodstream, up to 40%, peaking one hour after ingestion.³

The mechanistic potential for anti-inflammatory actions is supported by the observed reduction in pain and inflammation by enterically coated pancreatic enzyme therapy^{23,24} and modulation of various inflammatory markers by bromelain. Specifically, bromelain exhibits anti-inflammatory activity via inhibiting the generation of bradykinin at the inflammatory site, and via depletion of the plasma kallikrein system.⁶⁻⁸

Additional Benefits of Bromelain

In addition to its protein-denaturing activity, bromelain has been shown to stimulate conversion of plasminogen to plasmin, resulting in increased fibrinolysis, as well as decreasing platelet aggregation¹⁰ and inhibiting formation of fibrin by reducing clotting cascade intermediates.⁹ Bromelain may be effective in reducing symptoms of allergic rhinitis.¹¹ In a clinical study of 124 patients hospitalized with chronic bronchitis, pneumonia, bronchopneumonia, bronchiectasis, or pulmonary abscess, those receiving bromelain orally showed a decrease in the volume and purulence of the sputum.¹²

Supplement Facts

Serving Size 1 capsule

Amount Per Serving	% Daily Value
Pancrelipase (providing)	333 mg *
Pancreatic Lipase	8,000 USP Lipase *
Pancreatic Protease	33,333 USP Protease *
Pancreatic Amylase	33,333 USP Amylase *
Desiccated Ox Bile	50 mg *
Bromelain	33 GDU *

*Daily Value not established.

Other Ingredients: Tapioca dextrin, delayed release capsule (hydroxypropyl methylcellulose [HPMC], water, gellan gum), medium chain triglycerides.



Recommended Use

- ▶ As a dietary supplement, take one capsule three times per day with meals, or as directed by your health care practitioner.

Additional Dosing Suggestions

- ▶ **As a Digestive Aid**
 - 1-3 PaleoZyme™ capsules may be taken per meal, distributed in the beginning and throughout meals, or as directed by a health care practitioner
 - PaleoZyme™ may be taken along with Betaine HCl if and as needed
 - AllerGzyme™ may be added to address gluten and other difficult-to-digest proteins
- ▶ **As Anti-Inflammatory Support and Further Reduction of Allergic Response to Foods**
 - 1-3 capsules of PaleoZyme™ may be taken on an empty stomach between meals to maximize the proteolytic enzymes' absorption in the bloodstream
 - PaleoZyme™ may be part of an inflammation control protocol that includes any combination of the following Designs for Health products: Inflammatone™, Arthroben®, ArthroSoothe™ cream or capsules, ArthroSoothe™ Supreme, or Curcum-Evail®, as well as the entire range of OmegaAvail™ fish oil and fatty acid products.

For a list of references cited in this document, please visit:

http://catalog.designsforhealth.com/assets/itemresources/PaleoZyme_References.pdf

To contact Designs for Health, please call us at (860) 623-6314, or visit us on the web at www.designsforhealth.com.