

VASCUZYME



CLINICAL APPLICATIONS

- *Maintains Normal Inflammatory Balance*
- *Provides Support for a Healthy Immune Response*
- *Supports Recovery from Exercise and Physical Stress*
- *Helps Support Blood Vessel and Cardiovascular Health*

CARDIOVASCULAR HEALTH

Vascuzyme, a comprehensive multi-enzyme formula, helps support normal blood circulation and vessel function, and maintains normal inflammatory balance. It also promotes recovery from exercise and physical stress by supporting the breakdown of unwanted proteins, aiding the body's natural repair processes. For a normal recovery process, Vascuzyme has applications for a broad range of health needs. Vascuzyme's enzyme blend includes, protease, amylase, papain, trypsin, lipase, chymotrypsin, bromelain and serratiopeptidase, along with quercetin and rutin, two well-known flavonoids.

Overview

Enzymes are complex proteins that catalyze metabolic reactions throughout the body, and sufficient levels are required for optimizing many of the body's functions. Although the body produces its own supply of enzymes, the amount produced can vary from person to person and is affected by age, diet, biochemistry and stress. Enzymes fall into three broad categories: metabolic enzymes, manufactured by cells to carry out various functions; digestive enzymes, primarily manufactured by the pancreas to digest foods and absorb nutrients and food enzymes; and exogenous (from outside the body) enzymes from plants and animals, also necessary for aiding and accelerating digestion. Systemic enzymes support the breakdown of unneeded proteins, which research has shown to be an important component of cardiovascular health and supporting optimal blood vessel function. In cases of soft tissue discomfort from post-exercise pain, systemic enzymes help break down fibrin to support areas of inflammation and reduce recovery times. Research has shown that proteolytic

enzymes are well-absorbed from the gastrointestinal tract into the systemic circulation.^{1,2}

Research†

Studies have highlighted the efficacy of systemic enzyme therapy for a variety of uses, including maintaining normal inflammatory balance, nasal passage health, bronchial health,^{3,4} musculoskeletal health and exercise-related recovery.⁵⁻⁸ In vitro, animal and human data show that enzyme therapies are capable of cleaving immune complexes, which are known inflammatory mediators.^{9,10} In one study, among four different types of immune complexes prepared in vitro and incubated with different concentrations of an enzyme mixture (papain or pancreatin) approximately 90% of the antigen complexes were cleaved by low doses of enzymes. In addition, antibody complexes were gradually cleaved by concentrations from 5-80 mg.¹¹

Proteolytic enzymes have also been shown to reduce levels of the immune marker, TGF- β (Transforming Growth Factorbeta), by converting the protease inhibitor alpha2M from the slow form into the fast form, which binds and inactivates TGF- β . In one study, oral proteolytic enzyme therapy reduced TGF- β levels, maintaining normal inflammatory balance.¹² A study done in children who were given either a polyezyme mixture or a monoenzyme agent, found that those receiving the polyezyme mix maintained optimal balance of proinflammatory cytokines (IL-2, IL-6, and TNF- α). Additionally, the beneficial cytokine IL-4 demonstrated the potency of polyezyme therapy to maintain normal inflammatory balance and promote tissue recovery.^{13, 14}

† These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

In addition, enzyme therapy supports improvements in discomfort, stiffness and mobility among those with musculoskeletal challenges.¹⁵ Researchers also found significant improvements among 103 patients, with minor knee complaints given enzyme therapy.

Strong peptidase enzymes have been used in both Japan and Europe for maintaining normal inflammatory balance since the early 1980s, with systematic reviews supporting their beneficial role in lowering the release of harmful amines in various tissues, balance the bodies systemic inflammatory burden, as well as supporting the breakdown of unwanted proteins without affecting healthy tissues.^{16,17} Additionally, in an animal study, similar enzymes were found to be effective as more traditional options for maintaining normal inflammatory balance.

Research has also shown that flavonoids, such as rutin and quercetin, maintain normal inflammatory balance. Specifically, they have been shown to reduce the production of TNF- α by macrophages, microglial cells and mast cells helping to maintain normal inflammatory balance.¹⁶ In a randomized, single-blind study on the antioxidant effect of rutin, after six weeks, those receiving rutin had significantly elevated plasma flavonoids (quercetin, kaempferol and isorhamnetin) displaying the powerful antioxidant effect of rutin.¹⁷ Quercetin was also found to decrease the expression and production of TNF- α , IL-1beta, IL-6, and IL-8.¹⁸ Finally, systemic enzyme therapy has been shown to stimulate internal defenses to support a normal musculoskeletal inflammatory response. Systemic enzyme therapy has been shown to modulate cytokine levels and shift "immune balance" toward a calm, efficient immune state.

Directions

2 capsules per day on an empty stomach or as recommended by your health care professional.

Does Not Contain

Gluten, yeast, artificial colors and flavors.

Cautions

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

Supplement Facts ^{v5}

Serving Size 2 Capsules
Servings Per Container 60 & 120

2 capsules contain	Amount Per Serving	% Daily Value
Pancreatin	450 mg	*
Protease (from Pancreatin) (90,000 USP Units)		*
Amylase (from Pancreatin) (90,000 USP Units)		*
Lipase (from Pancreatin) (7,200 USP Units)		*
Papain	180 mg (1,080,000 USP Units)	*
Trypsin	72 mg (18,000 USP Units)	*
Chymotrypsin	27 mg (2,025 USP Units)	*
Bromelain (from Pineapple)	135 mg (324 GDU)	*
Peptidase	40 mg (24,000 Serratiopeptidase Units [SPU])	*
Quercetin Dihydrate	75 mg	*
Rutin	75 mg	*

* Daily Value not established

ID# 126120 120 Capsules

ID# 126240 240 Capsules

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References

1. Gotze H, Rothman SS. Enteropancreatic circulation of digestive enzymes as a conservative mechanism. *Nature* 1975; 257(5527): 607-609.
2. Liebow C, Rothman SS. Enteropancreatic Circulation of Digestive Enzymes. *Science* 1975; 189(4201): 472-474.
3. Taussig SJ, Yokoyama MM, Chinen A, Onari K, Yamakidob M. Bromelain: a proteolytic enzyme and its clinical application. A review. *Hiroshima J Med Sci.* 1975;24(2-3):185-93.
4. Taub SJ. The use of bromelains in sinusitis: a doubleblind clinical evaluation. *Eye Ear Nose Throat Mon.* 1967 Mar;46(3):361-5.
5. Trickett P. Proteolytic enzymes in treatment of athletic injuries. *Appl Ther.* 1964;30:647-52.
6. Walker JA, Cerny FJ, Cotter JR, Burton HW. Attenuation of contraction-induced skeletal muscle injury by bromelain. *Med Sci Sports Exerc.* 1992 Jan;24(1):20-5.
7. Walker AF, Bundy R, Hicks SM, Middleton RW. Bromelain reduces mild acute knee pain and improves well-being in a dose-dependent fashion in an open study of otherwise healthy adults. *Phytomedicine* 2002;9:681-6.
8. Brien S, Lewith G, Walker A, Hicks SM, Middleton D. Bromelain as a Treatment for Osteoarthritis: A Review of Clinical Studies. *Evidence-based Complementary and Alternative Medicine.* 2004;1(3)251–257.
9. Steffen, C. and Menzel, J. [Basic studies on enzyme therapy of immune complex diseases]. *Wien Klin Wochenschr.* 1985; 97(8):376-385.
10. Steffen, C.; Smolen, J. et al. [Enzyme therapy in comparison with immune complex determinations in chronic polyarthritis]. *Z Rheumatol.* 1985; 44(2):51-56.
11. Steffen, C. and Menzel, J. [Enzyme breakdown of immune complexes]. *Z Rheumatol.* 1983; 42(5):249-255.
12. Desser, L.; Holomanova, D. et al. Oral therapy with proteolytic enzymes decreases excessive TGF-beta levels in human blood. *Cancer Chemother Pharmacol.* 2001; 47 Suppl.
13. Minaev, S.V.; Nemilova, T.K.; and Knorring, G.I. [Polyenzymatic therapy in prevention of adhesive processes in the abdominal cavity in children]. *Vestn Khir Im II Grek.* 2006.
14. Kamenicek, V.; Holan, P.; and Franek, P. [Systemic enzyme therapy in the treatment and prevention of post-traumatic and postoperative swelling]. *Acta Chir Orthop Traumatol Cech.* 2001; 68(1):45-49.
15. Klein, G.; Kullich, W. et al. Efficacy and tolerance of an oral enzyme combination in painful osteoarthritis of the hip. A double-blind, randomised study comparing oral enzymes with non-steroidal anti-inflammatory drugs. *Clin Exp Rheumatol.* 2006; 24(1):25-30.
16. Bhagat, S., Agarwal, M., & Roy, V. (2013). Serratiopeptidase: A systematic review of the existing evidence. *International Journal of Surgery*,11(3), 209-217. doi:10.1016/j.ijsu.2013.01.010
17. Tiwari, M. (2017). The role of serratiopeptidase in the resolution of inflammation. *Asian Journal of Pharmaceutical Sciences*,12(3), 209-215.
18. Swamy, A. V., & Patil, P. (2008). Effect of some clinically used proteolytic enzymes on inflammation in rats. *Indian Journal of Pharmaceutical Sciences*,70(1), 114. doi:10.4103/0250-474x.40347
19. Kumazawa, Y.; Kawaguchi, K.; and Takimoto, H. Immunomodulating effects of flavonoids on acute and chronic inflammatory responses caused by tumor necrosis factor alpha. *Curr Pharm Des.* 2006; 12(32):4271-4279.
20. Boyle, S.P.; Dobson, V.L. et al. Bioavailability and efficiency of rutin as an antioxidant: a human supplementation study. *Eur J Clin Nutr.* 2000; 54(10):774-782.
21. Min, Y.D.; Choi, C.H. et al. Quercetin inhibits expression of inflammatory cytokines through attenuation of NF-kappaB and p38 MAPK in HMC-1 human mast cell line. *Inflamm Res.* 2007; 56(5):210-215.