

Powerful bioflavonoid supplement

Plants are living pharmacies, producing thousands of substances beneficial to human health. There are several major categories of these phytonutrients, including the plant pigments called bioflavonoids. While clearly exhibiting antioxidant capabilities that offer protection from oxidative stress, bioflavonoids may be even more important for their ability to modulate cell-signaling pathways. Among the many important cellsignaling functions that bioflavonoids influence are regulating the cell cycle, inhibiting cell proliferation, and producing detoxification enzymes.

ITEM #110 Proanthocvanidins

> Proanthocyanidins are a subclass of bioflavonoids found in blue and purple berries, purple grapes, and red wine, and they are available in relatively high concentrations in grape-seed extract. Research

suggests a strong role for dietary bioflavonoids, including proanthocyanidins, in supporting and maintaining sound cardiovascular function. Epidemiological evidence of this connection begins with the observation that relatively low rates of heart disease exist in France, despite a diet high in saturated fat. This apparent "French paradox" has been attributed to the proanthocyanidins in the red wine consumed with most meals. Human clinical research has also shown that proanthocyanidins in red wine maintain healthy endothelial function.*

Proanthocyanidins have been studied extensively in Europe and in the United States. Scientifically observed and documented benefits include the following:

- Helps maintain healthy cholesterol levels already within the normal range*
- Helps retain healthy capillary strength and vascular function*
- Supports healthy immune function*
- Supports healthy peripheral circulation*

The Many Roles of Vitamin C

Vitamin C plays many important roles in the body, and because human bodies are incapable of manufacturing vitamin C. we must rely on our diet to satisfy our daily requirement. The amount of vitamin C needed daily for optimal performance is directly related to individual ingestion; absorption; utilization; metabolism; excretion; work environment; and physical, mental, and environmental stress. Everyone has a different biochemistry and unique lifestyle. While vitamin C deficiency is rare today, we may still not receive sufficient amounts for our individual health needs. Proflavanol C100 provides optimal vitamin C protection with a unique blend of mineral ascorbates that provides higher levels of vitamin C in the blood than from equal amounts of ascorbic acid.*

Critical to good health, vitamin C supports many important functions in the body. First, it is essential for collagen synthesis. Collagen is the most abundant structural protein in the body and is essential for staying healthy and strengthening muscles. teeth, bones, skin, and blood vessels. Without adequate vitamin C, there is inadequate collagen.* Under normal conditions. the RDA of 75-90 mg per day meets the requirement for maintaining collagen. But we also need vitamin C to guench free radicals, reduce lipid oxidation, and regenerate other antioxidants. It is a co-factor or co-substrate for many enzyme systems involved in such functions as ATP synthesis within mitochondria and hormone biosynthesis. Vitamin C can help retain cardiovascular health by supporting healthy adrenal function and healthy arterial wall integrity. And, vitamin C helps support a healthy immune system, which is the primary system responsible for defense of the human body. You also need enough vitamin C to help protect the liver from environmental toxins and drug metabolites and to make carnitine, interferon, and prostaglandin E1. Thus, a daily dose of 75-90 mg is unlikely to be sufficient for everyone.*

Nutritional Hybrid Technology

Proflavanol C¹⁰⁰ employs USANA's innovative Nutritional Hybrid Technology. This state-of-the-art approach to formula design and manufacture features bilayer tableting: the separation of various formula ingredients into two distinct tablet layers. Now, for the first time, previously distinct products can be joined into a single formula. Incompatible ingredients can be combined in a single tablet. And key nutritional ingredients can be visually highlighted in distinct tablet layers.

USANA's Nutritional Hybrid Technology opens the door to accelerated innovation in supplement design and manufacture. Proudly, USANA is among the first in the world to use Nutritional Hybrid Technology.



From the Lab

An in-house study USANA conducted in collaboration with Boston University showed that supplementation with grape-seed extract and vitamin C has a positive influence on healthy blood flow to support optimal cardiovascular health.



Optimizers Proflavanol C¹∞

Why Proflavanol® C100?

With USANA's unique formulation, **Proflavanol C**¹⁰⁰ bioflavonoid supplement combines the highest quality grape-seed extract with the free-radical quenching power of vitamin C, giving you an important tool in the quest for lifelong good health. Laboratory studies done at USANA confirm that, when used together, these ingredients provide significantly better protection against the oxidative modification of low-density lipoproteins (LDL) than would be predicted from the sum of their individual effects.*

References

- Ariga T. The antioxidative function, preventive action on disease and utilization of proanthocyanidins. 2004. Biofactors 21(1-4):197-201.
- Bagchi D, Bagchi M, Stohs SJ, Das DK, Ray SD, Kuszynski CA, Joshi SS, Pruess HG. Free radicals and grape seed proanthocyanidin extract: importance in human health and disease prevention, 2000, Toxicology 148(2-3):187-97
- Carr AC, Frei B. Toward a new recommended dietary allowance for vitamin C based on antioxidant and health effects in humans. 1999. Am J Clin Nutr 69(6):1086-1107.
- Cos P, De Bruyne T, Hermans N, Apers S, Berghe DV, Vlietinck AJ. Proanthocyanidins in health care: current and new trends. 2004. Curr Med Chem 11(10):1345-59.
- da Silva Porto PA, Laranjinha JA, de Freitas VA, Antioxidant protection of low density lipoprotein by procyanidins: structure/activity relationships, 2003, Biochem
- Folts JD. Potential health benefits from the flavonoids in grape products on vascular disease. 2002. Adv Exp Med Biol 505:95-111.
- Jariwalla RJ, Harakeh S. Antiviral and immunomodulatory activities of ascorbic acid. 1996. In: Harris JR (ed). Subcellular Biochemistry. Vol. 25. Ascorbic Acid: Biochemistry and Biomedical Cell Biology. New York: Plenum Press, 215-231.
- . Meyer AS, YI 0, Pearson DA, Waterhouse AL, Frankel E. Inhibition of Human Low-Density Lipoprotein Oxidation in Relation to Composition of Phenolic Antioxidants in Grapes. 1997. J Agric Food Chem 45:1638-1643.
- Murad S, Grove D, Lindberg KA, Reynolds G, Sivarajah A, Pinnell SR. Regulation of collagen synthesis by ascorbic acid. 1981. Proc Natl Acad Sci 78(5):2879-82.
- Natella F, Belelli F, Gentili V, Ursini F, Scaccini C. Grape Seed Proanthocyanidins Prevent Plasma Postprandial Oxidative Stress in Humans. 2002. J Agric Food Chem 50(26):7720-5.
- Nuttall SL. Kendall MJ. Bombardelli E. Morazzoni P. An evaluation of the antioxidant activity of a standardized grape seed extract. Leucoselect, 1998. J Clin Pharm Ther 23(5):385-9
- Osganian SK, Stampfer MJ, Rimm E, et al. Vitamin C and risk of coronary heart disease in women. 2003. J Am Coll Cardiol 42(2):246-252.
- · Rabovsky A, Cuomo J. Pharmacokinetics of Poly C versus Ascorbic Acid. 2000. USANA Clinical Research Bulletin.
- Yoshida M, Takashima Y, Inoue M, et al. Prospective study showing that dietary vitamin C reduced the risk of age-related cataracts in a middle-aged Japanese population, 2007, Eur J Nutr 46(2):118-124.

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.