



# BIOCGEL™ HIGH ABSORPTION ASCORBATE C

Stomach gentle, non-acidic

## A TOP VITAMIN FOR OVERALL HEALTH

Vitamin C, considered the top healthy aging and longevity vitamin by many researchers, is an important antioxidant involved in the growth and repair of all tissues of the body, wound healing, and the health of connective tissues, bones, cartilage, teeth and gums. Vitamin C is also involved in lipid and vitamin metabolism, the biosynthesis of neurotransmitters, immune function, eye health and a healthy circulatory system. It is an essential water-soluble compound that cannot be produced by the body and must therefore be obtained through diet.

Alarmingly, one out of four North Americans does not even get the bare minimum of vitamin C needed to perform basic cellular functions. In one study, 70% of ailing elderly people had white blood cells deficient in vitamin C (Carper).

The scientific name of vitamin C, ascorbic acid, is derived from the Latin name for scurvy, *scorbutus*. Scurvy is a terrible deficiency disease that results from prolonged, insufficient intake of vitamin C, and may be fatal if left untreated. In modern times, extreme vitamin C deficiency diseases are rare, but in the past they were a major problem during long sea voyages and in winter, when there were few sources of vitamin C.

Vitamin C is essential for collagen synthesis. Normal collagen synthesis depends on the hydroxylation of proline and lysine residues in the endoplasmic reticulum. The enzymes that catalyze the hydroxylation require ascorbic acid to function correctly. Without ascorbic acid, normal collagen synthesis cannot take place, and tissues become weakened with potentially fatal results.

## BIOAVAILABLE AND STOMACH GENTLE

Most vitamin C supplements are in the form of ascorbic acid. Although this form can be readily absorbed by most people, it can cause gastrointestinal problems, such as abdominal pain or diarrhea, amongst those with sensitive digestive systems, rendering it less efficacious and bioavailable. Bioavailability refers to the degree to which a nutrient (or drug) becomes available to the target tissue after it has been consumed. Mineral salts of ascorbic acid (mineral ascorbates) are buffered, and therefore less acidic. They are often recommended to people who experience gastrointestinal problems with plain ascorbic acid. When mineral salts of ascorbic acid are taken, both the ascorbic acid and the mineral appear to be well-absorbed.

Natural Factors BioCgel combines 500 mg of the preferred form of vitamin C – pH neutral, buffered calcium ascorbate – with 50 mg of BerryRich™, a proprietary whole fruit blend that is a source of naturally-occurring bioflavonoids and antioxidants. Bioflavonoids, or flavonoids, are polyphenolic compounds found in plants. Vitamin C-rich fruits and vegetables, especially citrus fruits, are often rich sources of flavonoids as well. The effect of bioflavonoids on the bioavailability of vitamin C has been examined in 2 published studies. One small study found that 500 mg of vitamin C given in a natural citrus extract containing bioflavonoids, proteins, and carbohydrates, was more slowly absorbed and 35% more bioavailable than vitamin C alone, based on plasma levels of vitamin C over time and 24-hour urinary excretion of vitamin C (Vinson, *et al*). BioCgel's formulation is complemented by 4 mg of sweet orange peel (*Citrus sinensis*), a rich source of citrus bioflavonoids, long considered to be vitamin C co-factors by the discoverer of vitamin C, Nobel Prize winner Albert Szent-Györgyi. Like vitamin C, citrus bioflavonoids have a broad spectrum of biological action including antioxidant, vascular wall strengthening and anticancer effects.

## BERRYRICH PROVIDES IMPORTANT CO-FACTORS

Natural vitamin C is found in many fruits and vegetables and is always accompanied by flavonoids and other beneficial phytonutrients that are also important antioxidants involved in the growth and repair of tissues. BerryRich is a high-ORAC, full-spectrum antioxidant blend of fruit concentrates including: grape (*Vitis vinifera*), pomegranate (*Punica granatum*), strawberry (*Fragaria vesca*), cranberry (*Vaccinium macrocarpon*), blueberry (*Vaccinium corymbosum*), raspberry (*Rubus idaeus*), and bilberry (*Vaccinium myrtillus*). These fruits are all rich in vitamin C, flavonoids, and other beneficial phytonutrients that have been shown to slow aging, protect cellular health and reduce the risk of serious and chronic diseases (Aviram, *et al*).

## THE BENEFITS OF VITAMIN C

- Healthy aging
- Antioxidant protection
- Heart health maintenance
- Cold and flu prevention
- Stress management
- Cancer prevention
- Asthma and bronchitis prevention
- Cataract prevention
- Healthy sperm maintenance

## VITAMIN C FOR VASCULAR HEALTH

According to UCLA researcher, Dr. James Enstrom, “A 35-year-old man who eats vitamin C-rich foods and takes vitamin C supplements will slash his chance of heart disease death by two-thirds and live 6.3 years longer” (Carper). More recent studies confirm these findings.

One clinical study found that heart bypass patients taking 2 g of vitamin C on the night before surgery and 1 gram twice daily for 5 days after surgery, as an adjunct to beta-blockers, significantly prevented postoperative atrial fibrillation (heart attack). The researchers concluded that vitamin C, in addition to being well-tolerated and relatively safe, is effective (Eslami, *et al*).

## VITAMIN C FOR IMMUNE SYSTEM HEALTH

Many studies show that vitamin C concentrations in the plasma and leukocytes rapidly decline during infections and stress. They also report that supplementation with vitamin C improves components of the human immune system such as antimicrobial and natural killer cell activities, lymphocyte proliferation, chemotaxis, and delayed-type hypersensitivity. A large number of randomized, controlled-intervention trials with intakes of up to 1 g of vitamin C document that adequate vitamin C ameliorates symptoms and shortens the duration of respiratory tract infections including the common cold (Wintergerst, *et al*). Furthermore, vitamin C and zinc reduce the incidence and improve the outcome of pneumonia, malaria, and diarrhea infections, especially in children in developing countries.

Studies have shown that taking 5 g of vitamin C daily raises immunity through increasing the production of lymphocytes – white blood cells that fight pathogenic bacteria and viruses that may invade the body (Carper). Vitamin C also boosts immune system function by increasing glutathione levels in the body. 500 milligrams of vitamin C a day, as found in one softgel of BioCgel, boosted glutathione in red blood cells by 50%.

## VITAMIN C FOR CANCER PREVENTION

Jean Carper, in her best-selling book, *Stop Aging Now*, notes that over 120 studies identify vitamin C as a powerful anticancer vitamin. “Consistently, people who take in the most vitamin C are only half as likely as the skimpiest vitamin C eaters to develop cancer, in particular cancers of the stomach, esophagus, pancreas and oral cavity, and possibly cervix, rectum and breast, according to analyses by Gladys Brock, PhD, cancer epidemiologist at the University of California, Berkeley”. Dr. Brock takes 2-3 g of vitamin C every day.

## DOSAGE

3 softgels daily or as directed by a health care practitioner.

## SAFETY

Vitamin C is considered to be very safe, even at high dosages. Although the calcium ascorbate form of vitamin C is easier on the stomach, excessive vitamin C supplementation can cause diarrhea, nausea and heartburn in some people. In eight recent studies, no serious side effects were reported from taking up to 10 g of vitamin C daily for several years.

*Pregnancy and lactation:* Suitable for pregnant and lactating women.

*Children:* Suitable for children at 1-3 softgels per day depending on age.

*Drug interactions:* Certain medicines, such as antibiotics, blood thinners and aspirin, may interact with vitamin C so consult with your health care practitioner if you are on any medications. Some interactions may increase the need for vitamin C.

*Contraindications:* Vitamin C can exacerbate iron toxicity in persons suffering from the genetic disorder called hemochromatosis. Such persons should consult their health care practitioner before taking vitamin C supplements. People who abruptly cease taking mega-doses of vitamin C can develop a serious condition known as “rebound scurvy”. Therefore, gradual dose changes are recommended with vitamin C.

Natural Factors BioCgel goes beyond “just vitamin C” to provide you with a high absorption ascorbate C that is easy on the stomach. Because in nature vitamin C is always found in combination with flavonoids and other beneficial antioxidants, BioCgel also contains BerryRich, a full-spectrum blend of antioxidants from berries and other fruit that have been shown to slow aging, protect cellular health and reduce the risk for serious and chronic diseases.

## KEY REFERENCES

Aviram M., *et al*, “Pomegranate juice consumption for 3 years by patients with carotid artery stenosis reduces common carotid intima-media thickness, blood pressure and LDL oxidation”, *Clin Nutr*, 23: 423-433; 2004

Carper J., “*Stop Aging Now*”, HarperCollins Publishers, 10 East 53rd Street, New York, New York 10022-5299, Pp 49-58; 1995

Eslami M., Badkoubeh R.S., Mousavi M., Radmehr H., Salehi M., Tavakoli N., Avadi M.R., “Oral ascorbic acid in combination with beta-blockers is more effective than beta-blockers alone in the prevention of atrial fibrillation after coronary artery bypass grafting”, *Tex Heart Inst J*, 34(3): 268-74; 2007

Moreau K.L., DePaulis A.R., Gavin K.M., Seals D.R., “Oxidative stress contributes to chronic leg vasoconstriction in estrogen-deficient postmenopausal women”, *J Appl Physiol*, 2007 Mar; 102 (3): 890-5, Epub Nov 16; 2006

Murray Michael T., “*The Pill Book Guide to Natural Medicines*”, Bantam; 2002

Sweeney M.I., Kalt W., MacKinnon S.L., Ashby J., Gottschall-Pass K.T., “Feeding rats diets enriched in lowbush blueberries for six weeks decreases ischemia-induced brain damage”, *Nutr Neurosci*, Dec; 5 (6): 427-31; 2002

Vinson J.A., Bose P., “Comparative bioavailability to humans of ascorbic acid alone or in a citrus extract”, *American Journal of Clinical Nutrition*, volume 48: pages 501-604; 1988

Wintergerst E.S., Maggini S., Hornig D.H., “Immune-enhancing role of vitamin C and zinc and effect on clinical conditions”, *Ann Nutr Metab*, 2006; 50 (2): 85-94, Epub Dec 21; 2005