

Vitamin C

2,000 mg ascorbic acid per serving plus alkalizing minerals
in powder form



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Vitamin C in buffered powder form is a non-acidic form of vitamin C, designed for high dosing and ascorbate "flushing," which may help identify one's physiological vitamin C requirement.* This buffered powder is created by linking ascorbic acid with calcium, magnesium, and potassium. By adding these minerals, the natural acidity of ascorbic acid is reduced due to their alkalizing properties. The addition of the alkalizing minerals results in a vitamin C powder that is more easily absorbed and better tolerated within the gastrointestinal tract, allowing for higher doses without unpleasant side-effects, while also providing the additional benefits of calcium, magnesium, and potassium supplementation such as supporting bone health and reducing whole body acidity.* This product provides 2,000 mg ascorbic acid in each one teaspoon serving. It can easily be added to any beverage, eliminating the need for multiple pills, reducing pill-fatigue.

Vitamin C (ascorbic acid) is an essential water-soluble nutrient that is unable to be synthesized endogenously by humans, thus it must be supplied through the diet or supplementation.¹⁻³ Dietary sources of vitamin C include kiwifruit, citrus fruits, bell peppers, strawberries, goji berries, broccoli, Brussels sprouts, and various other fruits, vegetables, and herbs.

As a cofactor for enzymes involved in the synthesis of serotonin and norepinephrine, adequate vitamin C levels may help individuals maintain a positive mental outlook and mount a healthy response to everyday stress. Its function in catecholamine synthesis may be why vitamin C has long been recognized as helping to support the adrenal glands. In fact, the adrenal glands contain one of the highest concentrations of vitamin C in the body (in both the cortex and medulla), underscoring that this nutrient is instrumental for far more than its antioxidant effects.⁴

Vitamin C is required for proper function of the enzymes that transform the amino acids proline and lysine into hydroxyproline and hydroxylysine, key components for the synthesis of collagen, which plays a vital role in maintaining healthy skin, hair, and nails as well as other connective tissue, such as bones, tendons, ligaments, veins, and blood vessels.^{1,2} This underlies, in part, the crucial role of vitamin C in cardiovascular health, and explains why easy bruising and bleeding are potential signs of vitamin C deficiency.^{1,2} Vitamin C is required for the biosynthesis of carnitine (from the amino acid lysine), which is needed for enzymatic transport of fatty acids into the mitochondria for subsequent oxidation and generation of adenosine triphosphate (ATP).^{1,2}

Vitamin C accumulates within leukocytes to high intracellular concentrations, thus significantly contributing to immune defense by supporting cell functions in both the adaptive and innate immune systems.^{5,6} Due to its gene-regulating effects, vitamin C has been shown to help improve B- and T-cell differentiation and proliferation.⁵

Benefits*:

- May help reduce whole-body acidity
- Supports a healthy immune system
- Supports adrenal function
- Helps reduce oxidative stress
- Encourages collagen formation for healthy skin
- Supports cardiovascular and bone health
- Gentle on the gastrointestinal system

Supplement Facts

Serving Size 3 grams (approx. one teaspoon)
Servings Per Container 80

Amount Per Serving		% Daily Value
Vitamin C (as Ascorbic Acid)	2000 mg	2222%
Calcium (as Calcium Ascorbate)	80 mg	6%
Magnesium (as Magnesium Ascorbate)	160 mg	38%
Potassium (as Potassium Bicarbonate)	200 mg	4%

Serum ascorbate levels below 50 μM significantly decrease intracellular ascorbate levels within circulating lymphocytes, monocytes, and neutrophils; plasma levels below 23 μM have been shown to result in a state of hypovitaminosis C, commonly seen in individuals with low fresh vegetable and fruit intake.⁶ Inadequate intake coupled with increased turnover during severe and/or chronic stress (e.g., illness, trauma, chronic inflammation) may result in low plasma ascorbate levels and severely depleted levels ≤ 20 μM is seen in very ill patient populations.⁷

Vitamin C deficiency has been shown to result in impaired immunity and increased susceptibility to infection. Prophylactic prevention of infection requires a daily intake of at least 100-200 mg/day to saturate plasma levels in order to optimize cell and tissue ascorbate levels.⁶ In contrast, for established infections, much higher doses may be required to compensate for the damage caused by enhanced inflammation and metabolic demands.⁵

Because of vitamin C's role in modulating reactions associated with allergies such as allergic rhinitis, sinusitis, and asthma, ascorbic acid is helpful in supporting patients who suffer from histamine sensitivity or intolerance. Research shows that vitamin C may help decrease bronchial hypersensitivity caused by the common cold,¹ and has the ability to significantly reduce histamine concentrations in the serum by increasing the activity of diamine oxidase (DAO), the primary enzyme responsible for breaking down histamine in the body.⁸ Vitamin C's ability to readily donate electrons, thus protecting proteins, lipids, carbohydrates, and nucleic acids from oxidative damage, significantly contributes to its immune-modulating properties.

Vitamin C's antioxidant function is a hallmark of this nutrient. It is a potent neutralizer of free radicals and helps to recycle vitamin E and glutathione. Increased levels of oxidative stress are associated with a wide array of chronic health issues and are both a potential contributor to, and a downstream effect of conditions including but not limited to type 2 diabetes,⁹ Alzheimer's disease,¹⁰ other neurodegenerative disorders,¹¹ and frailty in aging individuals.¹²

Recommended Use:

- Take 3 grams (approx. one teaspoon) per day, or as directed by your health care practitioner.

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

<https://www.designsforhealth.com/techsheet-references/vitamin-c-references.pdf>

Dosing recommendations are given for typical use based on an average 150 pound healthy adult. Health care practitioners are encouraged to use clinical judgement with case-specific dosing based on intended goals, subject body weight, medical history, and concomitant medication and supplement usage.

***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.**

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