

Ascorbates SAP

Buffered vitamin C and citrus bioflavonoids for optimal health

Antioxidants protect the body against free-radical damage. Free radicals are molecules which are produced through the breakdown of food during digestion, or by environmental exposures such as smoke, pollution, and radiation. Free radicals can damage DNA and may play a role in cancer, heart disease, and other diseases. Vitamin C is an essential nutrient which acts as an antioxidant and is involved in numerous metabolic functions in the body. Supplementation is effective for prevention and management of the “common cold” and other respiratory conditions, improved iron absorption, wound healing, reduced coronary heart disease risk, and prevention of complications of diabetes.^{[1][2][3]} Citrus bioflavonoids are potent antioxidant compounds derived from citrus fruits such as oranges, grapefruits, lemons, and limes, and are effective in strengthening capillaries and for managing allergic conditions, stomach ulcers, and cancer.

Citrus bioflavonoids exhibit anti-inflammatory activity via inhibition of the synthesis and biological activities of different proinflammatory mediators,^{[4][5]} and confer protection from carcinogenic compounds and formation of new cancers.^[6] Bioflavonoids are part of the C complex of vitamins and synergistically enhance their free radical-scavenging capabilities. **Ascorbates SAP** provides a combination of vitamin C and bioflavonoids, which together play a vital role in the health and permeability of capillaries.

Ascorbates SAP may be used to support the management of acute upper respiratory infections, asthma, iron-deficiency anemia and hemodialysis-induced iron deficiency, inflammatory conditions, cardiovascular disease and cancers, wound healing, capillary fragility and bruising, allergic conditions, and stomach ulcers.

ACTIVE INGREDIENTS

Each vegetable capsule contains:

Calcium (from calcium ascorbate)	21.5 mg
Magnesium (from magnesium ascorbate)	10.5 mg
Potassium (from potassium ascorbate)	3.75 mg
Zinc (from zinc ascorbate)	4.5 mg
Manganese (from manganese ascorbate)	650 mcg
Selenium (from selenomethionine)	25 mcg
Vitamin C (from vitamin C and ascorbyl palmitate, calcium ascorbate, magnesium ascorbate, potassium ascorbate, zinc ascorbate, manganese ascorbate, and sodium ascorbate)	387.5 mg
Citrus bioflavonoids	300 mg

Other ingredients: Vegetable magnesium stearate and silicon dioxide in a vegetable capsule composed of vegetable carbohydrate gum and purified water.

This product is non-GMO and vegan friendly.

Contains no: Gluten, soy, wheat, corn protein, eggs, dairy, yeast, preservatives, artificial flavour or colour, starch, or sugar.

Ascorbates SAP contains 180 capsules per bottle.

DIRECTIONS FOR USE

Adults: Take 2 capsules daily with meals or as directed by your healthcare practitioner. If you are taking other medications, take this product a few hours before or after them.

2 capsules provide 775 mg of pure vitamin C.

INDICATIONS

Ascorbates SAP can be used:

- In the management of common cold, acute upper respiratory infections, and asthma.
 - To promote iron absorption, especially in patients with iron-deficiency anemia and hemodialysis-induced iron deficiency.
 - To improve wound healing, capillary fragility, and bruising.
- and can help:
- Improve inflammatory conditions, allergic conditions, and stomach ulcers.
 - Support the management of cardiovascular disease and cancers.

INCREASED BIOAVAILABILITY

Ascorbic acid in **Ascorbates SAP** is buffered with minerals for enhanced gastric tolerance and extended time-release absorption.

PURITY, CLEANLINESS, AND STABILITY

All ingredients listed for all **Ascorbates SAP** lot numbers have been tested by an ISO 17025-accredited third-party laboratory for identity, potency, and purity.



Scientific Advisory Panel (SAP):
adding nutraceutical research
to achieve optimum health



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VITAMIN C AND IMMUNE FUNCTION

Vitamin C (ascorbic acid) is a water-soluble vitamin which is required in the body to form collagen in bones, cartilage, muscle and blood vessels, and aids in the absorption of iron. Although the human body cannot assemble vitamin C de novo, it is capable of conserving it once obtained in the diet.

Vitamin C deficiency can contribute to reduced resistance against pathogens, while an increased supply enhances many immune system parameters.^[5] Vitamin C is highly concentrated in the adrenal gland, and acts as an antioxidant^[6] to reduce free radicals and reactive oxygen species.

Increased levels of vitamin C have been associated with a reduced risk of colon cancer.^[7] Oral supplementation of vitamin C has been showed to restore immune function abnormalities following toxic chemical exposure. In a study by Heuser and Vojdani (1997), application of oral granulated buffered vitamin C in water at a dosage of 60 mg/kg body weight resulted in a ten-fold enhancement of NK activity in 78% of patients, and restoration of lymphocyte blastogenic responses to T- and B-cell mitogens to normal levels.^[8] Vitamin C administration may also increase killer T-cell activity, which may have implications in mitigating early stages of tumour development.^[9]

ENHANCED BIOAVAILABILITY

Bioavailability refers to the degree to which a nutrient (or drug) becomes available to the target tissue after it has been administered.

Vitamin C is released upon the presence of adrenocorticotropic hormone.^[4] A study of 12 males (6 smokers and 6 nonsmokers) found the bioavailability of synthetic ascorbic acid (powder administered in water) to be superior to that of orange juice, based on blood levels of ascorbic acid, and not different based on ascorbic acid in white blood cells.^[10]

CITRUS BIOFLAVONOIDS

Some studies have shown that ascorbic acid in citrus extract is more available than synthetic ascorbic acid alone.^[11] Bioflavonoids are a class of water-soluble plant pigments. In one study, the synthetic ascorbic acid given in a natural citrus extract containing bioflavonoids (in the ratio of bioflavonoids to ascorbic acid of 4:1), proteins, and carbohydrates, was more slowly absorbed and 35% more bioavailable than synthetic ascorbic acid alone, based on plasma levels of ascorbate over time and 24-hour urinary excretion of ascorbate.^[12]

CALCIUM ASCORBATE

White blood cells or leukocytes are cells of the immune system which defend the body against both infectious disease and foreign materials.^[1]

Supplementation with calcium ascorbate has been shown to increase calcium ascorbate concentrations within leukocytes themselves. In a double-blind, placebo-controlled, four-way crossover study over 24 hours, supplementation of calcium ascorbate combined with metabolites resulted in superior vitamin C concentration in leukocytes versus vitamin C alone.^[2]

MAGNESIUM ASCORBATE

Magnesium is important for bone and fatty acid formation, cell generation, activating B vitamins, as well as helping with the formation of ATP. Magnesium and ascorbic acid together improve the flexibility of blood vessels,^[3] which plays a role in the functioning of a healthy heart.

ZINC ASCORBATE

Zinc is an essential trace element for all organisms. In human subjects, body growth and development is strictly dependent on zinc and the nervous, reproductive and immune systems are particularly affected by zinc deficiency.^[13] Zinc has antioxidant properties, which protect against premature aging of the skin and muscles of the body.^[14] It also helps speeding up the healing process after an injury. Zinc deficiency depresses immunity of humans.^[15] Combined, zinc and ascorbic acid ameliorate levels of immunity which are needed to be productive on a day-to-day basis.

POTASSIUM ASCORBATE

Potassium, along with lifestyle changes, can be used to treat hypertension.^[16] Similarly, ascorbic acid may have therapeutic effects on oxidative stress-induced diseases which encompass cardiovascular diseases, hypertension, chronic inflammatory diseases and diabetes.^[17]

MANGANESE ASCORBATE

Manganese superoxide dismutase is the principal antioxidant enzyme in the mitochondria. Because mitochondria consume over 90% of the oxygen used by cells, they are especially vulnerable to oxidative stress. Manganese plays an important role in the metabolism of amino acids, carbohydrates and cholesterol.^[18] Deficiency of manganese results in abnormal skeletal development. Manganese contributes to the synthesis of cartilage and bone.^[19]

SELENIUM ASCORBATE

In a study by Bertinato et al. (2007), selenium was found to have a sparing effect on vitamin C and α -tocopherol. Dietary restriction of selenium and ascorbic acid, both independently and in combination, resulted in significant ($p < 0.05$) decreased tissue α -tocopherol levels. Selenium restriction alone also resulted in decreased tissue ascorbic acid levels.^[20]

ASCORBYL PALMITATE

Ascorbyl palmitate is an amphipathic molecule, which means that one end is water-soluble and the other end is fat-soluble. When incorporated into the cell membranes of human red blood cells, ascorbyl palmitate has been found to protect them from oxidative damage.^[21]

CLINICAL APPLICATIONS IN IMMUNOLOGY

Vitamin C Deficiency — Scurvy

Although scurvy is uncommon, it may occur in certain malnourished individuals, those with increased vitamin C requirements (such as pregnant or breast-feeding women), or in infants whose only source of nourishment is breast milk.^[22]

Vitamin C and the Common Cold

The prophylactic intake of vitamin C may reduce the duration of the illness in healthy persons. Supplementation of vitamin C is most effective in cases of physical strain or insufficient intake of the vitamin. Antioxidant activity is also derived from other phytochemicals, mainly flavonoids.^[5] Based on standardized clinical assessment, elderly patients who received 200 mg of vitamin C daily fared better than patients receiving placebo.^[23]

Vitamin C and Allergies

Oral dosages of vitamin C significantly reduced bronchial responsiveness to inhaled histamine in patients with allergies.^[9]

Ability to Reduce Harmful Effects of Smoking

In a study done to measure concentrations of blood vitamins A, C and E as well as coenzyme Q₁₀ in smokers, it was found that they had significantly lower vitamin C levels. These could be normalized by supplementing with vitamin C. A lack of vitamin C may increase the risk of asthma.^[24]

Iron Absorption Enhancement with Vitamin C

Vitamin C improves the oral absorption of iron. Concurrent vitamin C may aid in the absorption of iron dietary supplements. Molecular cloning of mammalian duodenal brush-border reductase activity and studies in animals and man strongly supported ascorbate as the intracellular electron donor for duodenal ferrireductase activity and provided molecular mechanism for an intracellular role of ascorbate in intestinal iron absorption.^[25]

Vitamin C Reduces Risk of Gallbladder Disease

Epidemiological investigation has indicated an independent association between serum ascorbic acid and a significantly lower prevalence of clinical gallbladder disease and asymptomatic gallstones. Ascorbic acid deficiency reduces the activity of hepatic cholesterol to bile acids and the risk of gallbladder disease.^[9]

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