

High Absorption Vitamin C

with **PureWay-C™**



INGREDIENTS



High Absorption Vitamin C with PureWay-C™, a leading-edge form of vitamin C consisting of highly absorbable vitamin C-lipid metabolites. Vitamin C-lipid metabolites have faster and more beneficial effects than other forms of vitamin C.¹ High Absorption Vitamin C with PureWay-C™, also contains citrus bioflavonoids and ascorbyl palmitate. Ascorbyl palmitate is a fat-soluble form of vitamin C that is able to be stored in lipid cell membranes for later use.

Citrus bioflavonoids include the flavonones, such as hesperidin and naringin, as well as the polymethoxylated flavones, such as tangeretin and nobiletin. Bioflavonoids, and citrus bioflavonoids in particular, work in conjunction with vitamin C to improve absorption and boost its effects.²

The High Absorption Vitamin C with PureWay-C™ formulation allows for better cellular uptake and absorption of vitamin C.* This enhances the opportunity for vitamin C to take part in its wide range of support for the human body.* Vitamin C is the main water soluble nutrient antioxidant in human plasma and has many functions. It is a potent free radical scavenger, immune system enhancer, and cell protector.* It maintains collagen, helps form red blood cells, aids in the absorption of iron, stimulates adrenal function, and helps detoxify certain metals and drugs. It also plays a role in the synthesis of mood-enhancing neurotransmitters, and in cholesterol metabolism.* Citrus bioflavonoids are also antioxidants with their own powerful biological effects including modulation of the immune system and protection of the nervous system.*

Contains Vitamin C-lipid metabolites (PureWay-C™)

PureWay-C™ is a novel vitamin C preparation containing vitamin C-lipid metabolites. Studies in the laboratory show that human cells absorb this new form of vitamin C more rapidly and in greater amounts than the three most popular forms of vitamin C: ascorbic acid, calcium ascorbate and calcium ascorbate-calcium threonate-dehydroascorbate.*

Laboratory (in vitro) research also shows that PureWay-C™ :

- Supports nerve cells *
- Supports the immune system against damage induced by pesticides *
- Potent antioxidant and free radical scavenging activity *
- Enhances functioning of collagen-secreting fibroblast cells*

Human clinical studies conducted with PureWay-C™ also show:

- PureWay-C™ is better absorbed and retained in the serum at higher levels.*
- PureWay-C™ decreases blood levels of a common marker of an imbalanced immune response.*
- PureWay-C™ decreases blood levels of a common marker

of oxidative stress (cellular degeneration resulting from free radical production).*

BENEFITS

- Supports the body's immune system*
- Supports a Healthy Cardiovascular System*
- Supports the body's nervous system*

EXTENDED BENEFITS

Delivers effective antioxidant and free radical scavenging activity to decrease markers of oxidative stress.* The PureWay-C™ vitamin C-lipid metabolite formulation has potent antioxidant and free radical scavenging capabilities based on ORAC and DPPH assays, two methods commonly used to evaluate antioxidant capacities. PureWay-C™ reached 93% scavenging capability using the DPPH assay, indicative of an excellent free radical scavenger. PureWay-C™ has 1343 units of antioxidant activity per gram based on ORAC analysis (ORAC values are in μM Trolox® Equivalents/gram of substance), showing stronger antioxidant activity on a gram basis than some other common natural sources of antioxidants such as green and black teas (235-1526 ORAC units), cinnamon (1243), and broccoli (65.8-121.6).*¹

High Absorption Vitamin C with PureWay-C™, 60 Tablets Supplemental Facts

Supplement Facts

Serving Size 1 Tablet
Servings Per Container 60

	Amount Per Serving	% Daily Value
Vitamin C (as PureWay-C™ ascorbic acid and ascorbyl palmitate)	500 mg	556%
Citrus Bioflavonoids Complex (standardized to contain 50% bioflavonoids)	50 mg	†

† Daily Value not established.

Other Ingredients: Hydroxypropyl methylcellulose, stearic acid, magnesium stearate (vegetable source), silicon dioxide.

Suggested Adult Use: Take 1 tablet twice daily, or as recommended by a nutritionally informed physician.

Non-GMO / Gluten Free / Soy Free / Vegan
Store in a cool dry place.

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In order for vitamin C to exert its antioxidant benefits, it must be able to get inside cells. PureWay-C™ was tested for its ability to be taken up and retained in the cell, and for the rate at which it is able to do so. Compared to ascorbic acid, the most common form of vitamin C, PureWay-C™ showed a 233% increase in cellular uptake into human T-lymphocytes at both 30 and 45 minutes. This absorption level was a 122% improvement over the next best form of vitamin C, calcium ascorbate-calcium threonate-dehydroascorbate. The absorbed levels peaked at approximately two hours with the cellular level of PureWay-C™ at 50 nmol/mg.¹

In order to assess absorption in humans, PureWay-C™ serum levels were measured in healthy volunteers after oral supplementation. Forty volunteers maintained a low vitamin C diet for 14 days and, following an overnight fast, received a single oral dose of 1000 mg of either ascorbic acid, calcium ascorbate, PureWay-C™, or calcium ascorbate-calcium threonate-dehydroascorbate. Blood samples were collected immediately prior to the oral dose administration and at various times after ingestion. Serum vitamin C levels were measured, and PureWay-C™ supplementation led to the highest absolute serum vitamin C levels when compared to the other forms of vitamin C. At two hours, PureWay-C™ levels were statistically significantly higher than ascorbic acid and calcium ascorbate. At 24 hours post treatment, PureWay-C™ maintained the highest serum levels of vitamin C.³

Supports the body's immune system*

Levels of vitamin C in the blood have been found to be associated with protein markers that indicate the delicate balance of immune activation.⁴ Research has attributed many of the beneficial immune-related effects of vitamin C supplementation to its ability to influence circulating levels of these markers.⁵ To test the effects of vitamin C on levels of these markers in humans, forty volunteers maintained a low vitamin C diet for 14 days and, following an overnight fast, received a single oral dose of 1000 mg of either ascorbic acid, calcium ascorbate, PureWay-C™, or calcium ascorbate-calcium threonate-dehydroascorbate. Blood samples were collected immediately prior to the oral dose administration and at various times after ingestion. Plasma levels of two markers of immune activation were measured by enzyme linked immunosorbent assay (ELISA). Oral supplementation with PureWay-C™ led to more favorable levels of these markers compared to the other vitamin C formulations. Overall, PureWay-C™ supplementation resulted in greater and more beneficial effects than what was observed with the other forms of vitamin C.³

Laboratory testing also indicates PureWay-C™ has a greater protective effect on immune cells that have been exposed to toxins and pesticides.* PureWay-C™ is more active and effective than ascorbic acid, calcium ascorbate and other popular forms of vitamin C in reducing hyperactivity of white blood cells.* Human T-lymphocytes are white blood cells that aggregate or clump together when exposed in the laboratory to toxins such as the common pesticide bifenthrin or the toxin phytohemagglutinin (PHA). These immune cells were treated in vitro with bifenthrin and PHA, and then either given no further treatments or treated further with PureWay-C™ or other popular ascorbate brands. The cells were then incubated and the number of cells per aggregate was determined. PureWay-C™ reduced PHA-induced T-cell aggregation more than other popular forms of vitamin C.⁶ When these immune cells were treated with the pesticide bifenthrin, along with various formulations of vitamin C, all of the vitamin C formulations reduced the pesticide-mediated aggregation. However, the effect of PureWay-C™ on inhibiting the aggregation was at least double the effect of the next best vitamin C formulation.⁶

Supports a Healthy Cardiovascular System*

Most prospective studies assessing vitamin C intake in large numbers of people who are followed over time indicate that the highest intakes of vitamin C are associated with enhanced cardiovascular health. In addition, some large studies in healthy individuals who take vitamin C supplements suggest that vitamin C supplements support maintenance of normal heart function. The Nurses' Health Study of more than 85,000 women followed for over 16 years found vitamin C intakes of more than 359 mg per day from diet plus supplements or from supplements alone were associated with superior cardiovascular status.⁹ In a review of studies in which more than 290,000 healthy adults were followed for an average of 10 years, those who took more than 700 mg per day of supplemental vitamin C had a substantially better cardiovascular profile than those who did not take vitamin C supplements.¹⁰

One of the ways vitamin C may enhance cardiovascular health is by supporting levels of HDL cholesterol that are already within the normal range. Researchers from the National Institute on Aging and the USDA investigated the effect of vitamin C intake on lipid metabolism.¹¹ After adjustment for age, sex, obesity, and smoking, they found that in healthy adults with adequate vitamin C intake there was a significant positive association between high levels of plasma vitamin C and healthy blood lipid profiles. The research suggested that higher concentrations of vitamin C in the blood, the result of taking up to two to three times the RDA, are associated with superior cardiovascular health.

Epidemiological and animal studies suggest that citrus bioflavonoids also support healthy cardiovascular function and circulation.¹² An analysis of the flavonoid intake of 34,489 postmenopausal women in the sixteen year Iowa Women's Health Study found significant positive correlations between flavonone and flavone intake and cardiovascular function.¹³ These two categories of flavonoids, flavonones and flavones, are the primary flavonoids found in citrus fruit. Hypothesized mechanisms by which flavonoids may offer benefits include antioxidant protection of lipid molecules, promotion of optimal endothelial function, and enhancement of circulation.^{14,15}

Supports the body's nervous system*

In order for nerve cells to thrive, the body secretes a critical protein called nerve growth factor (NGF). In the laboratory, vitamin C formulations enhance the NGF-mediated growth of nerve cells. In vitro research indicates that compared to other forms of vitamin C, PureWay-C™ has potential to be more beneficial to the nervous system. Nerve cells were treated with 100 ng/ml of NGF, and incubated for a 24-hour period. These cells then received either no further treatment, or treatment with 0.5 μM of ascorbic acid, calcium ascorbate, PureWay-C™ or other ascorbate brands. After these treatments, the cells were incubated over another 24-hour period during which the formation of developing nerve cells was assessed at hours 1, 3, 6, 9, 12 and 24. Compared with the other forms of vitamin C, PureWay-C™ significantly increased the formation of developing nerve cells.⁶

Citrus bioflavonoids have also demonstrated support for brain cells in laboratory and animal models. Hesperidin, for instance, has

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the ability to cross the blood brain barrier and act on the central nervous system.¹⁶ Hesperidin and related citrus bioflavonoids protect nerve cells against oxidative damage in vitro.¹⁶ Even at physiological concentrations, these flavonoids significantly protected cells of the nervous system from hydrogen peroxide-induced oxidative damage. Hydrogen peroxide is formed in the brain under certain conditions, and quickly converts to highly toxic hydroxy radicals that damage nerve cells.



SCIENTIFIC REFERENCES

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