Buffered Vitamin C

Overview
Vitamin C is a water-soluble vitamin that is stored in many tissues throughout the body, but the adrenal glands contain the highest concentration. Vitamin C cures the world's oldest known nutritional deficiency disease, scurvy. It was first isolated by Albert Szent-Gyorgyi in 1928 from pork adrenal glands and called hexuronic acid. In 1933, its chemical structure was established. It was successfully synthesized, and the name was changed to ascorbic acid. Humans are one of the few species that cannot manufacture vitamin C. We must depend on our diet, or nutritional supplements, as a source of this vitamin. Vitamin C exists in nature in both its reduced form, L-ascorbic acid, and in its oxidized form, L-dehydroascorbic acid. L-ascorbic acid is the most active form. However, in the body they convert back and forth to each other in a reversible equilibrium, and both prevent scurvy (antiscorbutic). Buffered vitamin C refers to the sodium, calcium, magnesium, and potassium ascorbate salts. These forms of vitamin C are buffered from acidic to a pH of 6.5-6.8. This buffering may be less likely to cause gastric irritation when taken in higher doses. When not being taken as a nutritional supplement, the best dietary sources of vitamin C are found in fresh fruits like citrus fruits, strawberries, cantaloupe and currants, and fresh vegetables like Brussels sprouts, collard greens, lettuce, cabbage, peas, and asparagus.

Vinco's Buffered Vitamin C Powder
This supplement delivers a potent dose of bioavailable, buffered vitamin C.

Vinco's Buffered Vitamin C Tablets
This supplement contains 1000 mg of buffered C ascorbate per tablet. Vitamin C is an essential water soluble nutrient, which can be better tolerated in the buffered form because it is no longer acidic.

Function in the Body
Antioxidant - Ability to donate hydrogen atoms from its two hydroxyl (OH) positions to neutralize free radicals. Capable of regenerating the antioxidant form of vitamin E.
Antiviral - Reported to have antiviral activity.
Atherosclerotic Plaques - Calcium/phospholipid/cholesterol plaque (insoluble) reacts with sodium ascorbate to form sodium/phospholipid/cholesterol (soluble) and calcium ascorbate (soluble).
Cancer Prevention - Prevents the formation of cancer causing nitrosamines.
Collagen and Elastin - Plays a role in the synthesis of collagen and elastin, the major structural components of skin, tendons, bone matrix, tooth dentin, blood vessels, and connective tissues between cells.
Detoxifies - Heavy metal toxins such as mercury, lead, cadmium, and nickel.
Enzyme Activity - Involved in oxidation-reduction reactions, energy production, tyrosine metabolism, reduction and storage of iron, and the activation of folic acid. It is essential in the synthesis of collagen, serotonin, norepinephrine, thyroxine, and some of the corticosteroids.
Fat Synthesis - a) Aids in the conversion of cholesterol to bile acids for excretion. b) Is necessary for synthesis of collagen and elastin which maintains strength and elasticity of blood vessels. c) Decreases free radical oxidation of cholesterol. d) Decreases levels of lipoprotein(a) of Lp(a).
Histamine Inhibitor - Functions as both a histamine inhibitor (it inhibits the release and enhances the degradation of histamine) and as a phosphodiesterase inhibitor.
**Bone Loss** - As we age, bone loss and decreases in bone mineral density is inevitable. It is important to slow this process, maintain healthy bones, and thus decrease the risk of bone fractures. According to the National Osteoporosis Foundation, over half of Americans older than 50 have low bone mineral density and 80% of them are women. Especially when used with other therapies, vitamin C has demonstrated increases in HDL levels and has prevented the oxidation of LDL cholesterol. Vitamin C has demonstrated increases in HDL levels and has prevented the oxidation of LDL cholesterol. It is important to slow this process, maintain healthy bones, and thus decrease the risk of bone fractures.

**Wound Healing** - Increases the healing of scars, broken bones, burns, etc.

**Clinical Applications**

**Aids** - Preliminary research and observation has noted that extremely high doses, 50-200 grams daily, can suppress the symptoms of the disease and can markedly reduce the tendency for secondary infections. In order to assess the immunological and virological effects of short-term, high-doses antioxidant treatment in patients with HIV infection, 8 patients with HIV infection were given high doses of N-acetylcysteine (NAC) and vitamin C for 6 days. Though further study is warranted, the 5 patients with the most advanced immunodeficiency did experience a rise in CD4+ lymphocyte count, a reduction in HIV RNA plasma level as well as improvements in other measures.

**Allergies** - Vitamin C’s antihistamine activity helps reduce allergy symptoms. It has also been hypothesized that the antioxidant and free radical scavenging activity of vitamin C may reduce the inflammatory or hypersensitivity responses in the body.

**Asthma** - Evidence shows that low vitamin C intake is a risk factor for asthma. Though not well defined, multiple therapeutic reviews and meta-analyses have evaluated the role of vitamin C in the treatment of asthma.

**Atherosclerosis** - Evaluation of an association between vitamin C and atherosclerosis has been studied for decades and continues to this day. Studies have noted the association between low levels of vitamin C and the presence of various forms of atherosclerotic disease, but a link to myocardial infarction is questioned. In one study, vitamin C and vitamin E demonstrated retardation of the early progression of transplant related coronary arteriosclerosis.

**Cancer** - A large meta-analysis and epidemiological studies have shown that vitamin C, along with other dietary vitamins reduces the risk of many different types of cancers especially those along the digestive tract.

**Cataracts** - Long-term vitamin C supplementation substantially reduced risk of developing cataracts. In fact, 158 patients were followed for three years and daily use of beta-carotene, vitamin C and vitamin E demonstrated a small deceleration in the progression of age-related cataracts.

**Cervical Dysplasia** - Woman with cervical dysplasia were found to have low levels of vitamin C. Vitamin C's antihistamine activity helps reduce allergy symptoms. It has also been hypothesized that the antioxidant and free radical scavenging activity of vitamin C may reduce the inflammatory or hypersensitivity responses in the body.

**Cholesterol Lowering** - Vitamin C has demonstrated increases in HDL levels and has prevented the oxidation of LDL cholesterol. However there has been some debate regarding the clinical impact of using antioxidants such as vitamin C in conjunction with standard western medical practices. A study involving one hundred and fifty three patients with coronary artery disease evaluated the clinical impact of antioxidant supplementation, including vitamin C, vitamin E, beta-carotene and selenium, on people with low HDL levels in an effort to improve the HDL-C:LDL-C ratio. The participants were followed for 12 months after randomization to one of three groups. They received either placebo, simvastatin and niacin, or simvastatin, niacin plus antioxidants (vitamin C, vitamin E, Beta-carotene and selenium). The treatment groups compared to the placebo group had significant reductions in plasma cholesterol, triglycerides and LDL-C. The desired increases in HDL-C were higher in the simvastatin/niacin group than in the simvastatin/niacin/antioxidant group. The investigators noted that the increase in the HDL2-C, Lp(A-I), and HDL particle size noted in the simvastatin/niacin group were apparently blunted by the additional use of the antioxidants.

**Common Cold** - Analysis of 14 placebo-controlled trials shows a 35% average reduction in the duration of colds and a decrease in the severity of symptoms using vitamin C at dosages above RDA levels. In a double-blind, placebo-controlled survey, the results were the group taking vitamin C having fewer colds and recovery if infected was faster than the placebo group.

**Diabetes** - Most diabetics have a greater need for vitamin C.

**Immunity** - 1-3 grams daily provides a variety of immunostimulatory effects.

**Osteoporosis** - Bone loss and decreases in bone mineral density is inevitable as we age. It is important to slow this process, maintain strong, healthy bones and thus decrease the risk of bone fractures. According to the National Osteoporosis Foundation, over half of Americans older than 50 have low bone mineral density and 80% of them are women. Especially when used with other therapies, numerous studies have supported the use of vitamin C to help support bone mineral density.

**Wound Healing** - Overall, studies identify a possible role and some support to the role of vitamin C in properly caring for and treating healing wounds.

**Symptoms and Causes for Deficiency**

Scurvy is rare in the United States, but sub-clinical deficiencies are common. Deficiency symptoms include capillary fragility, hemorrhage, muscular weakness, easy bruising, gums that bleed easily, poor wound healing, anemia, poor appetite and growth, and tender, swollen joints. Stressful situations (both physical and emotional) tend to deplete the body’s stores of vitamin C quickly. Individuals most likely to experience deficiencies include elderly people on poor diets, alcoholics, people who are severely ill or under chronic stress, and infants who are only fed cow’s milk.

**Warnings**

**General** - There are no known toxicities associated with vitamin C. Large doses of vitamin C may interfere with tests to determine occult blood in the stool and tests to monitor blood glucose levels in diabetics. While vitamin C has not been proven to cause kidney stones, in some individuals its metabolic pathway produces high amounts of oxalic acid, which could lead to calcium oxalate stones. Therefore, people with a history of gout, kidney stones, or kidney disease should not take more than 500 mg of vitamin C daily without medical supervision.

**Side Effects** - Diarrhea can occur due to large doses or an overdose of vitamin C and can generally be controlled by lowering the dose of vitamin C until the diarrhea no longer occurs. Approximately 15% of people taking moderately high doses of vitamin C experience
abdominal gas, bloating, and cramping. The mineral ascorbates such as calcium or magnesium ascorbate are not acidic and may solve this problem.

Directions for Use:

**Powder** - As a dietary supplement for adults and children 12 or more years of age, take one or two teaspoons per day, or as directed by a qualified healthcare professional.

**Tablets** - As a dietary supplement for adults and children 12 or more years of age, take one tablet two to four times daily, or as directed by a qualified healthcare professional.

### Supplement Facts

<table>
<thead>
<tr>
<th>Serving Size: 1 heaped teaspoon (6 grams)</th>
<th>Servings per Container: 74</th>
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<tbody>
<tr>
<td><strong>Amount per Serving</strong></td>
<td><strong>% DV</strong></td>
</tr>
<tr>
<td>Vitamin C (as ascorbic acid) 4,000 mg</td>
<td>6,667%</td>
</tr>
<tr>
<td>Calcium (as ascorbate) 100 mg</td>
<td>10%</td>
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<tr>
<td>Magnesium (as ascorbate) 180 mg</td>
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<tr>
<td>Zinc (as ascorbate) 7.52 mg</td>
<td>50%</td>
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<tr>
<td>Selenium (as aspartate) 50 mcg</td>
<td>71%</td>
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<tr>
<td>Manganese (as aspartate) 5 mg</td>
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<tr>
<td>Chromium (as nicotinate) 50 mcg</td>
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<tr>
<td>Molybdenum (as aspartate) 100 mcg</td>
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<tr>
<td>Sodium (as ascorbate) 175 mg</td>
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<tr>
<td>Potassium (as ascorbate) 150 mg</td>
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<tr>
<td>Grape Seed extract (95% proanthocyanidins) 25 mg</td>
<td>3%</td>
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<tr>
<td>Citrus Bioflavonoids 20 mg</td>
<td>*</td>
</tr>
<tr>
<td>Vanadium (as aspartate) 100 mcg</td>
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*Daily Value (DV) not established

DV is based on a 2,000 calorie diet.

Other Ingredients: Sodium Bicarbonate

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