

# Esterol

*Ester-C<sup>®</sup> Calcium Ascorbate  
with Bioflavonoids*



Item # 70070 100 capsules  
Item # 70080 200 capsules

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## The Possible Benefits of Esterol, a Dietary Supplement

- Supports a wide variety of biochemical reactions throughout the body, including antioxidant activity, detoxification, and immune system functions\*
- Supports the integrity of collagen structures and the capillaries\*
- Provides Ester-C vitamin C, which may be more readily absorbed and less rapidly excreted than other forms of vitamin C\*

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## Description

Esterol contains vitamin C in the form of Ester-C calcium ascorbate, and the bioflavonoids quercetin, rutin and proanthocyanidins. Several studies suggest that the unique structure of Ester-C may make it more readily absorbed and less rapidly excreted than other forms of vitamin C.\* Rapid cellular uptake and delayed renal excretion of ascorbic acid are conducive to providing optimum cellular concentration for biochemical activity.\* Ester-C has a pH of 7.0, potentially reducing acidity and improving bowel tolerance.\* Bioflavonoids work synergistically with vitamin C.\*

Researchers at the University of Mississippi School of Pharmacy compared the effects of ingesting Ester-C and L-ascorbic acid, using special rats that lack the L-gulonolactone oxidase necessary for the synthesis of vitamin C (a trait shared with human beings). Ester-C showed slower excretion and higher plasma values of ascorbic acid, providing increased cellular concentration for biochemical activity.\* A human study showed similar results for Ester-C, including: significantly higher serum levels than L-ascorbic acid at 4, 8 and 24 hours after ingestion, as well as after 7-10 days of continuous ingestion; significantly higher white blood cell levels at 8 and 24 hours after ingestion and after 7-10 days of continuous ingestion; substantially less oxalate excretion in the first 24 hours after ingestion,

as well as after 7-10 days of continuous ingestion; and substantially less urinary ascorbate loss in both the first 24 hours of ingestion and after 7-10 days of continuous ingestion.\* Because plasma levels of vitamin C only reflect the vitamin in transit, studies of cellular accumulation and biochemical function are also important in interpreting advantages offered by different forms of vitamin C. A recent, not yet published human study at the University of California, Los Angeles, suggests that Ester-C is retained longer than regular vitamin C in white blood cells.\*

Vitamin C is an important water-soluble antioxidant nutrient, involved in a wide variety of biochemical reactions. It is stored in tissues throughout the body, and is especially concentrated in the adrenal glands, where it is crucial for the production of adrenal hormones involved in responding to stress.\* The body uses vitamin C in immune system functions including white blood cell production, histamine release and degradation, the reduction of glutathione, and the metabolism and protection of several other nutrients.\* Vitamin C is involved in detoxifying heavy metals such as lead, cadmium, mercury and nickel.\* It is involved in the production of collagen and elastin, important connective tissue proteins.\* Vitamin C may also support HDL cholesterol within normal levels, and bone mineral density.\*

\*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.

Calcium is important for skeletal health, with 99% of calcium occurring in the bones and teeth, and the rest found in cells and body fluids. Calcium is involved in many functions in the human body, including initiation of muscle contractions, the blood clotting process, and the regulation of nutrient and waste product transport through cell membranes.\* It also is involved with enzymes that control fat digestion and metabolism, blood pressure, cholesterol, hormones, and nerve impulse transmission.\*

Rutin can help strengthen capillaries and may support circulation.\* Rutin also has powerful antioxidant activity, with the ability to disarm reactive oxygen species including superoxide radicals and ferrous cations. It modulates the respiratory burst of neutrophils, helps maintain levels of reduced glutathione, prevents oxidation of vitamin C, and may inhibit lipid peroxidation.\*

Quercetin is an antioxidant bioflavonoid found in many foods. Quercetin supports the body's ability to inhibit the release of histamine and

other important signaling pathway metabolites. It can enhance the strength and permeability of the capillaries, support coronary vaso-relaxation, and help protect cholesterol and tissues in the body from oxidative damage.\* It also may modulate the immune system, potentially supporting a number of beneficial immune system effects.\*

Grape Seed Extract contains flavonol proanthocyanidins, which have undergone extensive clinical and toxicological studies. Grape seed proanthocyanidins are the main phenolic antioxidants found in red wine, and exhibit powerful antioxidant activity, due to their diphenol components and related structures.\* They can protect against peroxy free radicals in the tissues, inhibit the peroxidation of ingested lipids during the digestive process, and support the integrity of collagen structures and the capillaries.\*

Ester-C has U.S. Patent Nos. 4,822,816; 4,968,716; 5,070,085; 6,197,813; 6,468,980, and corresponding foreign patents. Other patents are pending.

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Serving Size: 1 Capsule

Servings Per Container: 100 or 200

**Amount Per Serving:**

Vitamin C (as Calcium Ascorbate)	675 mg
Calcium (as Calcium Ascorbate)	75 mg
Rutin	50 mg
Quercetin	25 mg
Grape Seed Extract (95% total polyphenols including 83% oligomeric proanthocyanidins)	2.5 mg

**Other ingredients:** Magnesium stearate, silicon dioxide.

**Suggested Use:** As a dietary supplement, 1 or 2 capsules one to three times daily between meals, or as directed by a healthcare practitioner. Esterol is better tolerated by some individuals than pure ascorbic acid.\* However, Esterol may not be suitable for the severely allergic, because the Ester-C it contains is ultimately prepared from corn.



**Allergy Research Group®**  
2300 North Loop Road, Alameda, CA 94502  
Phone: 800-545-9960 or 510-263-2000  
Fax: 800-688-7426 or 510-263-2100  
[www.AllergyResearchGroup.com](http://www.AllergyResearchGroup.com)

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