Vitamin C: The Unique Qualities and Synergies of Its Different Forms

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Vitamin C is a vital nutrient for human health and survival. It is not only a powerful antioxidant and immune booster, it also supports collagen, connective tissue formation, and builds the extracellular matrix – the 'glue' that binds the body's cells together. It is also important for faster wound healing and the prevention of various chronic conditions. Optimum amounts of vitamin C effectively protect the body and cardiovascular system against biological rusting.

Additionally, vitamin C has several other important functions. It is a cofactor for a series of biological enzymes that are important for the improved metabolism of cholesterol, triglycerides and other risk factors for cardiovascular disease. It is also an important energy molecule needed to recharge energy carriers inside the cells. Vitamin C is essential for the production of carnitine, the molecule that carries fatty acids into the mitochondria for energy production. It participates in the biological recycling of vitamin E, glutathione, and many other cell-protective molecules. When taken together with calcium, it increases calcium absorption. Vitamin C also neutralizes various toxins in the body and protects healthy cells from harmful substances, including the effects of many pharmaceutical drugs.

As humans do not produce their own vitamin C it has to be obtained from food sources and dietary supplements. Vitamin C supplements come in several forms. These include ascorbic acid, calcium ascorbate, magnesium ascorbate, and others. However, the majority of vitamin C supplements on the market contain only a single form of vitamin C, usually ascorbic acid. Simple ascorbic acid is a water-soluble compound. Therefore, it does not remain in the body for very long and is easily excreted. Unless frequently replenished, it is difficult to obtain the benefits of vitamin C from ascorbic acid alone.

Mineral salts of ascorbic acid, such as calcium ascorbate and magnesium ascorbate, are easily absorbed and well metabolized by the body's cells. Combining vitamin C with calcium or magnesium in this way neutralizes the acidic effect of ascorbic acid and contributes to a 'buffering' effect, thus making it gentler on the stomach lining.

Calcium is important for the proper contraction of muscle cells, including the heart muscle cells, and is required for the conduction of nerve impulses. This mineral is also essential for the hardening and stability of our bones and teeth. Magnesium is nature's calcium antagonist; its benefit for the cardiovascular system is similar to that of prescription calcium channel-blocking drugs – except that magnesium is natural. Clinical studies have shown that magnesium is particularly important for helping to normalize high blood pressure and irregular heartbeat conditions.

There is a misconception that calcium ascorbate can increase the likelihood of kidney stones. However, the majority of kidney stones are made of calcium oxalate, which is present in foods such as soda, coffee, chocolate, spinach, and beets. Inadequate water intake is one of the major contributors to kidney stone formation. Well-controlled clinical studies have not been able to establish any strong correlation between

supplemental vitamin C and increased kidney stones.

Another unique form of vitamin C is ascorbyl palmitate, a fat-soluble form of the nutrient. This form is better absorbed by the cells than ascorbic acid alone. Cell membranes enriched with ascorbyl palmitate are more resistant to oxidative damage, which means they are better protected against disease and aging. Ascorbyl palmitate is also an effective antioxidant and free radical scavenger.

One of the advantages of taking a nutritional supplement that contains ascorbyl palmitate is that this form of vitamin C can reach areas of the body that ascorbic acid cannot. Moreover, its effects last for longer. A well-balanced vitamin C or multinutrient supplement should contain at least 25 percent of its vitamin C in the fat-soluble, ascorbyl palmitate form. However, most vitamin C supplements contain little or no ascorbyl palmitate. Optimum supplementation with a synergistically formulated vitamin C supplement can make all the difference in protecting your health!

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