Science Talk - Vitamin C Primer

Well it's that time of year again – cold and flu season. Many of us take extra vitamin C at this time of year whether we have a cold or not. And then there are many people who start taking vitamin C only after a cold or the flu has set in. Here's a quick digest on various issues associated with the "vitamin of the season", from dosage, to the different types of vitamin C available, to absorption and the remarkable effect that C has on enzyme systems:

Proper dosage is always a popular question. While amounts will vary according to individuals, in general the low amounts of vitamin C found in most multi-vitamins should be considered only the bare minimum for this important nutrient. Most natural healers will advocate at least 1000 milligrams a day. Spread your intake out over the course of the day; that way it will be more effective than taking it all at once.

Anyone who's ever shopped carefully for vitamin C knows that there are several types of C to choose from. Here's a quick rundown of different C types:

ASCORBIC ACID: This is the standard form of vitamin C. Calcium ascorbate is one of the salt forms of the nutrient (as opposed to the acid form). It is usually synthetic, as are other forms, such as sodium ascorbate, magnesium ascorbate, etc. It tends to be bitter, while ascorbic acid is sour.

NATURAL vs. SYNTHETIC: The synthetic vitamin C molecule is chemically identical to natural forms. The difference arises in other nutrients that accompany the C, such as bioflavonoids, which make the C more effective.

ROSE HIPS: This natural form of vitamin C is very expensive, so some manufacturers put a little bit in with synthetic C for marketing purposes ("contains natural source vitamin C", for example). In its natural state, meaning mixed by Mother Nature with attending bioflavonoid fractions, there's little question that less amount of rose hips is needed for an equivalent biological action.

ACEROLA VITAMIN C: This is another natural form (from a tropical American shrub). Like rose hips, acerola is often mixed with synthetic C to make a product look "more natural".

VITAMIN C COMPLEX: This can be any group of related items, such as multiple salts of C (calcium, magnesium, potassium, sodium ascorbates, for example). Such a complex would most likely be entirely synthetic.

ESTER C: There is an issue concerning Ester C, touted as stronger than the standard form. Although you'll see advertising claiming its higher potency, there is no solid proof. Objective scientists such as Dr. Linus Pauling don't believe Ester C is any more potent than ascorbic acid. However, some people do feel it has less of a tendency to upset their stomach.

FAT SOLUBLE VITAMIN C: The fat-soluble form of vitamin C is called ascorbyl palmitate, and is better absorbed and stored by the body than water-soluble forms. (All the other forms of C are water-soluble.) Ascorbyl palmitate is harder to find, and more expensive.

With respect to bioavailability, we all know that absorption is the key to everything, and the amount of any vitamin you take is not necessarily the amount that your body ends up absorbing and ultimately putting to use. Complicating the absorption issue is the fact that your body's ability to absorb nutrients is not necessarily the same from one day to the next. The degree of vitamin C absorption changes depending upon the dose ingested and the body's need at any particular time. Some people are less tolerant to vitamin C in the acid form. For them switching to the salt form (sodium ascorbate, calcium ascorbate, magnesium ascorbate, etc.) often permits far higher tolerance.

Furthermore, absorption may be facilitated by the regular use of vitamin C. Dr. Allan Spreen says "Assuming you take enough (RDA amounts won't do it), high doses of vitamin C 'awaken' dormant enzyme systems that can utilize the additional doses of the nutrient. Over a period of time they get used to having the higher dose and 'jack up' to accommodate. In my opinion the medicine of the future will be highly tailored around enzymes, utilized purely for optimizing the absorption of the nutrients we're eating, whether as foods or supplements."

Vitamin C Primer Source: Health Sciences Institute e-alert, Jan 6, 2004

Nature's Sunshine Time Released Vitamin C - Enhances immunity and aids in preventing many types of viral and bacterial infections and assists in treatment and prevention of the common cold. Vitamin C protects against cancer-causing agents and the harmful effects of pollution reducing the effects of allergy-producing substances and it in known to protect against blood clotting and bruising. Vitamin C also promotes the healing of wounds, burns, and bleeding gums.

Each specially processed tablet of **NS Timed- Release Vitamin C** contains beadlets encapsulated by coatings derived from natural sources, allowing slow release of its contents over an extended period of time. Each tablet will deliver at least 4 hours of continuous supply of vitamin C to your body, providing improved bioavailability, minimal urinary excretory loss, and reasonably stable serum vitamin C levels. **NS Timed-Release Vitamin C** is especially recommended to those in need of large quantities of vitamin C in their system.

NS Timed Release 1000 mgVitamin C comes in 60 tablets. Vitamin supplement. Ingredients: 100 mg of vitamin C in a unique inactive herbal containing rose hips extract, acerola extract, rutin, lemon bioflavonoids, and hesperidin complex. Derived from natural sources. Recommendation: Take one tablet daily with a meal. 1Clement, Laura, and Tanner, Russ, The Herb Allure Resource Toolkit, under vitamin C.

Did you know? According to the Journal of the American College of Nutrition, "Evidence overwhelmingly points to the value of vitamin C in maintaining health and preventing cancer, cardiovascular disease, and cataracts." According to the American Journal of Clinical Nutrition, even doses as low as 500- 1,000 mg daily of vitamin C will noticeably reduce LDL cholesterol. Hospital research has found that people with coronary artery disease taking 1 gram (1,000 mg) of vitamin C daily are less likely to suffer dangerous blood clots after surgery than individuals not taking vitamin C supplements.1

NS Vitamin C 500 mg with Bioflavonoids
180 tablets. Vitamin supplements. Ingredients: 500 mg of vitamin C (ascorbic acid) in a base of non-medicinal ingredients consisting of 50 mg of each of the following: lemon bioflavonoids, orange bioflavonoids, grapefruit bioflavonoids, hesperidin complex, rutin, and rose hips. Recommendation: Take one or two tablets daily with a meal.

Vitamin C 250 mg (chewable)
120 chewable tablets. Vitamin supplements. Ingredients: 250 mg of vitamin C. Tablets are made with whole orange juice freeze-dried to preserve its nutrition and vitamin complex. They are sweetened with fructose. This product contains no artificial colour, flavours or sucrose. Recommendation: Take one tablet daily.