

Rationale For Antioxidant Supplements

Oxidation and Free Radicals

Antioxidant vitamins include, preeminently, vitamins A, C, and E, but these nutrients are also joined by a variety of natural enzymes, minerals, amino acids, flavonoids, carotenoids, curcuminoids and other nutrient complexes. Even cholesterol can function as an antioxidant.

ANTIOXIDANT SUPPLEMENTS

Foundation Formulas

W Y S O N G

FOOD C™

Only food-source vitamin C and Flavonoids encapsulated.

MEGA C™

High dose vitamin C and Flavonoids, encapsulated.

FOOD A•C•E™

Only food-source vitamins A (beta-carotene), C, E and Flavonoids encapsulated.

SPECTROX™

High dose vitamin A (beta-carotene), C, E, Flavonoids, grape seed extract, Pycnogenol, and lipoic acid encapsulated.

Wysong antioxidants are designed to be cycled with and synergistically enhanced by the entire spectrum of Wysong vitamin, mineral, enzyme, probiotic, antioxidant and essential fatty acid Foundation Formulas™.



Our bodies metabolize energy through oxidation-reduction reactions. These reactions, as a matter of course, create highly reactive by-product oxidants (like the smoke from a fire – see Figure 1) which can cause free-radical damage to a variety of important cellular and biochemical components. Antioxidants are important because many diseases may be caused by oxidation and free radical pathology.

Free radicals are by-products of metabolic processes and originate from environmental pollutants (such as nitrogen dioxide and ozone in polluted air, heavy metals, halogenated hydrocarbons, ionizing radiation and cigarette smoke). If unchecked by an antioxidant, the highly reactive free radicals attack cell walls and cell constituents, including DNA and other opportune targets, particularly those containing polyunsaturated fatty acids (PUFAs). When free radicals react with PUFAs, chain reactions generate free radicals in profusion. Free radicals can damage both the structure and function of cell membranes, nucleic acids and electron-dense regions of proteins. Oxidative damage resulting from free radical attack has been linked to the onset of a number of degenerative diseases and conditions.

Fortunately, natural foodstuffs contain antioxidants, and our bodies can even synthesize antioxidants to help curb potential runaway oxidant free-radical fires that could occur in our bodies. But modern living – out-of-context living – has resulted in a higher-than-normal amount of oxidant intake. We breathe and consume a variety of toxins which can be potent oxidants. Everything from excessive iron consumed from the skillets we cook in, to ultraviolet and cosmic radiation, to processing and storage of foods resulting in the oxidation of components such as polyunsaturated fatty acids and cholesterol, to excessive internal oxidant damage from extreme forms of exercise, all increase oxidant load.

Combine the increasing environmental pressure of oxidant damage with our weakened food supply, and the value of antioxidant supplementation becomes apparent. Consider that as we cook, dry, puff, dehydrate, freeze, can and re-tort our natural foodstuffs, the exposed fragile nutrients within these foods (which may have actually exerted an antioxidant effect if eaten in their raw whole natural form)

The Cycle of Life

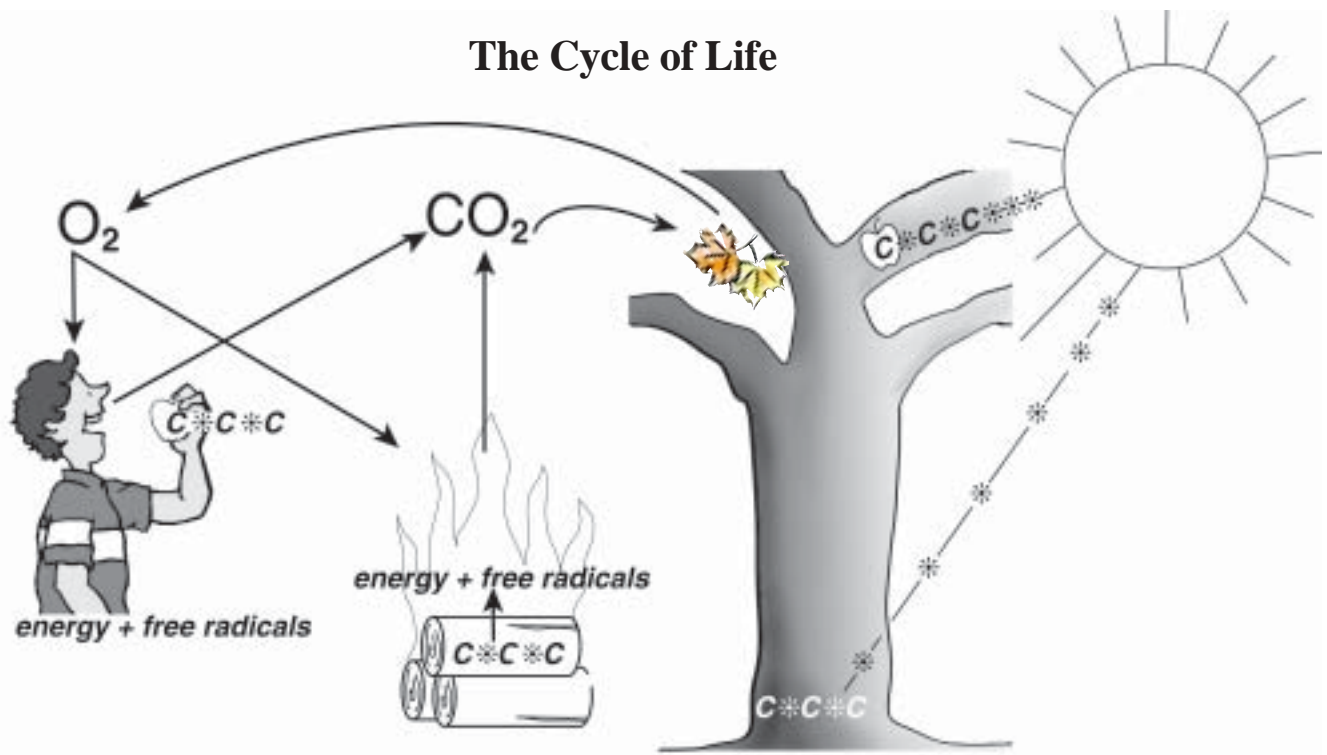


Figure 1.

Energy from the sun is used to link the carbon (C) from carbon dioxide (CO_2) absorbed by plants. The resulting carbon chains ($\text{C}-\text{C}-\text{C}$) form proteins, carbohydrates and lipids which in turn can be used as food fuel for us. Once consumed, the carbon chains are broken (oxidized) by inhaled oxygen. The sun's energy stored in the carbon bonds (*) is released for the body's needs. CO_2 is released in the process and free radical "smoke" is also produced. In a parallel way, wood has sun energy stored in its carbon (cellulose) chains and this is released as fire (energy), smoke (free radicals) and CO_2 .

can change under these conditions to potent dangerous oxidants. We are thus placed in a situation where because of the manipulation of our environment, food supply and lifestyle, the level of oxidants we are subjected to may far exceed the antioxidants we are capable of internally producing, or consuming as a part of our vitiated food supply.

The research demonstrating the value of antioxidant nutrients is extremely impressive. There is practically unanimity of opinion in the scientific community that the antioxidant nutrients, and those foods containing them, can exert potent effects on the course of a variety of diseases, including cancer and heart disease. We have included some of these references (refer to Antioxidant page 7) for the readers' survey. (Particularly noteworthy is a recent study in which researchers have found that antioxi-

dants are able to extend the life-span of worms [*Caenorhabditis elegans*] by nearly 50%.)

Synergism

Although vitamin supplementation has become common as an effort by the public to achieve health "naturally," most vitamins are not natural. They are synthetic copies.

Nowhere in nature do vitamins exist as singular isolated entities. Instead they are always complexed with dozens, even hundreds, of other biochemicals. All complement one another. The combined effects are not additive, they are multiplicative.

Such is life. The whole is greater than the sum of its parts. This synergism of life's components is the reason parts cannot simply be stirred together in a laboratory to create life.

Antioxidants also work in synergy. Once an antioxidant such as vitamin E quenches a free radical (neutralizes it), it is no longer an effective antioxidant and may even become a pro-oxidant itself. But, as long as sufficient carotenoids are present, vitamin E can be regenerated. Then, if sufficient vitamin C is present, carotenoids can be regenerated. It is for this reason Wysong antioxidants contain a spectrum of antioxidant nutrients rather than just isolated synthetic fractions.

Food Form vs. Synthetics

Wysong food-derived antioxidant supplements are designed using food forms known to contain important concentrated antioxidant nutrients including vitamins C and E, beta carotene, (provitamin A), polyphenolics, flavonoids and lipoic acid. The resultant products contain over 115 nutrients in complex and are dramatically different

FREE RADICAL DAMAGE TO MEMBRANES

Normal Membrane Configuration

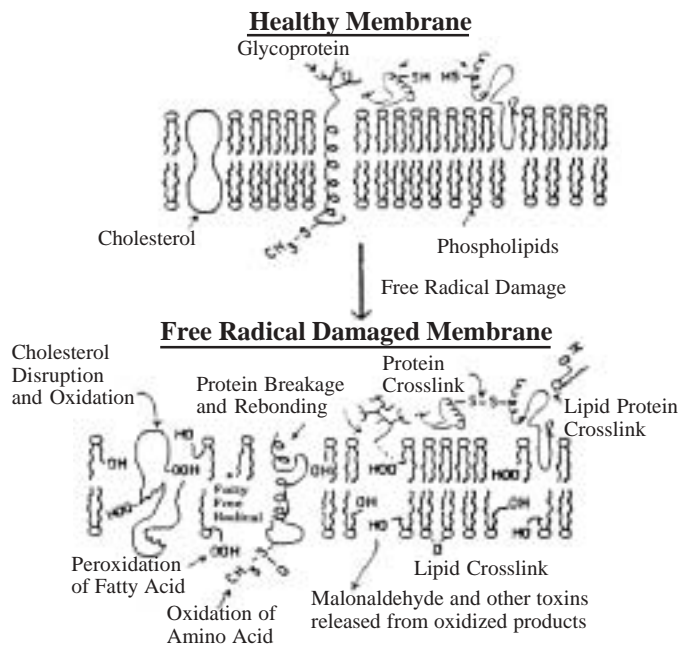


Figure 2. Tissue membranes are complex bilayer molecular structures capable of undergoing disruption from free radicals. The resulting membrane loses structural and functional integrity resulting in characteristic aging, wrinkles, drying and predisposition to neoplasia. This schematic of what happens to skin tissue due to free radical damage reflects what can happen throughout body tissues. From *Lipid Nutrition: Understanding Fats and Oils in Health and Disease*, by Dr. R.L. Wysong.

than commercial singular synthetic vitamins or even so-called “natural” vitamins which use synthetic vitamins and then add minor natural sources to it. Even in the natural foods movement, compromise has been made, with most vitamin preparations deriving almost all of their vitaminic and antioxidant effects from synthetic components. This, despite the fact that studies have proven that natural antioxidants from sources such as fresh fruit are more effective than synthetic supplements.

Exceeding the RDA's

The current RDA (recommended daily allowance) of vitamin C is 90 mg. This recommendation, as well as that for vitamins A, E, and many other nutrients, has been determined based on the dose necessary to prevent overt deficiency symptoms. However, scientific opinion changes frequently and so does the RDA. It has been shown, for example, that vitamin C does far more than prevent scurvy. It enhances the immune system,

prevents lead and perhaps other heavy metal toxicity, may assist in preventing various diseases such as cancer, colds and cardiovascular disease (Refer to Wysong Carvasol™ monograph for convincing evidence that heart disease is a vitamin-deficiency disease), and may even exert anti-aging effects. The dose of a Vitamin C necessary for these effects appears to far exceed the 90 mg RDA.

Optimizing health therefore requires different dosing than that necessary to simply prevent classical deficiency symptoms. There is a significant difference between an adequate supply of vitamin C and an optimal amount.

Another consideration is that our modern processed food supply provides far less vitamin C than that consumed by our primitive ancestors who were eating natural foods. Some researchers argue that our natural diet would contain 300 - 600 mg of vitamin C – not

Wysong Antioxidants contain at least:

Protein Fiber Carbohydrates
Omega-3 and Omega-6 Fatty Acids

Vitamins:

All-Trans-BetaCarotene	Folic Acid
Vitamin B ₁ (Thiamin)	Vitamin K
Vitamin B ₂ (Riboflavin)	Vitamin C
Vitamin B ₃ (Niacin)	Choline
Vitamin B ₅ (Pantothenic Acid)	Biotin
Vitamin B ₆ (Pyridoxine)	
Vitamin E (d-α-tocopherol)	

Amino Acids:

Lysine	Proline	Leucine	Tryptophan
Histidine	Glycine	Tyrosine	Aspartic Acid
Arginine	Alanine	Phenylalanine	
Threonine	Valine	Methionine	
Cysteine	Isoleucine	Glutamic Acid	

Minerals:

76 Trace Minerals

Associated Factors:

Phytocyanin	Purines
Amides	Chlorophyll
Superoxide Dismutase	Rutin
Flavonoids	

Commercial Vitamins A, C & E contain only:

Synthetic Vitamin A, C, & E Additives

Figure 3. The cost to make a concentrated vitamin supplement using natural foods far exceeds that necessary to produce the same amount of vitamins synthetically. For example, the cost to produce the 135 mg of vitamin C found in Wysong Food A•C•E™, is over 32 times the cost to make synthetic vitamin C. In evaluating supplements, this dramatic price differential is a useful criteria. For example, the consumer may assume that 100 capsules of vitamin C costing \$5.00 or less must contain synthetics, regardless of its “natural” claims.



the 90 mg suggested by the RDA. Other research has proven that even higher doses, up to several thousand milligrams daily, are beneficial. Some suggest the only way to determine individual optimal dosage of Vitamin C is to increase dosage until loose stool results, then back off to the level at which it subsides. (Use Wysong Mega-C™ for this purpose.)

Vitamin C is rapidly spent when exposed to oxygen. So as foods are squashed, ripped, pumped, whipped, and dried, vitamin C is lost. The Vitamin C in the original food is simply not what is there after the ravaging of food processing. Orange juice, for example, can lose 100% of its vitamin C within twelve hours after juicing.

The chart to the right details a menu used by researchers to purposefully induce vitamin C deficiency. Following this diet will result in less than 5 mg of vitamin C consumed per day. What is so remarkable about this “test” diet is that it is identical to the types of foods commonly eaten by the American public. It is easy to see, therefore, how vitamin deficiency could result while eating an apparently healthy diet.

Similar arguments that our present diet is depleted and sub-optimal can be made for many other nutrients, including vitamin E and provitamin A (beta-carotene) as well. Thus, increasing the level of non-processed non-fractionated natural foods becomes an important dietary

consideration. As discussed above, simply adding synthetic purified vitamins to the diet is an incomplete and poor substitution. The vitamin-rich whole foods base of Wysong Food Antioxidants provides a convenient, concentrated, more complete alternative source of supplemental antioxidant nutrients.

The nutritional benefits of antioxidants are legion. It is for this reason that Wysong recommends supplementation as a foundation requirement for anyone desiring optimal health. The reader is invited to survey the small sampling of references at the end of this monograph for proof of the extraordinary potential of antioxidant nutrition.

Wysong antioxidant supplements are the result of several years of research seeking nontoxic, natural nutritional supplements. Ingredients have been selected based upon the weight of scientific evidence and traditional

experience with their use. Supplementation with natural nutrients and “nutraceuticals” is an emerging science, and precise mechanisms of action have not been determined in many cases.

The ingredients in Wysong antioxidant supplements have a significant body of scientific research demonstrating their efficacy in helping the body achieve optimal levels of needed nutrients. A partial listing of scientific references demonstrating the effectiveness and safety of these ingredients follows this monograph.

Wysong antioxidant supplements, in combination with the other nutritional supplements in the Optimal Health Program, and combined with appropriate lifestyle and dietary modifications, provide an exciting new natural and safe method to enhance and optimize overall health.

VITAMIN C-DEFICIENT DIET FOR EXPERIMENTS

Sample Menu Choices

Breakfast

Apple Juice
Applesauce
Raisin Bran
Shredded Wheat
Unprocessed bran
Hominy grits
Cream of Wheat
Eggs, scrambled or hard poached
Cheddar cheese
French toast
Syrup
Yogurt, plain or strawberry
Bran muffin
Glazed doughnut
Mini bagel
Cream cheese
White toast or bread
Wheat toast
Margarine, butter
Honey
Peanut butter
Sugar substitutes
Low-fat cream cheese
Coffee, regular or decaffeinated
Tea, regular or decaffeinated
Cream
White milk, whole, 2%, or skim
Chocolate milk

Lunch

Chicken noodle soup
Cream of chicken soup
Croutons
Escalloped chicken
Pork chops
Brown gravy
Garlic herb pizza
Grilled cheese sandwich
Tuna chunks
Yogurt, plain, vanilla, or blueberry
Rice royale
Black beans
Rice
Pretzels
Applesauce
Diet Jello™
Cookies, chocolate chip or sugar
Ice cream, vanilla or chocolate
Bread, white or wheat
Saltines
Margarine, butter
Sour cream
Peanut butter
Mustard
Mayonnaise
Sugar substitute
Relish
Coffee, regular or decaffeinated
Tea, decaffeinated or iced

Dinner

Chicken and rice soup
Cottage cheese
Croutons
Fried shrimp
Roast beef
Brown gravy
Macaroni and cheese
Cheeseburger
Chicken salad
Yogurt, plain or peach
Pinto beans
Rice
Diet Jello™
Vanilla ice cream
Angelfood cake
Bread, white or wheat
Margarine, butter
Coffee, regular or decaffeinated
Cream
Tea, regular or decaffeinated

Evening Snacks

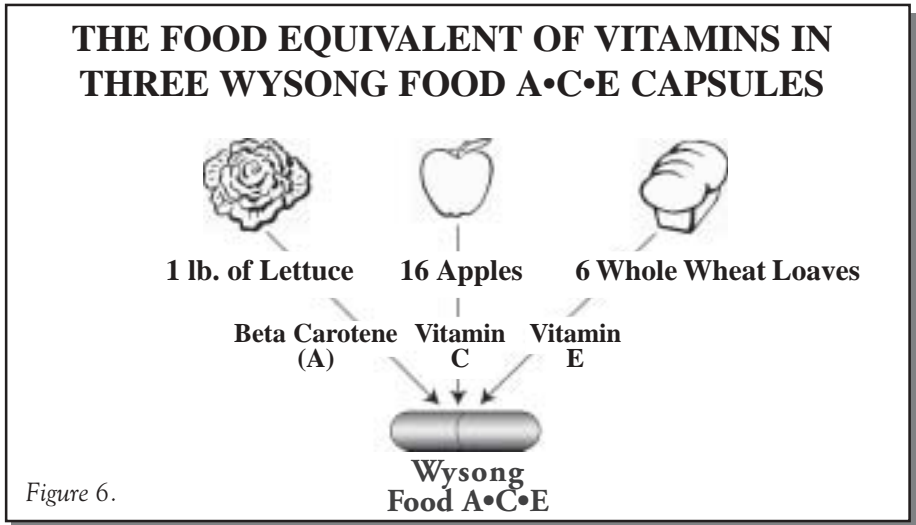
Peanut butter crackers
Graham crackers
Chocolate chip cookie
Popcorn
Ginger ale

Figure 5.
From: *American Journal of Clinical Nutrition*, May 1997:1434

Wysong antioxidant supplements, as with all Wysong Foundation Formulas™, are designed to enhance and complement the lifestyle and dietary guidelines in the Wysong Optimal Health Program. Taken alone, these supplements will exert benefits, but these benefits will be greatly enhanced by the synergy of using them in conjunction with the other Wysong-designed programs.

Additionally, Wysong antioxidant supplements should not be viewed as pharmaceuticals with which immediate powerful results may occur (often with a trade-off of powerfully dangerous side effects). Problems that may have developed in the body over decades cannot be expected to be resolved in a day or two. Restoring healthy balances in the body takes time and usually several weeks must pass before results can be seen. An attitude of patience and commitment to an ideal of safe and natural nutrition is critical to long-term results.

Wysong antioxidant supplements are carefully designed to be safe and to avoid excesses or imbalances. If taken with other Foundation Formulas, although they may contain some of the same ingredients, excesses above researched allowable limits will not occur. This also applies



to taking Wysong vitamin and mineral supplements in conjunction with the Nutrient Support Formulas™. Unique among supplement programs, all Nutrient Support Formulas and all Foundation Formulas can be taken simultaneously without exceeding safe limits.

However, intolerance to any food item, regardless of how natural it may be, can occur. This is why all Wysong supplements should be rotated as described on bottle directions and in the Foundation Formula guidelines.

To avoid disrupting the balances designed into the Wysong supplement program and to prevent potential excess, it is not recommended that other non-Wysong supplements be taken in

conjunction with this Wysong program unless specifically recommended by a nutritionally knowledgeable physician.

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.

WHAT'S IN YOUR "NATURAL" VITAMIN C SUPPLEMENT?

COMPANY & PRODUCT*	CONTAINS SYNTHETICS	CONTAINS NO SYNTHETICS
Wysong Food C Supplement		X
Inter-Cal Corp. - Ester C	X	
Schiff - Vitamin C + Rose Hips	X	
NutriCology, Inc. - Anti-Ox	X	
Metagenics - C	X	
Nature's Plus-Acerola - C Complex	X	
American Health - Acerola Plus	X	
Natrol - Vitamins A, C, and E	X	
MegaFood (Grow) - C	X	
Rainbow Light - Ultra Gram C	X	

Figure 7. * This information is accurate to the best of our ability to interpret company literature and product labels.

WYSONG ANTIOXIDANT SUPPLEMENTS

Food C™

Two capsules provide: 133% of the Recommended Daily Allowance for vitamin C. Take two or more capsules daily.

Each 2 capsules contain:

Vitamin C 120 mg

Ingredients:

Natural Phytonutrient Extracts and Concentrates of Acerola Juice, Rosehips, Black Currants, Barley Grass Juice, Wheat Grass Juice, Grape Juice, Orange Juice, Composted Kelp, *S. platensis*, Aphanizomenon Flos-Aquae (Blue Green Algae.)



Mega C™

A combination of whole Food C ingredients plus buffered and esterified concentrated vitamin C. Designed as an alternative to entirely synthetic vitamin C for those who desire to supplement with mega-doses of vitamin C.

Each 3 capsules (2250 mg) contain:

Vitamin C 1560 mg

Ingredients:

Vitamin C and Flavonoids (Ascorbic Acid, Calcium Ascorbate, Magnesium Ascorbate, Acerola Juice Extract, Black Currant Powder, Rosehips Powder)



Food A•C•E™

Three capsules provide: 133% of the Recommended Daily Allowance for vitamin C, 1818% for vitamin E, and 200% for beta-carotene.

Each 3 capsules contain:

Beta-Carotene
(Pro-Vitamin A) 10,000 I.U.
Vitamin C 120 mg
Vitamin E 400 I.U.

Ingredients:

Natural Phytonutrient Extracts and Concentrates of Acerola Juice, Rosehips, Black Currants, Barley Grass Juice, Wheat Grass Juice, Composted Kelp, Orange Juice, *S. platensis*, *D. salina*.



Spectrox™

A high potency beta-carotene (provitamin A), vitamin C, vitamin E, flavonoids and lipoic acid formula. Contains natural elements including buffered and esterified concentrated vitamin C. Three capsules per day of this formula provide what research argues are the optimal levels.

Each 3 capsules (2100 mg) contain:

Beta-Carotene (Pro-Vitamin A) 25,000 I.U.
Vitamin C 500 mg
Vitamin E 200 I.U.
Flavonoids (polyphenols) 48mg
alpha-Lipoic Acid 25mg

Ingredients:

Vitamin C (Ascorbic Acid, Calcium Ascorbate, Magnesium Ascorbate, Acerola Juice Extract, Black Currant Powder, Rosehips Powder), Beta-Carotene (*D. salina*), Vitamin E (Natural d-Alpha-Tocopherol Succinate, and Mixed d-Tocopherols), Tomato Powder (Lycopene), Turmeric (Curcumin), Organic Methylated Sulfur, Grape Seed Extract, Alpha-Lipoic Acid, Maritime Pine Bark Extract.



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