WHY CAROTENOID PHYTONUTRIENTS?
■ Research links diets abundant in carotenoid-rich fruits and vegetables with reduced risk for developing cancer, heart disease, and age-related degenerative diseases of the eyes and nervous system.
■ Carotenoids boost immunity, helping the body to defend itself against illness and disease.
■ Carotenoids promote health in ways distinct from the actions of other dietary factors.

WHY GNLD CAROTENOID COMPLEX?
■ Broad-spectrum, lipid-soluble nutrient supplementation. More than just beta-carotene, Carotenoid Complex provides a variety of carotenoid “family members” as they naturally occur in the human food chain in fruits and vegetables. Research continues to show that individual carotenoids play different and specific roles as part of the body’s complex defense system against illness and disease.
■ Whole-food ingredients. Our exclusive blend of carotenoid-rich extracts and concentrates is derived from whole tomatoes, carrots, spinach, red bell peppers, strawberries, apricots, and peaches.
■ 15 powerful carotenoid family members. Our unique formula has been tested and shown to deliver alpha-, beta-, cis-beta-, gamma-, and zeta-carotene, lycopene, cis-lycopene, lutein, zeaxanthin, alpha- and beta-cryptoxanthin, violaxanthin, canthaxanthin, capsanthin, and cryptoxanthin.
■ Exclusive NutriMax Process®. Advanced technology yields a 98% extraction efficiency. Also includes low-temperature processing and oxygen-free encapsulation to guarantee high potency of lipid-soluble carotenoid nutrients.
■ More antioxidant power than vitamins C and E! One capsule of Carotenoid Complex equals the antioxidant power of 800 IU’s of vitamin E, or 400 mgs. of vitamin C.
■ Natural base of pure olive oil. Part of the human food chain, olive oil promotes ingredient stability and helps optimize carotenoid absorption.
■ Contains pure lecithin from soybeans. Lecithin helps maximize stability of carotenoid nutrients and aids their dispersion during digestion.
■ 100% natural. Contains no artificial colors, flavors, preservatives or sweeteners.
■ Low sodium.
■ Convenient serving. Each capsule provides the complete carotenoid value of an optimal serving of a wide variety of carotenoid-rich fruits and vegetables — just one more way to help you meet the recommended dietary intake of 5 to 9 servings of fruits and vegetables every day.
CAROTENOID COMPLEX™

IS USDA TESTED!

United States Department of Agriculture (USDA) scientists conducted clinical research studies on Carotenoid Complex, GNLD’s exclusive broad-spectrum carotenoid supplement from whole foods, and published their findings in peer-reviewed scientific journals. The USDA studies showed that Carotenoid Complex:

■ dramatically enhanced the immune response of white blood cells — “natural killer” cells and lymphocytes — greater than responses obtained at baseline and with beta-carotene supplementation alone.

■ reduced blood lipid oxidation, an event that may contribute to atherosclerosis, the arterial blockage that can lead to heart disease and stroke.

■ prevented the oxidation of cellular lipids, whereas supplementation with beta-carotene alone did not. Oxidation can contribute to the development of cancer and other diseases.

**Suggested Use:**

Daily Carotenoid Complex™ provides a broad carotenoid spectrum with alpha-, beta-, gamma-, zeta-, and cis-beta-carotene. It also contains lycopene and cis-lycopene, lutein, alpha-cryptoxanthin and beta-cryptoxanthin, mesoanthin and other carotenoids balanced to match an optimal serving of fruits and vegetables. GNLD’s NutriMax Process® preserves nutrient integrity and insures maximum bioavailability for these key phytonutrients.

Store in a cool, dry place, away from direct sunlight. Packaged with safety seal.

NOT SOLD IN RETAIL STORES
Available Exclusively From GNLD Distributors

Distributed by:

GNLD International, LLC, Fremont, CA 94538 U.S.A.
Golden Neo-Life Diamite International, Ltd., Bridgetown, Barbados, W.I.
Kingston, Jamaica, W.I.
Port of Spain, Trinidad, W.I.

Leading edge nutrition since 1958. Made in U.S.A.
CAROTENOIDS: NATURE’S CRAYONS

Sometimes called “nature’s crayons,” carotenoids are a huge family of colorful plant pigments, many of which act as precursors of vitamin A. Carotenoids are responsible for the red in tomatoes, the orange in carrots, and the yellow in squash. They are also present in green plants such as spinach, where they are obscured, or masked, by green chlorophyll. About 600 carotenoids have been identified so far — 50-60 of which appear in our food supply.

FRUITS AND VEGETABLES RICH IN CAROTENOIDS

Some carotenoid-rich fruits and vegetables include:

- Apricots
- Red bell peppers
- Lettuce (red or green leaf romaine)
- Arugula
- Spinach
- Broccoli
- Mangoes
- Strawberries
- Brussels sprouts
- Mustard greens
- Sweet potatoes
- Butternut squash
- Nectarines
- Swiss chard
- Cantaloupe
- Papayas
- Tangerines
- Carrots
- Tomatoes
- Parsley
- Collard greens
- Dandelion greens
- Turnip greens
- Guavas
- Peaches
- Pink grapefruit
- Yellow bell peppers
- Kale
- Yellow corn
- Watercress
- Pumpkin

CAROTENOID-HEALTH LINK DISCOVERED

The first clues linking carotenoids and health appeared in the 1970s. Researchers observing populations around the world found that in areas where diets were high in fruits and vegetables, the rates for certain cancers were low. Conversely, in populations where fruit and vegetable intake was low, the rates of these cancers were high. These findings spurred many new research efforts focusing on different aspects of the diet/disease equation, including high-fiber versus low-fat consumption, vegetarian versus meat diets, and the intake of specific nutrients found in fruits and vegetables — especially beta-carotene.

BETA-CAROTENE: NO LONGER THE ONLY CAROTENOID IN TOWN!

Beta-carotene quickly became a “star” in both scientific literature and the media, as research showed that diets high in beta-carotene-rich foods clearly offered health benefits distinct from those provided by other dietary factors. But while beta-carotene is the most famous carotenoid, it is just one member of a large “family” with about 600 members, including alpha-, gamma-, and zeta-carotene, lycopene, lutein, zeaxanthin, and beta-cryptoxanthin. Research continues to unravel healthful roles for the other carotenoid family members, as well as beta-carotene.¹

Beta-carotene never appears in isolation in fruits and vegetables, and neither do the other carotenoids. Broad-spectrum carotenoids work together in fruits and vegetables to promote health, with optimal levels and ratios of each required for optimal protection.

HOW DO CAROTENOIDS PROMOTE HEALTH?

Carotenoids are especially important to the health, growth, and longevity of cells. They may protect us from disease in three distinct ways:

1. Prevention of disease. As potent antioxidants, carotenoids shield our cells from free radical-induced oxidative stress, thus preventing the initiation of the chain of cellular events that may lead to the development of cancer and other diseases. Carotenoids may help prevent some of the free radical damage linked to age-related diseases such as:
   - cardiovascular disease
   - cancer
   - degenerative eye diseases, including cataracts and macular degeneration
   - decline of the immune system
   - degenerative diseases of the nervous system

2. Intervention in the disease process. By interrupting oxidation reactions, as well as stimulating and fortifying immune function, carotenoids maximize the body’s natural defense systems and may lower the risk of disease development.

3. Repair. Carotenoids have been shown to provide benefits in precancerous conditions for both oral and cervical cancer. They appear to stop the progression of these diseases and may help the body repair some of the damage that has already been done.

EXPERTS ESTABLISH DIETARY GUIDELINES

Recognizing the impressive benefits of a diet high in carotenoid-rich fruits and vegetables, health experts have established a series of official dietary recommendations.

- The National Academy of Science and the National Cancer Institute suggest eating 5 or more daily servings of fruits and vegetables, especially green and yellow/orange vegetables.
- The United States Department of Agriculture, together with the Department of Health and Human Services, recommends consuming 2-4 servings of fruit and 3-5 servings of vegetables daily.
THE “CAROTENOID GAP”

Clear as these recommendations are, it remains equally clear that they aren’t being met. Recent studies showed that on any given day:

■ The number one consumed vegetable in the US is iceberg lettuce, a poor source of carotenoids. (USDA)
■ The third most consumed vegetable in the US is French fried potatoes, another poor carotenoid source. (USDA)
■ Only 28% of Americans eat two servings of fruit daily, not nearly enough to receive optimal nutritional benefits. (Healthy People 2010, FDA/NIH)
■ Only 3% of Americans eat 3 servings of vegetables daily, with at least one serving being dark green or orange. (Healthy People 2010, FDA/NIH)

In fact, although some experts recommend consuming at least 6 mgs. of carotenoids daily, scientists estimate that most of us are actually getting only about 1.5 mgs. per day — a significant carotenoid gap.

THE GNLD DIFFERENCE
IN A CAROTENOID SUPPLEMENT

CAROTENOID COMPLEX: THE FIRST OF ITS KIND

Research shows that fruits and vegetables confer most of the protection in our diets. It also reveals that fruits and vegetables are the food items most often missing from our diets. To help bridge that gap and take advantage of the fact that human-food-chain fruits and vegetables have a built-in long history of safe use, GNLD set out to identify those fruits and vegetables traditionally eaten by humans that would deliver significant amounts of the different members of the carotenoid family. The result is Carotenoid Complex, the first and only product to deliver the full spectrum of carotenoids in a natural supplement! Each capsule provides the complete carotenoid value of an optimal serving of a wide variety of carotenoid-rich fruits and vegetables.

THE WHOLE-FOOD DIFFERENCE

Following nature’s “blueprint,” GNLD scientists designed Carotenoid Complex using whole foods, not isolated carotenoids such as beta-carotene. Single carotenoids do not occur in isolation in natural foods; they occur with their other carotenoid “family members.” In fact, the importance and uniqueness of the carotenoid group lies in their family structure — each member contributes protective effects and works together as a team to provide maximum benefits.

Painstaking research of whole foods found in the human food chain that are naturally rich in carotenoids led to the development of an optimal carotenoid profile based on an ideal serving of fruits and vegetables. Carotenoid Complex does not contain synthetics or derivatives from plant sources humans do not normally eat. Before formulating Carotenoid Complex, our Scientific Advisory Board and Global Science Network members analyzed natural fruit and vegetable extracts and concentrates from all over the world to determine those foods that provided the highest levels of carotenoids.

These include:

■ carrots
■ red bell peppers
■ tomatoes
■ spinach
■ apricots
■ strawberries
■ peaches

MOST COMPLETE CAROTENOID PRODUCT ON THE MARKET

Carotenoid Complex is formulated so each capsule matches the carotenoid profile of an optimal serving of the carotenoid-rich foods listed above. Raw materials were carefully selected to contribute 15 powerful representatives of all the members of the carotenoid family:

■ Alpha-carotene
■ Beta-carotene
■ Cis-beta-carotene
■ Gamma-carotene
■ Zeta-carotene
■ Lycopene
■ Cis-lycopene
■ Lutein
■ Zeaxanthin
■ Alpha-cryptoxanthin
■ Beta-cryptoxanthin
■ Violasanthin
■ Canthaxanthin
■ Capsanthin
■ Cryptocapsin

The above members fall into the following categories:

■ Carotenes. Carotenes, such as alpha-, beta-, cis-beta-, gamma-, and zeta-carotene, have some pro-vitamin A activity. Others, such as lycopene, do not. Most carotenes are found in yellow-orange fruits and vegetables such as apricots, mangoes, carrots, and sweet potatoes.

■ Cryptoxanthins. Both alpha- and beta-cryptoxanthin are in the xanthophyll group and are abundant in red bell peppers, peaches, oranges, tangerines, and yellow corn.

■ Lutein. This is the primary xanthophyll in spinach. It is also found in peaches, squash, kale, and broccoli.

■ Lycopene. Lycopene and cis-lycopene provide the red color in tomatoes, guavas, and pink grapefruit. Among the carotenoids, lycopene is the most efficient quencher of singlet oxygen free radicals.

■ Xanthophylls. The xanthophylls include oxygenated carotenoids like lutein, cryptoxanthin, alpha- and beta-cryptoxanthin, zeaxanthin, violaxanthin, canthaxanthin, capsanthin, and cryptocapsin. High levels of xanthophylls are found in leafy green vegetables, including spinach, kale, Swiss chard, and collard greens.
**Proven Absorption for Optimum Benefits**

Many factors affect absorption of carotenoids in the diet. For example, in raw fruits and vegetables, carotenoids are bound to proteins — as little as 1% of the beta-carotene in raw carrots may be absorbed. On average, your body only absorbs 5-10% of the carotenoids from raw fruits and vegetables.

What’s more, very high levels of a single carotenoid can inhibit absorption of other important carotenoids. High intakes of beta-carotene alone can negatively affect the body’s utilization of other carotenoids.

Research has shown that carotenoids which are concentrated and delivered in a lipid (oil) form are more efficiently absorbed than those that have been concentrated and delivered in either solid/sliced raw form or juice form. Carotenoid Complex uses oil-soluble fruit and vegetable extracts and concentrates in a base of pure olive oil to maximize carotenoid absorption. In a bioavailability study conducted at the University of Nevada, Reno, Carotenoid Complex was shown to be completely bioavailable by the human body. GNLD’s SAB member Arianna Carughi took part in the study and reported the results at the annual FASEB (Federation of American Societies of Experimental Biology) meeting.1,2

GNLD’s own clinical research, plus other studies conducted by researchers from the USDA, have demonstrated beyond a doubt that Carotenoid Complex is absorbed by the body better than the carotenoids naturally found in raw whole foods.1,2

**Hundreds of Pounds of Carotenoid Power in Every Bottle!**

When it comes to delivering pure carotenoid power, Carotenoid Complex puts hundreds of pounds in the palm of your hand. To deliver the total carotenoid power in a single bottle of the new Carotenoid Complex, you’d have to eat:

- **250 pounds or more** of the raw vegetables and fruits it’s made from. Research shows that your body absorbs only 5-10% of the carotenoids in raw vegetables and fruits.
- **50 pounds or more** of the steamed vegetables and fruits Carotenoid Complex is made from. Research shows food preparation affects carotenoid bioavailability. Steamed fruits and vegetables increase bioavailability 30-50%.
- **18 pounds or more** of steamed and puréed fruits and vegetables (baby food). Steamed and puréed fruits and vegetables have the best bioavailability — up to 70%, which is the method of raw material preparation utilized in Carotenoid Complex.

**Exclusive NutriMax Process®**

At every stage of production — from raw materials and ingredients processing through encapsulation and packaging — GNLD’s Carotenoid Complex is a study in state-of-the-art technology and quality control. The result? What we call our NutriMax Process delivers the most of the best, in each and every capsule!

- **Purity.** Carotenoid Complex is manufactured according to the highest pharmaceutical standards. The result is purity you can trust!
- **Meticulous Preparation.** Our whole-food ingredients are specially prepared and processed at low temperatures to GNLD’s unique specifications to achieve maximum nutritional benefit.
- **Oxygen-Free Encapsulation.** Our wholesome raw materials are encapsulated in a nitrogen-filled environment to prevent oxidation and maintain high nutrient value.
- **98% Extraction Efficiency** of carotenoid compounds from fruits and vegetables.

**So Unique, It’s Patented**

Due to the strength of independent research studies and the leading-edge technology that the product represents, GNLD was able in 1996 to demonstrate to patent examiners in the United Kingdom that Carotenoid Complex is a unique, advanced nutritional supplement. The result was the issuance of British patent no. 2,274,235, protecting Carotenoid Complex from imitation. “This invention is a composition useful as a dietary supplement which provides adequate carotenoid ingestion to persons regardless of the inadequacy of their diets with respect to their vegetable intake,” says the patent. “The composition of this invention not only provides adequate quantities of known carotenoids to the diet, but it additionally provides the natural level of lesser known and even unknown carotenoids so that the ingestion of a full spectrum of carotenoids in naturally balanced proportions is achieved by supplementing the diet with the composition of this invention.”

This patent further validates the importance of the invention of Carotenoid Complex and underscores the uniqueness of the technology it reflects. It is truly the one and only product of its type in the world, and you can be proud that it is a GNLD exclusive!

**Repeated Scientific Studies Prove Its Powerful Benefits**

Carotenoid Complex is the most thoroughly tested carotenoid supplement on the market. It has been tested in clinical studies by government and university scientists and shown to have amazing health-protecting powers. Scientists at the United States Department of Agriculture and several universities have shown that Carotenoid Complex may play beneficial roles in boosting the immune system, protecting cardiovascular health, and defending the cells:

- **USDA studies proved** that Carotenoid Complex can dramatically enhance the immune response of “natural killer” cells and lymphocytes beyond the enhancement obtained with beta-carotene alone. No other carotenoid supplement has this kind of proof! GNLD’s Carotenoid Complex is the only product of its type to be proven effective!
- **USDA studies proved** that Carotenoid Complex can reduce blood lipid oxidation, an event that may contribute to atherosclerosis, the arterial blockage that can lead to heart disease and stroke.
CAROTENOID COMPLEX™

**USDA studies proved** that Carotenoid Complex helps prevent oxidation of cellular lipids, whereas beta-carotene alone does not. Oxidation is known to contribute to the development of cancer and other diseases.

**Studies by USDA Researchers Show**

**Carotenoid Complex Boosts Immune Power**

Studies conducted by United States Department of Agriculture (USDA) scientists showed that a carotenoid-deficient diet compromises immune power and that the broad spectrum of carotenoids in Carotenoid Complex could enhance the immune response of otherwise healthy people. The results were presented at the Federation of American Societies of Experimental Biology (FASEB) meeting in April of 1995 in Atlanta, Georgia and later published in the *American Journal of Clinical Nutrition*. The studies showed that Carotenoid Complex dramatically enhanced both immune cell levels and overall immune cell responsiveness.

First, supplementation with Carotenoid Complex boosted levels of a particular type of white blood cell, lymphocytes, which are the body’s first immunologic line of defense against disease. Supplementation with Carotenoid Complex resulted in natural killer cell levels that were more than 21% above baseline values in just 20 days — more than twice the effect of beta-carotene alone!

Second, Carotenoid Complex reclaimed immune power lost to carotenoid deficiency, and boosted carotenoid levels above baseline ("normal") levels when compared to diet alone. Supplementation with beta-carotene alone did not provide this benefit.

**Carotenoid Complex Protects Your Heart**

This study, conducted by researchers from the USDA and the University of California, Davis, showed that Carotenoid Complex protected LDL (so-called “bad” cholesterol) from oxidation. In fact, the concentration of beta-carotene, a compound that indicates absorption of carotenoids, increased five-fold in the LDL of people who supplemented with three capsules of Carotenoid Complex daily for 20 days. This finding is significant because LDL oxidation is believed to be a major initiator of atherosclerosis and heart disease.

In the study, healthy women were fed a low-carotenoid diet for 100 days. Then, for the remaining 20 days of the study, this diet was supplemented daily with three capsules of Carotenoid Complex. The carotenoid content of the LDL rose dramatically. “The results indicate that increased carotene consumption may have a protective effect against oxidative stress in vivo, suggesting that a low carotene intake may increase the oxidative susceptibility of body lipids,” the researchers concluded.

**Carotenoid Complex Defends Your Cells**

Scientists have learned through decades of research that free radicals are a major threat to the health of your cells. Free radicals constantly attack and damage cells and set the stage for disease to develop. Your body’s best line of defense against free radical damage is powerful antioxidants, such as Carotenoid Complex. Two independent published studies conducted by researchers at the United States Department of Agriculture (USDA), in affiliation with three universities, demonstrated that GNLD International’s Carotenoid Complex, a whole-food dietary supplement made from fruits and vegetables, protected cells from oxidation.

**Carotenoid Complex Protects Cellular Lipids Against Oxidation**

Another study, conducted by researchers at Florida International University (Miami), the University of Washington (Seattle), and the USDA’s Western Human Nutrition Research Center (San Francisco), showed that three capsules of Carotenoid Complex per day prevented the oxidation of cellular lipids. Beta-carotene alone (0.5 mg) did not cause a significant decrease in oxidation. In contrast, Carotenoid Complex, a broad-spectrum supplement including alpha-, beta-, gamma-, and zeta-carotene, lycopene, lutein, cryptoxanthin, and other natural fruit and vegetable carotenoids, caused a 44% decrease in oxidation. The finding is important because oxidation contributes to aging, the decline of the immune system, and chronic diseases such as heart disease, cancer, degenerative diseases of the eyes (cataracts, macular degeneration), and degenerative diseases of the nervous system. Carotenoid Complex’s ability to curb oxidative damage may help lessen cellular damage that can lead to disease.

The study also demonstrated that carotenoids are necessary even when people consume diets plentiful in other antioxidants, including preformed vitamins A, E, and C. The study ran for 120 days, during which time nine healthy young women lived in the metabolic research unit of the USDA’s Western Human Nutrition Research Center, where diet, exercise, and other activities were controlled. The researchers concluded that the findings provide evidence to support the beneficial effects of carotenoids in preventing lipid peroxidation in cells.

**The Most Powerful Whole-food Derived Antioxidant You Can Buy!**

Since its introduction, Carotenoid Complex has been the strongest whole-food carotenoid supplement on the market. How strong is it? To answer that question, we tested the antioxidant strength of Carotenoid Complex against antioxidant powerhouses, vitamins C and E. Here are the amazing results:

Everyone knows that vitamins C and E are powerful health protectors. Each also plays unique and essential roles in the body that can not be replaced by carotenoids, or any other nutrient. You need an abundance of them every day. As a
means of illustrating the incredible antioxidant power of the new Carotenoid Complex, we compared the power of a single capsule against these established antioxidant powerhouses. Here's what we found:

One capsule of Carotenoid Complex equals the antioxidant power of four 200 IU capsules of vitamin E.

VITAMIN E

One capsule of Carotenoid Complex equals the antioxidant power of two 200 mg tablets of vitamin C.

VITAMIN C

REFERENCES