

AstaSupreme®

NATURAL ASTAXANTHIN



The Essential Guide to Astaxanthin

Stiff or aching joints?

Natural relief is
within your reach



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NATURAL ASTAXANTHIN

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Natural astaxanthin is a bright red carotenoid from the same family as lycopene, lutein and Beta-carotene.

It can be obtained from multiple sources: Salmon, shrimp, krill and yeasts.

However, the most potent and most abundant source of natural astaxanthin comes from marine micro-algae called *H. Pluvialis*. Just look at a comparison between the various sources of astaxanthin, gram per gram

Source	Astaxanthin concentration ppm
SALMON	~ 5 -40
PLANKTON	~ 60
KRILL	~ 120
ARTIC SHRIMP	~ 1,200
PFAFFIA YEAST	~ 10,000
H. PLUVIALIS	~ 40,000

H. Pluvialis algae produce the Astaxanthin in response to stress - such as excessive sunlight or a lack of water and nutrients, it protects the Algae from free radical damage and allows it to overcome the crisis until conditions improve...it is a very successful survival mechanism! While small quantities can be obtained from salmon, krill & shrimp, a more sustainable and highly concentrated natural astaxanthin is now available as a nutritional supplement, harvested from the marine microalgae *Hematococcus Pluvialis*.

How does it work?

The unique structure of natural astaxanthin allows it to incorporate itself into the outer cell membrane. It does this in a very distinctive manner, essentially spanning from the outer membrane surface and extending through to the inner surface of the cell. This unique feature allows the product to act as a free radical scavenger along the outer cellular wall and simultaneously provide protection to the inner cellular domain. Put simply, astaxanthin removes free radicals on the outer cellular surface and furthermore leaves no chance for free radicals to enter your cells and cause damage.

Another important feature is its ability to mop up the many varieties of free radicals, (Unlike other antioxidants that can only handle 1 or 2 types) Astaxanthin comfortably neutralizes;

- Singlet oxygen radicals
- Superoxide radicals
- Hydroxyl radicals
- Peroxyl radicals
- Alkoxy radicals and more



How does natural Astaxanthin match up to other antioxidants?

Astaxanthin is considered a 'Superantioxidant' and it easily outperforms other well known antioxidants, such as Vitamin C, vitamin E, Resveratrol, Co-Q 10, green tea and virtually all of the other antioxidants. Just one example below shows Astaxanthin's ability to neutralize Singlet oxygen free radicals;

Singlet Oxygen Free radical Quenching Comparison:

- Astaxanthin 6000X stronger than Vitamin C
- Astaxanthin 800X stronger than COQ10
- Astaxanthin 550X stronger than Green Tea Catechins
- Astaxanthin 75X stronger than Alpha-Lipoic Acid

Nishida, et al, 2007

Special properties of natural Astaxanthin

- Astaxanthin crosses the blood-brain barrier to bring direct antioxidant benefits & protection to the brain and spinal cord.
- Astaxanthin crosses the blood-retinal barrier to protect the retina, the macula and the other delicate structures of the eyes.
- Astaxanthin binds with muscle tissue and integrates into outer cell membranes.
- Astaxanthin delivers anti-oxidant and anti-inflammatory protection to the skin, joints, arteries and every organ within the human body.
- Astaxanthin eliminates more free radicals and reactive oxygen species (ROS) than any other antioxidant.
- Astaxanthin NEVER becomes a pro-oxidant!

Health benefits that can be experienced by making astaxanthin a regular part of our nutritional intake:

- Support cellular energy production
- Support muscle & joint recovery after exercise
- Support skin protection from harmful UV sunlight
- Support Anti-aging effects by cellular antioxidant protection
- Support immune repair mechanisms
- Support eye health & visual acuity
- Support healthy cardiovascular function
- Support Healthy CRP levels*

*CRP (C-reactive protein) is a biomarker used to measure silent inflammation

Safety Profile

Astaxanthin has an excellent safety and tolerability profile - extensive testing by Hoffman La Roche showed no acute toxicity. Also In animal models, astaxanthin showed no evidence of mutagenicity, embryotoxicity, teratogenicity, maternal toxicity, and Reproductive toxicity.

Dosage recommendations:

- General Antioxidant coverage 4-6 mg/day
- Cardiovascular maintenance – 12 mg/day
- Cerebral -cognitive effects - 12 mg/day
- Muscle endurance 8-12 mg/day
- Skin protection 4-6 mg/day
- Joint health 6-8 mg/day

Antioxidant effect of astaxanthin on phospholipid peroxidation

In human erythrocytes; British Journal of Nutrition (2011), page 1 of 9 Kiyotaka Nakagawa, Takehiro Kiko1, et al.

Life Science Institute, Yamaha Motor Company Limited, Shizuoka 437-0061, Japan

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Nervous System and Eye Damage," Patent No. 5,527,533. Washington, D.C., U.S. Patent and Trademark Office, June 18, 1996.

Astaxanthin: a potential therapeutic agent in cardiovascular disease. Fassett RG, Coombes JS. Mar Drugs. 2011 Mar 21;

Administration of natural astaxanthin increases serum HDL-cholesterol and adiponectin in subjects with mild hyperlipidemia

Hiroshi Yoshida, et al: Dept. of Laboratory Medicine, Jikei University Kashiwa Hospital, Chiba, Japan; Internal Medicine of Metabolism and Nutrition, Graduate School of Medicine, Jikei University, Tokyo, Japan

Astaxanthin decreased oxidative stress and inflammation and enhanced immune response in humans Park JS, Chyun JH, Kim et al ,Nutr Metab (Lond). 2010 Mar 5; 7:18

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Controlling Inflammation

Chronic inflammation is a debilitating health condition, not only is it painful and destructive but it can also cause other long-term problems in your body. Inflammation is known to be a major underlying factor leading to cancer, heart disease and other fatal illnesses. If you've been managing arthritis or any other inflammatory condition with over-the-counter (OTC) or prescription NSAIDs, consider this startling fact: the American Journal of Medicine estimates that the total number of deaths caused by the side effects of NSAIDs is similar to the death-toll of AIDS.

Natural astaxanthin, on the other hand, controls inflammatory symptoms without negative side effects.

Before we discuss exactly how astaxanthin combats inflammatory symptoms, let's take a look at the pathology of this condition. To be honest, the human species wouldn't survive very long without an inflammatory reaction. Acute inflammation is a complex defense mechanism that is triggered when our body needs to defend & heal itself from injury or infection, whether it's from sunburn microbial invasion or from arthritis. However, Chronic inflammation is another story and it is this kind of inflammation that natural astaxanthin targets with its safe and effective action.



Unlike most OTC or pharmaceutical anti-inflammatory medicines, which are designed to have a 'single hit' mechanism where they target one particular pathway in the inflammatory process, Natural astaxanthin uses a multi-leveled approach to fight this condition. Numerous studies have been conducted to confirm this multitasking ability exhibited by astaxanthin to reduce inflammatory conditions. Astaxanthin suppresses a wide variety of inflammatory mediators including nitric oxide (NO), the cyclooxygenase enzymes (COX-1 and COX-2), prostaglandin E-2 (PGE-2), tumor necrosis factor alpha (TNF- α), and Interleukin 1B (IL-1 β). Therefore natural astaxanthin targets multiple mediators and influences multiple pathways within the inflammation process. This results in a more comprehensive, sustainable and natural solution...and without the side effects.

As if "chronic" inflammation wasn't bad enough, consider this: there is also the equally serious "silent," or systematic inflammation that goes unnoticed. This low-level, long-term condition is now thought to be a precursor to many diseases including: Alzheimer's, Parkinson's, diabetes, heart disease, ulcers, and some cancers. This kind of "silent" inflammation often flies below the radar screen unnoticed and without warning signs. Because it is difficult to simply know whether one has this dangerous condition, doctors use a blood test called High sensitivity C-reactive protein (HS-CRP). HS-CRP is now considered an early screening tool for silent inflammation and heart disease. A number of double-blind studies have shown that subjects taking astaxanthin, experience a significant & rapid reduction in the levels of this inflammatory biomarker. In each case, the control group that did not receive astaxanthin but rather received the placebo experienced an increase or no change in their HS-CRP levels.



Heart Health

When it comes to heart health, astaxanthin not only helps to prevent cardiovascular disease, it also helps those individuals who already have heart disease, by reducing their chances of suffering a heart attack or stroke.

It's well-known that astaxanthin's anti-oxidant and anti-inflammatory properties are heart-healthy, but this nutrient protects the heart in other ways, too. In both human and animal studies, astaxanthin has been shown to reduce cholesterol by lowering the bad cholesterol (LDL) levels, including triglycerides levels, while at the same time raising the levels of the good cholesterol (HDL). A recent clinical study showed that astaxanthin increased the good cholesterol HDL-cholesterol by 15% whilst increasing fat metabolism by 25%. Astaxanthin does all of this without any of the debilitating side effects that can be seen with the use of the Statin drugs.

Astaxanthin also promotes cardio-vascular health by reducing blood pressure and improving blood flow. Astaxanthin has been shown to reduce the degree of injury to the heart muscle in the unfortunate circumstance of an actual heart attack.

To illustrate the effectiveness of astaxanthin, it is interesting to note that a few pharmaceutical companies are conducting more extensive studies in an effort to market highly-concentrated IV astaxanthin formulations to heart-disease patients.

Skin protection & Antiaging

In a world increasing with Baby boomers & longevity, many individuals want to live longer, feel better and look younger. Ironically, we spend more time outdoors enjoying BBQs, sports events and other outdoor hobbies, where the sun ages our skin during over-exposure. Sunlight generates massive amounts of free radicals and unfortunately, these free radicals destroy the underlying skin structures, resulting in wrinkles, discolorations and signs of aging. Astaxanthin has shown that it can protect the skin from sun damage and premature aging, in fact astaxanthin not only protects the skin from sun damage, new studies are showing that it can actually reverse signs of past damage. No other product on the market makes that promise ... and actually delivers.

In one study, participants were exposed to synthetic sunlight to find out how long it took for their skin to show signs of inflammation & burning. Next, they took 4 mg of astaxanthin every day for four weeks. When the participants were re-exposed to the light, the amount of time needed to cause a burn was dramatically increased (almost twice as long). Even though the anti-inflammatory properties of astaxanthin can explain the reduction in burning and redness, it doesn't take into account astaxanthin's ability to prevent skin damage by absorbing free radicals. Moreover, astaxanthin was proven to protect the skin from both UVA & UVB -induced oxidative and DNA damage. ..In other words, skin cancer.

Finally, astaxanthin is capable of reversing some of the signs of aging attributed to sun exposure. Although it can make the skin appear younger when applied topically as a beauty treatment, it's most effective mechanism of action works better from the inside-out. In several studies, great benefits were seen by participants who took low dosages of astaxanthin for two weeks. Even more encouraging, it was discovered that those who continued with the astaxanthin program continued to see greater improvements in their skin over time. The criteria measured included; fine wrinkles, skin tone, elasticity, moisture levels, swelling, smoothness, age spots, and freckles.

The beautiful smooth complexions seen in many Japanese & Asian women, may explain why astaxanthin is a very popular supplement in those parts. Astaxanthin is highly recommended as part of the daily beauty regimen in Japan and other Asian countries. By neutralizing free radicals (before they can inflict damage to the dermis), astaxanthin protects the supporting layers of the skin, maintains firmness, avoids wrinkles and slows the aging process in the skin.

Brain Power

As mentioned previously, inflammatory symptoms are considered a direct precursor to cognitive decline and serious brain diseases like Alzheimer's, Huntington's and Parkinson's. Because astaxanthin can pass through the Blood brain barrier (BBB) it provides superior protection in controlling internal brain inflammatory conditions when compared to virtually every other carotenoid or antioxidant.

As the human body ages, it begins to lose its ability to produce its own intrinsic antioxidants as they become depleted defending our body from an over polluted environment. Free radicals that are left unchecked around the brain or spinal cord can create medical problems and lead to degenerative nervous diseases which are very difficult to treat. Astaxanthin crosses the blood-brain barrier and directly inhibits these free radicals, providing protection to these vital structures from oxidation.

Astaxanthin also protects the brain from lipid peroxidation and arterial plaque build-up, or atherosclerosis. Moreover, astaxanthin influences blood pressure, prevents strokes, protects neurons, and improves memory problems. In fact, the direct benefits of improved blood flow to the brain were illustrated by a recent study using mice with impaired blood flow to their brains; after ingesting astaxanthin, the mice demonstrated improved memory functions. Another study from Japan, demonstrated that when astaxanthin in combination with the omega-3, DHA was given to individuals suffering from mild cognitive impairment, that they quickly responded with improved short term memory and cognitive abilities compared to the controlled group.



Healthy Vision

Compared to other anti-oxidants and carotenoids, natural astaxanthin has many advantages when it comes to eye health. Not only is it a Superantioxidant, it also crosses the blood-retina barrier to provide direct benefits and protection to one of the most sensitive organs in the body. Not all of the carotenoids are able to cross the blood –retinal barrier.

The retina and macula can become damaged due to free radical damage from light exposure, especially when the eye isn't protected by a sufficient level of anti-oxidants including astaxanthin. While other parts of the body can be repaired, the very delicate retina does not recover too easily from damage. The leading cause of blindness for individuals over fifty five is macular degeneration for which there is no cure. Astaxanthin helps to protect this very sensitive area of the visual system by absorbing free radicals and preserving the thickness and health of the macula. Thereby, preserving the gift of sight. Astaxanthin also prevents the oxidation of the lens which is the cause for cataracts and it also prevents other inflammatory conditions in the eye.

Astaxanthin reduces eye-strain, fatigue, blurring, and double vision; common problems experienced by many individuals who now spend most of their time staring at computer screens. Another study demonstrated that participants ingesting astaxanthin experienced increased visual acuity and depth perception in addition to quicker recovery from fatigue.



Healthy Immune System

Of course, a full-functioning brain and clear eye-sight can't be enjoyed without an equally healthy body. Astaxanthin's many beneficial properties also promote a healthy immune system. Other carotenoids like lutein and beta-carotene boost immunity as well, but none do so to the same extent as natural astaxanthin.

In the past, the immune-boosting capabilities of typical carotenoids were thought to be related to their high levels of vitamin A, but astaxanthin doesn't contain this nutrient nor is it a pro-vitamin A precursor. Studies demonstrated that the actual mechanism involved an enhanced ability to produce T-cell antibodies when foreign antigens were present. In further studies, it was found that astaxanthin consistently produced better results than any other carotenoid when it came to improving the immune system.

Although the T-cell effect alone is extremely powerful, this isn't the only immune-boosting property shown by astaxanthin. This super nutrient also increases the cytotoxic (killing) activity of natural killer cells and recruits more B-cell antibodies when further defense is necessary.

Recovery and Endurance

When it comes to endurance and quick recovery time, natural astaxanthin provides unparalleled benefits to both athletes and anyone who uses it in their supplementation program. Astaxanthin helps to increase stamina and endurance and also reduces fatigue. The recovery time from aches & pains related to over activity is also minimized by astaxanthin's unique antioxidant activity

In one official research study; forty men between the ages of 17 and 19 were given 4 mg of astaxanthin for six months. When comparing the initial strength and endurance test results to the measurements at the end of the trial, the results were a dramatic 62% higher. How is this possible in the absence of dangerous chemicals like steroids? This is just another example of how the powerful anti-oxidant and anti-inflammatory properties of astaxanthin provide benefits to each and every part of the human body, including our muscles.

As a powerful Superantioxidant (Free radical scavenger) and anti-inflammatory agent, natural astaxanthin provides numerous health benefits without any negative side effects. While this super nutrient can be obtained from your diet, therapeutic and consistent levels can be obtained by carefully choosing the perfect, all-natural, and safe natural astaxanthin supplements from Supreme Biotechnologies.

Try our Natural Astaxanthin today!