

AstaReal® Natural Astaxanthin

Astaxanthin - One of Nature's Most Powerful Antioxidants

Vision & Eye Health



Unique Eye Support with
AstaReal[®] Natural Astaxanthin



Ocular Ageing

The digital era has brought immense convenience, but it also comes with several negative health impacts. Computer Vision Syndrome (CVS), also known as Digital Eye Strain (DES) is an increasing health concern. It not only affects visual performance and the progression of myopia (near-sightedness) but may also influence sleep quality, cognitive function and musculoskeletal health.

Today, around 80% of European millennials using digital devices have experienced related eye fatigue. Globally, 4 in 5 adults complain about digital eye strain. Therefore, timely and

effective interventions to support eye health and prevent accelerated eye ageing are highly recommended.

One of the primary ways blue light from digital screens harms the eyes is by triggering oxidative stress and inflammation in eye cells and the ciliary muscles, which are essential for supporting and adjusting the eye lens. This oxidative damage can lead to visual fatigue, reduced accommodative function, reduction of tear production, and long-term retinal stress, increasing the risk of digital eye strain and accelerated eye ageing.

Benefits of natural astaxanthin for eye health:

- Improves symptoms linked to computer vision syndrome and eye fatigue
- Optimises capillary blood circulation
- Reduces oxidative stress and inflammation
- Improves endurance and recovery of the ciliary muscles, also known as “focusing” muscles
- Enhances accommodation responsiveness and resilience

What is Natural Astaxanthin?

Natural astaxanthin is a carotenoid with a distinctive red colour. The primary and most abundant source for astaxanthin in nature is the freshwater microalgae *Haematococcus pluvialis*. Natural astaxanthin is one of the most powerful antioxidants known to science and it exerts anti-inflammatory properties as well. Due to its unique molecular structure, natural astaxanthin is able to span the entire lipid bilayer of the biological membranes, offering exceptional protection to cells and mitochondria against free radical damage.

All-Round Eye Protection

Microalgae-derived astaxanthin has gained attention for its ability to reach the inner eye by crossing the blood-retinal barrier, and for not showing pro-oxidant activities (unlike many other antioxidants). Human clinical data suggests that it plays a protective role in the eye by counteracting oxidative stress,⁽¹⁾ supporting the function of the ciliary muscles, and easing visual fatigue^(2,3) often triggered by prolonged screen time. The ciliary body—rich in blood vessels and crucial for focusing



vision—is particularly vulnerable to damage from reactive oxygen species (ROS). These ROS are generated in excess during activities that require intense near work, such as using a computer. This structure is responsible for the process of accommodation: the eye's ability to change lens shape and maintain a clear image as viewing distance shifts. In addition to gradual hardening of eye lenses by time, when oxidative stress compromises ciliary muscle performance, the accommodative ability weakens progressively, leading to blurred vision, eye strain, and symptoms associated

with CVS. By neutralizing harmful molecules, astaxanthin helps preserve accommodative function and maintain the resilience of ocular tissues under visual strain. Notably, astaxanthin has also been shown to enhance choroidal blood flow⁽⁴⁾—critical for delivering oxygen and nutrients to the retina and surrounding tissues—further supporting overall ocular health and performance.

Next-Gen Eye Defence

Safety and efficacy of AstaReal[®] Astaxanthin for supporting eye and vision is evaluated in over 15 human clinical studies in various age categories and ocular health conditions.

A novel 2025 randomised, double-blind, placebo-controlled study, investigated the effects of 4 mg/day AstaReal[®] Astaxanthin supplementation for 3 months on developing eyes in a cohort of 64 children, aged 10-14 years, who had a history of using digital devices for at least 4 hours daily.

Beyond subjective reports of symptom relief, the study also revealed measurable improve-



ments in objective visual performance indicators, such as enhanced stereopsis and pupil light reflex, and improved tear production.⁽⁵⁾ Interestingly, significant improvements in some indicators were found after only 2 weeks of supplementation.

In another RCT with healthy middle-age (mean

age 41 y) visual terminal workers, supplementation with 6 mg/day AstaReal® Astaxanthin for 4 weeks significantly improved the retinal capillary blood flow in both eyes.⁽⁴⁾

Furthermore, subjective alleviation of asthenopia (eye fatigue) and objective improvement of accommodative amplitude

following short-term (2-4 weeks) supplementation with average 6 mg/day AstaReal® Astaxanthin have been shown in various studies.^(2,6–9)

In older age group, significant reduction of oxidative stress and enhanced antioxidant capacity was found in patients (mean age 71 y) undergoing bilateral cataract surgery, who took 6 mg/day AstaReal® Astaxanthin for only 2 weeks (after the surgery on one eye and before the surgery of the other eye).⁽¹⁾

Notably, those experiencing eye strain have reported alleviation of not only ocular symptoms, but also extraocular symptoms such as back pain or shoulder stiffness after supplementation with AstaReal® Astaxanthin for a short period of time.⁽²⁾

Together, these findings position astaxanthin as a fast-acting, multi-targeted vision support solution, offering broad benefits for eye comfort, function, and resilience across all ages in today's screen-intensive world.

References & Selected Publications

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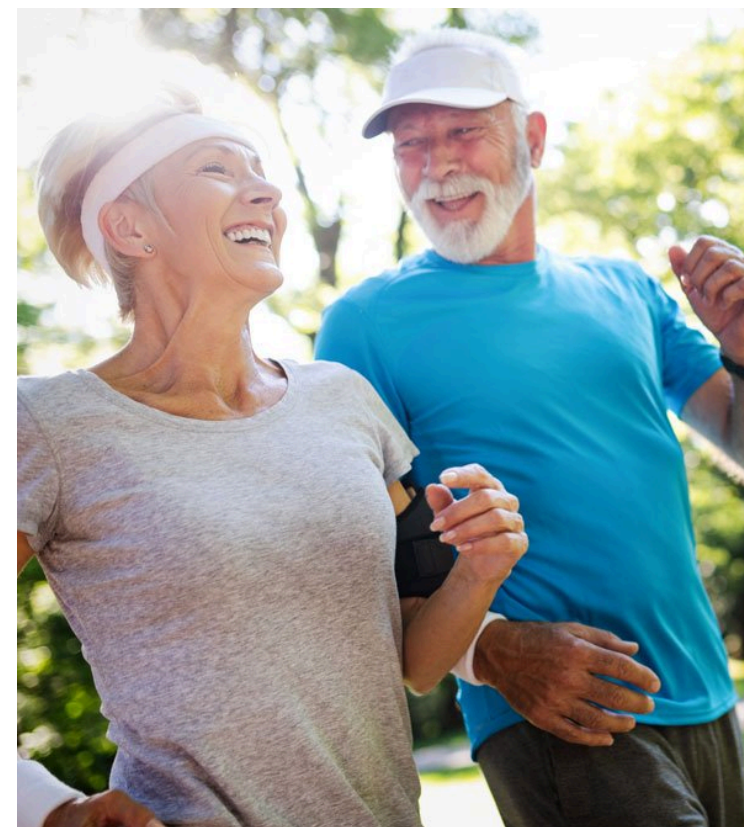
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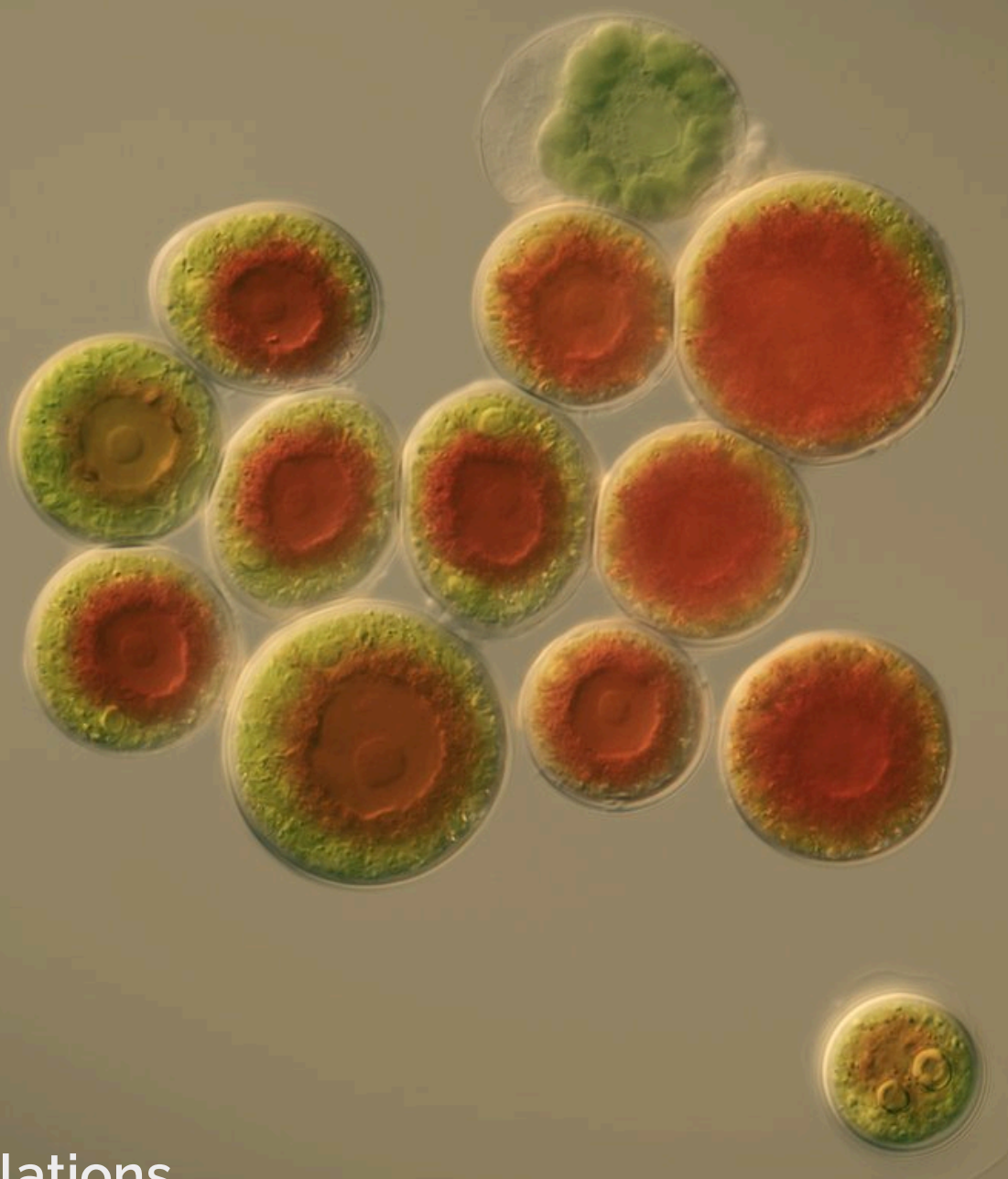
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Innovative Formulations

#1: Dosage Forms

From capsules to liquid shots, to sachets, to gummies, the possibilities for developing astaxanthin products for vision and eye health are almost unlimited. AstaReal's bulk product range includes different astaxanthin concentrations in the form of algal biomass, oil, microencapsulated and water-dispersible powder, thus allowing the development of innovative dosage forms.

#2: Effective Dose

Low doses of astaxanthin are effective without affecting quality or benefits. Studies have shown significant results after short-term supplementation, ensuring your customers will feel the benefits of astaxanthin working in your formula. Dosages in clinical research range from 4 to 16 mg astaxanthin with majority based on a dose of 4-6 mg astaxanthin per day. Depending on where your products are sold, dosage recommendations and regulations may vary. To help determine which dose is right for your product, please contact us and we will be happy to offer advice.



#3: Synergistic Combinations

AstaReal® Astaxanthin can be easily combined with a range of other high-quality ingredients. This potent natural antioxidant (preferably in encapsulated form) in combination with zinc may provide extra

support for the eye cells and muscle. Some other antioxidants like lutein and zeaxanthin accumulate in the back of the eye and protect the macula and retina. These carotenoids together with astaxanthin, can offer synergistic and complementary health

benefits to the entire eye. Other antioxidants, such as ubiquinol and vitamins E and C, can work synergistically with astaxanthin to enhance overall antioxidant defence and support cellular protection. Moreover, astaxanthin and omega-3s work synergistically to support antioxidant and anti-inflammatory activity — a combination especially beneficial for eye and muscle health. Lipids enhance astaxanthin's absorption.

#4: Sustainability & Traceability

Consumers are increasingly paying attention to the origin of the products they buy. Thus, demand for more naturally and sustainably sourced products will continue to rise. Consequently, the industry is looking for plant-based sources of traditional ingredients, such as antioxidants, and has already begun to focus on algae. Microalgae are nature's original producers, forming the base of most aquatic food chains. The freshwater microalgae *Haematococcus pluvialis* is considered as a highly sustainable, plant-based source of astaxanthin, compared to the synthetic version and astaxanthin from marine



animals (e.g., krill, salmon). Synthetic or astaxanthin derived from other microorganisms is not approved for human use in many countries.

The exceptional profile of AstaReal® Astaxanthin (regarding traceability, quality, safety, efficacy, and scientific backing) make it an ideal fit for next-generation nutraceuticals.

#5: Quality & Origin

Astaxanthin's quality is affected by the environment in which the microalgae are cultivated. The indoor cultivation systems

(photobioreactors) are best suited for producing high-value compounds, like astaxanthin. Overall, indoor, controlled cultivation systems, like the one AstaReal employs, allow for better control of factors affecting the final product's quality and stability, including light control, temperature regulation, contamination risk, nutrient control, water quality, etc. This results in a safe product with high astaxanthin content in the biomass and without any environmental impurities.



Why AstaReal?



Trusted Science

In nutraceuticals and natural ingredients market, AstaReal is an authority in human clinical studies and is the only brand of natural astaxanthin backed by over 75 clinical studies. With clinical studies across indications such as skin health (beauty from within and out), muscle performance, vision & eye health, cognitive function, cardiovascular and metabolic health, gastrointestinal health, immune function, reproductive health, and even animal nutrition you can be assured that AstaReal® is supported by solid clinical evidence. Our global team of experts can also guide you on how to properly leverage our clinical findings, tailored to the regulatory framework of your target market.



Unrivalled Quality

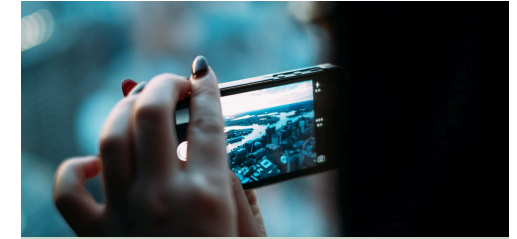
Stability and purity of natural astaxanthin matters as poor quality can have a negative impact on your final formulation and efficacy of your product. Our indoor, controlled cultivation process allows for optimal maturation of the algae cells, resulting in a superior astaxanthin product with the highest quality, stability, and concentration available on the market. AstaReal is ISO 9001 and FSSC 22000 (incl. HACCP) certified.

AstaReal® bulk products (human grade) have Halal, Kosher, Informed Ingredient and Vegan Society certifications.



Worldwide Expertise

Our business partners benefit from access to talented, high performance local teams of technical, marketing, and regulatory experts with in-depth knowledge of the target regions.



Innovation Partnership

We are stronger together and can stand out through strategic long-lasting business collaborations. AstaReal® product range allows the development of innovative dosage forms, from traditional to on trend. By providing you with the latest market insights and technical advancements, the AstaReal expert team supports you in choosing the best possible delivery formats and combinations for your target market.

Thank you for reading!

Put our astaxanthin expertise to work for you
and get in touch with us.

For more information and a list of references,
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