



NATURAL SUPPORT FOR A HEALTHY HEART

THE CARDIOVASCULAR BENEFITS OF
ASTAXANTHIN



The Cardiovascular Benefits of Natural Astaxanthin

Cardiovascular diseases (CVDs), including heart attack and stroke, are the leading cause of death globally. According to WHO, 17.3 million people died from CVDs in 2008¹. Of those, an estimated 7.3 million deaths were due to coronary heart disease and 6.2 million were due to stroke.

Behavioral risk factors such as smoking, unhealthy diet, and alcohol abuse are believed to be responsible for 80% of coronary heart disease and cerebrovascular disease². Moreover, these behaviors result in increased body weight, elevated blood pressure, dyslipidemia, insulin resistance, and hyperglycemia. These effects are associated with the development of atherosclerosis, which is the main underlying cause of heart attack, stroke, and peripheral vascular disease.

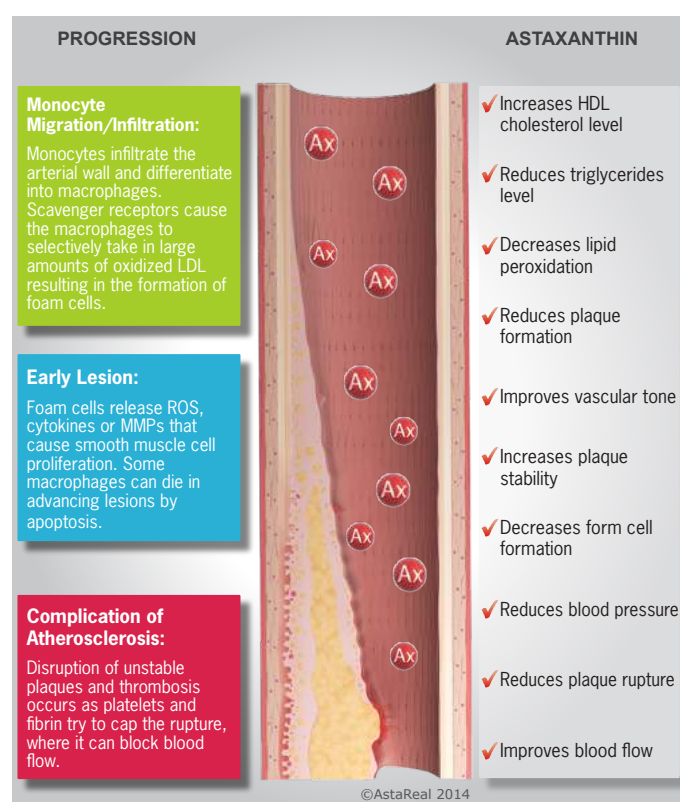
Oxidative stress and inflammation are widely recognized as contributing factors to atherosclerotic CVDs. The use of antioxidants such as vitamin E, C, and β-carotene as preventive therapies for CVDs has yielded mixed results. This is why astaxanthin, which is a much stronger antioxidant that also exhibits anti-inflammatory properties, is now being investigated as a promising compound for protecting against atherosclerotic CVDs. Studies have shown that natural astaxanthin reduces oxidative stress and inflammation, improves lipid profiles, promotes better blood flow in capillaries, and lowers blood pressure in hypertensive individuals. Importantly, no adverse effects have been reported in these studies.

A large body of clinical and experimental research strongly suggests that astaxanthin can contribute to improved cardiovascular health. For more details on how natural astaxanthin can help support and maintain good cardiovascular health, please contact us for an expanded version of this digest.

¹. World Health Organization, Global status report on noncommunicable diseases 2010. Geneva, 2011.

². World Health Organization, Comparative quantification of health risks: Global and regional burden of disease attributable to selected major risk factors. Geneva, 2004.

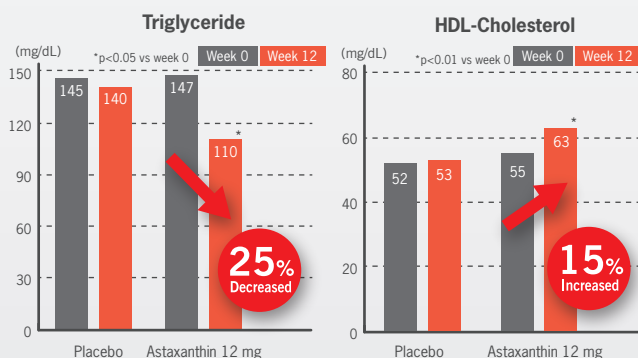
Potential Benefits of Astaxanthin for Atherosclerosis



Clinical Benefits of Astaxanthin

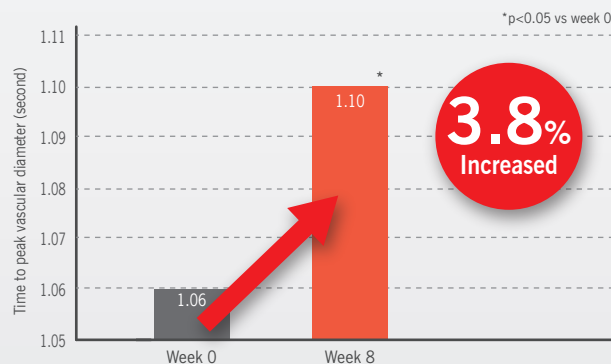
- 1 Improves blood lipid profile
- 2 Reduces oxidative stress
- 3 Enhances capillary circulation

Daily astaxanthin supplementation improves serum lipid levels in middle-aged individuals³



Non-obese participants (n=61, 44±8 years old) were randomly divided into 4 groups and received 0, 6, 12 or 18 mg of astaxanthin daily for 12 weeks. This figure shows the changes in serum lipid levels of the 12 mg group (n=15).

Astaxanthin decreases lower limb vascular resistance in healthy postmenopausal women⁴



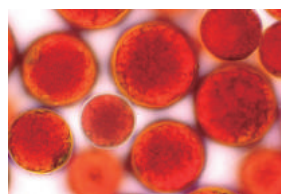
Healthy postmenopausal women (n=20, 55.7±4.8 years old) with high oxidative stress received 12 mg of astaxanthin daily. After 4 weeks, lower limb vascular resistance was significantly decreased.

Offering a Wide Range to Meet Your Needs

AstaReal® astaxanthin is offered in a variety of bulk forms to suit your final product. To help decide which AstaReal® product is right for you, contact us today!



AstaReal® Natural Algae Astaxanthin



Astaxanthin is a naturally occurring pigment that gives the reddish pink color to marine organisms such as crabs, shrimp, and salmon. It is often called the King of Carotenoids because of its powerful antioxidant

potency. Astaxanthin also possesses a unique molecular structure that spans the cell membrane's hydrophilic and hydrophobic layers, attracting and quenching free radicals. AstaReal® astaxanthin is derived from a wholly natural source, the microalgae *Haematococcus pluvialis*, and contains the same form of astaxanthin found in wild salmon.

Selected Astaxanthin Research

1. Augusti PR *et al.*, Astaxanthin prevents changes in the activities of thioredoxin reductase and paraoxonase in hypercholesterolemic rabbits. *J Clin Biochem Nutr.* 2012;51(1):42-49.
2. Choi HD *et al.*, Effects of astaxanthin on oxidative stress in overweight and obese adults. *Phytother Res: PTR.* 2011;25(12):1813-18.
3. Yoshida H *et al.*, Administration of natural astaxanthin increases serum HDL-cholesterol and adiponectin in subjects with mild hyperlipidemia. *Atherosclerosis.* 2010;209(2):520-23.
4. Iwabayashi M *et al.*, Efficacy and safety of eight-week treatment with astaxanthin in individuals screened for increased oxidative stress burden. *Anti-aging medicine.* 2009;6(4):15-21.
5. Miyawaki H *et al.*, Effects of astaxanthin on human blood. *J Clin Biochem Nutr.* 2008;43(2):69-74.
6. Hussein G *et al.*, Astaxanthin ameliorates features of metabolic syndrome in SHR/NDmcr-cp. *Life sciences.* 2007;80(6):522-29.
7. Hussein G *et al.*, Antihypertensive potential and mechanism of action of astaxanthin:II. vascular reactivity and hemorheology in spontaneously hypertensive. *Biol Pharm Bull.* 2005;28(6):967-71.
8. Kim KY *et al.*, The effects of astaxanthin supplements on lipid peroxidation and antioxidant status in postmenopausal women. *Nutritional Sciences.* 2004;7(1):41-46.

And many more...

To read the complete astaxanthin technical bulletin on Cardiovascular, please contact us.



138 Robinson Road, #28-04, Oxley Tower, Singapore 068906
TEL: +65 6222 1778 FAX: +65 6222 1779 WEB: www.astareal.sg E-MAIL: contact@astareal.sg