

AstaREAL[®] NEWS

Good News for People Who Care about Premature Skin Aging and Prevention of Metabolic Syndrome

The Latest Study on Astaxanthin

The 21st Annual Meeting on Carotenoid Research was held on September 6th and 7th, at the media center, Osaka University, Japan. Main subject of discussion was the present status and forecast of carotenoid research on materials science, physical chemistry, organic chemistry, life science and medical. For this event, medical, drug, bio, chemical and physical science researchers gathered from all over the world.

Fuji presented the result of the latest studies on astaxanthin.

STUDY1

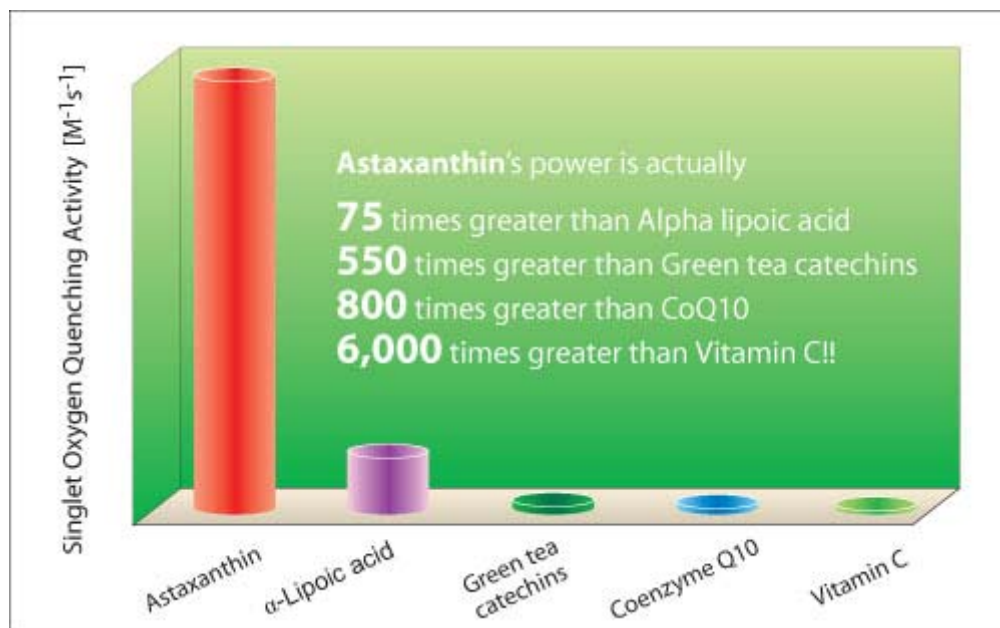
Comparison of Astaxanthin's Singlet Oxygen Quenching Activity with Common Fat and Water Soluble Antioxidants

MAJOR FINDINGS

Astaxanthin's possesses very powerful antioxidant activity to combat singlet oxygen when compared to popular antioxidants. Astaxanthin may be used to defend against singlet oxygen damage particularly for skin and eye health.

Singlet oxygen (1O_2) is an active oxygen species generated in human skin by exposure to ultraviolet radiation (UV) that causes skin damage. In this study, astaxanthin, a carotenoid extracted from *Haematococcus pluvialis* and commonly found in salmon meat, the skin of sea breams, and shells of shrimp and crab, was found to powerfully quench singlet oxygen. Our results show that the quenching effect of astaxanthin is 800 times greater than coenzyme Q10. Furthermore, astaxanthin was about 75 times greater than alpha lipoic acid, about 550 times greater than green tea catechins and about 6000 times greater than vitamin C.

Singlet Oxygen Quenching activity was measured making its condition fair for both water soluble and lipid soluble antioxidants.



Study [1] Authors: Yasuhiro Nishida*, [Eiji Yamashita*](#), Wataru Miki

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[Reference] Shimidzu, N., Goto, M., and Miki, W., Carotenoids as singlet oxygen quenchers in marine organisms. *Fish. Sci.*, 62, 134–137 (1996)

STUDY2 Role of AstaREAL® Astaxanthin in lipid metabolism

MAJOR FINDINGS

Astaxanthin intake combined with exercise promotes lipid metabolism and inhibits weight gain on high fat diets.

Four-week old male mice were divided into 2 groups, a non-exercise group and an exercise group. Each group was further divided into 3 subgroups, a normal diet subgroup, a high-fat diet subgroup, and a high-fat diet with astaxanthin (6 mg/kg) subgroup. The diet was fed orally to each group respectively for 60 days. The exercise groups were assigned 40-minute exercise on a treadmill at 20 meters/minute, three times a week. On Day 60, skeletal muscles were excised and the enzyme activity (3-hydroxylacyl-CoA dehydrogenase) was measured. Weight increase was significant in the high-fat diet groups both with and without exercise compared with the normal diet groups. However, weight increase was significantly suppressed in the high-fat diet groups when astaxanthin was administered (Fig. 1). The results with astaxanthin subgroup was significant: the animals maintained same weight as that of the normal diet group (Fig. 2). Regarding adipose tissue, the astaxanthin groups significantly inhibited increase in adipose mass. Furthermore, the combination of exercise with astaxanthin diet provided even greater inhibitory effect (Fig. 3).

Fig1. Non exercise group

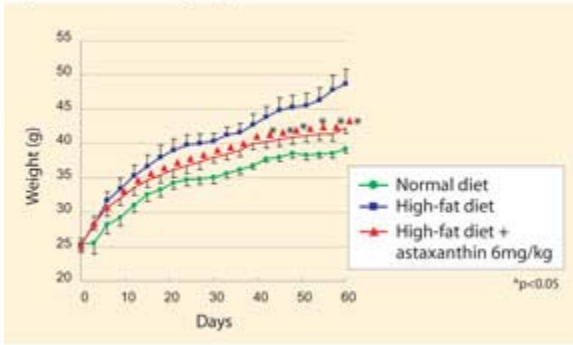


Fig2. Exercise group

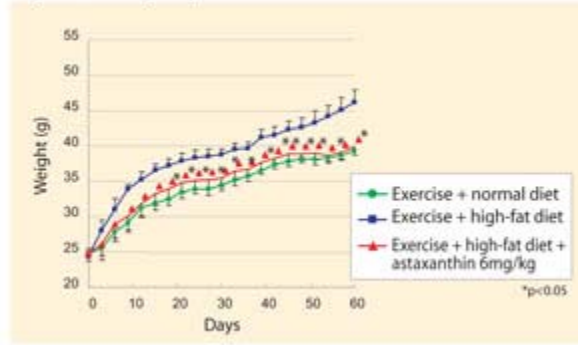
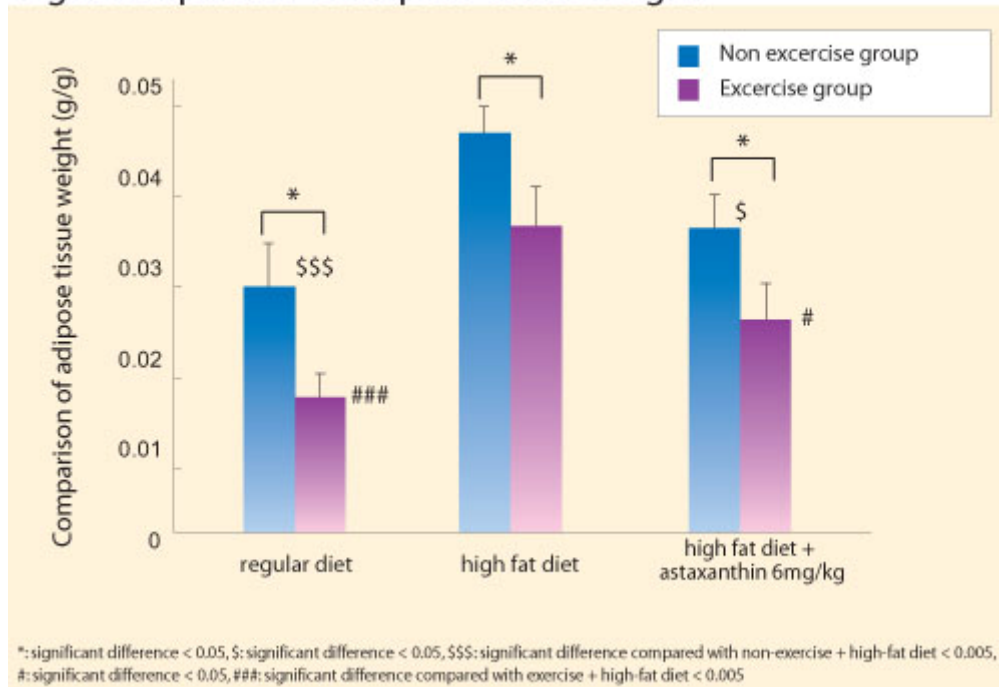


Fig3. Comparison of adipose tissue weight



This study indicates that combination of astaxanthin with exercise increases enzyme activity (3- hydroxyacyl-CoA dehydrogenase) in skeletal muscles, which promotes lipid metabolism and reduces body fat. Increase in muscle weight was also confirmed.

This study suggests that intake of astaxanthin with regular exercise may lead to:

- Weight loss
- Prevention of metabolic syndrome and
- Improve endurance and sports performance

These multiple actions, elucidated by various clinical tests, are particularly noteworthy characteristics of astaxanthin. It is expected to encourage widespread use of astaxanthin towards prevention of metabolic syndrome and life style related diseases as well as improved performance in sports activities.

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