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# Effects of astaxanthin on oxidative stress in overweight and obese adults

[Hye Duck Choi](#)<sup>1</sup>, [Ji Hae Kim](#), [Min Jung Chang](#), [Yeo Kyu-Youn](#), [Wan Gyoon Shin](#)

Affiliations

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## Abstract

Oxidative stress is caused by an imbalance between the antioxidant and the reactive oxygen species, which results in damage to cells or tissues. Recent studies have reported that oxidative stress is involved in obesity, in addition to many other human diseases and aging. A prospective, randomized, double-blind study was performed to investigate the effect of astaxanthin (ASX), which is known to be a potent antioxidant, on oxidative stress in overweight and obese adults in Korea. Twenty-three adults with BMI > 25.0 kg/m<sup>2</sup> enrolled in this study and were randomly assigned to two dose groups: ASX 5 mg and 20 mg once daily for 3 weeks. Malondialdehyde (MDA), isoprostane (ISP), superoxide dismutase (SOD) and total antioxidant capacity (TAC), as oxidative stress biomarkers, were measured at baseline and 1, 2 and 3 weeks after ASX administration. Compared with baseline, the MDA (by 34.6% and 35.2%) and ISP (by 64.9% and 64.7%) levels were significantly lowered, whereas SOD (by 193% and 194%) and TAC (by 121% and 125%) levels were significantly increased in two dose groups after the 3 week intervention. This study revealed that supplemental ASX for 3 weeks improved oxidative stress biomarkers by suppressing lipid peroxidation and stimulating the activity of the antioxidant defense system.

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