



## **Astaxanthin Found to Help Cell and Immune System Health in Women**

*By Greg Arnold, DC, CSCS, November 12, 2010, abstracted from "Astaxanthin decreased oxidative stress and inflammation and enhanced immune response in humans" in the March 5, 2010 issue of the Nutrition and Metabolism*

Astaxanthin is one of the most common antioxidants found in the red pigment of crustacean shells (crabs, shrimp), and salmon (1). In addition to its antioxidant (2), anti-cancer (3) and anti-bacterial effects (4), astaxanthin has also been shown to help maintain healthy levels of inflammation by its ability to lower inflammatory markers of heart disease (5).

Now a new study (6) has found that astaxanthin can help benefit both cell and immune system health. In the study, 28 female patients with an average age of 21.5 years received either 0, 2, or 8 mg of astaxanthin per day for 8 weeks. At weeks 0, 4, and 8, the researchers obtained blood samples to measure levels of cell damage (8-hydroxydeoxyguanosine [8-OHDG]) as well as immune system strength through a panel of specific cytokines.

By the end of 8 weeks, the researchers found that patients taking 8 mg of astaxanthin per day had levels of the cytokine Tissue Necrosis Factor-alpha (TNF-alpha) that were 80% higher than the 2-mg group (2.60 vs. 1.44 picograms/milliliter) and 81% higher than the control group (2.6 vs. 1.43 pg/mL). For another cytokine, Interferon-gamma (IFN-gamma), levels in the 8-mg group were 91% higher than the 2-mg group (9.55 vs. 5.0 pg/mL) and 104% higher than the control group (9.55 vs. 4.68 pg/mL).

For cell damage, the researchers found the 8-mg group had 46% lower levels of 8-OHDG after 8 weeks compared to the control group (12 vs. 22 nanograms/milliliter) and 22% lower levels after 8 weeks, compared to the 2-mg group (12 v.s 15.5 ng/mL).

For the researchers, "this study shows that dietary astaxanthin enhanced immune response and decreased a DNA oxidative damage biomarker and inflammation in young healthy females."

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