CAROTENOID FOR HEALING

The Benefits of Carotenoids in Autoimmune Disease

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Carotenoids are a type of bioflavinoid with potent antioxidant and immune enhancing properties.

Carrot Power

Carotenoids represent a class of variably pigmented bioflavinoids (plant chemicals or phytochemicals) with potent antioxidant properties. More than 600 distinct carotenoid subtypes are found in nature. Although the carotenoids remain the subject of intense medical research, their health benefits, particularly their benefits to the immune system, eyes, and blood vessels have long been established.

Types and Sources of Carotenoids

Two subtypes of carotenoids exist: the xanthophylls such as lutein, a chemical found in tomatoes and other red plants; and carotenes, a family of yellow-orange plants including carrots and squash. Although most carotenoids are recognized by their brilliant red, orange or yellow colors, crude palm oil, which is pale yellow, represents the richest naturally occurring source of carotenoids.

The color of a particular carotenoid is a property of its chemical structure, with the more oxidation of double bonds in its chemical make-up, the deeper intensity of the red hue. Besides plant sources, carotenoids can be found in flamingoes, salmon, lobsters, shrimp, algae, some types of fungi and some strains of bacteria. Carotenoids are also reported to exist in butterflies and offer this species protection against microbial invasion.

Benefits of Carotenoids

Besides their potent antioxidant properties, carotenoids have the ability to enhance or strengthen the immune system. As a result, people with diets high in beta-carotenes have a low risk for developing lung cancer. However, in studies of people using beta-carotene supplements, the risk for lung cancer is found to be increased, which suggests that the benefits of carotenes are lost in the manufacturing of synthetic supplements.

German researchers have student the effects of carotenoid-rich vegetables on the immune system and published their findings in the British Journal of Nutrition and also the American Journal of Clinical Nutrition. Studies showed that subjects who followed a low carotenoid diet experienced a significant reduction in blood mononuclear cells, indicating reduced immune system function. After 2 weeks of a diet rich in tomato juice the function of the blood's mononuclear cells improved significantly. In addition, the
production of interleukins 2 and 4 increased following the addition of tomato juice to the subjects' diets.

In another phase of the study, non-smokers were given a carotenoid-rich diet, which included 8 servings of fruits and vegetables daily. Control subjects in the study following a low-carotenoid diet were given 2 servings daily. Although levels of vitamins C and E were found to be similar at the end of the 8-week study, levels of the inflammatory marker C-reactive protein were significantly reduced in the group following a carotenoid-rich diet.

A number of other studies involving carotenoid-rich diets showed a significant lowering of plasma lipid levels in subjects consuming high levels of dietary carotenoids. In nature, carotenoids often exist together with and enhance the properties of vitamin C.

Animal species are unable to synthesize carotenoids and must rely on dietary sources. In the animal kingdom, the more vibrant orange hues are considered a sign of good health and a desirable feature when choosing a potential mate.

**Resources:**
