

The Carotenoid Gap

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Chiropractors, nutrition professionals, and government agencies have long urged the American public to include more fruits and vegetables in their diet. The National Academy of Science and the U.S. Surgeon General currently recommend eating 2-3 servings of fruits and 3-5 servings of vegetables every day for optimum health benefit. Recent research now points to certain types of fruit and vegetables which, in fact, may be more important for the health of the individual than other types. This group of foods is classified as carotenoids. Carotenoids are the naturally occurring colors seen in certain fruits and vegetables. For example, the red in tomatoes, the yellow in squash, and the orange in carrots are obvious, but many green plants such as spinach, contain high levels of carotenoids as well. The chlorophyll in these plants masks the color indicator.

The first correlation between high intake of carotenoids and health benefits started appearing in literature in the 1970s. Researchers observing populations around the world found that where diets were high in fruits and vegetables the rates for certain types of cancers were statistically lower. The converse was also found to be true. Lower intake of fruits and vegetables resulted in higher levels of cancer, as well as increases in cardiovascular disease.

Beta-carotene became the focus of the scientific literature and the media, as the superstar in the fight against cancer. The data pointed to definite favorable physiological changes from consuming higher quantities of foods rich in beta-carotene. Currently research has identified 600 carotenoids, including alpha-carotene, gamma-carotene, lutein, lycopene, and cryptoxanthin. It is now believed that a complete complement is necessary in order to combat serious health disorders such as cancer and cardiovascular disease. It also may play an integral part in the longevity of the individual.

Basically, carotenoids protect our bodies from the negative effects of oxidation reactions in the body. Oxidation has a damaging effect on the cells, and this may be the precursor for the development of disease. The antioxidant effect of the carotenoids and their ability to neutralize free radicals and singlet oxygen make them vital to life itself. Studies conducted at the National Institute on aging reveal that higher carotenoid consumption lowers the incidence of cardiovascular disease, enhances antimicrobial immune functions, and may possibly contribute to longevity. There has been a correlation established which shows that high levels of plasma carotenoids may contribute to increased life span. Oxidative stress plays a role in aging and an individual's life span is governed by a number of different mechanisms acting to lower oxidative stress in cells.

Some experts are now recommending eating at least six milligrams of carotenoids a day, and yet it is estimated that the majority of Americans are actually consuming 1.5 milligrams per day. This "carotenoid gap" could be completely eliminated if Americans ate 5-8 servings of fruits and vegetables every day. However, given the American dietary track record this may not be a realistic expectation. The U.S. Department of Agriculture's recent survey showed that nearly half of all Americans eat no fruit daily, nearly one-quarter eat no vegetables daily, and only nine percent actually eat five servings of fruit and vegetables daily. The evidence is overwhelming that if people add more carotenoids to their diet, it could help protect them against many diseases associated

with aging. The patients that entrust their health to us must be made aware of this fact.

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