

Beta-cryptoxanthin as a source of vitamin A.

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Abstract

Beta-cryptoxanthin is a common carotenoid that is found in fruit, and in human blood and tissues. Foods that are rich in beta-cryptoxanthin include tangerines, persimmons and oranges. Beta-cryptoxanthin has several functions that are important for human health, including roles in antioxidant defense and cell-to-cell communication. Most importantly, beta-cryptoxanthin is a precursor of vitamin A, which is an essential nutrient needed for eyesight, growth, development and immune response. We evaluate the evidence for beta-cryptoxanthin as a vitamin A-forming carotenoid in this paper. Observational, in vitro, animal model and human studies suggest that beta-cryptoxanthin has greater bioavailability from its common food sources than do alpha- and beta-carotene from theirs. Although beta-cryptoxanthin appears to be a poorer substrate for beta-carotene 15,15' oxygenase than is beta-carotene, animal model and human studies suggest that the comparatively high bioavailability of beta-cryptoxanthin from foods makes beta-cryptoxanthin-rich foods equivalent to beta-carotene-rich foods as sources of vitamin A. These results mean that beta-cryptoxanthin-rich foods are probably better sources of vitamin A, and more important for human health in general, than previously assumed.

KEYWORDS: beta-cryptoxanthin; conversion; metabolism; retinol; tangerines; vitamin A

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