

Clear Vision™ Product Science – Lutein and Zeaxanthin Abstracts

{Note: the underlined sections within the the text of the abstracts is highlighted for emphasis by us, not the authors}

(1)

Journal of Nutrition for The Elderly, 2007; 26 (3-4): 139-57

Lutein and age-related ocular disorders in the older adult: a review.

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Lutein, a carotenoid found in dark green, leafy vegetables, has been implicated as being protective against the acquired ocular diseases, such as cataracts and age-related macular degeneration. In the eye, lutein may act as an antioxidant and as a blue light filter to protect the underlying tissues from phototoxic damage. Average intakes of lutein in the U.S. are below levels associated with eye disease prevention. Therefore, increased intakes of food sources rich in lutein may be warranted. Age-related factors, such as increased inflammation and body fat, are also related to increased risk of age-related eye disease. The mechanism by which these factors are related to risk may be partially due to adverse effects on lutein status. [PMID: 18285296 [PubMed - indexed for MEDLINE]

(2)

Bulletin Societe Belge Ophtalmologie, 2006; (301): 15-22

[Macular pigment and age-related macular degeneration. Clinical implications]

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The potential impact of macular pigment on the development of age-related macular degeneration (AMD) is currently a major research avenue. The role of oxidative damage in the pathogenesis of AMD has been recently confirmed by the results of a large randomized clinical trial, the AREDS (Age-Related Eye Disease Study). This study has established that high-dose supplementation with vitamins C and E, beta carotene, and zinc might prevent AMD progression and visual acuity loss in a large but determined subset of patients. Macular pigment components (mainly lutein and zeaxanthin) are highly resistant to free radicals. Moreover, extensive data from clinical, epidemiological and experimental studies suggest that lutein and zeaxanthin might protect against the development of AMD. Furthermore,

an additional intake of lutein and/or zeaxanthin seems to induce an increase of the density of the macular pigment. However, a careful review of the available data suggest that only future randomized clinical trials will allow to determine the exact role of lutein and zeaxanthin in the prevention of AMD.
[PMID: 17552428 [PubMed - indexed for MEDLINE]

(3)

Journal of Nutrition, 2003 Apr; 133(4):992-8

Lutein and zeaxanthin dietary supplements raise macular pigment density and serum concentrations of these carotenoids in humans.

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Age-related macular degeneration (AMD) is thought to be the result of a lifetime of oxidative insult that results in photoreceptor death within the macula. Increased risk of AMD may result from low levels of lutein and zeaxanthin (macular pigment) in the diet, serum or retina, and excessive exposure to blue light. Through its light-screening capacity and antioxidant activity, macular pigment may reduce photooxidation in the central retina. Lutein supplements, at 30 mg/d, were shown previously to increase serum lutein and macular pigment density in two subjects. In this study, we compared the effects of a range of lutein doses (2.4- 30 mg/d), as well as a high zeaxanthin dose (30 mg/d), on the serum and macular pigment in a series of experiments. Serum carotenoids were quantified by HPLC. Macular pigment densities were determined psychophysically. Serum lutein concentrations in each subject reached a plateau that was correlated with the dose ($r = 0.82$, $P < 0.001$). Plateau concentrations ranged from 2.8×10^{-7} to 2.7×10^{-6} mol/L. Zeaxanthin was less well absorbed than an equal lutein dose, resulting in plateaus of approximately 5×10^{-7} mol/L. The rate of increase in macular pigment optical density was correlated with the plateau concentration of carotenoids in the serum ($r = 0.58$, $P < 0.001$), but not with the presupplementation optical density ($r = 0.13$, $P = 0.21$). The mean rate of increase was $(3.42 \pm 0.80) \times 10^5$ mAU/d per unit concentration (mol/L) of carotenoids in the serum. It remains to be demonstrated whether lutein or zeaxanthin dietary supplements reduce the incidence of AMD.
PMID: 12672909 [PubMed - indexed for MEDLINE]

OTHER REFERENCES*:

(1)

Survey of Ophthalmology, 2008 Jan-Feb; 53(1): 68-81

Transport and retinal capture of lutein and zeaxanthin with reference to age-related macular degeneration.

Loane E, Nolan JM, O'Donovan O, Bhosale P, Bernstein PS, Beatty S.

Macular Pigment Research Group, Waterford Institute of Technology, Waterford, Ireland.

(2)

American Journal of Clinical Nutrition, 2007 Mar; 85(3):762-9

Effect of dietary lutein and zeaxanthin on plasma carotenoids and their transport in lipoproteins in age-related macular degeneration.

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(3)

Archives of Ophthalmology. 2006 Aug;124(8):1151-62

Associations between intermediate age-related macular degeneration and lutein and zeaxanthin in the Carotenoids in Age-related Eye Disease Study (CAREDS): ancillary study of the Women's Health Initiative.

Moeller SM, Parekh N, Tinker L, Ritenbaugh C, Blodi B, Wallace RB, Mares JA; CAREDS Research Study Group.

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