Deshanie Rai, J Nutr Food Sci 2025, Volume 15

A compelling scientific rationale for macular carotenoid supplementation in children for eye and brain health

Deshanie Rai
OmniActive Health Technologies Bridgewater, USA

Statement of the Problem: Lutein and zeaxanthin are the only carotenoids exclusively deposited in the macula of the eye, and preferentially accumulated in the brain. Dietary intakes of these carotenoids are dismally low among adults and supplementation studies have demonstrated a benefit for eye health and cognitive outcomes in young and older adults. Dietary intakes are even lower among children and their low levels of intakes are negatively correlated with cognitive performance. Supplementation studies with lutein are missing in children. The goal of our study was to ascertain whether lutein and zeaxanthin supplementation benefits visual and cognitive outcomes in this vulnerable population. Methodology: Sixty children, 5-12 years, were supplemented with 10 mg lutein and 2 mg zeaxanthin (LZ) or placebo for 180 days. Macular pigment optical density (MPOD) was the primary endpoint. The secondary endpoints included serum levels of L and Z, visual processing speed, and eye strain and fatigue. Additional secondary endpoints measured using the Creyos Health platform included attention, focus/concentration, episodic memory and learning, visuospatial working memory, and visuospatial processing speed. Findings: The LZ group showed significant increases in serum lutein and zeaxanthin in parallel with significant increases in MPOD through the study. Additionally, visual performance outcomes including visual discomfort as a result of digital device use and visual processing speed were both favorably influenced by LZ supplementation. Aspects of cognitive performance were also positively influenced by LZ supplementation. Episodic memory and learning, visuospatial working memory, and attention were significantly increased during the supplementation period. Conclusion & Significance: This is the first clinical study demonstrating the benefits of LZ supplementation in children and corroborates evidence in adults. These data are especially relevant given the dismally low intakes of LZ in children, and the wide prevalence of digital device use among this age population.

Biography

Deshanie Rai is Vice President of Global Science, Regulatory and Advocacy at OmniActive Health Technologies. Her efforts are focused on developing, translating and disseminating research in the areas of pediatrics, gastrointestinal health including the microbiome and vision performance. Her research has been published in peer-reviewed journals and presented at national and international scientific venues. Dr. Rai has supported the launch of several product innovations. T Furuta et al., J Pai n Relief 2016, 5:3(Suppl) http://dx.doi.org/10.4172/2167-0846. C1.006 International Conference on Fibromyalgia and Chronic Pain (June 15-16, 2016 Philadelphia, USA) J Pain Relief ISSN: 2167-0846 JPAR an open access journa Fibromyalgia 2016 June 15-16, 2016 Volume 5, Issue 3(Suppl) Page 40 She is well versed in the regulations and actively involved in advocacy through her leadership roles in Trade Organizations, Scientific Committees and academia. She is a member on the Science Board of the International Life Sciences Institute, NA and Canada. Dr. Rai is the recipient of academic and industry awards and an Adjunct Professor at Tufts U, Friedman School of Nutrition Science and Policy.

Received: 12 April, 2025; **Accepted**: 15 April , 2025; **Published**: November 28, 2025