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Increases in serum lutein through supplementation are correlated with increases in physical activity and reductions in sedentary time in older adults

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Abstract

Cross-sectional studies have reported positive relationships between serum lutein and zeaxanthin concentrations and higher physical activity levels, but it is not clear whether the association is causal. We sought to determine whether supplementing intakes of both carotenoids, using full-fat milk as the delivery vehicle, increased physical activity using a randomized, double-blind placebo controlled intervention trial in 44 older adults (BMI, 25.3 ± 2.6 kg/m^2; age, 68.8 ± 6.4 yr) not meeting Australian physical activity guidelines (150 min/week of moderate to vigorous activity). Participants were encouraged to increase physical activity whilst consuming capsules containing 21 mg of lutein and 0.9 mg of zeaxanthin or placebo with 250 ml of full-cream milk per day for 4 weeks. Physical activity was assessed by self-report and accelerometry. Thirty-nine participants competed the study (Lutein+Zeaxanthin = 19, Placebo = 20). Lutein+Zeaxanthin increased plasma lutein ($P < 0.001$) and zeaxanthin ($P = 0.04$) compared with placebo. Absolute and percentage changes in plasma lutein were inversely associated with absolute ($r = -0.36$, $P = 0.03$) and percentage changes ($r = -0.39$, $P = 0.02$) in sedentary time. Percentage change in plasma lutein was positively associated with percentage change in average daily activity counts ($r = 0.36$, $P = 0.03$). Changes in plasma zeaxanthin were not associated with changes in physical activity or sedentary time.Larger trials should evaluate whether effects ofincreasing plasma lutein through supplementation on physical activity and sedentary time can provide health benefits over the longer term.

Biography

Professor Jonathan Buckley completed his PhDin Exercise Physiology in 1997 from the University of Adelaide, South Australia. He is Director of the Nutritional Physiology Research Centre, one of Australia's leading research centres evaluating the health effects of diet and physical activity.He is Deputy Editor-in-Chief of the journal Nutrients. His work has resulted in more than 100publications, as well as contributing to changes in international food policy and underpinning 10 patents for novel foods and exercise technologies.