Title; Effects of astaxanthin on accommodation, critical flicker fusion, and pattern visual evoked potential in visual display terminal workers.

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Abstract; We evaluated the effects of astaxanthin, a red carotenoid, on accommodation, critical flicker fusion (CFF), and pattern visual evoked potential (PVEP) in visual display terminal (VDT) workers. As controls, 13 non-VDT workers received no supplementation (Group A). Twenty-six VDT workers were randomized into 2 groups: Group B consisted of 13 subjects who received oral astaxanthin, 5mg/day, for 4 weeks, and Group C consisted of 13 subjects who received an oral placebo, 5mg/day, for 4 weeks. No significant difference in age was noted among the 3 groups. A double-masked study was designed in Groups B and C. Accommodation amplitude in Group A was 3.7 ± 1.5 diopters. Accommodation amplitudes (2.3 ± 1.4 and 2.2 ± 1.0 diopters) in Groups B and C before supplementation were significantly (p<0.05) lower than in Group A. Accommodation amplitude (2.8 ± 1.6 diopters) in Group B after astaxanthin treatment was significantly (p<0.01) larger than before supplementation, while accommodation amplitude (2.3 ± 1.1 diopters) in Group C after placebo supplementation was unchanged. The CFFs and amplitude and latency of P100 in PVEP in Group A were 45.0 ± 4.2Hz, 6.5 ± 1.8MU.V, and 101.3 ± 6.5msec, respectively. The CFFs in Groups B and C before supplementation were significantly (p<0.05) lower than in Group A. The CCFs in Groups B and C did not change after
supplementation. Amplitudes and latencies of P100 in PVEP in Groups B and C before supplementation were similar to those in Group A and did not change after supplementation. Findings of the present study indicated that accommodation amplitude improved after astaxanthin supplementation in VDT workers. (author abst.)