

## Accommodation abstract Nagaki

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

**Author;** NAGAKI Y (Toyama Medical And Pharmaceutical Univ., Toyama, Jpn) HAYASAKA S (Toyama Medical And Pharmaceutical Univ., Toyama, Jpn) YAMADA T (Toyama Medical And Pharmaceutical Univ., Toyama, Jpn) HAYASAKA Y (Toyama Medical And Pharmaceutical Univ., Toyama, Jpn) SANADA M (Fuji Chemical Ind. Co., Ltd., Toyama, Jpn) UONOMI T (Fuji Chemical Ind. Co., Ltd., Toyama, Jpn)

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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. $\pm$ 1.5 diopters. Accommodation amplitudes (2.3. $\pm$ 1.4 and 2.2. $\pm$ 1.0 diopters) in Groups B and C before supplementation were significantly ( $p<0.05$ ) lower than in Group A. Accommodation amplitude (2.8. $\pm$ 1.6 diopters) in Group B after astaxanthin treatment was significantly ( $p<0.01$ ) larger than before supplementation, while accommodation amplitude (2.3. $\pm$ 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. $\pm$ 4.2Hz, 6.5 $\pm$ 1.8.MU.V, and 101.3. $\pm$ 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.)