

## Accommodation and Asthenopia abstract Shiratori

**Title;**Effect of Astaxanthin on  
Accommodation and  
Asthenopia-Efficacy-  
Identification Study in Healthy  
Volunteers-

**Author;** SHIRATORI KENJI (Hokkaido Univ., Graduate School of Medicine, JPN) OGAMI KAZUHIRO (Hokkaido Univ., Graduate School of Medicine, JPN) NITTA TAKUYA (Hokkaido Univ., Graduate School of Medicine, JPN) SHINMEI YASUHIRO (Hokkaido Univ., Graduate School of Medicine, JPN) CHIN SHINKI (Hokkaido Univ., Graduate School of Medicine, JPN) YOSHIDA KAZUHIKO (Hokkaido Univ., Graduate School of Medicine, JPN) TSUKAHARA HIROKI (Fuji Chem. Ind. Co., Ltd.) TAKEHARA ISAO (Shin'yaku Kaihatsu Kenkyusho) ONO SHIGEAKI (Hokkaido Univ., Graduate School of Medicine, JPN)

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**Abstract;**A double-blind study was conducted to confirm the efficacy of H. pluvialis Astaxanthin on accommodation and asthenopia and its safety. Two groups of subjects were compared, wherein one was given 0mg of Astaxanthin (as a control group) and the other was given 6mg of Astaxanthin (AX group). The subjects were healthy volunteers who complained of asthenopia. Twenty were enrolled in each group, and the testing food was administered during 4 weeks. Sub-objective accommodation power, positive accommodation time and negative accommodation time were measured before and after administration to objectively evaluate the degree of asthenopia. Additionally, subjective degree of asthenopia by volunteers was evaluated using VAS. The safety was assessed by changes in value of laboratory tests between pre- and post-administrations and by the doctor's questions. 1) Sub-objective accommodation power (rate of change) of the AX group was significantly higher than that of the control group. 2) The AX group showed significantly higher rate of positive and negative accommodation times (rate of change)

compared to those of the control group. 3) In the AX group, subjective degree of asthenopia measured by VAS showed significant improvement in two parameters, i.e., "blurred-eye feeling" and "tendency of irritation" than the control group. 4) No changes in laboratory tests of clinically controversial were noted and also no adverse events suggesting causal relationship with the testing food were found. In conclusion, administration of 6mg/day (in a daily dosage of 2 capsules; 3mg/capsule) of *H. pluvialis* Astaxanthin improved accommodation power and subjective symptoms of asthenopia. Also, Astaxanthin was confirmed to be completely safe.