

Accommodation loss from Age

Introduction

Age-related accommodation loss results in difficulty with near vision work and reading/writing. It is also called Presbyopia and it can affect any individual after or near 40 years of age. The ability of the eye to accommodate is lost as we age. This may be due to the functional deterioration of several internal parts of the eye such as i) ciliary muscle body, ii) pupillae muscles or iii) decreased elasticity of the crystalline lens surface (capsule). The etiology is likely to be a mixture of these and more, but proving it remains problematic for effective treatment and prevention. Nevertheless, as Presbyopia begins, people who have never worn eyeglasses find that they need reading glasses or bifocals in order to read and see up close. People who already wear glasses may need bifocals or trifocals in order to see comfortably up close. Reducing the progression of age-related accommodation loss will also improve the quality of near vision. In this newsletter, we report about a study that examined the effects of astaxanthin intake by measuring the pupillary muscle as a function of accommodation.

Study Design

An open label prospective study, conducted by the Kajita Eye Clinic in Japan, involved 22 male subjects (mean age 53.9 ± 5.1) taking 6 mg of astaxanthin for 4 weeks. The pupillary constriction ratio (calculated accommodative response by TrilRIS C9000) and subjective questionnaire response (5-point scale) were recorded before and after the experimental period.

Results

Pupillary Constriction Ratio

After 4 weeks of astaxanthin intake, both eyes had significantly increased the pupillary constriction ratio (constricted pupil diameter (mm)/initial pupil diameter (mm)) by 12.5% compared to the start (figure 1).

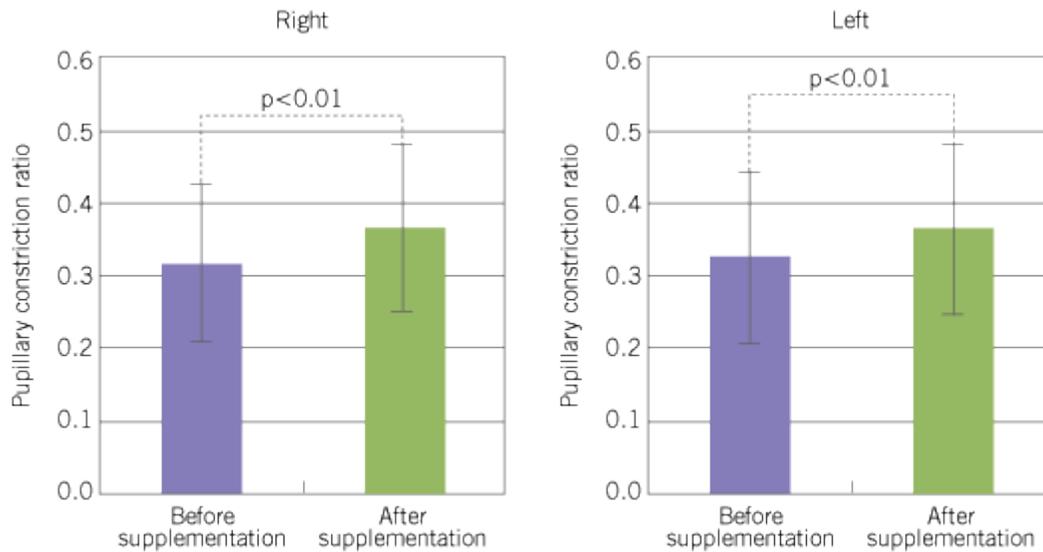


Figure 1 Pupillary Constriction Ratio Before and After Astaxanthin Supplementation.

Subjective Symptoms

The results of the questionnaire show several positive effects such as near vision difficulty, eye strain, blurred vision and, shoulder and lower back stiffness. The percentage of subjects who answered either slightly improved or better were 65%, 77.2%, 61.1% and 63.2% respectively.

Conclusion

The effects of aging on our eyes are inevitable. However, vision problems such as age-related accommodation loss (Presbyopia) are readily manageable. Eye glasses is the normal way, however, this latest investigative study suggests that astaxanthin supplementation may help slow down the progression of presbyopia or improve near vision of people above 40 years of age. The improvement of accommodation function was 12.5% in both eyes ($p < 0.01$) and subjects generally claimed reduction of eye strain and better near vision.

Reference

Kajita *et al.*, 2009. The effects of a dietary supplement containing astaxanthin on the accommodation functions of the eye in middle-aged and older people. *Medical Consultation & New Remedies*, 46(3):89-92 (Japanese).