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Bilberry extract supplementation for preventing eye fatigue in video display terminal workers

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Abstract

Objectives: To examine the effect of a dietary supplement containing bilberry extract (BE) on eye fatigue induced by acute video display terminal (VDT) loads.

Design and setting: A prospective, randomized, double-blind, placebo-controlled study was performed from August 2012 to February 2013 in the Medical Corporation Jico-kai Yagi Hospital, and the Shinyokohama Shinoharaguchi Orthopedic Surgery and Dermatology Clinic, in Japan.

Participants: Two hundred eighty-one office workers aged 20-40 years that used VDTs were screened by critical flicker fusion (CFF) and near point accommodation (NPA).

Intervention: The participants were randomized to either a BE (480 mg/day) or placebo (vehicle) group, and took allocated capsule, daily, for 8 weeks.

Measurements: The CFF, NPA, contrast visual acuity, functional visual acuity, keratoconjunctival epithelial damage, and fluorescein tear film break-up time were examined, and 18 subjective symptoms of eye fatigue were evaluated by questionnaire. Adverse events were reported via medical interviews. Data were collected both before

and after VDT load at baseline, and 4, and 8 weeks after daily supplementation with either BE or placebo.

Results: Of 281 participants screened, 88 having relatively lower levels of CFF and NPA were enrolled in the study. Of these, 37 control and 43 BE group subjects completed the study. The VDT load-induced reduction in CFF was alleviated after 8 weeks of BE supplementation (95% confidence interval, 0.10-1.60; $p=0.023$), in contrast to placebo supplementation, while NPA variation was not. Of the subjective symptoms of eye fatigue, VDT load-induced ocular fatigue sensation, ocular pain, eye heaviness, uncomfortable sensation, and foreign body sensation were mitigated more in the BE group than in the control group, at week 8 ($p<0.05$). There were no severe adverse events in either group.

Conclusions: BE supplementation improved some of the objective and subjective parameters of eye fatigue induced by VDT loads.

結論;

BE (Bilberry extract)補充改善了 VDT (video display terminal)負載引起的眼睛疲勞的一些客觀和主觀參數。