Chlorella ingestion attenuates immunological depression during a Kendo training camp

Presented at the 11th Scientific Meeting of the Japanese Society of Anti-Aging Medicine (2011)

[Study Objectives]

Whereas moderate exercise improves immunological function, high-intensity exercise, such as that undertaken in sports training camps, results in immunological depression. We have previously reported that under normal conditions, ingestion of chlorella accelerates the secretion of secretary immunoglobulin A (SIgA) in saliva. In this study, using a crossover method under blinding, we investigated whether chlorella ingestion would attenuate the decreased secretion of SIgA in the saliva of subjects attending a sports training camp.

[Method of experiments]

This study was conducted on 10 female members (mean age, 20.1 years) of the Kendo club of a certain university during spring and summer training camps in 2009, after obtaining informed consent. The subjects were randomized to a placebo (P) group or a chlorella (C) group, and took 30 tablets/day of the placebo or chlorella, respectively, from 4 weeks prior to the initiation of training to 5 days after completion of the camp. Body weight measurements and subjective evaluation of physical condition (muscle tone, lightness of the body, tiredness, and flexibility of the body; each rated on 5 levels) were conducted before initiation of the training camp, on day 2, the middle day and the last day of the camp, and 5 days after completion of the camp. Saliva was collected using the same schedule and the secretion rate of SIgA was calculated from the secretion rate of saliva and the concentration of SIgA in the saliva.

[Results]

No significant variation in body weight was noted in either group during the measurement period. Although the physical condition of subjects deteriorated during the training camp compared to the periods before and after the camp, there was no inter-group difference, and the degree of tiredness was comparable between the groups. The secretion rate of SIgA in saliva was lowered in the P group during the period of the training camp ($P < 0.01$), but no comparable decrease was detected in the C group ($P = 0.46$) (Fig. 1). When the secretion rate of SIgA in saliva was expressed as the amount of change from the baseline value recorded before initiation of the training camp, the P group showed lower values than the C group on day 2 of the training camp ($P < 0.05$) (Fig. 2).

On the basis of the above results, we concluded that chlorella ingestion attenuated immunological depression during participation in a sports training camp.

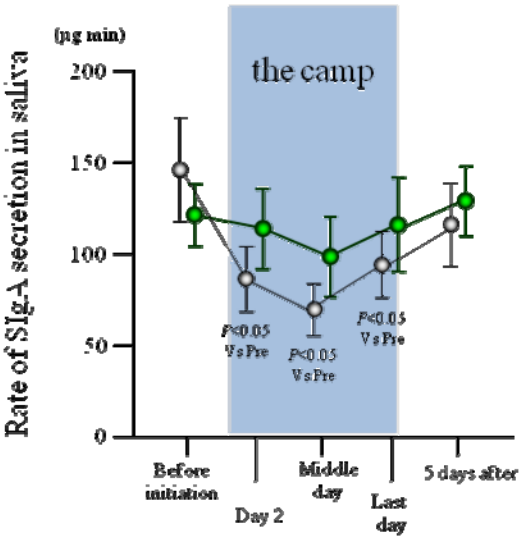

Fig.1 Rate of SIgA secretion in saliva

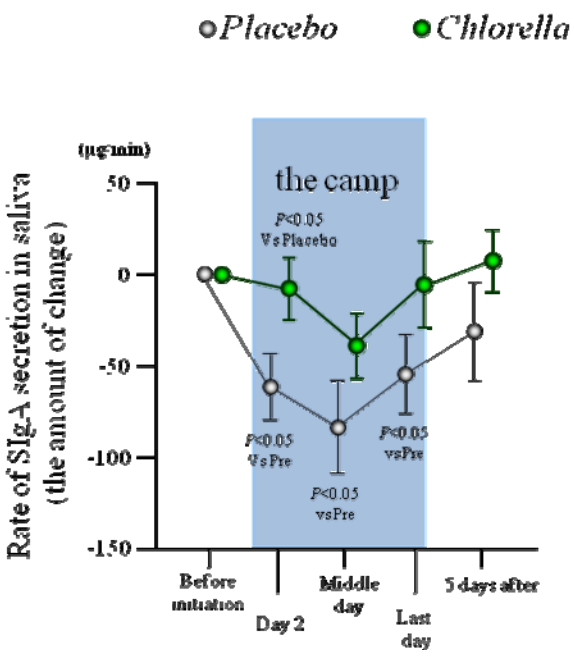

Fig.2 Rate of SIgA secretion in saliva
（the amount of change）

<<Presentation at a scientific meeting>>

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Title:	Chlorella ingestion attenuates immunological depression during a Kendo training camp
Presenters:	Takeshi Otsuki[1)], Kazuhiro Shimizu[2)], Motoyuki Iemitsu[3)], Yukari Arakawa[4)] and Ichiro Kono[5)]
Affiliation:	1) Faculty of Health and Sport Sciences, Ryutsu Keizai University, 2) Sports Research & Development Core, University of Tsukuba, 3) College of Sport and Health Science, Ritsumeikan University, 4) Sun Chlorella Corporation 5) University of Tsukuba,

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