ABSTRACT

Vitamin D is a fat-soluble vitamin that can be synthesized in the skin after exposure to sunlight or obtained through food or supplements. The aim of this study was to investigate the effect of 14 days of sun exposure in an area with higher levels of UV radiation (Dubai, United Arab Emirates) on vitamin D concentrations in a selected group of water slalom athletes and to further evaluate the changes in concentrations after a further 14 and 30 days after return. Data for the study were obtained by using four blood draws and comparing the average vitamin D concentration between the blood draws. Eleven elite athletes aged 18-35 years who were not taking vitamin D supplements participated in the study. The results showed that before the intervention, the athletes had average vitamin D levels lower (69.4 nmol/l) than the lower reference limit set at 75 nmol/l. Exposure to sunlight for 14 days resulted in a significant increase in vitamin D concentration, with an average increase of 10.8 nmol/l in the study group. Upon return to the Czech Republic, the vitamin D level increased slightly by an average of 0.7 nmol/l for 14 days, but this increase was not statistically significant compared to the previous sampling. After 30 days of stay, the vitamin D level decreased on average by 1.3 nmol/l. This result confirms the beneficial effects of sun exposure on vitamin D levels and suggests that these effects may persist for up to 30 days. Furthermore, analysis of dietary vitamin D intake showed that its intake during the intervention was positively correlated with the increase in vitamin D concentration, although the participants' total intake was judged to be insufficient. The combination of sun exposure, higher dietary intake of vitamin D and possible supplementation of this micronutrient could contribute to longer maintenance of adequate vitamin D levels.

Key words: vitamin D, 1,25 Dihydroxyvitamin D, sports nutrition, sports, dietary supplements, sports performance