12-3 Effect of bathtub bathing on students’ working efficiency

Tomonori YASUDA1,2, Yoshihisa MASUMITSU1, Takaaki KUBO1, Yoshihiro IWASHITA1, Satoshi WATANABE2, Taichi ISHIZAWA2, Mitsuo TSUNAKAWA2, Shingo YANO2, Jun-ichi IIYAMA1

1) Department of Rehabilitation, Faculty of Health Sciences, Kumamoto Health Science University, Kumamoto, Japan
2) Bathclin Corporation, Tokyo, Japan

Introduction: Some students take showers instead of baths for economic reasons or because they dislike cleaning the bathtub. The purpose of this study was to examine the effect of bathing routines on students’ working efficiency.

Subjects: Seventeen (six male and 11 female) healthy young students (19.6 ± 0.7 years old, mean ± SD) who habitually took showers instead of baths participated in this study. Informed consent was obtained from all the subjects and the study was approved by the Ethics Committee of Kumamoto Health Science University.

Method: Subjects were randomly assigned into two groups. The subjects in the first group (bathtub bathing [BB]) were immersed to the supraclavicular level in their home bathtub and instructed to rest for 10 minutes with the temperature regulated at 41°C. The subjects of the second group (whole-body warming after BB [BBW]) followed the same bathing protocol and then rested in a sleeping bag and sheet for 30 minutes to keep their bodies warm. Each period was carried out over 2 weeks in a cross-over design. Washout periods were 2 weeks long. The evaluation items of this study included the obstructive sleep apnea (OSA) sleep inventory MA version (OSA-MA), a questionnaire containing a visual analog scale (VAS) to judge the subjective bathing effect, profile of mood states, salivary stress marker (α-amylase), and the Purdue Pegboard test. These tests were evaluated before and after the BB sessions, BBW sessions, and washout interval for a total of four times in a 6-week period.

Result: Participants tended to report a better sleep feeling on the OSA-MA after the BB or BBW sessions than after showering. There were significantly better changes in both the BB and BBW in the VAS for bathing effect in terms of “Sense of deep sleep,” “Body fatigue,” “Light feeling of the body” than after a shower. The mean α-amylase value in the saliva of the BBW group participants was significantly lower than that after showering. The mean Purdue Pegboard test scores of both the BB and BBW sessions were significantly higher than that after the shower.

Discussion: Sleep quality seemed to be more improved after BB or BBW than after showering, perhaps due to reduced stress. Work efficiency also increased in the BB and BBW groups.

Keywords: Bathtub bathing, Working efficiency, Sleep quality, Student, Whole-body warming