

## Effect of Stress Relief of the Footbath Using Bio-Marker in Japan

**Authors :** Harumi Katayama, Mina Suzuki, Taeko Muramatsu, Yui Shimogawa, Yoshimi Mizushima, Mitsuo Hiramatsu, Kimitsugu Nakamura, Takeshi Suzue

**Abstract :** Purpose: There are very often footbaths in the hot-spring area as culture from old days in Japan. This culture moderately supported mental and physical health among people. In Japanese hospitals, nurses provide footbath for severe patients to mental comfortable. However, there are only a few evidences effect of footbath for mental comfortable. In this presentation, we show the effect of stress relief of the footbath using biomarker among 35 college students in volunteer. Methods: The experiment was designed in two groups of the footbath group and the simple relaxation group randomly. As mental load, Kraepelin test was given to the students beforehand. Ultra-weak chemiluminescence (UCL) in saliva and self-administered liner scale measurable emotional state were measured on four times concurrently; there is before and after the mental load, after the stress relief, and 30 minutes after the stress relief. The scale that measured emotional state was consisted of 7 factors; there is excitement, relaxation, vigorous, fatigue, tension, calm, and sleepiness with 22 items. ANOVA was calculated effect of the footbath for stress relief. Results: The level of UCL (photons/100sec) was significantly increased in response on both groups after mental load. After the two types of stress relief, UCL (photons/100sec) of footbath group was significantly decreased compared to simple relaxation group. Score of sleepiness and relaxation were significantly increased after the stress relief in the footbath group than the simple relaxation group. However, score of excitement, vigorous, tension, and calm were exhibit the same degree of decrease after the stress relief on both group. Conclusion: It was suggested that salivary UCL may be a sensitive biomarker for mild stress relief as nursing care. In the future, we will measure using UCL to evaluate as stress relief for inpatients, outpatients, or general public as the subjects.

**Keywords :** bio-marker, footbath, Japan, stress relief

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