II-3 Thermal Sensation of Hands in Cold Environment

Setsuko ISAJI[1], Sigeki WATANUKI[2]
1)Department of Human Informatics, Mukogawa Women's University
2)Department of Physiological Anthropology, Kyusyu Institute of Design

In cold environment, we measured the local thermal sensation and physiological response of hands for the water of various temperatures. Subjects were 7 healthy female students. They immersed their both hands into the water at settled temperatures,15,20,25,30,35,40℃ for left hand, and altering every 1℃ for right hand. They evaluated the temperature using the psychometrical method of limits. Thermal sensation values on the water were deduced from the JND (just noticeable difference) curve obtained experimentally. A significant correlation was found between the local thermal sensation and the finger blood flow of the hands measured simultaneously.

II-4 Physio-psychological responses to the acute cold exposure ~ Comparison of a floor-heating system and an air-conditioning system ~

Kunihiro NOKURA[1], Yoshihiro SHIMOMURA[2], Koichi IWANAGA[1], Tetsuo KATSUURA[2]
1) Graduate School of Science and Technology, Chiba University
2) Faculty of Engineering, Chiba University

The purpose of this study was to compare the Physio-psychological responses to the acute cold exposure from two differet conditions of thermal environment. Seven subjects were exposed to a floor-heating system (air temperature :21 ± 0.3℃, floor temperature :30.4 ± 0.2℃) and an air-conditioning system (air temperature :23.5 ± 0.1℃, floor temperature :18 ± 0.1℃) during 1 hour. Then subject was exposed to cold environment (about 14℃) for 30 min. As the results, under the floor-heating system and cold room from the heating system, hand and instep skin temperature was higher than the other condition. Furthermore, under the air-conditioning system and cold room from the heating system, rectal temperature was higher than the other condition. These results suggest that a floor heating system is better sutited to heat skin temperature.

II-5 The Variation of Left Ventricular Dimensions and Functions for Cooling Down after Maximum Exercise for 1 Minute

Makoto MATSUNAGA and Yoshibumi NAKAHARA
Department of Human System Science, Graduate School of Decision Science and Technology, Tokyo Institute of Technology

The aim of this study was to clear influence of left ventricular dimensions and functions for cooling down after maximum exercise by echo cardiography. Subjects were 7 healthy male students. After maximum exercise for 1 minute, they performed cooling down and control (=no cooling down). The heart rate after maximum exercise was higher than pre-exercise level in every condition. Both stroke volume and ejection fraction after cooling down was higher than no cooling down. Therefore, it was suggested that venous return was increased by muscle pump of legs during cooling down. In conclusion, the cardiac function after introduction of cooling down was earlier back to pre-exercise level than no cooling down.

II-6 The Relation of Calcaneal Ultrasound Bone Parameter to Physical Activity in Japanese Adult Females

Fumihiro OMASU[1], Jun KITAGAWA[1], Yoshibumi NAKAHARA[1] 1) Department of Human System Science, Graduate School of Decision Science and Technology, Tokyo Institute of Technology

We investigated the relationship between bone mass and physical activity. BUA (Broadband Ultrasound Attenuation), SOS (Speed of Sound) and Stiffness Index of the calcaneus as the bone mass was measured in 108 premenopausal young Japanese females (age: mean±SD 20.3±4.1 years, ranged 18-37) by the calcaneal ultrasound measurement. It appears that ultrasound parameters such as bone mass in premenopausal young adult females, who have achieved a peak bone mass, might be reflected in the amount of exercise during their puberty, especially, during the time of senior high school.

II-7 Effects of Room Temperature on Sleep under 40% Relative Humidity Condition

Eun-Jung SUNG[1], Yutaka TOCHIHARA[2] and Hiroshi KOMANO[3]
1) Ergonomics Lab., KRISS, Korea
2) Department of Ergonomics, Kyushu Institute of Design
3) Daikin Air-conditioning R&D Lab., LTD

This study was examined the effects of room temperature on night sleep under 40%RH condition. The experiments were carried out under three different conditions of room temperatures; 25℃, 27℃ and 29℃. We found that slow wave sleep and REM sleep were decreased, and wake after sleep onset was increased in 25℃ condition compared with 27℃ and 29℃ condition. Furthermore, subjective sleep evaluation was the lowest value in 25℃ condition. There was not significant difference between 27℃ condition and 29℃ condition in quality of sleep and subjective sleep evaluation. These results suggest that making into low humidity becomes sound sleep even if the room temperature is high, and low room temperature disturbs his sleep.

II-8 Sleep habits and sleep health between couples —from the questionnaire in summer season

Naomi TAKAHASHI [1], Yoko KOMADA [2],
Ryoji ARITOMI [1]and Shuichiro SHIRAKAWA [2]
[1] Research Institute on Sleep and Society, [2] National Institute of Mental Health, National Center of Neurology and Psychiatry

The aim of this study was to investigate the relationship of sleep habits and sleep health between couples. Sleep health questionnaire were administered to metropolitan area workers and their partners. The risk score of sleep health were calculated according to Shirakawa(1996) for 264 couples (mean age of female: 41.7, male: 44.3, difference in the couples: 2.6 years).

As a result, weekday's sleep length of wife was longer than husband in the low thirties, while shorter over fifties. The female whose husband was poor sleeper were also poor, especially they had difficulties of sleep initiating and waking up. Sleep habits of poor sleeper were irregular (bedtime, wakeup time, sleep length), and their wife tended to sleep less in the weekday.