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Relevance of salivary amylase activity and cortisol to thermally comfortable and uncomfortable states
Takako Fukazawa¹, Ayumi Yaku², Rie Fukuyama², Tsumugi Shimizu³, Yutaka Tochihara³
¹Kyoto University of Education, ²Fukuoka Women's University, ³Kyushu University
1, Fujinomori-cho, Fukakusa, Fushimi-ku, Kyoto-shi, Kyoto, Japan, 612-8522
e-mail: fukazawa@kyokyo-u.ac.jp

Abstract: Relevance of thermal comfort state of the whole body to biomarker was investigated experimentally with 16 participants of Japanese young female. The experiment was conducted for 65 min in total; for the first 20 min, the subject was kept in thermally comfortable state, and for next 45 min, the subject was gradually in thermally uncomfortable state by conducting an exercise with heat production equivalent to 3 Mets. Saliva was collected at every 5 min to assay cortisol concentration. Salivary amylase activity was evaluated at the same time. Thermal comfort sensation was voted with an interval of 5 min. Physiological parameters were also recorded simultaneously. Thermal comfort state in the whole body was ensured if the skin wittnessed stayed within 0.21 ± 0.03 (-). The subjects felt thermally more intense discomfort with the increasing skin wittnessed. Although the salivary cortisol did not reflect thermal comfort sensation, the salivary amylase activity did. That is, the amylase activity showed a low rate between 30 to 50 kU/l in case the subject was kept in thermally comfortable state. On the other hand, the amylase activity remarkably increased with increasing thermal discomfort when the whole body felt slightly thermal discomfort.

Key words: Thermal environment, Physiological response, Psychological response, Clothing

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Effects of clothing pressure around the trunk on sweating in the face.
Mariko Sato, Rie Kuwabara, Teruko Tamura
Bunka Gakuen University
3-22-1, Yoyogi, Shibuya-ku, Tokyo, Japan, 151-8523
e-mail: mari-sato@bunka.ac.jp

Abstract: We investigated changes in sweat production following application of a compression belt at a pressure of approximately 5.0 kPa around the armpits, chest, and waist of five healthy young men at 35 degree, 50%RH. The results showed that compression of the trunk at the armpits and chest suppressed sweating in the face and around the head. This was attributed to the sweat reflex due to pressure. Armpit compression resulted in the greatest suppression of sweat production and promotion of compensatory sweating in terms of the rate of change between presence and absence of compression. During waist compression, sweat production tended to increase in the face and around the head. No changes associated with compression were observed in mean skin and rectal temperatures. These findings support the accepted theory that “the apprentice geisha in Kyoto suppress sweating from the face by wearing a tight band around the chest”, and suggest that sweating in the face may increase when a band is wrapped around the hip in men wearing kimono.

Key words: Clothing, Physiological response, Thermoregulation