

THE EXERCISE THERMOREGULATORY FUNCTIONS IN FINNISH AND THAI MALE STUDENTS

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By now the studies on exercise thermoregulation have been carried out in white people living in South Africa and in other human races (Caucasians, Bushmen, Bantu, Australian Aborigines) who lived in hot climate too. Among them some differences in the efficiency of thermoregulation during exercise in heat has been discovered. However, we were not able to find any data related to the alterations of exercise thermoregulatory function in human populations in cold and hot climate.

As subjects 15 Finnish and 13 Thai male students were included. They were familiar with physical exercise. A bicycle exercise test at approximately 53 % of maximal work load of an individual was done in a climate chamber (Finnish students) and in the laboratory conditions in Bangkok (Thai students). The ambient air temperature and relative humidity amounted to 30 C and 70 %, respectively. Besides Tre heart rate (HR), body weight (Bwt) and haematocrite (Hct) changes were evaluated in exercise test. The duration of exercise in minutes (DE) in which the rectal temperature (Tre) increases 1 C and 1,2 C has been presumed as an index of the efficiency of exercise thermoregulatory functions (Kubica et al 1985).

The comparison of results showed that almost all examined morphological indices were significantly higher in Finnish students. However, in Thai students greater values of body surface area (BSA) to Bwt ratio were found. Furthermore, the level of Tre and Hct values were lower in all conditions in Thai students. Although the absolute values of body water loss showed no differences in both groups studied, the percentages were in Thai students significantly higher. The DE values were distinctly longer in Thai students, eventhough the difference were statistically not significant.

It seems to be probable that Thai students are better adapted to live in hot and humid climate with regard to the morphological features. However, Finnish students showed improved mechanisms of heat dissipation by sweating, probably due to regular exposure to sauna. Moreover, the individual differences in the frequency of sauna exposure may also be the reason for the lack of statistically significant differences in DE.