Title

The influence of military pentathlon obstacle run on athletes' skin temperature

Abstract

INTRODUCTION Performance in elite sports requires the integration of physiological and psychological factors. In addition, there is the interference of environmental conditions which athletes are imposed during competition. The increasing of infrared thermography in Sport's Sciences has as advantage being a non-invasive and low-cost method. The aim of this study was to analyze the influence of military pentathlon obstacle run (MPOR) on athletes' skin temperature Tsk.

METHODS Transversal research with 16 athletes' (9 male and 7 female) volunteers of the Brazilian Arm Military Pentathlon Team. For Tsk evaluation was used E75FLIR® infrared camera and the data collection occurred indoor, in an acclimatized room pre and post obstacle run attending Delphi study recommendations. The images were processed using ThermoHuman software and data analyzed by SPSS®. The selected regions of interest (ROIs) were the anterior and posterior regions of lower limbs. Descriptive statistics, paired t-Student test and ANOVA's test were used with adjusted Bonferroni post-hoc and significant level of $p<0.05$. Percentage differences (Δ%) were calculated.

RESULTS The ambient temperature was 21.5-23.2ºC and relative ambient humidity 64-68%. Table 1 presents the difference between each anterior and posterior ROIs pre and post MPOR. When comparin female and male pentathletes, it was observed a significant lower temperature in female athletes in the ROIs identified as gray on figure 1.

DISCUSSION AND CONCLUSION The increase of temperature pre and post MPOR was related to its high intensity characteristic that leads to a metabolic stress requested by muscles. However, the difference in Tsk between female and male may be associated to the fact that female athletes did not perform 4 obstacles in MPOR: (1) rope ladder (8) sloping wall with rope (12) four steps of beams and (16) vertical ladder, all related to jumping and impact absorption, which leads to the absorption of energ necessary for movement.

Practical Implications

We recommend the insertion of infrared thermography on daily training for monitoring internal load, metabolic stress, preventing injuries and optimize performance in Pentathlon Team.

References

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Figures and tables

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Confict of interest

None to declare.

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