Title

The use of thermal perception analog scales to monitor physiological responses during a simulated military triathlon race

Abstract

INTRODUCTION An efficient thermoregulation during a prolonged exercise as a triathlon Olympic distance (swimming 1.5 km, cycling 40 km and running 10 km) is important for athletic performance, especially in hot environments. Knowing how the athlete perceives such responses can lead to a better heat dissipation and an individualized prescription training to reduce the risks of heat illness. The aimed was to analyze the subjective perceptions of thermal sensation, skin moisture, thermal comfort, and effoı in military athletes during a simulated triathlon Olympic race.

METHODS Observational study with 22 volunteered experienced triathlon athletes of Armed Forces. Th thermal sensation was measured by analogic scales during the four moments of the Olympic triathlon race: (M1) pre-swimming, (M2) post-swimming, (M3) post-cycling and (M4) post-race. Data was analyzed by SPSS®. Descriptive statistics and Friedman's test were used with Dunn post-hoc at significant level of $p < 0.05$. The effect size (d) was calculated.

RESULTS Thermal sensation increase, and thermal comfort reduce were observed between all moments, except in M1xM2 ($p=1.000$; $d=0.00$; $p=0.972$; $d=0,18$), respectively. There was an increase ir the perceived exertion between M2xM4 ($p<0.001$; $d=-1.682$) and M3xM4 ($p=0.001$; $d=1.136$).

DISCUSSION AND CONCLUSION The swimming was performed in open water (20.9°C; 2 laps 750m) cycling and running was performed outdoor on athletics track using static roller and running 25 laps of 400m. The ambient temperature was 26.6±0.7ºC and relative ambient humidity 64±6%. Free hydration and colling off. It could explain the significant drop in the thermal sensation between M1xM2, exactly afte swimming and the increase in heat perception as the cycling was performed static without wind convection. The external environment (sun, wind, air temperature and ambient humidity) and behaviors (colling off with water, opening the jacket, removing t-shirt) could interfered the heat exchange process and influenced the thermoregulation process of the triathlon athletes.

Practical Implications

We recommend evaluating the athletes' level of hydration during the race check-in to alert a possible undesirable physiological outcome. And using Wet Bulb Globe Temperature (WBGT) index during the race to a better management of athlete's hydration.

References

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Figures and tables
https://www.eventora.com/en/files/cism-2021/Submissions/637606600692905414_Triathlon.zip/get

Confict of interest

None to declare.

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