Abstract

Skin Temperature and Exercise Performance after Passive Rest in a Cool Environment [†]

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Abstract: Aim: Warm-up activates muscular thermogenesis leading to enhanced athletic performance and reduced risk for exercise-induced injuries. However, very little is known about the thermo physiological responses of elite basketball players during the time spent on bench (BENCH) and consequently its impact on athletic performance in cool environments. Therefore, the purpose of this study was to investigate the impact of BENCH on the thermo physiological responses and athletic performance of elite basketball players. **Material & Method:** Six elite male basketball players (age, 24.9 ± 4.6 year; BMI, 25.5 ± 1.8 kg/m²) participated in the study. Following a 20-min warm up, the participants were randomly allocated in four different scenarios: (i) 9-min BENCH wearing basketball uniform, (ii) 9-min BENCH wearing basketball uniform and insulative clothing, (iii) 23-min BENCH wearing basketball uniform, and (iv) 23-min BENCH wearing basketball uniform and insulative clothing. The athletic performance of the participants was examined by conducting fitness test pre- and post-BENCH scenarios. Mean skin temperature (T_{sk}) was calculated from two sites (arm and thigh), while ambient temperature was recorded using a portable weather station. **Results:** Ambient temperature (16.8 ± 1.2 °C) ranged from 18.2 to 15.5 °C. We identified an increase of 1 °C in T_{sk} during 23-min BENCH scenarios ($p < 0.05$). Similarly, we found that counter-movement jump was significantly reduced after 23-min BENCH with basketball uniform (−2.8 cm) and 23-min BENCH with basketball uniform and insulative clothing (−3.4 cm, $p < 0.05$). On the other hand, there were no statistically significant differences in T_{sk} and athletic performance between the baseline and post 9-min BENCH measures ($p > 0.05$). **Conclusions:** The present study showed that 23 min of bench time reduces high-intensity players' performance in both conditions (23 min bench time + basketball uniform, 23 min bench time + basketball uniform and insulative clothing) in cool environment. Thus, further studies are needed in order to identify factors causing impaired performance.

Keywords: cool environment; exercise performance; passive rest; skin temperature