

# Influence of sex, athletic performance and age differences on the acute cardiovascular and thermoregulatory response to incremental test in endurance runners [Influence du sexe, du niveau de performance, et de l'âge sur les réponses cardiovasculaires et thermorégulatrices aiguës à un exercice à puissance croissante chez des coureurs d'endurance]

García-Pinillos F.

Serrano-Huete V.

Salas-Sánchez J.

Ortega-García R.

Gómez-Rodríguez F.J.

Latorre-Román P.A.

**Objective** To describe the acute cardiovascular and thermoregulatory responses to an incremental running test in recreationally trained endurance runners, as well as to determine the influence of sex, athletic performance and age differences on that response. **Equipment and methods** Seventy-six recreationally trained endurance runners, 45 men and 31 women, participated in this study. An incremental running test was performed, and the cardiovascular-peak (HRpeak), recovery heart rate (HRrec) and thermoregulatory responses (tympanic temperature) were monitored during the protocol. The rate of perceived exertion (RPE) was also recorded. **Results** Cluster analysis was grouped according to the athletic performance, in terms of estimated VO<sub>2</sub>max, and according to age. The ANOVA between groups (by sex, athletic performance and age) revealed no significant differences in thermoregulatory response or RPE ( $P \geq 0.05$ ). As for the cardiovascular response, significant differences were found according to sex in HRrec ( $P < 0.01$ ) and average heart rate ( $P < 0.05$ ), whilst HRpeak significantly differed according to age ( $P < 0.001$ ). **Conclusions** The obtained results showed that sex and age are influencing factors on cardiovascular response to an incremental running test in recreational endurance runners, whilst athletic performance does not. Likewise, the acute thermoregulation response during these types of running exercises did not differ

Athletes

Cardiovascular response

Fitness

Graded exercise test

Thermoregulation

adult

age

Article

athletic performance

body mass

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sex difference

thermoregulation

tympanic temperature