

The change in metabolic heat production is a primary mediator of heat acclimation in adults

Eric Rivas, Manisha Rao, Todd Castleberry, Vic Ben-Ezra



PII: S0306-4565(17)30337-6
DOI: <https://doi.org/10.1016/j.jtherbio.2017.10.001>
Reference: TB1991

To appear in: *Journal of Thermal Biology*

Received date: 10 August 2017
Revised date: 3 October 2017
Accepted date: 4 October 2017

Cite this article as: Eric Rivas, Manisha Rao, Todd Castleberry and Vic Ben-Ezra, The change in metabolic heat production is a primary mediator of heat acclimation in adults, *Journal of Thermal Biology*, <https://doi.org/10.1016/j.jtherbio.2017.10.001>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

The change in metabolic heat production is a primary mediator of heat acclimation in adults

Eric Rivas¹, Manisha Rao², Todd Castleberry², Vic Ben-Ezra²

¹Exercise and Thermal Integrative Physiology Laboratory, Department of Kinesiology and Sport Management, Texas Tech University, Lubbock TX, USA;

²Exercise Physiology and Biochemistry Laboratory, Department of Kinesiology, Texas Woman's University, Denton, TX, USA.

***Corresponding Author:** Eric Rivas, Ph.D. Texas Tech University Dept. of Kinesiology and Sport Management, 2500 Broadway MS3011, Lubbock, TX 79409. Tel.: 806-834-8563. Email: eric.rivas@ttu.edu

Abstract

Purpose

This study examined whether heat acclimation (HA) results in either predominate improvements in heat dissipation or reduced endogenous heat production via individual components of the human heat balance equation.

Methods

Twelve healthy inactive subjects (5 females, age $\pm$ SD): 28 ± 6 y, 77.9 ± 2 kg), completed a 10-day HA (42°C , 28% RH) hyperthermia clamp (90min/day exercise, $\Delta 1.5^{\circ}\text{C}$ in rectal temperature (T_{re})) and control workload matched (CON: 23°C , 42% RH) protocols in a counterbalanced design separated by at least 2 mo. Pre-and post-HA were matched for external work rate (EX_{WR} ; day 1 and day 10 first 30 min at 118 ± 29 W, last 60 min at 11 ± 5 W); and metabolic heat production (H_{prod} ; day 1 and day 9, first 30 min at 296 ± 26 W $\cdot$ m⁻², last 60 min 187 ± 33 W $\cdot$ m⁻²).

Results

Download English Version:

<https://daneshyari.com/en/article/8650174>

Download Persian Version:

<https://daneshyari.com/article/8650174>

[Daneshyari.com](https://daneshyari.com)