

# Journal of Athletic Training

Home For Journal For Authors For Reviewers For Readers For Subscribers For Students Help



Home > [Journal of Athletic Training](#) > [March/April 2009](#) > Does Creatine Supplementation Hinder Exercise Heat Tolerance or Hydrat...

[Advanced Search](#)

## National Athletic Trainers' Association Links

- [NATA Home](#)
- [Online Manuscript Submission and Review](#)
- [Advertising](#)
- [Facts & Figures](#)
- [Editor-in-Chief](#)
- [Journal Editors](#)
- [Editorial Board](#)
- [NATA Position Statements](#)
- [PubMed Central](#)
- [Search PubMed](#)
- [Contact Us](#)

[◀ Previous Article](#) [Volume 44, Issue 2 \(March/April 2009\)](#) [Next Article](#)

 [Add to Favorites](#)  [Share Article](#)  [Export Citations](#)

 [Track Citations](#)  [Permissions](#)

[Full-text](#)

[PDF](#)

### Article Citation:

Rebecca M. Lopez, Douglas J. Casa, Brendon P. McDermott, Matthew S. Ganio, Lawrence E. Armstrong, Carl M. Maresh (2009) Does Creatine Supplementation Hinder Exercise Heat Tolerance or Hydration Status? A Systematic Review With Meta-Analyses. *Journal of Athletic Training*: March/April 2009, Vol. 44, No. 2, pp. 215-223.

doi: 10.4085/1062-6050-44.2.215

### Original Research

## Does Creatine Supplementation Hinder Exercise Heat Tolerance or Hydration Status? A Systematic Review With Meta-Analyses

Rebecca M. Lopez, MS ATC, Douglas J. Casa, PhD ATC FNATA FACSM, Brendon P. McDermott, MS ATC, Matthew S. Ganio, MS, Lawrence E. Armstrong, PhD FACSM, and Carl M. Maresh, PhD FACSM

University of Connecticut, Storrs, CT

### Abstract

**Objective:** To critically assess original research addressing the effect of creatine supplementation on exercise heat tolerance and hydration status.

**Data Sources:** We searched the electronic databases PubMed, Scopus, Web of Science, SPORTDiscus, and Rehabilitation & Physical Medicine, without date limitations, for the following key words: *creatine, exercise, thermoregulation, dehydration, hyperthermia, heat tolerance, exertional heat illnesses, and renal function*. Our goal was to identify randomized clinical trials investigating the effect of creatine supplementation on hydration status and thermoregulation. Citations from related articles also were identified and retrieved.

**Data Synthesis:** Original research was reviewed using the Physiotherapy Evidence Database (PEDro) Scale. One author initially screened all articles. Fifteen of 95 articles examined the effects of creatine on thermoregulation or hydration status (or both). Two independent reviewers then reviewed these articles. Ten studies were selected on the basis of inclusion and exclusion criteria. The PEDro scores for the 10 studies ranged from 7 to 10 points (maximum possible score = 10 points).

**Conclusions:** No evidence supports the concept that creatine supplementation either hinders the body's ability to dissipate heat or negatively affects the athlete's body fluid balance. Controlled experimental trials of athletes exercising in the heat resulted in no adverse effects from creatine supplementation at recommended dosages.

**Keywords:** [thermoregulation](#), [dehydration](#), [hypohydration](#), [exertional heat illness](#), [renal function](#)

Rebecca M. Lopez, MS, ATC, contributed to conception and design; acquisition and analysis and interpretation of the data; and drafting, critical revision, and final approval of the article. Douglas J. Casa, PhD, ATC, FNATA, FACSM, contributed to conception and design, analysis and interpretation of the data, and critical revision

Volume 44, Issue 2  
(March/April 2009)

[< Previous](#) [Next >](#)



[Current Issue](#)  
[Available Issues](#)

### Journal Information

Print ISSN 1062-6050

eISSN 1938-162X

Frequency Bimonthly:

January/February  
March/April  
May/June  
July/August  
September/October  
November/December

### Register for a Profile

Not Yet [Registered?](#)

*Benefits of Registration Include:*

- A Unique User Profile that will allow you to manage your current subscriptions (including online access)
- The ability to create favorites lists down to the article level
- The ability to customize email alerts to receive specific notifications about the topics you care most about and special offers

[Register Now!](#)

### Related Articles

#### Articles Citing this Article

[Google Scholar](#)

#### Search for Other Articles By Author

- Rebecca M. Lopez
- Douglas J. Casa
- Brendon P. McDermott
- Matthew S. Ganio
- Lawrence E. Armstrong
- Carl M. Maresh

#### Search in:

Athletic Training

and final approval of the article. Brendon P. McDermott, MS, ATC, contributed to conception and design; acquisition and analysis and interpretation of the data; and drafting, critical revision, and final approval of the article. Matthew S. Ganio, MS, contributed to conception and design, analysis and interpretation of the data, and critical revision and final approval of the article. Lawrence E. Armstrong, PhD, FACSM, and Carl M. Maresh, PhD, FACSM, contributed to analysis and interpretation of the data and critical revision and final approval of the article.

Address correspondence to Rebecca M Lopez, MS, ATC, University of Connecticut, 2095 Hillside Road, Unit 1110, Storrs, CT 06269. Address e-mail to [Rebecca.Lopez@uconn.edu](mailto:Rebecca.Lopez@uconn.edu)

[top](#) 

---

Copyright © 2010 **Journal of Athletic Training**. All Rights Reserved, Worldwid  
**Allen Press, Inc.** assists in the online publication of the *Journal of Athletic Trainin*  
Technology Partner - **Atypon Systems, Inc**