

Journal of Athletic Training

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

Home > [Journal of Athletic Training](#) > [January/February 2009](#) > Acute Whole-Body Cooling for Exercise-Induced Hyperthermia: A Systemat...

[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 1 \(January/February 2009\)](#) [Next Article ▶](#)

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

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

[Full-text](#)

[PDF](#)

Article Citation:

Brendon P. McDermott, Douglas J. Casa, Matthew S. Ganio, Rebecca M. Lopez, Susan W. Yeargin, Lawrence E. Armstrong, Carl M. Maresh (2009) Acute Whole-Body Cooling for Exercise-Induced Hyperthermia: A Systematic Review. *Journal of Athletic Training*: January/February 2009, Vol. 44, No. 1, pp. 84-93.

doi: 10.4085/1062-6050-44.1.84

Original Research

Acute Whole-Body Cooling for Exercise-Induced Hyperthermia: A Systematic Review

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

*University of Connecticut, Storrs, CT

†Indiana State University, Terre Haute, IN

Abstract

Objective: To assess existing original research addressing the efficiency of whole-body cooling modalities in the treatment of exertional hyperthermia.

Data Sources: During April 2007, we searched MEDLINE, EMBASE, Scopus, SportDiscus, CINAHL, and Cochrane Reviews databases as well as ProQuest for theses and dissertations to identify research studies evaluating whole-body cooling treatments without limits. Key words were *cooling, cryotherapy, water immersion, cold-water immersion, ice-water immersion, icing, fanning, bath, baths, cooling modality, heat illness, heat illnesses, exertional heatstroke, exertional heat stroke, heat exhaustion, hyperthermia, hyperthermic, hyperpyrexia, exercise, exertion, running, football, military, runners, marathoner, physical activity, marathoning, soccer, and tennis.*

Data Synthesis: Two independent reviewers graded each study on the Physiotherapy Evidence Database (PEDro) scale. Seven of 89 research articles met all inclusion criteria and a minimum score of 4 out of 10 on the PEDro scale.

Conclusions: After an extensive and critical review of the available research on whole-body cooling for the treatment of exertional hyperthermia, we concluded that ice-water immersion provides the most efficient cooling. Further research comparing whole-body cooling modalities is needed to identify other acceptable means. When ice-water immersion is not possible, continual dousing with water combined with fanning the patient is an alternative method until more advanced cooling means can be used. Until future investigators identify other acceptable whole-body cooling modalities for exercise-induced hyperthermia, ice-water immersion and cold-water immersion are the methods proven to have the fastest cooling rates.

Keywords: [exertional heat illness](#), [evidence-based practice](#), [cryotherapy](#),

Volume 44, Issue 1
(January/February 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

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

Search in:

Brendon P. McDermott, MS, ATC, and Douglas J. Casa, PhD, ATC, FNATA, FACSM, 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, and Rebecca M. Lopez, MS, ATC, contributed to conception and design; analysis and interpretation of the data; and drafting, critical revision, and final approval of the article. Susan W. Yeargin, PhD, ATC, contributed to acquisition and analysis and interpretation of the data and drafting, critical revision, and final approval of the article. Lawrence E. Armstrong, PhD, FACSM, and Carl M. Maresh, PhD, FACSM, contributed to acquisition and analysis and interpretation of the data and drafting, critical revision, and final approval of the article.

Address correspondence to Brendon P. McDermott, MS, ATC, Department of Kinesiology, 2095 Hillside Road, Unit-1110, Storrs, CT 06269-1110, e-mail: Brendon.mcdermott@uconn.edu

Cited by

Daniel Gagnon, Bruno B. Lemire, Douglas J. Casa, and Glen P. Kenny. (2010) Cold-Water Immersion and the Treatment of Hyperthermia: Using 38.6°C as a Safe Rectal Temperature Cooling Limit. *Journal of Athletic Training* 45:5, 439-444
Online publication date: 1-Sep-2010.
[Abstract](#) | [Full Text](#) | [PDF \(334 KB\)](#)