

Wilderness & Environmental Medicine

Volume 25, Issue 2, June 2014, Pages 245–246



Maximum Water Temperature Limit in Open-Water Swimming Events

Filippo Macaluso, PhD^a, Rosario Barone, PhD^a, Ashwin W. Isaacs^b, Felicia Farina, MD^c, Giuseppe Morici, MD^c, Valentina Di Felice, PhD^c

^a Dipartimento di Biomedicina Sperimentale e Neuroscienze Cliniche (BioNeC), University of Palermo Palermo, Italy

^b Department of Physiological Sciences, Stellenbosch University, Stellenbosch, South Africa

^c Dipartimento di Biomedicina Sperimentale e Neuroscienze Cliniche (BioNeC), University of Palermo Palermo, Italy

Available online 13 March 2014

Choose an option to locate/access this article:

[Biblioteca Digitale dell'Università degli Studi di Palermo - Visualizza il testo completo](#)

[Get Full Text Elsewhere](#)

[Show less](#)

<http://dx.doi.org/10.1016/j.wem.2013.12.002>

[Get rights and content](#)

Refers To Filippo Macaluso, Rosario Barone, Ashwin W. Isaacs, Felicia Farina, Giuseppe Morici, Valentina Di Felice

 **Heat Stroke Risk for Open-Water Swimmers During Long-Distance Events**

Wilderness & Environmental Medicine, Volume 24, Issue 4, December 2013, Pages 362-365

 PDF (98 K)

To the Editor:

In a recent review published in *Wilderness & Environmental Medicine*, we highlighted the concept of the potential risk of heat stroke for swimmers during long-distance events in warm or hot water.¹ After reviewing the scientific literature relevant to the topic, we indicated the factors that may accentuate the risk in open-water swimmers, namely high exercise intensity, specific body composition, heat gain by sunlight radiation, and low potential for convective cooling during swimming.^{1, 2, 3 and 4} A death during a FINA (Federation Internationale De Natation) competition (10-km Marathon Swimming World Cup race that took place in Fujairah, United Arab Emirates, on October 23, 2010) has been imputed to heat stroke because the water temperature exceeded 31°C. The FINA and ITU (International Triathlon Union) regulation books did not have rules that defined a maximum water temperature, although a minimum water temperature was set.

It is with great interest that we learned about the new regulation maximum water temperature limit of 31°C in the FINA rule book regarding open-water swimming events (effective from September 17, 2013, to 2017).⁵ The decision was announced on July 16, 2013, by the FINA president at the Technical Open Water Swimming Congress in Barcelona, based on a study conducted at the University of Otago in New Zealand in collaboration with the FINA and ITU. Although the experimental data obtained by this research group are yet to be published, the established maximum water temperature set by the FINA is not too different from the temperature extrapolated from the literature by our research group (33°C).¹ Moreover, the cooler water temperature limit established by the FINA is likely safer for swimmers.

In conclusion, assessment of the risk for heat stroke by examining physiological responses of swimmers during long-distance events assists sports organizations to update rules to safeguard athletes. We maintain that the Journal and the editors have accomplished an important task of the sciences to disseminate knowledge and scientific findings to the broader community.”

Cookies are used by this site. To decline or learn more, visit our [Cookies](#) page

[About ScienceDirect](#)

[Contact and support](#)

[Information for advertisers](#)

ELSEVIER

[Terms and conditions](#)

[Risk for heat](#)

References

- 1 F. Macaluso, R. Barone, A.W. Isaacs, F. Farina, G. Morici, V. Di Felice
Heat stroke risk for open-water swimmers during long-distance events
Wilderness Environ Med, 24 (2013), pp. 362–365
[Article](#) |  [PDF \(98 K\)](#) | [View Record in Scopus](#)
- 2 F. Macaluso, V. Di Felice, G. Boscaino *et al.*
Effects of three different water temperatures on dehydration in competitive swimmers
Sci Sports, 26 (2011), pp. 265–271
[Article](#) |  [PDF \(204 K\)](#) | [View Record in Scopus](#) | [Cited By in Scopus \(4\)](#)
- 3 K. Fujishima, T. Shimizu, T. Ogaki *et al.*
Thermoregulatory responses to low-intensity prolonged swimming in water at various temperatures and treadmill walking on land
J Physiol Anthropol Appl Human Sci, 20 (2001), pp. 199–206
[View Record in Scopus](#) | [Full Text via CrossRef](#) | [Cited By in Scopus \(7\)](#)
- 4 H. Galbo, M.E. Houston, N.J. Christensen *et al.*
The effect of water temperature on the hormonal response to prolonged swimming
Acta Physiol Scand, 105 (1979), pp. 326–337
[View Record in Scopus](#) | [Full Text via CrossRef](#) | [Cited By in Scopus \(42\)](#)
- 5 FINA. Open water rulebook. 2013. Available at: <http://www.fina.org>. Accessed December 4, 2013

Copyright © 2014 Wilderness Medical Society. Published by Elsevier Inc. All rights reserved.

[About ScienceDirect](#)
[Terms and conditions](#)

[Contact and support](#)
[Privacy policy](#)

[Information for advertisers](#)

ELSEVIER

Copyright © 2014 Elsevier B.V. except certain content provided by third parties. ScienceDirect® is a registered trademark of Elsevier B.V.

Cookies are used by this site. To decline or learn more, visit our [Cookies](#) page