Hypothermia in Open-Water Swimming Events: A Medical Risk That Deserves More Attention

To the Editor:

We read with interest the recently published article by Brannigan et al.¹ Open-water swimming has become more popular over the years, and its successful debut in the Beijing Olympic Games is certainly encouraging more people to participate in outdoor long-distance aquatic swimming events. Brannigan et al.¹ evaluated 109 swimmers that crossed the Rottnest Channel in Perth, Australia, and found that 22.9% of them were hypothermic.

We recently evaluated elite open-water swimming in an official Federation Internationale de Natation competition, and most of the swimmers (83%) were hypothermic after the race.² Both studies took place in water with almost the same temperature (Brazil: 21°C; Australia: 19–22°C). It is quite surprising that temperatures below 35°C were more frequent in our study, even considering that in the Australian study only swimmers who presented with clinical signs of hypothermia had their temperatures taken, thus augmenting the pretest probability for this diagnosis confirmation. One could hypothesize that the method used for temperature measurement could have caused the different hypothermia incidences in both studies. Although we are aware that oral and rectal temperatures are more precise than the tympanic temperatures, tympanic thermometers have previously been validated.³ A recent study published in *Wilderness and Environmental Medicine* found differences between oral and tympanic temperature measurements after open-water swimming competition.⁴ A more detailed report concluded that tympanic thermometers underestimate core temperature by ~1°C.⁵ Even considering this systematic error, 58% of the elite athletes in our study would still present as hypothermic.

Another interesting disparity between both studies regards the relationship between hypothermia and body composition. The Australian study found that increased body mass index appears to be protective against hypothermia, but we found no correlations between body fat percentage and delta temperature. It is important to emphasize that we have studied elite marathon swimmers, and, thus, our volunteers have a smaller body mass index than the Australian swimmers. This could explain why we were unable to find any relationship between anthropometrical values and hypothermia.

Finally, although both studies showed different results in some aspects, there is no doubt that hypothermia is a great potential medical risk during open-water swimming

events. More studies evaluating preventive measures are therefore warranted.

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References

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