

Antioxidant Supplements in Sports Nutrition: A Missing Warning in Athlete Guidelines

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Dear Editor,

Athletes are frequently advised to take antioxidant supplements such as Vitamin C and Vitamin E to support recovery, yet much of this guidance omits a now well-documented caveat: Chronic, high-dose antioxidant intake can blunt the adaptations that training is meant to produce. I write to urge that this warning be made explicit.

According to PubMed, a comprehensive review found that antioxidant supplementation consistently attenuates exercise-induced oxidative stress but that this attenuation rarely translates into improved performance, and that a growing body of evidence indicates antioxidant supplementation can have detrimental effects on the health and performance benefits of exercise training by interfering with reactive-oxygen-species-mediated signaling.

According to PubMed, a focused review of Vitamin E and Vitamin C concluded that the same exercise-induced free radicals that can cause fatigue also act as signals enhancing protection against future stress, that antioxidant supplementation may impair these adaptations, and that because such supplements tend to block anabolic signaling, special caution is warranted with their use in training athletes.

The practical risk is subtle precisely because it is invisible in the short term. An athlete taking daily high-dose Vitamin C or E may

report less soreness and lower oxidative markers and conclude the supplement is working, while the underlying training adaptation—mitochondrial biogenesis, endogenous antioxidant enzyme upregulation, anabolic signaling—is being quietly suppressed. A guideline that mentions only the former and not the latter gives an incomplete and potentially counterproductive picture.

I am not proposing a blanket prohibition. Correcting a documented deficiency, or short-term use during dense competition schedules, can be appropriate. But sports-nutrition guidance aimed at athletes should state plainly that routine, chronic, high-dose antioxidant supplementation during a training block may impair adaptation, and should distinguish this from targeted, time-limited use. Adding that single sentence would meaningfully improve the quality of advice athletes receive.

Sincerely,

Mueen Ahmed KK

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