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Human Kinetics
LETTER TO THE EDITOR

Comment on Gattoni et al: Sleep Deprivation Training as a Highway to Hell in Ultratrail

No stop signs/Speed limit/Nobody's gonna slow me down/ Like a wheel/Gonna spin it//I'm on the highway to hell/ Highway to hell. (AC/DC, 1979)

We read with great interest the case study by Gattoni et al[1] on a novel and experimental intervention called sleep deprivation (SD) training, consisting of a weekly night of SD during 6 weeks prior an ultraendurance competition (ie, a 6-d running race). The topic is of high interest! SD is a major component of ultrarunning performance on distance >100 miles[2] and has important health consequences on multiday ultramarathon since it induces an important decrease in velocity throughout the race, leading to a very low intensity in the final part of the race, that likely partly prevents cardiac and neuromuscular fatigue,[3] compared with shorter events; in other words, the increasing sleepiness level has indirectly a "protective" effect by impacting the athlete's pacing and consequently by limiting the load-induced physiological alterations during this type of event.

It is well known that adenosinergic mechanisms modulate individual vulnerability to the detrimental effects of SD, and there is also evidence that sleep regulation is under genetic control[4] with evidence that trait vulnerability could not be trained. However, SD poses safety risks in all modes of transportation, particularly in a challenging environment,[5] and mountain ultramarathons are among these challenging conditions. Concomitant decreased sleepiness and vigilance may lead to inadequate velocity and to fatal accidents, especially during downhill sections; for example, 32% of the deaths that occurred during mountain running competitions in Western Europe between 2008 and 2019 were due to falls.[6]

Finally, it is beyond the content of the present letter to comment on the well-identified health consequences (ie, depressed immunity, increased prevalence of metabolic and/or cardiovascular diseases . . .) of chronic SD. But it raises the point that SD training is at risk for both short (ie, during the ultraendurance event) and long term (ie, if systematized over years by the athlete).

To conclude, because it is ineffective and dangerous, we strongly discourage athletes from practicing SD training. Instead we recommend decreasing sleep propensity and sustaining stability of waking neurobehavioral functions prior to a multiday running race involving sleep loss.[2]

Grégoire P. Millet,
Institute of Sport Sciences, University of Lausanne, Lausanne, Switzerland

Eric Hermand and Rémy Hurdiel,
ULR 7369–URePSSS–Unité de Recherche Pluridisciplinaire Sport Santé Société, Univ. Lille, Univ. Artois, Univ. Littoral Côte d'Opale, Dunkirk, France

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