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Author's reply to Bender and Samuels "Does elite sport degrade sleep quality? A systematic review"

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A response to Bender and Samuels [this issue]

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Dear Editor

In their response to our review [1] Bender and Samuels [this issue] raise some important issues concerning the need to better understand sleep and sleep dysfunction in elite sport. Certainly, we accept that, in addition to insomnia, symptoms arising from circadian rhythm and sleep-related breathing disorders can contribute to the athlete sleep profiles reported in the sports literature. However, in terms both of the focus of our review, and the implications for a future research agenda within sports medicine, we also feel the following points are relevant.

As emphasised in the study objectives, our review aimed to systematize a neglected area of sleep research (insomnia symptomatology) in sports medicine; it was not our intention to imply that this area was the only, or even the most important source of sleep disturbance in elite sport. Such a judgement will require additional comparative data. Nevertheless, it remains the case that chronotype (and a predisposition to circadian misalignment) is closely associated with both the presence and severity of insomnia symptoms in young adults [2], adolescents [3], and athletes [4], while obstructive sleep apnea (OSA) has been reported to be comorbid with insomnia in 40-50% of diagnosed OSA cases [5].

The conclusions of our review, and issues raised Bender and Samuels' response, also draw attention to an important but unexplored area of research of particular importance to sports performance, and sports development. We are all agreed that elite sport delivers significant challenge to athlete sleep, both through the biological and psychological demands, and the training and competition schedules, of a given sport (the early training times associated with, for example, swimming or rowing are unlikely to suit all chronotypes). These challenges obtain throughout the career of athletes, and the extent to which they contribute to attrition rates through junior and senior levels is unknown (though it is reasonable to assume that they do). Two important and testable predictions arise from this. First, that some attrition of sporting talent could be avoided either by re-scheduling training sessions or by targeting athlete sleep management. And second, that current cohorts of elite athletes are, at least in part, selected for their sleep profiles and, as a result, show generally more robust, more resilient sleep than that found in the general population (some support for this point comes from a recent study [6] showing that different sports select for different chronotypes). We would emphasise, however, that exploring this important possibility further will require

metrics, assumptions and theories which connect, rather than separate, the sleep experiences and phenomenology of athletes and non-athletes.

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