Managing Sleep: Travel and Baseball

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The Importance of Sleep for Athletes

In humans, all metabolic and physiological functions are governed by a 24-hour clock, also known as the circadian rhythm.[1] An important part of this rhythm is sleep, and for the purpose of this article, will be the focus. Evidence is scarce examining the impact of inadequate sleep on specific performance outcomes in baseball; however, learnings across multiple sports may be applied. Across sports and exercise, sleep is identified as an integral part of an athlete's performance and recovery, as well as overall health.[2,3,4] In fact, the need for adequate quantity and quality of sleep may be magnified for elite athletes due to their intense training and competition schedules.[3] Furthermore, sleep behaviors in team-sport athletes may be differentially impacted compared with individual-sport athletes,[5] furthering the need to prioritize sleep for team-sports, such as baseball. A review examining the effects of sleep loss in athletes reported alterations in the autonomic nervous system and reductions in skill-based and cognitive performance. Specifically, sleep loss increased reaction time, which may be detrimental for sports such as baseball, where reaction times are crucial for success.[2]

Travel Challenges in Baseball and Impact on Performance

Regardless of the negative impacts of disrupted sleep on overall performance, recovery and health of athletes, sleep disruption is inevitable among baseball players. One, if not the main challenge for baseball players, is the enormous number of games and grueling travel schedule.[6] According to a recent consensus statement, the onset of travel fatigue and jet lag result from crossing multiple (three or more) time zones and can negatively impact physical and cognitive performance as well as disrupt sleep.[7] Jet lag is directly impacted by travel direction (westward or eastward) and distance. The recovery from jet lag typically depends on the number of time zones crossed (generally, it takes one day to recover for each time zone) as well as the direction traveled (faster recovery is seen when traveling westward)[8,9] due to a resynchronization of circadian rhythms. This issue is highlighted within baseball given the frequent travel as well as limited days off for recovery. For example, travel across the continental United States (3 time zones) can result in decreased power, agility, and speed within the first 24 hours after arrival.[8] Specifically, one group analyzed 20 years of data from the MLB (1992-2011), which included 46,535 games and the effect of jet lag on performance.[9] Eastward travel correlated with a reduction in stolen base successes and an increase in number of double plays hit into for the returning home team. However, both home and away defensive metrics demonstrated an increase in slugging percentage allowed (primarily driven by increased home runs allowed), and an increase in fielding-independent pitching and runs allowed. Westward travel only seemed to correlate with defensive metrics via an increase in on-base percentage (primarily through walks allowed), as well as an increase in the number of triples allowed.[9] From this we can conclude that teams traveling east, either returning home or visiting, may experience a decrease in their performance unless the effects of jet lag can be mitigated.

Jet Lag Management

Scientific evidence on impactful solutions is mainly expert opinions and experiences. However, as highlighted in both recent reviews and consensus statements, appropriate light exposure, exercise and melatonin supplementation may all help aid in realigning the circadian system as a result of travel.[7,10] However, focus should be on the preservation of sleep and allowing athletes to attain adequate sleep when considering the constraints of training and competition times. For more in-depth solutions and protocols for the management of jet lag (before, during and after travel), the reader is referred to the recent review for managing travel fatigue and jet lag in athletes.[7]

Sleep Hygiene and Sleep Strategies

As mentioned previously, sleep, during travel and otherwise, should be prioritized through advocating proper sleep hygiene and sleep strategies. According to a recent review, educating athletes is the first step for strategically managing and optimizing sleep in athletes.[11] Simply educating athletes on the importance of sleep and proper sleep hygiene has demonstrated improvements in certain sleep parameters such as sleep duration and sleep efficiency.[4] Aspects of good sleep hygiene practices include: cool, dark room, consistent bedtime routines, consistent sleep/wake times, and removal of electronics close to bedtime.[3] In fact, a review of 85 studies demonstrated exposure to artificial light at night significantly reduced melatonin, increased sleep onset latency (time to fall asleep), and increased alertness.[12] If removing electronics or artificial lighting is not feasible, blue light blocking (BLB) glasses may serve as an aid in blocking blue light emission and has been shown to improve melatonin production signaling your body to initiate sleep.[13,14] Although the effectiveness of BLB glasses is debatable,[15,16] a personalized approach should be used if and when implementing BLB glasses. Additionally, other strategies to improve sleep may include sleep extension and daytime napping when appropriate.[3,4] Lastly, limited studies have shown that specific nutrients such as carbohydrates and protein may improve certain sleep outcomes, but caution should be used as the meal size and timing may negatively impact sleep.[17,18]

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