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Letter to the Editor

The Relationship between Sleep and Competitive Anxiety in Paralympic Medalists

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Dear Editor-in-Chief

Sleep can be defined as a behavioral state in which you are unaware of your surroundings and unresponsive to stimuli. It is broadly divided into REM and non-REM sleep (NREM), with REM sleep characterized by brain activity, muscle tone, and rapid eye movement. In other words, the brain is active while the body is paralyzed. Contrarily, NREM sleep is defined as a state when the body is able to move but the brain is inactive, with stages 1 to 4 being proportional to the depth of sleep. Sleep is linked to numerous human capabilities, including maintaining human function, supporting recovery, and psychological stability (1).

Previous research examining sleep patterns among athletes has focused on factors that can negatively impact an athlete's sleep, such as changes in training volume, jet lag, and hypoxic exposure (2). Recently, describing the impact of sleep on athletic performance have reported several findings, including that: 1) sleep affects performance anxiety, 2) sleep affects physical and psychological recovery after competition, and 3) sleep affects cognitive function for successful competition.

In athletic training and competition, a high quality of sleep improves athletic performance and psychological functioning, while poor sleep quality impairs athletic performance (3). This has been illustrated in a sleep study of elite Olympic athletes using accelerometers (Actiwatch, Cambridge, Neurotechnology Ltd. UK). This study reported that while total sleep time (TST) did not differ from the general population, sleep efficiency (SE)—including time in bed (TIB) and sleep onset latency (SOL)—was significantly lower in competitive athletes compared to the general population (4). The ratio of TST to TIB (SE) is crucial in insomnia research and practice, as it captures a core issue of poor sleep quality—spending too much time in bed trying to sleep. Struggling to fall asleep is associated with psychological distress prior to sleep, as well as during regular waking hours, which perpetuates poor sleep quality. In addition, research has shown that anxiety is strongly associated with sleep quality, further validating the relationship between sleep and anxiety (5). About 66% of athletes exhibit poor sleep quality and high anxiety levels prior to competition (6). Moreover, there are several differences between sports that can affect sleep requirements. These include factors such as training volume and intensity, training timetable, psychological stress from training, or combining training with life activities.

While there is growing research examining the relationship between sleep and anxiety in athletes (7), no studies have examined the relationship between sleep and anxiety in elite athletes with disabilities. A study that analyzed the relationship between sleep and health promotion among people with intellectual disabilities reported that poor sleep quality was associated with a negative decrease in health promotion behaviors (8). Furthermore, a study examining the relationship between sleep duration and mental health in people with disabilities showed that following physical activity, increased sleep duration was associated with decreased depression and stress (9). In addition, sleep studies of people with autism and intellectual disabilities have shown that sleep quality plays an important role in the lives of people with disabilities (10).

Ultimately, the relationship between sleep and its related variables among people with disabilities has been well established, and efforts to improve their quality of life of are ongoing. However, the sleep-related variables of athletes with disabilities have not been well studied. Therefore, exploring the impact of sleep on competitive anxiety among elite athletes with disabilities will provide information to improve the overall performance and mental health of these athletes.

Conflict of Interest

The authors declare that they have no competing interests.

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