Abstract

The present dissertation deals with some aspects of sleep and its recovery function in sports. A short review article summarises results of changes in sleep patterns during training and competition, results of the effects of sleep deprivation and sleep restriction on psychological and physiological variables, as well as the effects of jet-lag in elite sports (manuscript 4.1).

The first empirical investigation (manuscript 4.2) addresses the comparison of subjective and objective sleep parameters, which are derived from sleep logs and a multisensory activity monitor. The largest discrepancies were found for sleep onset latency and nightly awakening, while time in bed and total sleep time revealed strong agreement. Because of this, it is advisable to use both methods for sleep monitoring in sports. In addition, as there was no difference between 24-hour and night-only recordings, the night-only recording, which is more convenient in sports, can easily be applied.

In a laboratory investigation (manuscript 4.3), subjective and objective sleep parameters as well as psychological variables are investigated during two six-day microcycles, which consist either of intensive eccentric accented strength training or high-intensity interval training. Sleep parameters of the strength training group did not show significant changes, whereas sleep efficiency indicated first signs of disturbed sleep in the high-intensity interval training group. However, both groups revealed impaired mood, reduced recovery and increased stress scores. This implied an increased recovery demand, which was probably not sufficiently fulfilled by the unchanged sleep duration.

In a final step, a field investigation observes sleep patterns of adolescent rowers during a four-week training camp in preparation of the World Championships (manuscript 4.4). The negative effect of a single occasion of a 1.5-hour delayed bedtime, and the positive effect of a two-hour extended night demonstrated the relevance of sleep for the subjective well-being of the athletes. Additionally, correlational analyses showed that the participants rated sleep more restful the shorter they perceived the sleep onset latency and the less they woke up at night.

Among these different settings, sleep monitoring appeared as a useful and practical tool to support the observation of recovery and stress processes in sports over the time.