

Sleep Opportunity and Duration Are Related to Risk Injury in Elite Athletes



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INTRODUCTION

Sleep is essential to musculoskeletal recovery, acquisition of new skills and emotional regulation in athletes. Insufficient sleep is detrimental to performance. Recent publications indicate that sleep duration is related to risk for injury in young athletes. We aimed at analyzing the relation between sleep opportunity and duration and the likelihood of an injury among adult elite athlete



METHODS

We studied 7,237 nights recorded with a mobile application (Sleeprate) by 71 adult elite athletes from diverse sports, during the period September 2018-October 2019.

Night recordings included:

- Perceived and measured sleep parameters
- Reported previous day nap duration
- Reported injuries and illness status of previous day.

Out of the total number of nights, 4,205 included reported injury status with no injury and no illness for the previous day.

Those were divided into healthy days with no injury in the following day (HH, N=4,008) and healthy days with an injury in the following day (HI, N=197).

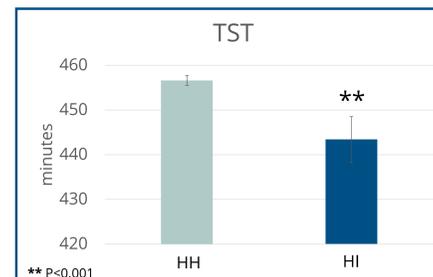
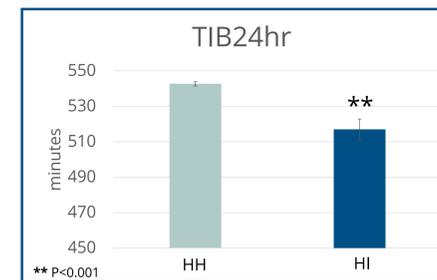
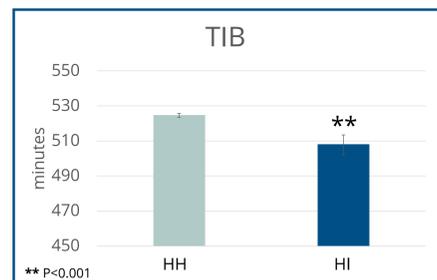
The parameters evaluated were:

- Nightly total time in bed (TIB)
- TIB including reported naps (TIB24hr)
- Measured total sleep time (TST)

RESULTS

On healthy days preceding days with reported injuries, on average, athletes:

- Spent less time in bed at night
- Spent less time in bed, including naps during the day
- Slept less



We further examined a sub-group, comprised of track and field athletes (HH with N=958 nights, HI with N=66 nights).

This more homogeneous group of athletes exhibited similar trends, with shorter sleep opportunities in nights preceding injuries.

Sleep Data	HH	HI	P-Value
TIB [min]	520±78	495±101	P < 0.05
TIB24hr [min]	550±89	503±107	P < 0.005
TST [min]	446±77	433±93	P < 0.001

CONCLUSION

Average sleep opportunities of the elite athletes in this study were in accordance with their age and workouts load. The time athletes allow themselves as an opportunity for sleep is inversely correlated to the chances of developing an injury. These findings corroborate published research regarding sleep duration and risk of injury in athletes, yet our findings are based on real life data of elite athletes, and demonstrate the importance of sleep as part of the elite or professional athlete's routine, suggesting that even as little as around 20 minutes of added sleep may be efficient in preventing injury.