Abstract

OBJECTIVE: Baseline, preseason assessment of cognition, symptoms, and balance has been recommended as part of a comprehensive sport concussion management program. We examined the relationship between sleep and baseline test results. We hypothesized that adolescents who slept fewer hours the night before would report more symptoms and perform more poorly on cognitive testing than students who had a full night sleep.

DESIGN: Cross-sectional observation study.

SETTING: Preseason concussion testing for high school athletes.

PARTICIPANTS: A large sample (n = 2928) of student athletes from Maine, USA, between the ages of 13 and 18 years completed preseason testing. Participants with developmental problems, a history of treatment for neurological or psychiatric problems, recent concussion, or 3 or more prior concussions were excluded.

ASSESSMENT OF RISK FACTORS: Athletes were divided into 4 groups based on their sleep duration the night before testing.

MAIN OUTCOME MEASURES: Immediate Post-Concussion Assessment and Cognitive Testing (ImPACT; ImPACT Applications, Inc, Pittsburgh, PA) cognitive composite scores and the embedded Post-Concussion Symptom Scale.

RESULTS: Sleep was not related to any ImPACT cognitive composite score, after covarying for age and controlling for multiple comparisons. In contrast, there were sleep duration, sex, and sleep duration by sex effects on the Post-Concussion Symptom Scale. The effect of sleep duration on symptom reporting was more pronounced in girls. Supplementary analyses suggested that sleep insufficiency was associated with a diverse array of postconcussion-like symptoms.

CONCLUSIONS: Poor sleep the night before baseline or postinjury testing may be an important confound when assessing postconcussion symptoms. Girls may be more vulnerable to experiencing and reporting symptoms following insufficient sleep.
CLINICAL RELEVANCE: Clinicians should routinely ask how the athlete slept the night before preseason baseline testing and consider deferring the symptom assessment or later retesting athletes who slept poorly.

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