



Associations of Consecutive Short Sleep Duration and Physical Activity in Preschool Children

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INTRODUCTION

Physical activity levels provide many beneficial outcomes to children including cardiorespiratory and muscular fitness, bone health, and body composition (1).

In older children and adults, sleep and physical activity may have reciprocal associations, and insufficient sleep can negatively affect physical activity levels (2).

However, reported associations between sleep and physical activity in young children have been inconsistent (3).

The American Academy of Sleep Medicine recommends that preschool children should obtain 10 to 13 hours each day (4).

Most studies in preschool children have examined average sleep duration (2) and have not included other sleep characteristics such as sleep variability or daily sleep patterns (5).

Short sleep duration could have daily influences on children's physical activity, with greater consecutive nights of insufficient sleep potentially having greater adverse impacts on physical activity levels.

PURPOSE

To determine if consecutive nights or 24-hour periods of short sleep duration are associated with physical activity levels in preschool children.

METHODS

Study Design

- Cross-sectional (secondary data)

Participants

- 288 preschool children (33 to 70 months, 45% female)

Approach

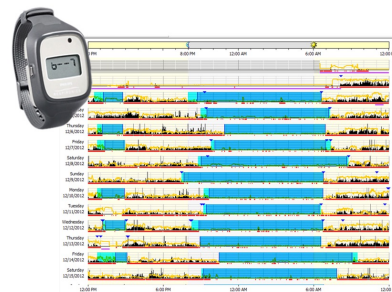
- Children wore Spectrum Actiwatch actigraphy monitors on the non-dominant wrist for ~16 days/nights
- Short sleep night or 24-hr period = sleep duration less than 600 min
- Caregiver survey for demographic information

Dependent Variable

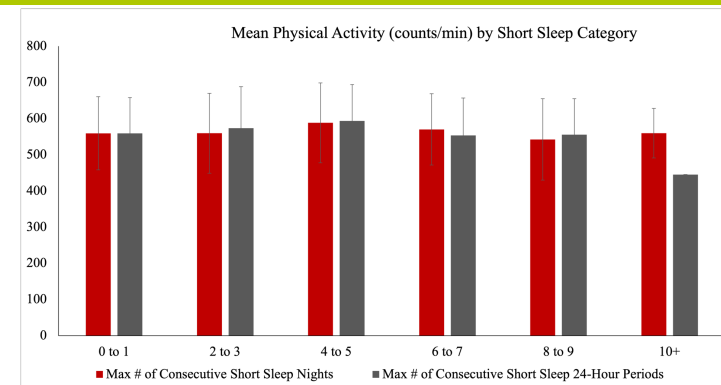
- Physical activity (activity counts/min)

Independent Variables

- Maximum # of consecutive short periods (night & 24-hr period), proportion of short sleep, age, sex



RESULTS



There was no statistically significant association between cumulative nights of short sleep and total physical activity while adjusting for age, sex, and the proportion of nights with short sleep from either multiple regression model.

CONCLUSIONS

There were no significant associations between consecutive bouts of short sleep and physical activity levels in this sample of preschool children.

However, physical activity levels were high which may limit generalizability. Thus, future studies should consider exploring the role of consecutive short sleep in health-diverse samples.

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