



Sleep Restriction and Altered Sleep Timing on Energy Intake and Energy Expenditure

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Introduction

- Chronic sleep restriction can negatively affect inflammatory status, blood glucose control, and insulin sensitivity.
- Sleep restriction is also linked to obesity and weight gain in young adults.
- It is unclear if sleep restriction impacts lifestyle behaviors like physical activity and food intake throughout the day.
- Few studies have examined if the time of sleep restriction will modify these lifestyle behaviors differently

Purpose

To examine the effect of the timing of sleep loss on physical activity and food intake behaviors.

Hypothesis

Physical activity and food intake behaviors will vary whether bedtime was delayed, or wake time was advanced.

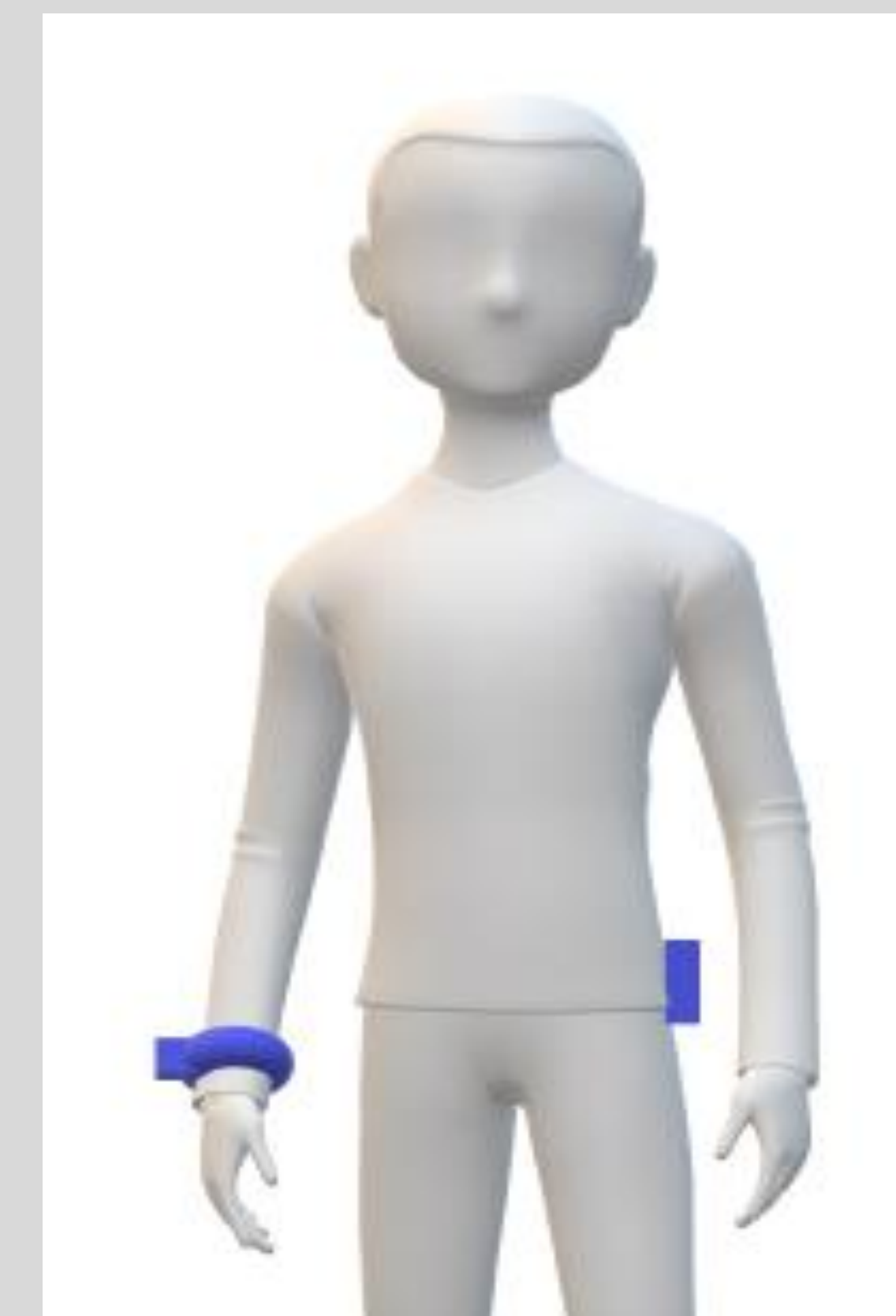
Methods

Subject Inclusion Criteria

- Must sleep 7-9 hrs a night regularly
- 21-45 years of age
- Normally active (>5000 steps per day)
- Have a BMI of <40 kg/m²

- Subjects included will fill out questionnaires addressing health history, sleep patterns, physical activity, food intake, etc.

- For 6 days subjects will wear an activity monitor (actigraph) and sleep monitor (actiwatch), and record energy intake in a dietary record and with a picture.



- For the first experimental condition, the subject will wear the actiwatch and actigraph, and monitor food intake for six days of normal sleep (7-9 hours).



- For the second and third experimental condition, subjects will follow the first condition but will reduce the amount of hours they sleep by two hours for four days. Either by going to bed later in the night or waking up earlier.



Expected Results

We hypothesize that a delayed bedtime will result in more physical activity, while an early rise time will result in an increased food intake with an increase in carbohydrate consumption.

Future Directions

- If the timing of the sleep loss affects the behaviors, this would then be a known therapeutic target.
- The next step after this would be separating subjects by age and establishing if age alters the lifestyle behaviors changes observed with sleep restriction.