



Impact of Acute Physical Activity and Sleep on Inhibitory Control and Attention in Preschool Children

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INTRODUCTION

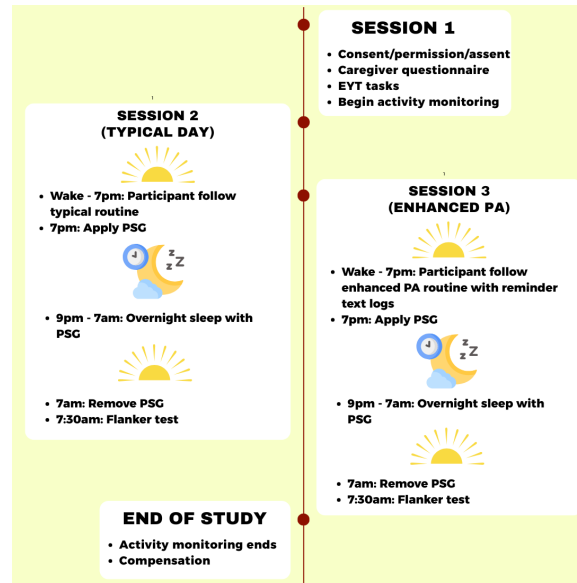
- Early childhood is critical to establishing habits that improve the 24-hour cycle, including sleep, physical activity (PA), and sedentary behavior, to enhance cognitive development (1).
- Early childhood is also a peak time for neuroplasticity development, characterized by advancements in executive function skills (2).
- Inhibitory control is a primary component of executive function, facilitating the prevention of dominant or preferred responses to reach cognitive objectives (3,4).
- Studies in adolescents and adults have demonstrated the benefits of short-term physical activity and sleep on inhibitory control, but studies in young children are limited (1).

PURPOSE

To determine if a single day of increased physical activity levels, while controlling overnight sleep duration, can improve inhibitory control and attention in preschool children (3-5 years old).

METHODS

- Study design: Randomized crossover study with two conditions (typical day and enhanced PA day)
- Participants: Goal = 25 preschool children (3-5 years old); Currently n = 2 completed



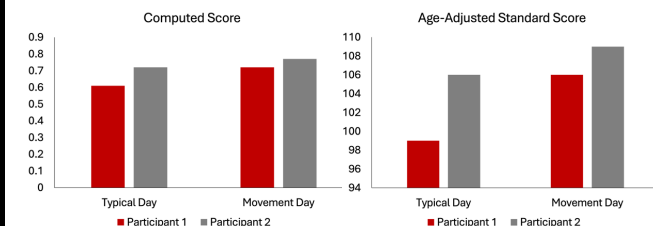
NIH Toolbox Flanker Task

- **Practice:** 5 practice items with audio feedback.
- **Live Items:** 35 'live' items administered with no audio feedback.



RESULTS

Improved Inhibitory Control After Enhanced PA Day



- Participants' accuracy score was measured and used to determine the change in inhibitory control and attention.
- Preliminary results show that inhibitory control and attention improved following a day of enhanced physical activity.

CONCLUSIONS

- We anticipate that our findings will support the benefit of physical activity on inhibition and attention, even while controlling for condition order.
- Our findings could contribute to a better understanding of movement impact on executive functioning and brain health in early childhood.

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