**Title:** Executive function: The relationship among body mass index, physical activity, and dietary habits in adolescents

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**Background:** Executive function directs a wide range of brain processes including inhibitory control, impulsivity and decision-making. Higher order brain processes are an exciting and emerging area as researchers are just beginning to examine the influence of executive capabilities on various health behaviors. There is limited research available regarding physical activity and dietary habits in relation to executive function particularly in healthy weight and obese adolescents. Therefore, the purpose of this study was to explore the relationship among BMI, physical activity, and dietary habits in adolescents

**Methods:** A total of 60 adolescents [15 obese ≥95th BMI percentile, 45 healthy weight 5th - <85th percentile] age range of 9-17 years; 24 female, 28 males participated in this cross-sectional examination. Anthropometrics were measured, physical activity was assessed with the Godin Leisure Time questionnaire and the International Physical Activity Questionnaire and dietary habits were assessed with the Beverage and Snack Questionaire-2. To evaluate aspects of executive function, participants also completed computerized tasks (CANTAB Cognition). Correlations among the variables and t-tests between healthy weight and obese were performed with significance set at 0.05.

**Results:** No significant correlations were observed between weight status and physical activity, diet, or executive function. No significant differences were observed when comparing variables between healthy weight and obese adolescents.

**Conclusion:** No significant findings were observed among the variables and between groups, however this may likely have been due to a relatively small sample size, particularly few obese adolescents. Future studies will continue this investigation in an effort to understand the potential implications executive function may have on dietary and physical activity behaviors. Understanding these relationships may help health professionals create more efficacious and individualized prevention and treatment programs.