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### Sleep Regularity is Associated with Physical Activity and Sedentary Behavior in 13-17-Year-Old Adolescents

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Adolescence represents a pivotal life stage marked by a circadian phase delay whereby later sleep-wake times are preferred. This shift in sleep timing may result in shorter sleep duration during the weekdays due to early school start times and longer “catch-up” sleep on the weekends. Sleep regularity is a component of sleep health that is operationalized as the variability in sleep duration (sleep duration standard deviation (SDSD)) and sleep timing (sleep midpoint standard deviation (SMSD)). Sleep irregularity has been associated with increased cardiometabolic disease risk among adolescents. Moreover, previous studies report that shorter sleep durations are linked to decreased physical activity among adolescents, which may exacerbate cardiometabolic disease risk. However, not known is the influence of sleep regularity on physical activity and sedentary behavior in adolescents. **PURPOSE:** To evaluate the associations between sleep regularity and metrics of physical activity and sedentary behavior in 13–17-year-old adolescents. We hypothesized that less regular sleep duration and timing would both be associated with decreased physical activity and increased sedentary time. **METHODS:** 13 adolescents ( $14 \pm 1$  years old; 3 M/10F) completed 7 consecutive days and nights of wrist worn actigraphy. Sleep regularity was calculated as SDSD and SMSD. Activity metrics included average moderate-vigorous physical activity (MVPA)/day, steps/day, and sedentary time/day. Pearson's  $r$  correlations were used to evaluate associations between variables of interest. **RESULTS:** SDSD was not associated with MVPA ( $r = -0.50$ ,  $p = 0.09$ ) or steps/day ( $r = -0.51$ ,  $p = 0.08$ ) but was positively associated with sedentary time/day ( $r = 0.57$ ,  $p = 0.04$ ). SMSD was negatively associated with MVPA ( $r = -0.54$ ,  $p = 0.05$ ) and steps/day ( $r = -0.70$ ,  $p < 0.01$ ), and positively associated with sedentary time/day ( $r = 0.74$ ,  $p < 0.01$ ). **CONCLUSIONS:** Preliminary findings suggest an important relation between sleep regularity and daily activity among adolescents. Further research should explore relations between sleep regularity, physical activity, and sedentary behaviors, particularly in this important adolescent developmental period, to encourage the maintenance of good cardiometabolic health.

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