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2 Précis

Hahn C., Cowell J.M., Wiprzycka U.J., et al. (2012). Circadian rhythms in executive function during the transition to adolescence: The effect of synchrony between chronotype and time of day. *Dev Sci*, 15(3), 408–416. doi:10.1111/j.1467-7687.2012.01137.

Chronotypes are the same as circadian rhythms, and determine the time of day that a person prefers to be awake. Most younger people prefer the afternoon or evening, whereas elders tend to prefer the morning. According to previous studies, elders perform better in relation to executive function in the morning rather than the afternoon as well, suggesting that there is a correlation between preferred time of day and executive function performance. For the transition of children into adolescence, however, the change of circadian rhythm is rapid, from an overall preference of the morning to a preference the evening within a few years. Executive function develops rapidly during this time period as well, which leads Constanze Hahn et al. to investigate whether young adolescents tested at their optimal times of day show better executive function than at nonoptimal times. They argue that there is a correlation between executive function and optimal time of day as determined by chronotype, or circadian rhythm, even for pre-teens whose preferred times of day are rapidly shifting.

The researchers' methods include randomizing participants aged 11 through 14 years and testing their executive function at different times of day. They measure executive function based on inhibitory control, working memory, and set shifting, which are determined by given tasks. Hahn et al.'s findings supported their hypothesis: the participants performed the best when tested at their most optimal times. However, they note that sleep duration the night before testing was not accounted for, and perhaps in the future other researchers could implement a week-long sleep schedule prior to testing for more accurate results. The importance of their study was related to brain development of teenagers, as it determines the success of students in school as well as risk-taking behavior. Therefore, they note the implication that the difference between school time, which most often begins in the morning, and optimal time for students, negatively affects brain development and can lead to students taking more unnecessary risks.

Hasler, B., Ngari, W., & Clark, D. (2018). Circadian Misalignment and Weekend Alcohol Use in Late Adolescent Drinkers. *Sleep, 41*, A371.

Hasler, Ngari, and Clark claim that adolescents may suffer from circadian misalignment, a form of sleep disturbance, due to their own time preferences clashing with early class times. Additionally, past research has suggested that these sleep disturbances are linked with increased substance involvement. Hasler et al. assess these suggestions with alcohol use. Using methods of surveying 31 late adolescents, Hasler et al. found that there was actually no correlation between alcohol use and sleep patterns, contrasting to their predictions. They conclude that although their hypothesis was not supported, other factors may have affected their data, such as the high levels of regular drinking among the surveyed age group obscuring the circadian misalignment within the data, or the complexity that arises regarding circadian rhythm and drinking only on the weekend.