

Social jet lag and Lipid Profiles in U.S. Adults: The Role of Physical Activity and Diet Quality

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Abstract:

Social jet lag (SJL), the discrepancy between sleep timing on workdays and free days, may contribute to circadian misalignment and cardiometabolic dysfunction. This study will examine the association between SJL and lipid profiles and evaluate the potential roles of physical activity and diet quality. Using NHANES 2017–March 2020 data, we will analyze U.S. adults aged 20–50 years. SJL will be calculated as the absolute difference between mid-sleep on free days and workdays. Primary outcomes will include LDL-C, HDL-C, triglycerides, total cholesterol, and non-HDL-C. Survey-weighted linear regression models will assess associations between SJL and lipid concentrations while adjusting for demographic, socioeconomic, behavioral, and clinical factors. Physical activity will be evaluated as a potential effect modifier, while diet quality, measured using the Healthy Eating Index–2015, will be examined as a potential mediator. We hypothesize that greater SJL will be associated with adverse lipid profiles.