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Sleep restriction and altered sleep timing on energy intake and energy expenditure

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Studies have shown that in healthy young adults, undesirable physiological changes are a result of chronic sleep curtailment. Some of these physiological changes harm inflammatory status, blood glucose regulation, and insulin sensitivity. A majority of studies that examined the topic of sleep restriction have not considered whether restricted sleep is due a subject going to bed later in the night or waking up earlier in the morning. This study will examine the changes in physical activity and food intake during multiple periods of sleep restriction to determine the effects of shortened sleep on potential changes in physical activity and energy intake.

Subjects will wear an activity monitor (actigraph) and a sleep monitor (actiwatch) for six days and will have to record and take a picture of everything they eat in a dietary to record energy intake The first condition of the three, consists of the subject wearing the actigraph and the actiwatch and monitoring their food intake for six days of normal sleep. In the second and third condition, subjects will maintain their usual physical activity and dietary patterns, but we will ask subjects to either delay the time they go to bed by two hours or wake up two hours earlier than they normally would. Subjects will go through four nights of shortened sleep but collect data for six days. We hypothesize that after several nights of short sleep that different strategies are employed to remain awake, and these strategies will also vary whether bedtime was delayed, or wake time was advanced. If this hypothesis turns out to be true, it will help influence the field of nutrition and exercise physiology to look more into the effects behind the two different forms of restricted sleep.