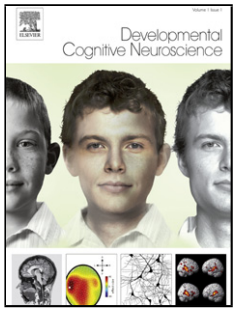


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# Neurophysiological differences in the adolescent brain following a single night of restricted sleep - A 7T fMRI study

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**Abstract**

Sleep deprivation in youth has garnered international attention in recent years, as correlational studies have demonstrated significant relationships between lack of sleep and detrimental behavioral and academic outcomes. However, no study to date has systematically examined the neurophysiological consequences of a single night of sleep restriction (i.e., 4 hours) in adolescents using ultra-high field functional neuroimaging. Much of what we know regarding the neural consequences of sleep deprivation has come from the adult literature, and among those studies, the majority use region of interest (ROI) approaches, thus disregarding the dynamic mechanisms that may subserve the behavioral effects of sleep restriction. Leveraging a crossover within-subjects design, we demonstrate that pivotal brain regions involved in the default mode