



Mid Atlantic Regional Chapter of the American College of Sports Medicine

46th Annual Scientific Meeting, November 3rd - 4th, 2023
Conference Proceedings

International Journal of Exercise Science, Issue 9, Volume 12



Habitual Sleep Does Not Influence Blood Pressure Dipping Differences Between Young Black and White Women

Michele N. D'Agata, Elissa K. Hoopes, Thomas Keiser, Krista M. Szymanski, Alexis A. Matias, Freda Patterson, Melissa A. Witman FACSM. University of Delaware, Newark, DE

Blunted nocturnal blood pressure (BP) dipping, defined as less than 10% reduction in BP during sleep as compared to wake, predicts cardiovascular disease. Short and disturbed sleep are associated with less nocturnal BP dipping in young adults. Black women (BLW) demonstrate less nocturnal BP dipping and poorer sleep health compared to White women (WHW) as early as young adulthood. However, not known is the extent to which habitual, objectively estimated sleep metrics explain race differences in BP dipping. **PURPOSE:** To evaluate the influence of objectively estimated habitual sleep duration and sleep efficiency on race differences in nocturnal BP dipping between apparently healthy, young BLW and WHW. We hypothesized that BLW would have significantly lower nocturnal BP dipping than WHW, but that BP dipping differences would be abolished after co-varying for habitual sleep duration and sleep efficiency. **METHODS:** Participants were aged 18-29 years, female, normotensive, nonobese, free of sleep disorders, with a self-identified race of Black or White. Systolic and diastolic BP dipping were each derived from 24-hour ambulatory BP monitoring by subtracting mean asleep BP from mean awake BP, divided by mean awake BP, *100. Sleep duration (total sleep time between sleep onset and offset) and sleep efficiency (total sleep time divided by total time in bed dedicated to sleep, *100) were measured via wrist actigraphy for 14 consecutive nights, and means were generated. Race differences in BP dipping and sleep metrics were assessed via independent-samples t-tests. A one-way between group analysis of covariance was used to compare race differences in BP dipping while co-varying for sleep duration and sleep efficiency. **RESULTS:** Participants included 17 BLW (22±3 years) and 17 WHW (25±3 years). Systolic (BLW: 9.1±6.3, WHW: 13.9±5.1 %, p=0.02) and diastolic (BLW: 16.2±7.7, WHW: 21.9±5.5 %, p=0.02) BP dipping were lower among BLW. Sleep duration was not different between races (BLW: 6.8±0.5, WHW: 7.0±0.7 hrs, p=0.24), but sleep efficiency was lower among BLW (BLW: 81.9±4.5, WHW: 86.0±3.1 %, p<0.01). Co-varying for sleep duration did not influence race differences in systolic (F(1,31)=4.86, p=0.03, $\eta^2=0.13$) and diastolic (F(1,31)=4.99, p=0.03, $\eta^2=0.14$) BP dipping. Similarly, co-varying for sleep efficiency did not influence race differences in systolic (F(1,31)=4.16, p=0.049, $\eta^2=0.12$) and diastolic (F(1,31)=6.26, p=0.02, $\eta^2=0.17$) BP dipping. **CONCLUSIONS:** Significant differences in nocturnal BP dipping between young BLW and WHW exist independent of habitual sleep duration and efficiency, thus other social or environmental determinants should be considered. **SIGNIFICANCE/NOVELTY:** This study is first to reveal minimal impact of habitual sleep on race differences in nocturnal BP dipping between young BLW and WHW.

Supported by UDRF-SI Grant and AHA Award #831488