

## CHARACTERIZING THE IMPACT OF ACTIGRAPH'S IDLE SLEEP MODE ON FREE-LIVING NOCTURNAL SLEEP PARAMETERS

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**Background:** ActiGraph's idle sleep mode (ISM) is a user-selectable setting designed to conserve battery and memory by pausing data collection when changes in acceleration falls  $< \pm 40$  milli-g's for  $\geq 10$ s, which may impact periods of low movement such as sleep. We studied the effects of ISM on sleep scoring of wrist ActiGraph data. **Methods:** We collected one week of simultaneous continuous free-living data in a sample of adults ( $N = 35$ , 26 F,  $40.0 \pm 14.6$  y,  $29.1 \pm 6.5$  kg·m<sup>2</sup>) pairing one ISM enabled and one ISM disabled ActiGraph wGT3X-BT devices (80 Hz) worn on the nondominant wrist in a randomized proximal/distal placement. Sixty-second epoch count data were scored with the Cole-Kripke algorithm with Tudor-Locke sleep-onset auto-detection and the raw data were scored using GGIR to yield total sleep time (TST), sleep efficiency (SE), and wake after sleep onset (WASO). Mixed effects models were used to compare each sleep outcome between the ISM settings (enabled/disabled). **Results:** Compared to ISM disabled devices, ISM enabled devices had higher mean TST with raw data ( $393.1 \pm 8.0$  vs  $385.1 \pm 8.0$  mins,  $p = 0.04$ , Figure 1), however there was no significant difference in TST with counts ( $345.9 \pm 10.1$  vs  $347.7 \pm 10.1$  mins,  $p = 0.55$ ). ISM enabled and disabled devices did not significantly differ in SE with raw ( $86.4 \pm 0.8$  vs  $86.6 \pm 0.8\%$ ,  $p = 0.63$ ) or count data ( $90.4 \pm 0.5$  vs  $90.6 \pm 0.5\%$ ,  $p = 0.19$ ). Similarly, WASO was not different for ISM enabled vs disabled devices with raw ( $62.3 \pm 4.0$  vs  $60.4 \pm 4.0$  mins,  $p = 0.41$ ) or count data ( $35.4 \pm 1.9$  vs  $35.0 \pm 1.9$  mins,  $p = 0.46$ ). **Conclusion:** In a free-living assessment, we found a statistically significant, but small (+8 min/night) difference in mean TST when using raw data with ISM enabled. However, ISM did not significantly impact the other sleep outcomes for raw or counts data. Further investigation is needed to understand the potential impact of ISM on differences in other sleep and physical activity parameters.