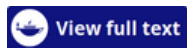




An official website of the United States government

[Here's how you know](#)

FULL TEXT LINKS



[Behav Sleep Med](#). 2019 Mar-Apr;17(2):124-136. doi: 10.1080/15402002.2017.1300587.
Epub 2017 Mar 21.

The Sleep of the Ring: Comparison of the ŌURA Sleep Tracker Against Polysomnography

[Massimiliano de Zambotti](#)¹, [Leonardo Rosas](#)¹, [Ian M Colrain](#)^{1 2}, [Fiona C Baker](#)^{1 3}

Affiliations

PMID: 28323455 PMCID: [PMC6095823](#) DOI: [10.1080/15402002.2017.1300587](#)

Abstract

Objective/Background: To evaluate the performance of a multisensor sleep-tracker (ŌURA ring) against polysomnography (PSG) in measuring sleep and sleep stages. **Participants:** Forty-one healthy adolescents and young adults (13 females; Age: 17.2 ± 2.4 years). **Methods:** Sleep data were recorded using the ŌURA ring and standard PSG on a single laboratory overnight. Metrics were compared using Bland-Altman plots and epoch-by-epoch (EBE) analysis. **Results:** Summary variables for sleep onset latency (SOL), total sleep time (TST), and wake after sleep onset (WASO) were not different between ŌURA ring and PSG. PSG-ŌURA discrepancies for WASO were greater in participants with more PSG-defined WASO ($p < .001$). Compared with PSG, ŌURA ring underestimated PSG N3 (~20 min) and overestimated PSG REM (~17 min; $p < .05$). PSG-ŌURA differences for TST and WASO lay within the ≤ 30 min a-priori-set clinically satisfactory ranges for 87.8% and 85.4% of the sample, respectively. From EBE analysis, ŌURA ring had a 96% sensitivity to detect sleep, and agreement of 65%, 51%, and 61%, in detecting "light sleep" (N1), "deep sleep" (N2 + N3), and REM sleep, respectively. Specificity in detecting wake was 48%. Similarly to PSG-N3 ($p < .001$), "deep sleep" detected with the ŌURA ring was negatively correlated with advancing age ($p = .001$). ŌURA ring correctly categorized 90.9%, 81.3%, and 92.9% into PSG-defined TST ranges of < 6 hr, 6-7 hr, > 7 hr, respectively. **Conclusions:** Multisensor sleep trackers, such as the ŌURA ring have the potential for detecting outcomes beyond binary sleep-wake using sources of information in addition to motion. While these first results could be viewed as promising, future development and validation are needed.

[PubMed Disclaimer](#)

Figures

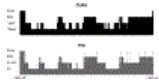


Figure 1 Hypnogram
(sleep stages plotted as...

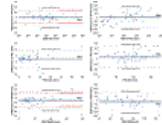


Figure 2 Bland-Altman
plots for total sleep...

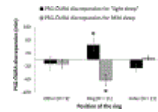


Figure 3
Polysomnographic
(PSG)-ÖURA

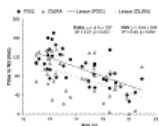


Figure 4 Relationships
between
polysomnographic

Related information

[MedGen](#)

LinkOut - more resources

Full Text Sources

[Atypon](#)

[Europe PubMed Central](#)

[PubMed Central](#)

Other Literature Sources

[scite Smart Citations](#)