International Journal of Behavioral Nutrition and Physical Activity

CORRECTION

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Correction: Validation of actigraphy sleep metrics in children aged 8 to 16 years: considerations for device type, placement and algorithms

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Correction: Int J Behav Nutr Phys Act 21, 40 (2024) https://doi.org/10.1186/s12966-024-01590-x

Following the publication of the Original Article [1], the authors reported errors in reference list, in-text, citations, and the algorithm of Table 5.

Some references were missing, namely:

Acebo C, Sadeh A, Seifer R, Tzischinsky O, Wolfson AR, Hafer A, et al. Estimating sleep patterns with activity monitoring in children and adolescents: how many nights are necessary for reliable measures? Sleep. 1999;22(1):95-103;

Lauderdale DS, Knutson KL, Yan LL, Liu K, Rathouz PJ. Self-reported and measured sleep duration: how similar are they? Epidemiology. 2008;19(6):838-845;

White T. 2018. Pampro. Cambridge, UK. doi:10.5281/zenodo.1187043;

Van Hees VT, Fang Z, Langford J, Assah F, Mohammad A, da Silva IC, et al. Autocalibration of accelerometer data for free-living physical activity assessment using local gravity and temperature: an evaluation on four continents. Journal of Applied Physiology. 2014;117(7):738–744;

Galland B, Meredith-Jones K, Terrill P, Taylor R. Challenges and Emerging Technologies within the Field of Pediatric Actigraphy. Front Psychiatry. 2014;5:99. doi:10.3389/fpsyt.2014.00099. eCollection 02014.

Moreover, two references were irrelevant, namely:

Bunce C. Correlation, agreement, and Bland -Altman analysis: statistical analysis of method comparison studies. Am J Ophthalmol. 2009;148(1):4– 6. https://doi.org/10.1016/j.ajo.2008.09.032 and;

Lee YJ, Lee JY, Cho JH, Choi JH. Interrater reliability of sleep stage scoring: a meta -analysis. J Clin Sleep Med. 2022;18(1):193–202.

Missing references have been added and irrelevant references have been removed.

The correct reference list is thus as follows:

References

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The original article can be found online at https://doi.org/10.1186/s12966-024-01590-x.

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2. Acebo C, Sadeh A, Seifer R, Tzischinsky O, Wolfson AR, Hafer A, et al. Estimating sleep patterns with activity monitoring in children and adolescents: how many nights are necessary for reliable measures? Sleep. 1999;22(1):95–103.

3. Lauderdale DS, Knutson KL, Yan LL, Liu K, Rathouz PJ. Self-reported and measured sleep duration: how similar are they? Epidemiology. 2008;19(6):838–845.

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In-text citations correspond to the new references and some have been adjusted to align with the correct references:

Page	Incorrect / missing citation	Correct citation
6	HDCZA	HDCZA [9]
24	The findings from this much larger and more comprehensive study are broadly consistent with the original validation studies and a review of previous validation studies in children, which show that accuracy (0.84–0.92) and sensitivity (0.82–0.96) are generally good, whereas specificity (0.20–0.65) is considerably lower [20]. However it is clear from both previous research and the current study that the specificity (54–77%) [20], or ability to detect periods of wakefulness in the sleep period window, of most algorithms was better when the device was worn at the wrist, with estimates ranging from 67 to 90%. These figures are considerably higher than those observed in adult studies, which have reported specificities of 34–46% for the HDCZA, Sadeh and Cole algorithms when validated in adult samples [9, 11, 21]. These discrepancies may arise because of differences in sleep characteristics between children and adults. In our study, most children had long periods of sleep without wakefulness during the night. Although immobility generally infers sleep in accelerometery-based assessment, immobility is possible during periods of wakefulness and as such can be mistakenly identified as sleep by actigraphy; it is likely this occurs more in adults because they have more periods of conscious nocturnal awakenings than children [11, 19]	The findings from this much larger and more comprehensive study are broadly consistent with the original validation studies and a review of previous validation studies in children, which show that accuracy (0.84–0.92) and sensitivity (0.82–0.96) are generally good, whereas specificity (0.20–0.65) is considerably lower [24]. However it is clear from both previous research and the current study that the specificity (54–77%) [24], or ability to detect periods of wakefulness in the sleep period window, of most algorithms was better when the device was worn at the wrist, with estimates ranging from 67 to 90%. These figures are considerably higher than those observed in adult studies, which have reported specificities of 34–46% for the HDCZA, Sadeh and Cole algorithms when validated in adult samples [9, 11, 25]. These discrepancies may arise because of differences in sleep characteristics between children and adults. In our study, most children had long periods of sleep without wakefulness during the night. Although immobility generally infers sleep in accelerometery-based assessment, immobility is possible during periods of wakefulness and as such can be mistakenly identified as sleep by actigraphy; it is likely this occurs more in adults because they have more periods of conscious nocturnal awakenings than children [11, 26]
25	The wrist placement was also superior to the thigh, lower back and hip for estimates of sleep onset, offset, quantity (TST and SPT) and WASO for most algorithms. Prior research has also indicated that hipworn accelerometers tend to overestimate total sleep time and sleep efficiency while underestimating wake after sleep onset (WASO), resulting in lower specificity compared to wrist-worn devices [21, 24]	The wrist placement was also superior to the thigh, lower back and hip for estimates of sleep onset, offset, quantity (TST and SPT) and WASO for most algorithms. Prior research has also indicated that hipworn accelerometers tend to overestimate total sleep time and sleep efficiency while underestimating wake after sleep onset (WASO), resulting in lower specificity compared to wrist-worn devices [25, 27]

Moreover, Table 5 of the Original Article mistakenly mentioned "Van Hees" in the Algorithm section. The correct algorithm is "HDCZA".

The original article has been corrected.

Published online: 08 June 2024

Reference

1. Meredith-Jones KA, Haszard JJ, Graham-DeMello A, et al. Validation of actigraphy sleep metrics in children aged 8 to 16 years: considerations for device type, placement and algorithms. Int J Behav Nutr Phys Act. 2024;21:40. https://doi.org/10.1186/s12966-024-01590-x.