

EDITORIAL

Open Access



A journal dedicated to studying the combined effects of activity, sedentary and sleep behaviours

Corneel Vandelanotte*

The importance of physical activity for health and society has long been recognised [16]. Large amounts of physical activity research have been conducted across all stages of the Behavioural Epidemiology Framework [11], and have been published in public health, psychology, epidemiology and medical journals, as well as journals specifically dedicated to physical activity research. While a landmark study on sedentary behaviour was published as far back as 1953 [6], it wasn't until much later that it was recognised that physical inactivity and sedentary behaviour weren't different words for the same thing, but rather that physical activity (or lack thereof) and sedentary behaviour are two distinct, but co-dependent, health behaviours leading to distinct health outcomes [2, 8, 12, 14]. Research on sedentary behaviour started to expand greatly from the early 2000s and in the last two decades there has been a greater than tenfold increase in the number of published papers on 'sedentary behaviour' [1]. A recent scoping review identified as much as 108 systematic reviews focussing sedentary behaviour and spanning nearly all the stages of the Behavioural Epidemiology Framework [5]. Yet, there are no journals dedicated specifically to publishing research on sedentary behaviour. Research on sedentary behaviour is published in the same journals where research on physical activity is being published.

More recently researchers recognised that not only are physical activity and sedentary behaviours distinct

yet co-dependent behaviours, they are also co-dependent on and interrelated with sleep behaviour [9]. Hence, if one wants to truly understand activity, sedentary and sleep behaviours in terms of health impact, what their combined correlates and determinants are, as well as how to design effective interventions aiming to improve these behaviours simultaneously, they should be studied together, preferably using a 24-h paradigm as they compete for time with one another. Therefore, it is no surprise that the number of research publications focussing on both physical activity and sleep has increased exponentially since 2010 [4]. Moreover, the importance of balancing healthy amounts of physical activity, sedentary behaviour and sleep is increasingly recognised in health guidelines, such as for example guidelines developed by the World Health Organisation, Canada and Australia [7, 10, 13, 17]. Yet, there is no journal that focusses on studying these behaviours in combination.

Therefore, as founding Editor-in-Chief, I'm very proud to be launching the *Journal of Activity, Sedentary and Sleep Behaviors* (JASSB) hosted by BMC, part of Springer Nature. A new journal that will not only be open to accept research publications focussing on physical activity, but also sedentary behaviour and sleep, and with a higher priority offered to studies examining two or three of these behaviours in combination. The journal will especially embrace the development of knowledge and research that adopts a 24-h approach when examining or manipulating physical activity, sedentary and sleep behaviours and their effect on health. JASSB welcomes research applying a broad range of study designs, including randomised controlled trials, epidemiological studies,

*Correspondence: c.vandelanotte@cqu.edu.au

Central Queensland University, Appleton Institute, Rockhampton, Australia



© The Author(s) 2022. **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.

cross-sectional surveys, qualitative approaches, systematic reviews and compositional data analysis, as well as studies focussing on assessment technology or interventions with a focus on digital health. JASSB accepts original research manuscripts, short reports, reviews, commentaries and study protocols. Moreover, JASSB is a fully open access journal ensuring that the articles are freely available to researchers and readers from all over the world and all articles submitted to the journal will undergo a rigorous peer review.

While the development of any new journal takes time, I'm nevertheless pleased with the nature and quality of the submissions we're already receiving for the journal. I'm also pleased that some of the first research papers JASSB will publish focus on 24-h movement behaviours. For example, Kuzik et al. [3] investigated how adherence to 24-h movement guidelines is associated with physical, cognitive and social development indicators in 3-to-5-year olds and found that meeting both sleep and physical activity recommendations was positively associated with physical and overall development. Another example by Tyler et al. [15] investigated associations between 24-h activity compositions and motor competence in children and adolescents and found that reallocations of low intensity physical activity or sleep to moderate-to-vigorous physical activity were associated with the largest increases in motor competence.

There is no doubt that research examining the combined effects of activity, sedentary and sleep behaviours will continue to grow rapidly in the future. Therefore, with a strong international Editorial Board (<https://jassb.biomedcentral.com/about/editorial-board>), with a focus on quality over quantity, and with an aim to be indexed in all major databases as soon as possible, I'm confident that JASSB will quickly grow and go from strength to strength over the years to come. I hope you can join me in building a strong high-quality journal in this area, and I look forward to seeing your research published in JASSB.

Author contributions

The author read and approved the final manuscript.

Declarations

Competing interests

The author declares no competing interests.

Published online: 01 September 2022

References

- Biddle S, Bennie J, De Cocker K, Dunstan D, Gardiner P, Healy G, Lynch B, Owen N, Brakenridge C, Brown W, Buman M, Clark B, Dohrn IM, Duncan MJ, Gilson N, Kolbe-Alexander T, Pavey T, Reis N, Vandelanotte C, Vergeer J,

- Vincent G. Controversies in the science of sedentary behaviour and health: insights, perspectives and future directions from the 2018 Queensland Sedentary Behaviour Think Tank. *Int J Environ Res Public Health*. 2019;16:4762.
- Dumuid D, Stanford TE, Martin-Fernández JA, Pedišić Ž, Maher CA, Lewis LK, Hu G. Compositional data analysis for physical activity, sedentary time and sleep research. *Stat Methods Med Res*. 2018;27(12):3726–38.
- Kuzik N, Spence JC, Arkko K, Blye C-J, Davie J, Duddridge R, Ekeli T, English A, Etruw E, Hunter S, Lamboglia CG, Nesdoly A, Predy M, Rubuliak R, Wohlers B, Wright K, Carson V. Associations between meeting the Canadian 24-Hour Movement Guidelines and physical, cognitive, social-emotional, and overall development in early childhood. *J Act Sedentary Sleep Behav*. 2022. <https://doi.org/10.1186/s44167-022-00002-4>.
- Memon A, Vandelanotte C, Olds T, Duncan MJ, Vincent G. Research combining physical activity and sleep: a bibliometric analysis. *Percept Mot Skills*. 2020;127(1):154–81.
- Memon AR, Stanton R, To Q, Schoeppe S, Urooj A, Alley S, Hayman M, Vandelanotte C. Sedentary behavior research in adults: a scoping review of systematic reviews and meta-analyses. *J Sports Sci*. 2021;30(19):2219–31.
- Morris JN, Heady JA, Raffle PAB, Roberts CG, Parks JW. Coronary heart-disease and physical activity of work. *Lancet*. 1953;262(6796):1111–20.
- Okely AD, Ghersi D, Hesketh KD, et al. A collaborative approach to adopting/adapting guidelines—The Australian 24-Hour Movement Guidelines for the early years (Birth to 5 years): an integration of physical activity, sedentary behavior, and sleep. *BMC Public Health*. 2017;17:869.
- Pedišić Ž. Measurement issues and poor adjustments for physical activity and sleep undermine sedentary behaviour research—The focus should shift to the balance between sleep, sedentary behaviour, stand- ing and activity. *Kinesiology*. 2014;46(1):135–46.
- Pedišić Ž, Dumuid D, Olds TS. Integrating sleep, sedentary behaviour, and physical activity research in the emerging field of time-use epidemiology: definitions, concepts, statistical methods, theoretical framework, and future directions. *Kinesiology*. 2017;49(2):252–69.
- Ross R, Chaput JP, Giangregorio LM, Janssen I, Saunders TJ, Kho ME, Poitras VJ, Tomasone JR, El-Kotob R, McLaughlin EC, Duggan M, Carrier J, Carson V, Chastin SF, Latimer-Cheung AE, Chulak-Bozzer T, Faulkner G, Flood SM, Gazendam MK, Healy GN, Katzmarzyk PT, Kennedy W, Lane KN, Lorbergs A, Maclaren K, Marr S, Powell KE, Rhodes RE, Ross-White A, Welsh F, Willumsen J, Tremblay MS. Canadian 24-hour movement guidelines for adults aged 18–64 years and adults aged 65 years or older: an integration of physical activity, sedentary behaviour, and sleep. *Appl Physiol Nutr Metab*. 2020;45(10):S57–102.
- Sallis JF, Owen N, Fotheringham MJ. Behavioral epidemiology: a systematic framework to classify phases of research on health promotion and disease prevention. *Ann Behav Med*. 2000;22(4):294–8.
- Sedentary Behavior Research Network. Letter to the editor: Standardized use of the terms “sedentary” and “sedentary behaviours”. *Appl Physiol Nutr Metab*. 2012;37(3):540–2.
- Tremblay MS, Carson V, Chaput JP, Connor Gorber S, Dinh T, Duggan M, Faulkner G, Gray CE, Gruber R, Janson K, Janssen I, Katzmarzyk PT, Kho ME, Latimer-Cheung AE, LeBlanc C, Okely AD, Olds T, Pate RR, Phillips A, Poitras VJ, Rodenburg S, Sampson M, Saunders TJ, Stone JA, Stratton G, Weiss SK, Zehr L. Canadian 24-hour movement guidelines for children and youth: an integration of physical activity, sedentary behaviour, and sleep. *Appl Physiol Nutr Metab*. 2016;41(6):S311–27.
- Tremblay MS, Aubert S, Barnes JD, Saunders TJ, Carson V, Latimer-Cheung AE, Chastin SFM, Altenburg TM, Chinapaw MJ. Sedentary behavior research network (SBRN)—terminology consensus project process and outcome. *Int J Behav Nutr Phys Act*. 2017;14(1):75.
- Tyler R, Atkin AJ, Dainty JR, Dumuid D, Fairclough SJ. Cross-sectional associations between 24-hour activity behaviours and motor competence in youth: a compositional data analysis. *J Act Sedentary Sleep Behav*. 2022. <https://doi.org/10.1186/s44167-022-00003-3>.
- Warburton D, Nicol CW, Bredin SS. Health benefits of physical activity: the evidence. *Can Med Assoc J*. 2006;174(6):801–9.
- World Health Organization. Guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age. Geneva: World Health Organization; 2019.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.