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# Mental Health and Physical Activity

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## Letter to the Editor: Standardized use of the terms “sedentary” and “sedentary behaviours”

There has recently been an increase in research related to the health impact of sedentary behaviour (e.g., sitting) (Tremblay, Colley, Saunders, Healy, & Owen, 2010). Numerous studies suggest that those who engage in high amounts of sedentary behaviour can be at increased risk of morbidity and mortality regardless of their level of moderate- to vigorous-intensity physical activity (MVPA) (Dunstan et al., 2010; Grøntved & Hu, 2011; Katzmarzyk, Church, Craig, & Bouchard, 2009; Thorp, Owen, Neuhaus, & Dunstan, 2011; Wijndaele et al., 2011). Further, it has been noted that there is often little association between sedentary behaviour and MVPA (Biddle, Gorely, Marshall, Murdey, & Cameron, 2004; Ekelund et al., 2006) and that it is possible for an individual to accumulate large amounts of both MVPA and sedentary behaviour in the course of a day (Healy et al., 2008; Katzmarzyk et al., 2009; Owen, Healy, Matthews, & Dunstan, 2010; Tremblay et al., 2010; Wong & Leatherdale, 2008). Taken together, these findings suggest that too much sitting and too little MVPA represent separate and distinct risk factors for chronic, non-communicable diseases (e.g., cardiovascular disease, diabetes, cancer).

While research into the biology and health impact of sedentary behaviour represents an exciting new field of study, current inconsistencies in terminology are confusing for students, researchers, policymakers and the general public. In short, the term “sedentary” currently has two separate and contradictory operational definitions. In this emerging field of research, sedentary behaviours are typically defined by both low energy expenditure (e.g., resting metabolic rate, typically  $\leq 1.5$  metabolic equivalents [METs]) and a sitting or reclining posture (Owen et al., 2010; Pate, O’Neill, & Lobelo, 2008; Tremblay et al., 2010). In this context, a person may be described as “sedentary” if they engage in a large amount of sedentary behaviour. In contrast, in the sport and exercise literature the term “sedentary” is frequently used to describe the absence of some threshold of MVPA (Church et al., 2009; Melanson et al., 2009; Mullen et al., 2011; Sims et al., 2012; Smith et al., 2010). Thus, it is common for researchers in this field to describe a participant as “sedentary” because they are not meeting physical activity guidelines. Hence, many exercise studies include a “sedentary control group” or refer to their participants as coming from a “sedentary population” due to their lack of physical activity without actually measuring or assessing their level of sedentary behaviour.

It is not difficult to see how these conflicting definitions of the term “sedentary” can easily lead to confusion. When reading the title or abstract of an article, it is often difficult to ascertain which definition of “sedentary” the authors have employed. If an article focuses on the health impact of a “sedentary lifestyle,” are they concerned with excessive sitting/lying down, the lack of physical activity, or both? Further, it is surprisingly common for articles within a given academic journal to oscillate between one definition and the other.

In order to prevent further confusion, we propose that journal editors adopt a consistent definition of the term “sedentary” and require that all manuscripts published within their journal adhere to this common terminology. We suggest that journals formally define sedentary behaviour as any waking behaviour characterized by an energy expenditure  $\leq 1.5$  METs while in a sitting or reclining posture. In contrast, we suggest that authors use the term “inactive” to describe those who are performing insufficient amounts of MVPA (i.e. not meeting specified physical activity guidelines).

The formal adoption of the above definitions by journal editors and reviewers would greatly improve the clarity of research and discussion related to these important health behaviours and help researchers searching for studies specific to sedentary behaviour or physical inactivity. We hope the research community will support these definitions and we look forward to further improvements in our understanding of the health impacts of sedentary behaviour and physical activity.

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The Sedentary behaviour Research Network (SBRN – [www.sedentarybehaviour.org](http://www.sedentarybehaviour.org)) prepared a “letter to the editor” for publication in multiple journals in an effort to promote the consistent use of the terms “sedentary” and “sedentary behaviour” in the scientific literature. This letter was originally published in the journals *Applied Physiology, Nutrition, and Metabolism* [Canadian Science Publishing (NRC Research Press)] and *Movement & Sport Sciences – Science & Motricité* (EDP Sciences). Permission to publish this letter here in *Mental Health and Physical Activity* has been granted by the publishers of both journals.

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