“Don’t Just Sit There - Do Something!” - The Measurement of Sedentary Behavior

David A. Rowe & Minsoo Kang


To link to this article: http://dx.doi.org/10.1080/1091367X.2015.1058263

Published online: 19 Aug 2015.

Article views: 818

View related articles

View Crossmark data
EDITORIAL

“Don’t Just Sit There - Do Something!” - The Measurement of Sedentary Behavior

David A. Rowe
School of Psychological Sciences and Health, University of Strathclyde, Glasgow, UK

Minsoo Kang
Department of Health and Human Performance, Middle Tennessee State University, Murfreesboro, Tennessee

Guest Editors, Special Issue on Measurement of Sedentary Behavior

In 1954, Jeremy Morris published one of many landmark studies, based on the health records of 25,000 London Transport workers (Morris & Raffle, 1954). In this report, the incidence of coronary heart disease was lower in double-decker bus conductors, who walked up and down the stairs of the bus collecting fares all day, compared to drivers, who sat in the driving seat all day. Conductors were also less likely than drivers to subsequently die, as measured over follow-up periods of 0 to 3 days, 4 days to 3 months, and 4 months to 3 years after the initial episode. In the years since Morris’s now-famous “London Bus Study,” this evidence has been cited several thousand times and is usually described as exercise epidemiology or physical activity epidemiology. More recently, scientists have come to recognize the study as also comprising sedentary epidemiology. In other words, Morris and Raffle’s evidence reflects not only the health benefits associated with regular physical activity, but also the health risks associated with prolonged sitting.

Terms such as sedentary and inactive have been used interchangeably until quite recently. A shift in terminology has taken place in recognition that sedentary behavior (generally defined as long periods of time spent sitting while expending minimal energy) is not simply the inverse of activity but a separate construct that has negative effects on health that are independent of the positive effects of physical activity. Kinesiologists currently find themselves at a watershed moment in which they are increasingly striving to investigate sedentary behavior and define it from the perspective of its detrimental effects on health.

Unlike Morris and Raffle (1954), scientists currently have the advantage of many high-tech instruments to measure constructs, such as movement, posture, and energy expenditure. They also have high-powered data analytic tools with which to parse the huge amounts of information that are yielded by such instruments. However, like Morris and Raffle, they often still rely on more low-tech information in order to reduce costs, or to measure large populations concurrently.

In this special issue of Measurement in Physical Education and Exercise Science, we invited some of the most prominent scientists in sedentary behavior measurement to write commentary articles or report empirical studies that represent the state of the art in this area of research. In the first article (Kang & Rowe, 2015), we present an overview of sedentary behavior measurement methods and a summary of the major challenges facing us, with a particular focus on sources of measurement error. In the second article, Janssen and Cliff (2015) focus on methodological issues facing researchers who use the cutting edge technology available, which yields an often confusing array of information. They focus particularly on the various data-processing decision rules facing the researcher. Kim, Barry, and Kang (2015) then present empirical evidence for the effects of various bout definitions and the use of a novel machine-learning tool (Sojourn) on outcome data from perhaps the two most common objective methods of measuring sedentary behavior, namely the ActiGraph and activPAL accelerometers. Following this, Chastin et al. (2015) examine empirical data from two intervention studies to compare the sensitivity to change in sedentary behavior dependent on instrument used, population, and study design. This

Address correspondence to David A. Rowe, School of Psychological Sciences and Health, University of Strathclyde, 40 George Street, Glasgow G1 1XQ, UK. E-mail: david.rowe@strath.ac.uk
paper provides critical information to researchers wishing to measure sedentary behavior in order to evaluate the effectiveness of behavioral interventions. Finally, a unique perspective on “data” is provided by Loudon and Granat (2015), who present innovative ways of characterizing temporal patterns of sedentary behavior through visualization.

Because sedentary behavior occurs throughout the day, and can be similar in terms of posture and movement to sleep, the measurement challenges facing researchers in this area are perhaps greater than have been faced previously in the measurement of health-enhancing physical activity. Researchers are still attempting to understand which aspects of sedentary behavior are related to health and which aspects are amenable to behavior change interventions. We believe that the articles in this special issue provide valuable information to researchers in sedentary epidemiology and sedentary behavior change, and hope that you will enjoy reading them.

ACKNOWLEDGMENTS

The authors thank several anonymous reviewers for their work in meeting the tight timelines inherent in producing a special issue, and to Nestor Sherman, for overseeing an independent review of our own manuscript.

REFERENCES


