From the Editor: A New Journal—Advancing Research in the Measurement of Physical Behavior

The International Society for the Measurement of Physical Behaviour is pleased to present the inaugural issue of the *Journal for the Measurement of Physical Behaviour* (JMPB), a peer-reviewed journal focusing on the publication of innovative and impactful research that uses wearable monitors to assess such behaviors as physical activity, sedentary behavior, movement disorders, and sleep.

You might ask, *Why do we need another journal?* The answer is quite simple: we are experiencing unprecedented growth in the use of wearable movement sensors in both the research and clinical communities. New sensor devices, development of methods to calibrate and validate sensors, and novel analytic tools for processing data from sensors and interpretation of these data are just a few of the areas where significant scientific advances continue. Intervention scientists are using movement sensors to test effectiveness of interventions designed to improve physical activity and sleep behavior. Clinicians are using these devices to ascertain functional effectiveness of various medical, pharmacological, and physical rehabilitation modalities. JMPB is dedicated to publishing high quality, peer-reviewed research on such fundamental and applied problems related to physical behavior measurement, and is a much-needed resource to advance the science and practice of monitoring physical behavior.

The journal publishes papers in novel methods for device calibration and validation, new sensor technology, analytic advances in measurement and interpretation, new outcomes for clinical studies, and applications of wearable monitors for assessing exposure and/or outcomes. JMPB will also publish brief reports on data collection and processing protocols and evidence-based papers on best practices for how objective monitoring should be used in research and clinical settings.

We recognize the popularity of consumer grade devices (commonly called fitness trackers) in providing people with the ability to monitor and track their own physical activity, sedentary behavior, and sleep. According to Future Marketing Insights (https://www.futuremarketinsights.com/reports/wearable-fitness-trackers-market), the wearable fitness tracker market is currently valued at approximately $21 billion and is expected to increase to $90 billion by the end of 2028. We in the research community have been leaders in the evaluation of the performance of these devices, which will help consumers select the best fitness tracker as well as create a much-needed outlet for a high quality body of knowledge to advance the science.

In this first issue of JMPB, three papers investigate validity of selected consumer-grade activity trackers. In their article, Montoye et al. examined the differences in kcal expenditure estimated with three Fitbit activity monitors that use accelerometer and heart-rate compared to two Fitbit activity monitors that only use an accelerometer to estimate kcals. In the second article, a comparison of step estimates from five wrist activity trackers worn on the dominant versus non-dominant was examined by Edwardson et al. The third activity tracker validation study, by Petrucci et al., examined how well the Misfit Shine activity tracker detected change in steps in lab and free-living settings. The three studies examined different aspects of validation in a variety of consumer activity trackers. The primary questions addressed in these studies advance our understanding of how well these devices estimate kcal expenditure and steps: Does the addition of heart-rate to accelerometer output improve estimates of kcal expenditure?: Do dominant and non-dominant wrist-worn activity trackers differ in accuracy of step estimates?: Can change in physical activity be detected by wrist and hip worn devices?

The fourth article, by Dall and colleagues, is a brief report that describes a data collection protocol for assessing sedentary behavior using the thigh-worn activPAL. This short report is of high value to our field as it provides specific protocol details to maximize participant compliance to 24-hour wear and data quality.

The articles in JMPB’s debut issue provide an example of how the journal will fill a gap among scholarly journals by supporting single discipline and interdisciplinary work from the fields of kinesiology, engineering, nutrition, psychology, statistics, mathematics, medicine, rehabilitation sciences, and computer science, where the goal is to promote innovative scientific inquiry in the measurement of physical behavior. Research papers on wearable motion sensors are found in many different journals that represent many different fields. Having a journal dedicated to the measurement of physical behavior will enhance our visibility among scientists and clinicians seeking high quality research and evidence-based best practices recommendations in the measurement of physical behavior field.

We invite you to submit physical behavior measurement papers to our new journal. If you would like further information about the journal or the International Society for the Measurement of Physical Behaviour, please visit the society website at https://ismpb.org/ or the journal website at https://journals.humankinetics.com/journal/jmpb.

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