Monday, July 27, 2015

**Dr. Shannon S. D. Bredin**

**Editor-in-Chief**

Dear Dr. Bredin,

Please consider the enclosed manuscript entitled “ActiGraph GT3X cut-points in coronary artery disease patients: A pilot study” for publication in *The Health & Fitness Journal of Canada.*

Coronary artery disease remains the leading cause of death in Canada. Improvements in cardiometabolic fitness though health behaviour changes (e.g., increasing physical activity) provides long-term improvements in coronary artery disease outcomes. Physical activity has a beneficial effect on vascular biology, cardiovascular risk factors and the atherosclerotic disease process itself. Previous research has relied on self-report measures of physical activity which are limited by recall bias and over-reporting of a socially desirable behaviour. Reliance on poor measures of physical activity limits researchers’ ability to effectively assess the behaviour, and its relationship with health outcomes. Objective measures (e.g., accelerometers) eliminate these issues through accurate measurement of physical activity. Although some researchers have used accelerometers to assess physical activity in coronary artery disease patients, cut-points to differentiate between physical activity intensities have only been developed in health adults differences in functional capacity between healthy individuals and coronary artery disease patients suggests that these cut-points are not appropriate and would underestimate actual physical activity levels for coronary artery disease patients. Therefore, cut-points specific to the coronary artery disease population need to be developed. The primary objective of this pilot study was to examine uniaxial an triaxial cut-points to differentiate between physical activity intensities (i.e. moderate and vigorous) in coronary artery disease patients.

Uniaxial cut-points of 750 and 2300 counts per minute for moderate and vigorous intensity, respectively, and trial axial cut-points of 1800 and 3800 counts per minute for moderate and vigorous intensity, respectively, were found to best classify physical activity intensities in coronary artery disease patients. Corresponding thresholds developed in healthy adults are 1952 and 5725 counts per minute for uniaxial moderate and vigorous intensity physical activity, respectively (Freedson et al 1998, *Med Sci Sports Exerc*), and 2690 and 6167 counts per minutes for triaxial cut-points for moderate and vigorous physical activity, respectively (Sasaki et al, 2011, *J Sci Med Sport*).

All authors contributed to the study design, analysis and/or interpretation, manuscript preparation, and have approved its submission for publication. This manuscript represents original research that is not being considered for publication elsewhere. The authors have no conflicts of interest or financial disclosures.

Thank you for considering this manuscript for publication in your journal. I look forward to hearing from you as the manuscript moves through the review process.

Sincerely,

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