The Second International Conference on Physical Employment Standards: An International Perspective

Introduction

I am pleased to introduce the Editorial by Drs. Petersen and Anderson. The accompanying issue is the result of the recent international conference organized for scientific and professional dialogue on physical employment standards (PES). This was only the second such meeting to bring together international experts, academics, and practitioners. I was fortunate to attend; it was truly a learning experience and it demonstrated to me that I had been hiding in the “ivory tower” away from the real world. While I am familiar with the field of ergonomics, I was naïve about PES. I assumed that the standards for establishing eligibility for employment and return to work were standardized both nationally and internationally for specific tests, acceptance levels, and also for the testing environment. I was quite wrong and now realize the importance and complexity of PES. Historically, employment standards have been established locally or regionally, based on young, male workers under near perfect testing conditions. There are both health and legal implications for PES. The profiles of workforces in many countries are changing rapidly because of our aging societies, increased immigration, and more women entering fields that were traditionally male-dominated.

The field of PES affects the lives of all of us and it requires multidisciplinary research and needs to include consideration of gender and sex differences, nutritional status, age, ethnic differences, degree of stress induced by the process, etc. There are many important, challenging research questions in this field. I encourage scientists to reflect on solutions and also encourage them to address the topics of PES and ergonomics in their educational programs. Readers should also make note that the next international PES meeting will be held convened in Portsmouth, United Kingdom, in July 2018.

Terry Graham
Editor

Editorial

Physical employment standards have been of interest for several decades (e.g., Davis et al. 1982; Shephard 1991; Gledhill and Jamnik 1992; Jackson 1994; Shephard and Bonnie 2002; Sothmann et al. 2004; Payne and Harvey 2010; Tipton et al. 2013; Fullagar et al. 2015), and this is especially true in occupations with responsibility for public safety and security (e.g., law enforcement, structural firefighting, wildland firefighting, military). In theory, employment standards are used for selection and retention of employees that are capable of completing the necessary work safely and effectively. If correct employment decisions are made, safety of both the workers and the public is optimized. In the alternative, the financial, human, and property costs of incorrect employment decisions are substantial. Tests, standards, and cut-scores associated with employment decisions are subject to human rights, labour arbitration, and legal challenges, which increases the stakes for research and practice in this field. Consequently, organizations, scientists, and practitioners must accept responsibility for conducting their work as diligently as possible. In spite of these concerns, there are few resources available to advance knowledge and support best practice in this field.

Research in the field has historically been in the domain of occupational physiology; however, best practice demands reliance on partnerships with other, equally important disciplines (e.g., law, human rights, occupational medicine, ergonomics, psychometrics). As such, the field is emerging as a multi-disciplinary entity that must be nurtured. Recognizing this, in August 2015 scientific and professional delegates from around the world attended the Second International Conference on Physical Employment Standards (PES 2015; Canmore, Alberta, Canada) to address critical questions in the domain of physical employment standards. The program for the second conference was informed by a series of invited review papers (also published in this issue), interactive knowledge translation sessions, and original research presentations. Immediately following the conference, a smaller group (~50) of stakeholders participated in two days of facilitated discussion on key issues in the field. The outcomes of the conference are the focus of this special issue, and represent, on a global scale, the current state of knowledge to guide best practice in this important field.

As the field of study matures there are many challenges to tackle, a few of which are mentioned briefly below. A fundamental priority must be to elevate the scientific profile of the field. One step will be to continue the current trend away from historical practice of keeping information within the sponsoring organizations and instead, encouraging peer-reviewed publication of research results. This publication models this ideal, and provides a venue for the publication of information on the key topics presented at PES 2015 and represents an important step in advancement of scientific rigor.

A recurring theme at PES 2015 and in the subsequent written works is the paradox that exists when workers are tested under near-ideal conditions compared with the unpredictable conditions under which emergency responses occur. The accurate translation of human performance from one situation to the other presents numerous questions for researchers. Assuming that most physiological capabilities deteriorate under real-world working conditions, it is imperative that a common understanding of variables (such as load carriage, environmental conditions, protective ensembles, nutrition, hydration, stress, and fatigue) is established and that there are mechanisms to account for such factors in determining acceptable cut-scores for each physiological aptitude test.

Most challenges in the area arise from workers who wish to gain or retain employment. However, military conscription or compulsory service is still common in many countries and one can only imagine that under these circumstances, some individuals are looking for a way out of service. Age, sex, and health status have historically been the most common grounds on which to mount a challenge to physical employment standards. Much more research is required to fully understand the effects of these factors.
on physiological readiness for work. Historically, policy and operational practice in many organizations that require physical employment standards have been influenced almost exclusively by male workers, a fact that leads to potential cultural barriers for female workers. Those engaged in developing and implementing physical employment standards must be prepared to challenge the status quo on matters of policy and operational practice to avoid perpetuating these issues. Finally, much effort has been invested in discussion of how to develop “defensible” standards. We suggest that a better viewpoint is that if effort is invested in developing standards of the highest scientific quality, taking into account the most rigorous methodology, then the standard is as defensible as it can be.

The theme of the PES 2015 conference was to maintain an international perspective in the quest to articulate best practice in this challenging field. Articulation of best practice is an ambitious goal that will not be achieved quickly. However, our purpose has always been to address ways to elevate the quality of research and translate those outcomes to professional practice. It remains our hope that the review articles and the abstracts from original research presented at the meeting that comprise this special issue of Applied Physiology, Nutrition, and Metabolism will foster interest and sustain the drive for further development of this important field.

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References