

*Editorial*

## **Exercise—Exploring Mutuality and Discordance(s) Between Sport and Public Health**

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*Sports* is a peer-reviewed scientific journal that revolves around the interdisciplinary area of exercise sciences applied in sport and public health. The intention of *Sports* is to link several scientific disciplines in an integrated fashion in order to address critical issues related to exercise science, sports and public health. As the first Editor-in-Chief of *Sports*, I would like to share a few comments about this interdisciplinary field of research by discussing the mutuality and discordances between exercise as it is applied in sports and public health.

Successful sports performance is multi-disciplinary in nature. Awareness of the factors that influence our ability to perform exercise or physical activity to improve performance; e.g., biomechanics, physiology, psychology, medicine, nutrition, immunology, *etc.*, is clearly necessary because all these factors influence human physical performance. Exercise in various forms is at the core of improvements in performance. Exercise can be defined as “a potential disruption to homeostasis by muscle activity that is either exclusively, or in combination, concentric, eccentric or isometric” [1]. Exercise and physical activity in general are not only related to the field of elite-standard competitive sport activities. Exercise and physical activity play an important role in activities of daily living, in clinical applications in rehabilitation and in public health.

The notion that physical activity is one of the most effective ways to maintain a healthy body and mind might seem obvious; however, the evidence that exercise is beneficial for general health has only recently begun to be taken seriously in western society. Relatively recently, in 1975, physical fitness and physical education were not particularly well respected by the American public health movement [2]. “Their practitioners have been labeled by at least one elder statesman of public health as ‘the big muscle boys’, and this contemptuous attitude has persisted to this day” [2]. One decade later “the Public Health Service specified ‘Physical Fitness and Exercise’ as 1 of the 15 areas of greatest importance for improving the health of the public” [3]. This was in view of the increasing evidence in favor of the health benefits of exercise [3]. One decade later, in 1995, the American College of Sports Medicine and the Centers for Disease Control and Prevention published national guidelines on

Physical Activity and Public Health, updated in 2007 [4], in the form of recommendations as to the types and amounts of physical activity needed by healthy adults to improve and maintain health. Recommendations for older adults were published in the same year [5].

The reason for this change in attitude towards exercise was due to the fact that study after study has now shown that the risk of contracting cardiovascular [6], metabolic [7] and metastatic diseases [8] is mitigated by exercise. However, there are also discordances between exercise applied in sports and exercise applied in public health. Although there have been a greater number of reports in the literature regarding exercise and physical activity for various diseases and disabilities, few specific studies regarding appropriate exercise programming guidelines for these individuals are available. Although there are an increased number, few data regarding the benefits of such programs in establishing realistic outcomes are available. The present research is limited because many studies are designed for reasons of interest regarding a medical specialty and not necessarily to assess exercise outcomes. Most studies only include the most ‘stable’ patients, excluding individuals with multiple pathologies or subgroups of a given condition, thereby limiting the generalizability of the results, and standardized testing and training procedures are often not incorporated into research study designs [9]. As (exer-) scientists we know, however, how important it is to consider program variables such as specificity of the physical action; the amount of loading and volume; the exercise selection and order; the chosen rest periods; the exercise, *etc.* This because manipulation of these variables ultimately determines the effectiveness of a training program in achieving a specific training goal (c.f. [10]). From exercise studies applied in clinical settings it has been shown that the specific beneficial effects of physical exercise may vary as a function of the stage of a disease, the nature of the medical treatment, and the current lifestyle of the patient [8].

From studies on sets and repetitions for optimal resistance training programs to applied science of exercise to nutritional interactions with training, exercise to cognitive interactions with training, *etc.*, we expect to publish manuscripts that seek to improve the knowledge-based practices in the world of sports and public health and that enable us to improve our understanding of the science behind exercise. Therefore, I invite you to regularly visit *Sports* and support it with manuscript submissions in order to be part of the continuing progress in the field of exercise science.

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