

EDITORIAL

Physical Activity, Exercise and Sport: A Five-Star Path for a Better Cardiovascular HealthClaudio Gil Soares de Araújo¹ and Claudio Tinoco Mesquita²*Clínica de Medicina do Exercício - CLINIMEX,¹ Rio de Janeiro, RJ - Brazil
Universidade Federal Fluminense,² Niterói, RJ - Brazil**Exercise is not optional: It is essential.*

Herman Pontzer

Why we must exercise? Although this question has many answers, many other questions arise from it. Which are the benefits of exercising? How much exercise is good for health? Is high-intensity exercise better than moderate-intensity exercise? Are there risks in exercising? What to do if someone does not like to exercise? Do cardiologists know the literature on exercise and heart? These are sounding questions that should be covered to understand the real need of exercising.

Why is the International Journal of Cardiovascular Sciences having a special thematic issue on exercise and cardiovascular health? Indeed, searching PubMed for the keywords “heart” and “(exercise OR physical activity OR sport) AND heart”, the proportion of papers on exercise and heart were only 1% until mid-60’s, with a fast increase to around 7 to 8% in mid-80’s and thereafter, although there was a significant increase in the absolute number of publications, close to 5,000 papers/year in 2018 (Figure 1).

The World Health Organization (WHO) recommends that adults aged from 18 to 64 years should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous-intensity activity.¹ According to the WHO, insufficient regular exercise, also called hypokinesia, has been identified as the fourth leading risk factor for global mortality.² Indeed, hypokinesia is likely the most

prevalent chronic health disorder around the world, affecting a significant amount of individuals of all ages and both sexes. Recent data from the United States suggested that approximately 80% of their population of adolescents and adults are insufficiently active.³

A WHO report comparing levels of insufficient activity in 168 countries brought some bad news to our country: 1) 47% of the Brazilian population is sedentary, 2) between 2001, and 2016, the levels of insufficient activity increased more than 15% in Brazil, and 3) women in Brazil and in Latin America have the highest levels of insufficient physical activity in the world.⁴ The most recent data from Brazil, reported by Vigitel,⁵ a long-term project supported by the Brazilian Ministry of Health, indicated that only 37% of our adults – 43.4% of men and 31.5% of women – living in our capitals met the WHO recommendations of a minimal of 150 minutes of medium-intensity exercise or 75 minutes of high-intensity exercise, in average, per week. In reverse order, these data mean that 63% of Brazilian adults are hypokinetic! However, it is even more alarming considering that only 23.3% of those older than 65 years of age are physically active. In this age group, the incidence of chronic diseases, including those of cardiovascular origin, which

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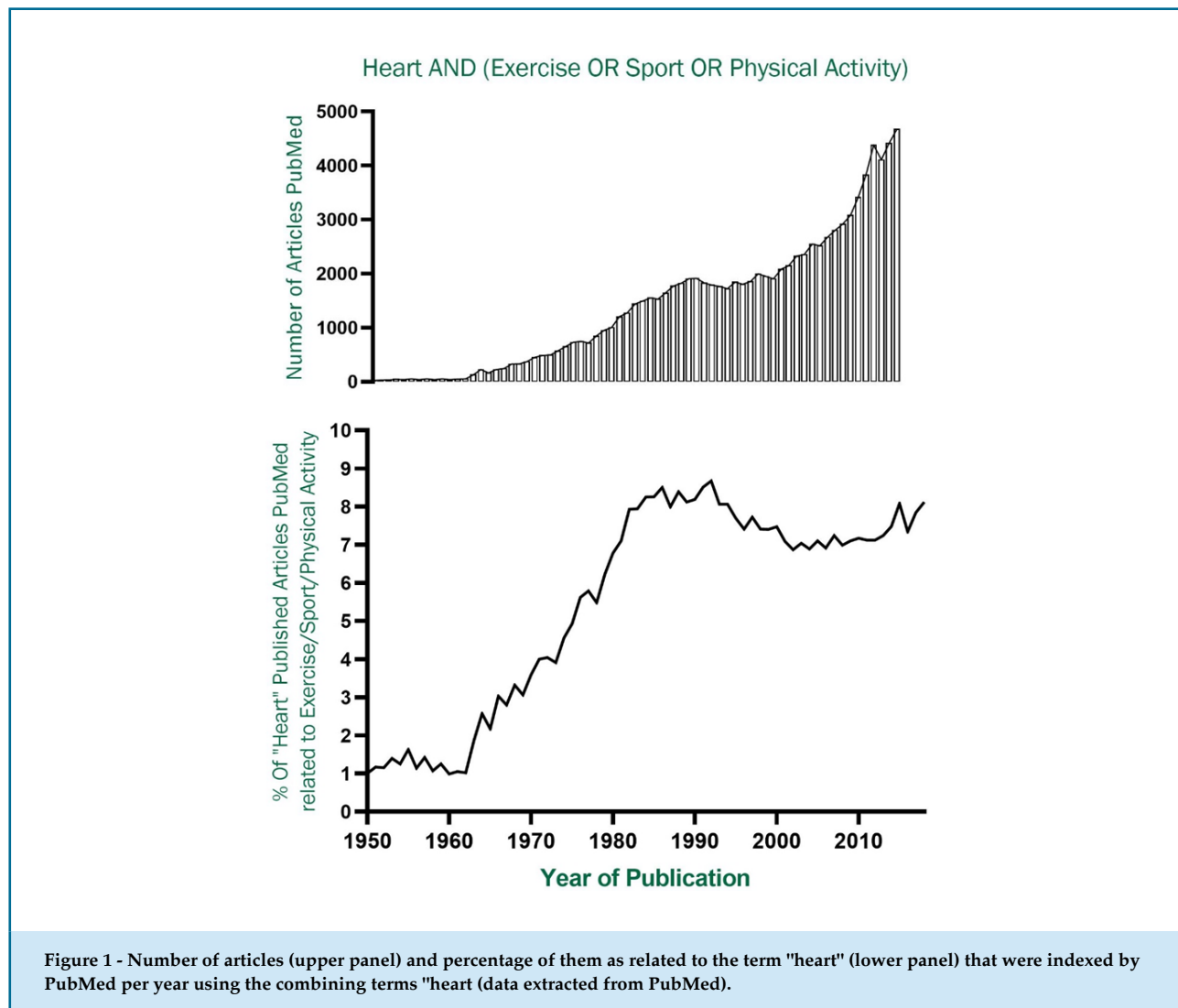
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are known to be potentially prevented and treated by exercise, exponentially increases. In addition, with the recent proposal of the 2018 US Federal Physical Activity Guidelines³ suggesting a minimum of 60 minutes of moderate-to-vigorous physical activity daily to children aged between 6 and 17 years old and the increase the minimum dose from 150 minutes to 300 minutes a week of moderate-intensity, or 75 minutes to 150 minutes a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity for adults, it can be expected that the percentage of individuals achieving these new standards will probably decrease.

One of the most relevant health status indicators is the individual's level of physical fitness.⁶ Physical fitness includes aerobic and non-aerobic components, and the latter involves muscle strength/power, flexibility, balance

and body composition. There is a strong association between lack of regular exercise and poor levels of physical fitness. Based on solid data from important cohort studies, it is well-established that aerobic fitness is inversely and strongly related, in a dose-dependent manner, with higher rates of cardiovascular, cancer and all-cause mortality.^{7,8} More recent observational data have also indicated that low levels of non-aerobic or musculoskeletal fitness are also strongly associated with poor survival in the following six years.⁹

This outstanding thematic issue of the International Journal of Cardiovascular Sciences, fully dedicated to exercise/sport and cardiovascular health, brings together 16 other contributions including original articles, review articles, viewpoints, one case report and one special communication, written by a highly qualified team of 78 authors (16 foreigners) from seven different countries.



The thematic issue opens with a special communication written by Dr. Ricardo Stein to honor a true icon of Exercise Physiology and Cardiology, Prof. Jorge Pinto Ribeiro, a brilliant cardiologist and sport/exercise physician who passed away some years ago. Then, two viewpoints, the first¹⁰ presenting an innovative format of questions (posed by the leading author) & answers, with participation of distinguished experts in the field from Austria, Brazil, Canada, Finland, Germany and United States, and the second with Dr. Aaron Baggish, from the Massachusetts General Hospital, as the leading author.¹¹ This very intriguing paper¹¹ describes a clinical case of a master athlete with coronary artery disease that suffered a cardiac event during a marathon and brings to the discussion some issues about eligibility for sport participation and shared-decision making.

Moving to original papers, there are a total of seven studies that range from relevant aspects of cardiopulmonary exercise testing, an area where Brazilian researchers have made important contributions to the literature, to a timely systematic review and meta-analysis of the effect of regular physical activity on the incidence of atrial fibrillation.¹² The readers will certainly find new and high quality scientific information. Two of these papers make very useful and practical contributions to those working with exercise in their daily practice. In one of these, the authors discuss the proposal and validation of a simple questionnaire for estimating aerobic fitness,¹³ and the second one proposes aerobic reference standards derived from a large sample of Brazilian adults.

Then, six review papers are being published in this issue. Authored by Dr. Rachel Lampert from Yale University (United States), the first review study presents

the results of the analysis of updated data, derived from an important registry, on sports participation for athletes using implantable cardiac defibrillators, and also discusses the issue of shared-decision making.¹⁴ The second paper presents very practical information for cardiologists who see healthy and unhealthy athletes and practitioners, about the use of wrist monitors and smartphone apps to measure exercise heart rate. Other important topics are covered in three non-systematic reviews and include: sex differences in sudden death during sports and exercise, impact of exercise training on cardiovascular and autonomic responses and the role of exercise training in the management of erectile dysfunction.¹⁵

Last but not least, the table of contents of this thematic issue ends with a very interesting case report from Portugal, describing a young man who suffered a cardiac arrest during a handball game and relevant aspects of pre-participation assessment and in-field emergency medical services.

Since all the contents of this thematic issue are open access and freely downloadable from the journal's website and from SciELO platform, we believe that many professionals will have the opportunity to acquire or review relevant and practical knowledge and updated concepts about exercise and cardiology. Consequently, not only patients, but the professionals themselves, as well as their families and friends may be benefited from these data, which strongly encourage, based on scientific evidence, the use of physical activity, exercise and sport as a five-star path for a better cardiovascular and general health for the Brazilian population.

Don't wait any longer, it is time to move!

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