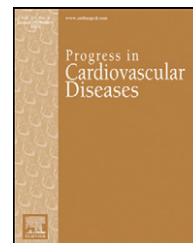


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# The Future of Physical Activity Research: Funding, Opportunities and Challenges



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## ARTICLE INFO

## ABSTRACT

The worldwide impact of physical activity (PA) on health consequences has received increasing attention. At this point in time, there is little disagreement that increasing levels of PA is an important aspect of public health worldwide. The world literature on PA, exercise and fitness has also grown exponentially since the early 1990's. It is clear that there is a voluminous literature in this area of research and the exponential increase in the number of manuscripts has gained substantial momentum since the year 2000. Given the importance of PA research in regards to health outcomes, and apparent popularity of such research (based on the number of manuscripts published), one could argue that the viability and future of PA are indeed bright. However, one could also assume a different view, that although the field is popular, it is saturated and we already know what we need to know regarding the impact of PA on public health. Much of the future viability of PA research will also be dependent on funding sources available. It is also possible that the impact of PA may vary around the world, thus the “global” impact of PA research may be dependent on location. This review will discuss what we perceive as the current landscape and the future of PA research in three select areas of the world, the United States, South America and Asia.

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The worldwide impact of physical activity (PA) on health consequences has received increasing attention since the early studies of Morris et al.<sup>1,2</sup> showing that London bus conductors had lower rates of myocardial infarction compared to the bus drivers, presumably because of the greater PA activity of the conductors. A recent prospective study of 416,175 individuals in Taiwan showed that an average of 92 min per week of PA was associated with a 3 year longer life expectancy compared to the inactive group.<sup>3</sup> Furthermore, every additional 15 min increase in PA reduced all-cause mortality by 4%. Similarly, a large pooled cohort study in the United States (US)

showed up to a 4.5 year gain in life expectancy with PA levels equaling 450 min of brisk walking per week.<sup>4</sup> Although these are only examples of large cohort studies showing the beneficial health effects of PA, there is little disagreement that increasing levels of PA is an important aspect of public health worldwide.

The world literature on PA, exercise and fitness has also grown exponentially since the early 1990's. A PubMed search of the terms “physical activity”, “exercise”, “fitness”, and “physical activity or exercise” since 1960 is depicted in Fig 1. It is clear that there is voluminous literature in this area

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### Abbreviations and Acronyms

CNPq = National Council for Scientific and Technological Development  
CV, Cardiovascular

FAPESP = Foundation for Research Support of the State of São Paulo

MCT = Ministry of Science and Technology

MET = Metabolic equivalent

NHLBI = Heart, Lung and Blood Institute

NIH = National Institutes of Health

NCDs = Non-communicable Diseases (NCDs)

PA = Physical activity

US = United States

WHO = World Health Organization

of research and the exponential increase in the number of manuscripts has gained substantial momentum since the year 2000. Given the importance of PA research in regards to health outcomes, and apparent popularity of such research (based on the number of manuscripts published), one could argue that the viability and future of PA are indeed bright. However, one could also assume a different view, that although the field is popular, it is saturated and we already know what we need to know regarding the impact of PA on public health.

Much of the future viability of PA research will also be dependent on funding sources available. It is also possible that the impact of PA may vary around the world, thus the “global” impact of PA research may be dependent on location. Consequently, we will discuss what we perceive as the future of PA research in three select areas of the world, the US, South America and Asia.

### The US Perspective

Much of the initial interest and work in the US on the impact of PA on health parameters can be attributed to Ralph Paffenbarger and the Harvard Alumni study. The 1978 manuscript published in *American Journal of Epidemiology*<sup>5</sup> showed that men who expended less than 2000 kcals per week in PA were at 64% increased risk of myocardial infarctions. The 2000 kcal per week threshold was subsequently shown to decrease risk by 21–49% regardless of age in men aged 35–84 years.<sup>6</sup> A multitude of studies has followed, including the recent pooled cohort study by Moore et al.<sup>4</sup> cited above. Other important prospective epidemiological studies have shown that cardiovascular (CV) fitness is associated with reductions in risk of all-cause mortality of over 50%.<sup>7</sup> Blair et al.<sup>8</sup> have also shown that both fitness and PA provide substantial reductions in risk of mortality in both men and women. Thus, it was not surprising that the Surgeon General issued a report in 1996 providing suggested PA guidelines for the nation.<sup>9</sup> More recently the US Department of Health and Human Services has issued PA guidelines, stating that adults should participate in at least 150 of moderate intensity PA per week, but additional benefits can be gained by participating in up to 300 min per week.<sup>10</sup> Thus, achieving a certain level of PA is part of public health policy in the US, and there is little dispute that PA can provide significant health benefits.

Despite the obvious benefits of PA, less than 50% of US adults meet the recommended PA guidelines.<sup>11</sup> There is also an age effect, with fewer individuals meeting the recommended PA guidelines with increasing age, despite the fact that older adults exhibit a greater reduction in mortality risk by being active.<sup>6</sup>

### Number of manuscripts in PubMed published since 1960

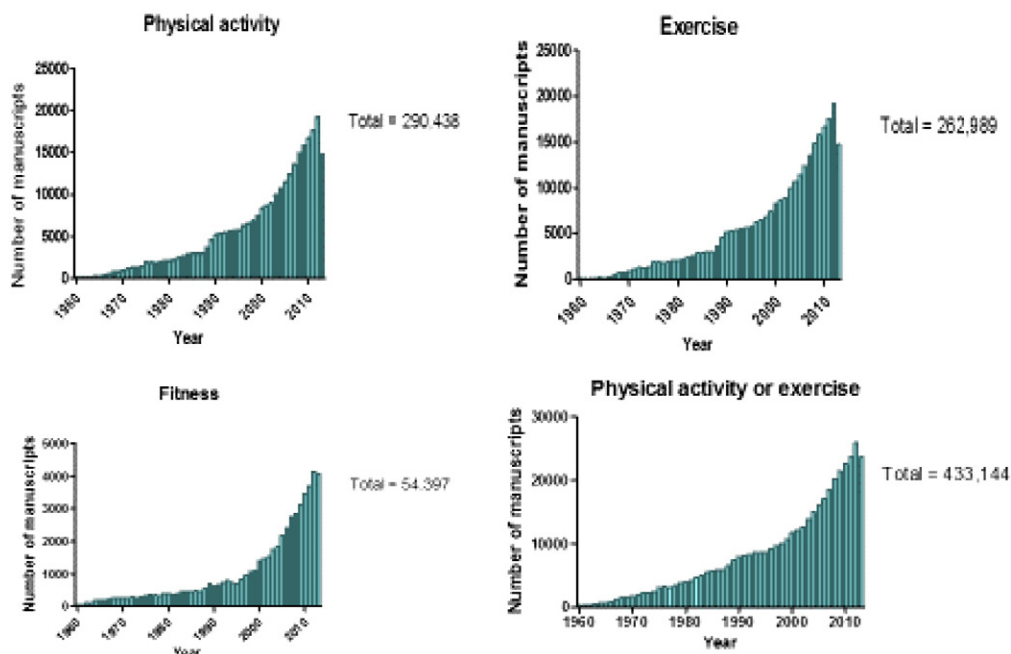


Fig 1 – Number of PubMed indexed publications using physical activity-based search terms.

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