

## Is a Population-Level Physical Activity Legacy of the London 2012 Olympics Likely?

Adrian E. Bauman, Niamh Murphy, and Victor Matsudo

Organizing committees for Olympic Games often promise a diverse range of long-term health and other legacies emanating directly from having hosted the Games. Some of these legacies appear supported by evidence, whereas others may be part of the rhetoric surrounding the initial bids for the Games. Table 1 lists the potential legacies following any Olympic Games that could be considered in relation to a broad range of health outcomes. These proposed legacies include infrastructure improvements to health systems and to emergency public health services, as well as health promotion and disease prevention efforts. Additional legacies relate to the built environment, to transportation and infrastructure, to social capital and to community well-being, and these may have the potential to influence broader social and environmental health benefits. One often-proposed legacy (similar to Olympic ideals) is that of a population-level increase in sport and physical activity participation in the years following the Games. Although this latter legacy has the greatest potential for reducing non-communicable disease risk among the population,<sup>1,2</sup> the central issues for public health at this time are 1) whether a physical activity “effect” is likely to follow the London 2012 Olympic Games and 2) whether planning for future Games could include strategies that will increase physical activity at the population level.

A previous report indicated that the 2012 London Olympic Games might be a ‘major catalyst of mass participation in physical activity’<sup>3</sup>—a potential that was echoed by others.<sup>4</sup> If indeed the logic models in the London 2012 meta-evaluation framework<sup>5</sup> provide guidance, then they suggest that increases in the population prevalence of physical activity are antecedent to putative health benefits following the Olympic Games. This issue, however, warrants a more cautious discussion—indeed, one grounded in the difficulty of achieving physical activity changes at the population level. Physical activity is a

complex behaviour, and an effective population strategy would require years of integrated investment and coordinated policy. This effort would have to include campaigns for 1) influencing social norms toward increasing lifestyle activity, 2) improving the built environment in order to create more opportunities to be active throughout the day, 3) building national active transport networks, and 4) increasing health literacy and messaging among medical and other health professions regarding the importance of regular physical activity to noncommunicable disease prevention.<sup>6,7</sup>

The difficulty of inducing population-level change in physical activity patterns is best illustrated in the United States, where even a decade after the *1996 Surgeon General’s Report on Physical Activity and Health*, the prevalence of physical activity among Americans remained essentially unchanged.<sup>8</sup> A rare example of successful community-wide efforts to increase physical activity participation resulted from the Canadian ParticipACTION initiative, which combined social marketing, worksite, school, and health sector programs with policy links to health, sport, and recreation over 3 decades.<sup>9</sup> At best, however, these massive multi-sectoral and sustained efforts to change population physical activity produce up to a 1% increase in participation each year.

So how can we do better? First, there is a need to disaggregate physical activity participation from changes in sport. Much of the London 2012 legacy focuses on the potential for increasing sport participation among the general community.<sup>5</sup> Although organized sport is important, it contributes relatively little to total daily health-enhancing physical activity among most populations.<sup>10</sup> Moreover, national data from the Taking Part United Kingdom surveys have indicated that sport participation levels were remarkably unchanged between 2005–2011.<sup>5</sup> Thus, given the lack of impact despite up to 7 years of pre-Olympic sporting strategies in the United Kingdom, one could surmise that this static trend is likely to remain unchanged following the 2012 Games.

The concept of an Olympic Games ‘festival’ was proposed for London 2012 [ie, an extension of the Games to inspire or to motivate people to do (more) sport].<sup>4</sup> Some aspects of the ‘festival’ proposal are conceptually grounded in the behaviour change literature, in which mass-event promotions and community excitement

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Bauman is with the Prevention Research Collaboration, School of Public Health, Sydney University, Australia. Murphy is with the Centre for Health Behaviour Research, Waterford Institute of Technology, Waterford, Ireland. Matsudo is with Celafisces Laboratory, Sao Paulo, Brazil.

**Table 1 Categories of Potential Health Legacies Following Olympic Games, Using Public Health Criteria**

Health Legacy category	Public health approach and hypothesized legacy	Examples of health outcomes in relation to OG
Health system, public health services	Increased access to health services; emergency health services	Emergency care and disaster planning systems developed in Sydney, Vancouver and Athens OGs; transfusion service developed in Beijing <sup>15</sup>
Acute (communicable) disease incidence	Acute disease outbreak surveillance and public health response	Vector control planning for Beijing <sup>15</sup> and improvements to epidemic and laboratory surveillance of infectious disease <sup>16</sup>
Reduce NCD risk factors; population health promotion	Primary prevention strategies; tobacco control, healthy diet; reduce HIV and STI risks; well-being, community capacity	Tobacco free policies at OGs; supportive smoking cessation messages in Athens, Sydney OGs <sup>1</sup> ; “3 Fives campaign” in food safety, healthy nutrition and physical activity; and anti-smoking policies in Beijing <sup>15</sup>
Sports provision, sport facilities, infrastructure developed	Built infrastructure for OG used by the community following the Games	Aspiration to have facilities used post OG Sometimes realized (Barcelona 1992, Sydney 2000 OG). Attempts made following the 2002 Manchester Commonwealth Games. Sometimes facilities decayed into disrepair (Athens)
Sport participation (population level)	Population shows increased participation in organized sport (adults, children)	Evidence seldom sought, but when available shows transient or negligible impact on sport or physical activity participation at the population level <sup>14</sup>
Physical activity participation	Increased levels of physical activity in whole population	
Environmental health improved	Reduced air pollution; improved water; quality control for food inspection.	Improved air quality (Beijing OG) and better public transport systems (Sydney OG, Vancouver, Beijing) <sup>16</sup>
Improved urban and social health	Urban development, regeneration, housing; Healthy Cities; equity	Community engagement (volunteerism); reduced crime rates around OGs <sup>15,16</sup>

Abbreviations: OG, Olympic Games; NCD, noncommunicable disease; STI, sexually transmitted infections.

Note. Full reference list for this table available on request.

might hypothetically lead to increased intentions to be more active or to experimentation with more diverse types of physical activity. There is, however, limited evidence in the literature of an ‘acute festival’ effect producing *sustained changes* in healthful behaviours.<sup>11</sup> On the other hand, one program having a sustained ‘festival’ effect on the population was the large-scale Agita physical activity initiative in the Sao Paulo region of Brazil.<sup>12</sup> This initiative engaged adults and children in a 10-year comprehensive set of programs; it was clearly marketed by the ‘half-hour man’ (the symbolic brand for physical activity); and it promoted ‘moving more’ across multiple sectors and jurisdictions in the community. The

Agita ambiente was definitely in the ‘festival’ genre, but eventually led to significant positive effects on population levels of physical activity.<sup>12</sup> A challenge for the London ‘festival’ was the need to de-emphasize sport participation in favor of general physical activity promotion (ie, “moving more”) in order to target those people who are completely inactive,<sup>4</sup> a group that is difficult to reach, but among whom the maximum population health gains can be realized and perhaps sustained.<sup>2</sup>

The initial and remarkably ambitious policy goal to increase the prevalence of ‘sufficient physical activity’ among UK residents from 30% to 70%<sup>13</sup> was later reduced markedly. Even so, the revised physical activity

goals remain extremely unlikely as achievable population targets. The only existing hard evidence of an Olympic Games effect on population physical activity followed the Sydney 2000 Olympics. Annual representative survey data, collected in November 1999 and again in November 2000 (8 weeks following the Sydney Games), indicated a negligible Olympics-related impact on population-level physical activity participation.<sup>14</sup> In fact, only 4% reported that they were motivated to do something after the Olympic Games. Of those reporting intentions to be more active, only 0.8% reported this as sport activity; the remainder reported intentions to increase walking and incidental activity, which was a likely consequence of the concurrent Active Australia mass media campaign that was promoting incidental activity.<sup>14</sup> Thus, sport behavior was not influenced despite the community interest in sport that permeated the Sydney Games. Similarly, there was no subsequent impact noted among the adult Greek population following Athens 2004,<sup>16</sup> and only physical activity ‘media promotions’ occurred following Beijing 2008, with no population prevalence data collected.

So, the debate is not whether London 2012 can achieve important legacy goals around economic growth, urban regeneration, and community engagement.<sup>5</sup> In fact, the public health legacy from these 2012 Games could very well emanate from housing and community infrastructure development and community capacity building—albeit in municipalities closest to the Games site.<sup>3</sup> Rather, the debate concerns whether existing physical activity policy initiatives (the UK Places People Play initiative and its sub-components Gold Challenge, Sportivate, and School Games; Let’s Get Moving)<sup>5</sup> will have the necessary ‘reach’ to be effective in promoting behavior change at the population level. This concern is exacerbated by post-Olympic funding cuts, diminished supportive mass communication and marketing strategies, and a shifting emphasis toward elite competitive sport (rather than on mass participation in physical activity or on school-based physical education programs), making it unlikely that the 2012 London Games will yield broad sustainable benefits.<sup>18–21</sup>

Perhaps subsequent mass sport-sector events, such as the 2014 Commonwealth Games in Glasgow or the 2016 Rio Olympic Games, could engage sooner in the complexities of devising an action plan to advance a legacy of population growth in physical activity. Again, such ambitious efforts would require top-level government leadership and financial support, strong cross-sectoral partnerships across multiple agencies, and years of systematic planning and development.<sup>17–19</sup> Until this is realized, the Olympic Games and other mass events are not likely to be an effective physical activity strategy for the whole population.

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