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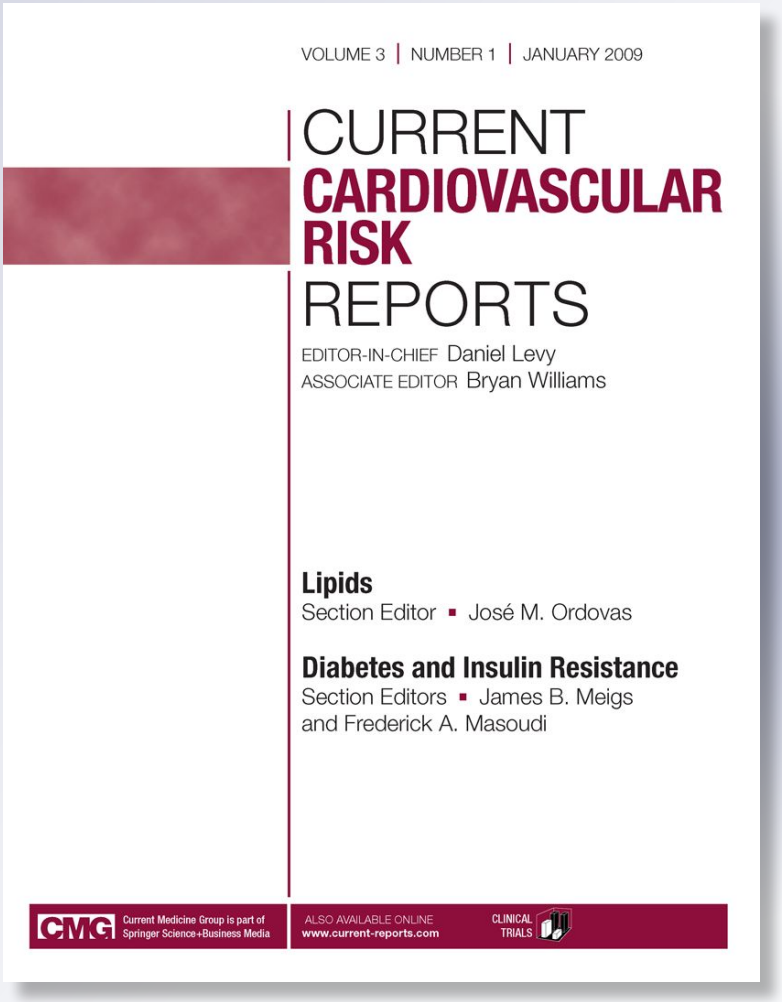

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Public Policy Actions Needed to Promote Physical Activity

Bill Bellew · Adrian Bauman · Brian Martin · Fiona Bull · Victor Matsudo

Abstract Physical inactivity is a major risk factor for cardiovascular disease, and strategies to increase activity levels are as important to population health as smoking cessation, cholesterol control, or preventing obesity. The World Health Organization has identified that governments and non-government agencies have a central role in the creation of environments that facilitate physical activity changes by individuals, families, and communities. This article describes recent policy-related programs at a large-scale or national level to promote physical activity. This is proposed within a framework that codifies evidence-based policy actions, based on the International Physical Activity Recommendations. Examples are provided of current policy actions from diverse settings around the world. Finally, future policy directions needed for the promotion of physical activity are discussed and related research needs identified.

Keywords Physical activity · Health policy · Health promotion · Disease prevention

B. Bellew
School of Public Health, University of Sydney,
Sydney, NSW, Australia

A. Bauman (✉)
Prevention Research Collaboration, School of Public Health,
University of Sydney 2006,
Building K25,
Sydney, NSW, Australia
e-mail: adrian.bauman@sydney.edu.au

B. Martin
Physical Activity and Health Unit, Institute for Social and
Preventive Medicine, University of Zurich,
Zurich, Switzerland

F. Bull
School of Population Health, University of Western Australia,
Perth, Australia

V. Matsudo
CELAFISCS,
São Caetano Do Sul, São Paulo, Brazil

Introduction

The focus of this article is public policy actions needed to promote Health Enhancing Physical Activity (HEPA). "Physical Activity" is any body movement produced by skeletal muscles that results in energy expenditure [1]. "Health Enhancing Physical Activity" is any form of physical activity that benefits health and fitness without undue harm or risk [2]. Clinicians often focus on promoting "Exercise," which is the subset of physical activity that is planned, structured, repetitive and aims to improve or maintain physical fitness [1]. In addition, "sport" denotes physical activity involving physical fitness that is governed by a set of rules or customs and often undertaken competitively. These physical activity concepts are shown graphically in Fig. 1 [3]. Figure 1 provides a framework for action; most policy initiatives described in this article focus on physical activity, and in particular, "active living," which is defined as "physical activity embedded in actions as part of everyday life" (http://www.centre4activeliving.ca) and aims to increase energy expenditure across multiple settings, and more recently, to reduce sedentary and sitting behavior.

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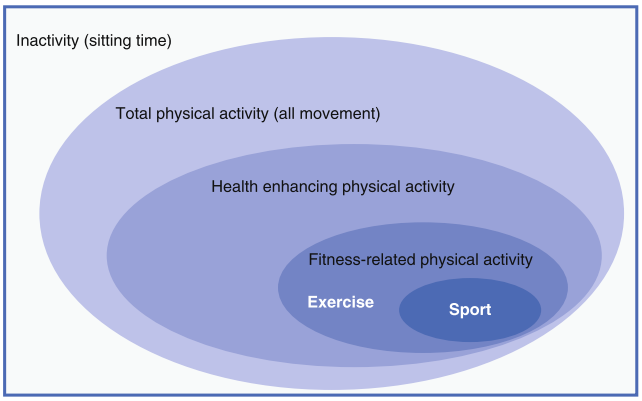

Fig. 1 Physical activity concepts. (*Adapted from* Hagströmer [3])

Current Levels of Physical Inactivity Pose Serious Cardiovascular Risks

Epidemiologic studies over four decades have identified that regular moderate-intensity physical activity is inversely related to cardiovascular disease, thromboembolic stroke, hypertension, type 2 diabetes mellitus, and a range of other non-communicable disease risks. Large-scale, prospective observational studies have repeatedly documented a dose–response relationship between physical activity and risk of cardiovascular disease and premature mortality in men and women, and in ethnically diverse participants, and in developing countries; all of these studies and their meta-analytic synthesis reported significantly lower levels of cardiac event or mortality risk with increasing amounts of physical activity.

The high prevalence of physical inactivity in the population increases its contribution to the overall public health burden of disease. Global estimates of physical inactivity, including leisure, work, and transport activity, were calculated for the 2002 Comparative Risk Assessment and 2002 World Health Report. This analysis showed that approximately two thirds (60%) of the world's adult population are physically inactive [4]. This level of inactivity is, in most countries, much higher than the population prevalence of hypertension, high cholesterol levels, tobacco use, or obesity. Physical inactivity has been identified by the World Health Organization (WHO) as the fourth leading risk factor for global mortality (6% of deaths globally). This follows the attributable burden due to high blood pressure (13%), tobacco use (9%), and high blood glucose (6%). Overweight and obesity are responsible for 5% of global mortality [5•], but often receive greater policy attention than inactivity. In summary, physical inactivity is a major global health concern, and policy-related actions are required to target inactive populations in developed and many developing countries.

Current Recommendations on Population Levels of Physical Activity for Health

The 2010 WHO Global Recommendations on Physical Activity for Health provided guidance on the dose–response relationship between physical activity and health and identified the amount of physical activity recommended for the prevention of non-communicable disease (NCDs) [6•]. These recommendations summarize the recommended levels of physical activity for health for people 5 to 17 years of age, 18 to 64 years of age, and ≥65 years of age [6•] and are consistent with and build on recent US guidelines for adults [7] and older adults [8]. They are also consistent with recent studies of the health benefits of physical activity and fitness in school-aged children and youth [9–11]. The recommendations are shown in Table 1 and indicate the types of activity that policy actions need to target.

Evidence-Based Public Policy

"Health policy" is a formal statement or procedure within institutions (notably government) that defines priorities and the parameters for action in response to health needs, available resources, and other political pressures [12]. The main aim of physical activity–related public policy is to create supportive environments, infrastructure, and programs to enable people to lead active lives. It makes the social and physical environments health-enhancing [12]. Our use of the term "public policy" in this article combines these two definitions proposed in the WHO health promotion glossary; we emphasize that the actions required to promote physical activity involve multiple agencies and sectors and not merely the health sector.

Policy may be conceptualized at three levels reflecting social and political commitment [13]: (1) formal written codes, regulations, or decisions with legal authority (legislation and urban planning zoning are examples of this type of policy); (2) written standards that guide choices (guidelines suggesting physical education standards for all school-age children are an example of standards that guide but do not mandate policy); and (3) unwritten social norms that influence behavior (including the culture of sedentariness, reduced energy expenditure in everyday lives). "Evidence-based public policy" is based on research that has undergone quality assurance and methodologic scrutiny. This distinguishes it from more conventional public policy development, in which intuitive appeal, tradition, politics, or the extension of existing practice may set the policy agenda [14].

The WHO Global Strategy on Diet and Physical Activity affirms that "governments have a central role (with other stakeholders) in creating an environment that encourages

Table 1 Global recommendations on physical activity for health

Recommendations on physical activity for health (health enhancing physical activity)		
5–17 years old	18–64 years old	65 years old and above
1. Children and youth aged 5–17 years should accumulate at least 60 min of moderate[a]- to vigorous[b] intensity physical activity daily.	1. Adults aged 18–64 years should do at least 150 min of moderate-intensity aerobic physical activity throughout the week or do at least 75 min of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous-intensity activity.	1. Adults aged 65 years and above should do at least 150 min of moderate-intensity aerobic physical activity throughout the week or do at least 75 min of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous intensity activity.
2. Amounts of physical activity greater than 60 min provide additional health benefits.	2. Aerobic activity should be performed in bouts of at least 10 min duration.	2. Aerobic activity should be performed in bouts of at least 10 min duration.
3. Most of the daily physical activity should be aerobic. Vigorous-intensity activities should be incorporated, including those that strengthen muscle and bone, at least 3 times per week.	3. For additional health benefits, adults should increase their moderate-intensity aerobic physical activity to 300 min per week, or engage in 150 min of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate- and vigorous-intensity activity.	3. For additional health benefits, adults aged 65 years and above should increase their moderate intensity aerobic physical activity to 300 min per week, or engage in 150 min of vigorous intensity aerobic physical activity per week, or an equivalent combination of moderate-and vigorous-intensity activity.
	4. Muscle-strengthening activities should be done involving major muscle groups on 2 or more days a week.	4. Adults of this age group, with poor mobility, should perform physical activity to enhance balance and prevent falls on 3 or more days per week.
		5. Muscle-strengthening activities should be done involving major muscle groups, on 2 or more days a week.
		6. When adults of this age group cannot do the recommended amounts of physical activity due to health conditions, they should be as physically active as their abilities and conditions allow.

[a] Moderate-intensity physical activity raises the heartbeat and leaves the person feeling warm and slightly out of breath (increases metabolic rate to 3–6 times the resting level [70])

[b] Vigorous-intensity physical activities expend more energy (increases metabolic rate to 6–10 times the resting level) and involve high energy sports or exercise, such as running or fast cycling [70]

(*Adapted from* World Health Organization [6•])

behaviour changes by individuals, families and communities, to (foster) healthy diets and patterns of physical activity" [15]. Furthermore, the emerging field of evidence-based policy and practice (EBPP) ensures the translation of scientific evidence of effectiveness and cost effectiveness informs the selection of public policy actions to promote physical activity [16•, 17•].

Current Recommendations on Public Policy Actions to Promote Physical Activity

Effective policies for physical activity are described in the *WHO Global Strategy on Diet, Physical Activity and Health* [15] and related advice on its implementation can be found in *Implementation of the WHO Global Strategy on Diet, Physical Activity and Health—A Guide for Population-based Approaches to Increasing Levels of Physical Activity* [18]; *Interventions on diet and physical activity: what works* [19]; and *Global Recommendations on Physical Activity for Health* [6•]. WHO guidance on "what works" recommends multiple intervention strategies aimed at supporting the individual and at creating a supportive environment [19].

Combinations of different actions are needed in different settings to reach target populations. Strategies deemed "effective" are recommended for the following settings: mass media campaigns, policy and environment changes, school settings, workplace programs, and community and primary healthcare. The US Centers for Disease Control and Prevention (CDC) Community Guide provides evidence-based systematic recommendations and findings about what works to improve public health [20, 21] . The UK National Institute for Health and Clinical Excellence (NICE) has similarly undertaken a rigorous approach to public health guidance and evidence briefings in the field of physical activity [22–29] but used

variations in methodologies across physical activity intervention settings.

The definitions of intervention "effectiveness" and processes used to develop the recommendations on policy actions by the three agencies are shown in Table 2. These are applications of population health efforts to promote physical activity, and extend beyond clinical trial frameworks used to generate evidence regarding clinical therapy effectiveness.

A set of policy actions recommended by WHO, CDC, and NICE are mapped by setting in the left hand column of Table 3. For the Policy and Environment setting, there is general consistency in the four agency recommendations (PE1 to PE4). For Mass Media there is again overall consistency (MM1 to MM3), especially when campaigns are embedded within the context of community-wide physical activity programs [30]. NICE guidance uses "social marketing" more broadly in the guidance on physical activity for children and young people [27]. There is consistency on recommended actions in the school setting (SS1 to SS5); an exception is that The Task Force is not yet convinced that the value of a parental/family component in these programs is sufficiently proven. Less consistency is evident in the recommendations for the workplace setting (WP1 to WP4). The CDC Task Force recommends individually adapted health behavior change programs, including goal-setting and reinforcement, at the community level (CY1 CY2), but there may still be equivocal evidence for the primary health care (general practice) setting (PC1 to PC4). By contrast, "What Works" has four quite specific recommendations for primary care, three of which NICE is in agreement with, whereas the evidence for "referral schemes" from primary care was deemed insufficient to support a recommendation.

Current Examples of Evidence-Based Policy Actions

We have selected recent examples of evidence-based policy actions for physical activity, so that any of the policy actions recommended by WHO, CDC or NICE qualified for inclusion in the template used for Table 3. Examples of evidence-based policy-led actions to promote physical activity from different countries and settings are shown for the period 2009 to 2010. These are illustrative examples from a few countries, not a systematic review of global policy-driven actions for physical activity.

Some of the recent policy directions are still in the form of policy statements or frameworks to promote physical activity. For example, following the launch of the US National Physical Activity plan in 2010, recent work has produced an implementation framework (Make the Move 2010–2011) [31]. This framework posits that safe facilities for play and physical activity in schools and communities are potentially effective ways of increasing physical activity at the population level, but require policy development with government, not-for-profit organizations, or other groups. Similarly, a recent framework around "Active Design guidelines" in New York [32] provides a typical example of the policy framework for making cities more conducive to "active living"; however the challenge here is to translate these frameworks into specific urban planning and design changes that facilitate active living.

Specific examples are shown in the right hand column of Table 3. The first set describes typical policy and environmental change programs that could support physical activity. These require working with urban and transport planners, the Green movement, the Environmental departments, and others to build infrastructure shown to be related to increases in physical activity [21, 25, 33, 34]. The second row describes large-scale mass media campaigns

Table 2 Definitions of intervention "effectiveness" applied to physical activity and the processes used to develop the recommendations on policy actions by the World Health Organization, United States, and United Kingdom

WHO definition of "effective" as applied to physical activity
Interventions based on a formative assessment; strong research designs; sufficient sample size and with significant effects demonstrated. Ideally, to achieve population change, results should be generalizable to other settings (disadvantaged communities and low- and middle-income countries). These may be "exemplar physical activity interventions." http://www.who.int/dietphysicalactivity/whatworks/en/index.html
US CDC Community Guide: recommended physical activity interventions
"Recommended –The systematic review provides strong or sufficient evidence that the physical activity intervention is effective. The categorization is based on several factors: study design, number of studies, and consistency of the effects on PA across studies." http://www.thecommunityguide.org/index.html
UK National Institute of Clinical Excellence "recommendations" for physical activity
"(NICE) public health guidance makes recommendations for populations and individuals on activities, policies and strategies that can help prevent disease or improve health." Good research criteria [similar to CDC Community Guide above]. Consultations occur with practitioners and Experts and NICE formally approves final guidance for publication. http://www.nice.org.uk/

US CDC United States Centers for Disease Control and Prevention; WHO—World Health Organization

Table 3 Examples of "evidence-based" policy actions to promote physical activity in different countries and settings in 2009 to 2010

Setting for policy actions to promote physical activity	Illustrative examples from different countries
Environment	•Brazil: environment change to build sidewalks and paths in a region of Sao Paulo (Sorocaba); similar to the Ciclovia-Recreativa projects [71] in Latin American countries and elsewhere. This type of project is increasingly prevalent at the municipal level in many communities to increase walkability or cycling, through promoting both active travel [59•] and healthy active recreation.
•Community-scale urban design and land use policies and practices [PE1] (livable communities)	•Great Britain: Walk4life Miles [72], a national initiative of Health Department Walk England organization, through "Be Active Be Healthy" policy; this includes programs such as the 2012 One mile Active Challenge, which is a series of 2012 separate one-mile walks across England to be completed before the 2012 London Olympics
•Street-scale urban design and land use policies and practices [PE2] (walking, cycling, play) •Transportation and travel policies and practices [PE3] (active transport) •Point-of-decision prompts to encourage using the stairs (eg, information on the benefits of physical activity next to the elevators and stairs) [PE4]	•Europe[a]: Public bicycle schemes in several European countries—innovative schemes of rental or free bicycles in urban areas provide a fast and flexible inner urban transport option, can increase the acceptance of cycling as an urban transport mode, increase sustainable mobility choices at low cost and encourage intermodal travel [73]
Mass media and social marketing	•Australia: "Measure up" campaign [74]—National healthy eating and physical activity campaign; phase 1 from 2009–2010 and phase II from 2011. Based on chronic disease policy (national preventive partnerships) inter-sectoral Task Force and Strategic Plan 2007/08–2010/11 [58]; several campaigns, including the mass media "Find 30" campaign [75] in its second phase 2009–2011
•Mass media campaigns promoting physical activity [MM1] •Mass media campaigns with community-based, supportive activities such as programs in schools and local communities [MM2] •Mass media campaigns associated with policies to address local environmental barriers to participation [MM3]	•Canada: "ParticipACTION"—supported by Sport Canada and the Public Health Agency of Canada. It was established in 1971, and after a 6-year gap was relaunched in 2007 at the "national voice of physical activity and sport participation in Canada" [76, 77]. Initiatives include communications, capacity building, and knowledge exchange. 2007 mass media campaign had positive evaluation results.
School	•Switzerland: Nationwide Youth + Sport-Kids program targeting elementary school children [37].
•High-intensity school-based interventions that are comprehensive, multi-component, and include –curriculum on physical activity taught by trained teachers [SS1] –supportive school environment/policies [SS2] –a physical activity program [SS3] –a parental/family component [SS4] •Enhanced school-based physical education [SS5]	•United States: The CATCH program (Coordinated Approach to Childhood Health) [45] is a coordinated school health program designed to promote physical activity and healthy food choices in middle elementary school children. The program was evaluated, replicated, and then disseminated (turned into policy) and is current in use in over 7500 schools and after-school programs across the United States and Canada. [42, 44]
Workplace	•Great Britain: Well@work [39] is a large-scale pilot program in 32 diverse worksites across England.
•Multi-component programs promoting physical activity that –provide space for fitness or signs to encourage use of stairs [WP1] –involve workers in program planning and implementation [WP2] –involve the family in interventions through self-learn programs, newsletters, festivals, and so forth [WP3], or –provide individual behavior change strategies and self-monitoring [WP4]	•United States: Booster breaks [40] builds short activity breaks into workplace routines, similar to "Instant Recess" [41]. It is also potentially a way of reducing sitting time (at work), a putative new cardio-metabolic risk factor, independent of physical activity participation.
Community	•Great Britain: Cycling town demonstration project [46] includes funding and building infrastructure for cycling across intervention communities in England, with matched control communities.
•Community development campaigns with inter-sectoral co-operation and/or focused on a common goal (eg, reduction in cardiovascular disease risk [CY1] •Group-based physical activity programs or classes for a homogenous group of individuals [CY2]	•Switzerland: Switzerland mobility [47] provides national tourism offers for hiking, biking, and other activities in cooperation with other sector, recently involve more local and regional levels

Table 3 (continued)

Setting for policy actions to promote physical activity	Illustrative examples from different countries
Primary health care	•Great Britain: "Let's get moving", a program derived from NICE guidance [24] and implemented on a wide scale through primary care physicians [49]
•Interventions targeting chronic NCD risk groups that:	•Nordic countries: Analysis-based policy initiative from Norway, Sweden, Denmark, and Finland providing primary care advice through the general practice setting to populations at risk of chronic disease.
–include persons who are inactive, are overweight, or have a family history of obesity, heart disease, cancer, and/or type 2 diabetes [PC1] –include at least one session (health risk appraisal) with a health care professional, with brief discussion to decide on reasonable attainable goals, and a follow-up consultation with trained personnel [PC2]	•United States: Exercise Is Medicine (EIM) is a policy initiative launched by the American College of Sports Medicine to promote the idea, and it is a resource for clinicians to promote physical activity in clinical encounters [78]
•Are supported by targeted information [PC3]	
•Are linked and/or coordinated with other stakeholders such as community sports organizations or ongoing mass media physical activity campaigns [PC4]	

[a] Includes the countries of Austria, Belgium, Denmark, England, France, Germany, Italy, the Netherlands, Norway, Spain, Sweden, and Switzerland

and social marketing actions to increase awareness and set the agenda for active living and physical activity, communicated to whole populations using old and new media channels [35, 36].

School-based and youth-targeted interventions are evidence based, but there are relatively few large-scale interventions. Many controlled trials generate evidence in this setting, but few policies are monitored to disseminate these evidence-based programs and track that they reach the many inactive school-age children. The Swiss Youth + Sport-Kids program aims to reach all children and includes teacher training and policies regarding physical education classes [37]. Similarly, the workplace has much evidence [38], again from controlled studies in selected volunteer groups, and a few studies reach the majority of workers across a system. The example of Well@work in England is a pilot study testing many interventions in diverse workplace settings [39]. The concept of short breaks at work in the United States is designed to break up sitting time, increase physical activity, encourage large-scale population change, and do so in a way that is generalizable to other settings [40, 41]. An American school example, the Child and Adolescent Trial for Cardiovascular Health (CATCH), was published in the 1990s, but has since been replicated and disseminated and has become a policy-driven (evidence based) school intervention in several US states and in Canada [42–45].

Community-wide programs should reach whole communities or systems and be accessible and affordable to all in the community. The Cycling Towns Demonstration Study provided resources to English towns to create more cycling friendly environments, and initial results on physical activity appear encouraging [46]. The SwitzerlandMobility program is a national set of resources for leisure-oriented walking, cycling, and other activities [47].

Evidence of the effectiveness of promoting physical activity from the primary health care setting is usually based on small-scale intervention trials. For example, a well-designed Spanish study used optimal research methods but only reported a small effect on physical activity [48]. The examples reported emanate from policy discussions and have the potential for wider reach into many primary care practices and into the community. The British "Let's get moving" initiative has started a process of widespread dissemination within a national physical activity policy framework [24, 33, 49]. The Nordic Council policy approach analyzes experiences and policy elements in regional countries. The reach into practices and populations remains to be seen [50]. A similar framework, the "Exercise is Medicine" model has been developed by the American College of Sports Medicine as a policy framework for promoting physical activity. A central component advocates for physicians to be aware of and recommend physical activity more often to their patients. Like the Nordic model, it is still a (potentially high reach) policy framework, but its effectiveness is not yet established.

Discussion

We have shown that physical inactivity is a major risk factor for cardiovascular disease. A dose–response relationship exists between at least moderate-intensity physical activity and the risk of cardiovascular disease and premature mortality [7, 8, 51–54]. We note that current levels of physical inactivity pose serious cardiovascular risks on a global scale [4]. Recommendations on public policy actions to promote physical activity have been formulated by the World Health Organization [15, 18, 19], US Centers for

Disease Control and Prevention [20, 21], and the UK National Institute of Clinical Excellence [22–29]. If implemented in isolated or piecemeal fashion, these actions, although grounded in research evidence, are too narrow to tackle physical inactivity in a serious way. A comprehensive approach that integrates policy actions across sectors and settings is needed to achieve substantive increases in physical activity at the population level. This comprehensive approach to policy-led initiatives represents an important new direction in the primary prevention of cardiovascular disease.

Opponents of excessive government intervention argue that individuals are ultimately responsible for their own and their children's health; a counter-argument is that people need to be supported by healthy public policy to facilitate their healthy choices [55]. This gives explicit recognition to the need for system-wide policy directions that acknowledge the social costs of inactivity behaviors, the now-pervasive sedentary social norms, and the significant socioeconomic inequalities in healthy lifestyles present in many countries.

We have commented on recent international evidence-based recommendations on public policy actions to promote physical activity; despite overall congruence, inconsistencies across the agencies were noted for their recommendations with respect to (1) transportation and travel, (2) parental/family involvement in initiatives within the school setting, (3) worker/family involvement in initiatives within the workplace setting, and (4) the primary health care setting. An important idea with respect to these policy actions is that notwithstanding their evidentiary credentials, taken individually they represent only the subcomponents or building blocks for what is needed to promote physical activity at the population level; a comprehensive strategic approach integrates policy actions across sectors and settings, preferably with an overarching and unifying communication plan. In previous reviews, we have described criteria for successful national level physical activity policy development [56, 57]; these reviews emphasized multi-strategic, multi-level partnerships as well as national guidelines for health-enhancing physical activity.

The WHO has set out guiding principles for a population-based approach to physical activity [18]; recently the Toronto Charter for Physical Activity also set out guiding principles (including advocacy to increase political commitment) and four priority actions [17•]. The WHO and Toronto Charter publications are consistent with and reinforce our earlier criteria for effective policy and are particularly relevant to our consideration of how policy actions are to be configured effectively. The Toronto Charter guiding principles are premised on having a national physical activity plan, having supportive policies and partnerships to promote physical activity, and re-orienting existing services to further activity-related programs. The priority action areas in the Toronto Charter are summarized as follows [17•]:

1. Adopt evidence based strategies that target the whole population
2. Am to reduce disparities in access to (and participation in) physical activity
3. Address environmental, social, and individual determinants of inactivity
4. Implement sustainable actions in partnerships at national, regional, and local levels and across multiple sectors to achieve greatest impact
5. Build capacity and support training in research, practice, and policy
6. Use a life-course approach: address needs of children, families, and older adults
7. Advocate for increased political commitment and resources for physical activity
8. Ensure cultural sensitivity; adapt programs to local realities and contexts
9. Facilitate activity by making physically active choices the easy choice.

We have provided current examples of policy actions from the United States, Canada, Europe, South America, and in the Asia-Pacific region, including examples of the comprehensive and integrated approach [33, 58], which are in keeping with the guiding principles and actions proposed in The Toronto Charter for Physical Activity [17•] and by WHO [18]. We argue that it is this comprehensive and integrated approach that represents the key to what public policy actions needed to promote physical activity comprise.

Conclusions

Randomized trials generate important research evidence, typically under ideal conditions, about the efficacy of specific physical activity interventions. Systematic reviews can identify, evaluate, and interpret available research evidence relevant to specified intervention questions, and these may in turn be formulated into recommended policy actions such as those published by the WHO [19], the CDC [20, 21], and NICE [22–29]. We have argued that these recommendations represent building blocks for a comprehensive strategic approach that integrates policy actions across sectors and settings; what follows is the need for interventions that can achieve sufficient population reach and be sufficiently generalizable across communities in order to increase population levels of physical activity. This demands a different category of evidence than the efficacy of the randomized trial—it requires evidence for multiple

interventions delivered in a coordinated way across multiple settings and sectors, and it asks for demonstrable effectiveness (and cost-effectiveness) under normal, everyday circumstances rather than the artificial conditions of early trials. It requires that this comprehensive policy approach be sustainable (capable of being embedded or readily institutionalized within the usual business and systems of key stakeholder organizations and institutions) and an ongoing rather than a "one-off" event in the quest to promote physical activity. There are implications for the future directions of research and research design in policy-driven physical activity including the need for research to address (1) cross-disciplinary and cross-sectoral approaches [16•,59•, 60, 61•], (2) cost effectiveness of physical activity interventions [62•, 63•], (3) innovation in theory development and program design [64], and (4) translation of evidence into physical activity policy [65–68, 69•].

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