

(Staffordshire University); Yumiko Ohya, Yuko Odagiri, Tomoko Takamiya, Kaori Ishii, Makiko Kitabayashi, Kenichi Suijo, Teruichi Shimomitsu (Tokyo Medical University). Sallis received funding from the National Institutes of Health (NIH) Grant R01 CA127296. Kerr received funding from the NIH Grant R01 CA127296. Spence received funding from the Social Sciences and Humanities Research Council (SSHRC), 410-2005-2348. Gidlow received funding from the Medical Research Council NPRI Project grant G0501287. Inoue received funding from a Grant-in-aid from the Ministry of Health, Labour, and Welfare of Japan (Comprehensive Research on Prevention of Cardiovascular Diseases and Other Lifestyle Related Diseases: H19-Junkankitou-Ippan-008 and H20-Junkankitou-Ippan-001) and a Grant-in-aid for scientific research (C): 17590556 from the Japan Ministry of Education, Culture, Sports, Science, and Technology.

References

1. World Health Organization. *Global health risks: mortality and burden of disease attributable to selected major risks*. Geneva, Switzerland; Author: 2009.
2. World Health Organization. *A guide for population-based approaches to increasing levels of physical activity: implementation of the WHO global strategy on diet, physical activity and health*. Geneva, Switzerland; Author: 2007.
3. Sallis JF, Bowles HR, Bauman A, Ainsworth BE, Bull FC, et al. Neighborhood environments and physical activity among adults in 11 countries. *Am J Prev Med*. 2009;36:484-490.
4. Owen N, Mitas J, Sarmiento OL, et al. Identifying the built-environment determinants of physical activity and sedentary behaviour: emerging international evidence. *J Phys Act Health*. 2010;7(Supp. 3):S364-S366.

Identifying the Built Environment Determinants of Physical Activity and Sedentary Behavior: Emerging International Evidence

Neville Owen, Josef Mitáš,
Olga Lucia Sarmiento, Rodrigo Reis,
Takemi Sugiyama

Owen and Sugiyama are with the University of Queensland, Brisbane, Australia. Mitáš is with Palacky University, Olomouc, Czech Republic. Sarmiento is with the Universidad de los Andes, Bogota, Colombia. Reis is with Pontiff Catholic University of Parana, Curitiba, Brazil.

This Symposium brought together European, South American and Australian researchers conducting studies in collaboration with IPEN (the

International Physical Activity and the Environment Network project). IPEN is supported by a grant from the US National Cancer Institute, and is gathering internationally-comparable data on objectively-assessed and perceived environmental attributes, self-reported and objectively measured physical activity and sedentary behavior, and a range of relevant personal, social, and community attributes, using a common protocol. Pooled analyses of the data from participating IPEN countries will allow examination of the impact of a wide range of environmental conditions on physical activity and obesity. Symposium presentations highlighted opportunities provided by studies in countries with widely-varying social, economic, and environmental conditions to which their populations are exposed, which may impact on physical activity and obesity in different ways. An approach to identifying the potential role of built environment attributes in influencing sedentary behavior (too much sitting as distinct from too little physical activity) was also presented. Potential implications of these new approaches and data sources for environmental-change and public health policy development initiatives to promote more-active lifestyles at national and international levels were discussed.

Keywords: walking, bicycling, sitting, land use, automobile congestion

Objectively-Assessed Environmental Factors, Methodological Approaches, and New Findings on Environmental Correlates of Physical Activity in Regional Towns in the Czech Republic. Few studies have been published describing features of the socio-economic and built environment related to physical activity levels for residents of the Czech Republic.¹ These analyses are necessary to inform national health policies and to support building more physical activity-friendly environments. This is not common in the Czech Republic, although the government supports research and has the results showing trends across the nation. As the central European countries develop, they copy the negative trends in lifestyle from more developed countries: nevertheless, there is apparent development in strategies to support physical activity (cycling paths, new facilities etc.). Evidence on relationships between built environment and physical activity is new, and there is a great potential for this research, due to excellent data on environmental characteristics. In the Czech Republic, physical activity appears to be higher in smaller towns, which tend to have safer neighborhoods and access to forest trails, in comparison to larger cities where walking distances to many destinations may be longer due to the size of the city. The IPEN project provides great possibilities for investigators with different sources for comparisons of environmental determinants of physical activity. Mitáš introduced the variety of sources available in the Czech

Republic for GIS analyses and also described details of the IPEN study currently being conducted.

New Evidence on the Built Environment Correlates of Physical Activity Behaviors in Urban Areas of Colombia. Bogotá, the capital of Colombia and home to some 7 million inhabitants, is recognized for advancing sustainable transport, increasing the green area per inhabitant and the Ciclovía program in which 121 km of the main avenues of the city are closed to motor vehicles on Sundays and holidays from 6 a.m. to 2 p.m. and opened solely for pedestrians and cyclists. This presentation showed the results of multi-level cross-sectional studies^{2,3} whose objectives were to assess associations between objective built environment characteristics and walking behaviors among adults aged 18–64 years and those older than 65 years. Among the younger adults walking for transport was positively associated with street density, connectivity and the presence of bus rapid transit (TransMilenio) stations in the neighborhood, but was negatively associated with a slope $\geq 4\%$ and the presence of feeder stations. Among the older adults, walking was positively associated with density of parks, safety perception and with availability of the Ciclovía corridor, but was negatively associated with a slope $\geq 5\%$ and the connectivity index. In Bogotá, a rapidly urbanizing city in Latin America, built environment characteristics of the neighborhood were associated with walking behaviors. The associations differed according to age groups; however, mixed land use, which has been found to be associated with walking in developed countries, did not emerge as significant. The IPEN project will provide a unique opportunity to assess longitudinally and with accelerometers a subsample of 500 adult residents of Bogotá. Findings will guide future efforts to promote physical activity in rapidly urbanizing developing countries.

Characterizing Relevant Environmental and Social Factors, and Their Associations With Physical Activity in Curitiba, Brazil. Latin America as other regions in the world is facing many problems typically present in urban agglomerations such as traffic congestion, loss of public space and adverse environmental impacts. Despite this common scenario the evidence on the impact of the built environment on physical activity in this region is limited. For this reason the need for increasing the evidence on this association is primordial. Curitiba is a State Capital in southern Brazil and in the last decade it has been internationally recognized for its efforts to deal such problems by increasing green spaces and preservation areas and also providing an innovative public transport system. These characteristics, along with the provision of parks and recreational areas, have been linked with positive perceptions on physical activity attributes and higher levels of activities. More recently the use of secondary information on the city's built environment attributes has been successfully linked to recommended physical activity levels (≥ 150 min/week) in the community, and social norms and socio-economic conditions were strong moderators of the relationships.⁴ This suggests the need for both perceived and objective measures

to explore associations between physical activity and the built environment. Although use of measures of walkability seems to be feasible, its relationship with the social aspects of community needs to be better explored. The IPEN project will provide a unique opportunity to explore these issues in the Latin American context.

Identifying Built-Environment Attributes Associated With Sedentary Behavior. Sugiyama addressed the conceptual and methodological issues in identifying built environmental attributes associated with sedentary behavior. There is a substantial body of research on environmental attributes conducive to active lifestyles, and sitting is behavior relevant to active lifestyles. Recent research has shown that prolonged sitting to be a health risk, independent of physical activity. Thus, in order to have a greater impact on population health through environmental modifications, there is a need to also examine potential links between the environment and sedentary behavior. Recent Australian evidence suggests that, at least for women, residents of low-walkable communities spend more time watching television.⁵ The case for time spent sitting in cars was presented, as this is highly prevalent behavior with known health consequences. Abundant data are potentially available for this purpose, in the form of household travel surveys.

Conclusions. Overall, this Symposium explored conceptual, methodological, and cultural considerations to be addressed when conducting built environment-physical activity studies in different countries; unique and common environmental attributes; how research can take into account variations in cultural, social and economic conditions; understanding the different research focuses and different levels of research support needed in different countries; and, potential implications of these new findings for environmental-change and public health policy development initiatives to promote more-active lifestyles at national and international levels.

Acknowledgments

IPEN: International Study of Built Environment, Physical Activity, and Obesity. NIH Grant R01 CA127296. Owen and Sugiyama: NHMRC Program Grant (#301200) and Queensland Health Core Research Infrastructure. Mitás: Physical activity and inactivity of the inhabitants of the Czech Republic in the context of behavioral changes; # PR: 6198959221 from the Ministry of Education, Youth, and Sports of the Czech Republic.

References

1. Frömel K, Mitás J, Kerr J. The associations between active lifestyle, the size of a community and SES of the adult population in the Czech Republic. *Health & Place*. 2009;15:447-454
2. Parra D, Gómez LF, Pratt M, Sarmiento OL, Triche E, Mosquera J. Policy and built environment changes in Bogotá and their importance in health promotion. *Indoor Built Environ*. 2007;16:344-348.
3. Gómez LF, Sarmiento OL, Parra DC, Schmid T, Pratt M, Jacoby E, Neiman A, Cervero R, Mosquera J, Rutt, C., Ardila M, Pinzón JD. Characteristics of the built

- environment associated with leisure-time physical activity among adults in Bogotá, Colombia: a Multilevel Study. *J Phys Act Health*. 2010;7:S181-S195.
4. Reis RS, Hallal PRC, Parra D, et al. Promoting physical activity through community-wide policies and planning: Findings from Curitiba, Brazil. *J Phys Act Health*. 2010;7:137-145.
 5. Sugiyama T, Salmon J, Dunstan DW, Bauman AE, Owen N. Neighborhood walkability and TV viewing time among Australian adults. *Am J Prev Med*. 2007;33:444-449.

Sparking Change to Tackle Childhood Obesity: Local Advocacy in Action in Ontario's Communities

Sharon Brodovsky, Andrea Endicott, Larry Ketcheson, Barbara Thompson, and Vonnie Barron

Brodovsky is Senior Manager, Spark Together for Healthy Kids, Heart and Stroke Foundation of Ontario, Canada. Endicott is Community Mission Specialist, Heart and Stroke Foundation of Ontario, Canada. Ketcheson is Chief Executive Officer, Parks and Recreation Ontario, Canada. Thompson is Founder and Lead of the Faith Health Initiative. Barron is a Specialist with Spark Together for Healthy Kids, Heart and Stroke Foundation of Ontario, Canada.

This symposium profiled Spark Together for Healthy Kids™, the Heart and Stroke Foundation of Ontario's advocacy based initiative to address childhood obesity. It highlighted the role and contribution of advocacy to create sustainable physical activity opportunities for children and improve the health of future generations. Specifically, the symposium provided an overview of Spark Together for Healthy Kids; advocacy practices for healthy school policy development; effective partnership success between Parks and Recreation Ontario and the Heart and Stroke Foundation; and an example of a Spark Advocacy Grant success story in Faith communities.

Keywords: obesity, children, health promotion, advocacy, policy

The health of children in Ontario, Canada is in a precarious position. Twenty-eight percent of Ontario children are now overweight or obese, a number greater than the national average. In Canada over the past 25 years, the rate of childhood obesity has tripled and 26% of Canadian children are either overweight or obese.¹ Already, 2 out

of 3 youth between the ages of 12 and 19 years have at least 1 risk factor for cardiovascular disease and 1 in 4 have 2 risk factors.² The issue of children's health is compounded by the many barriers that prevent children from being active and eating healthy foods. Spark Together for Healthy Kids™ (Spark) is the Heart and Stroke Foundation of Ontario's response to the growing epidemic of childhood obesity. It is an Ontario-wide initiative focused on working together to inspire individuals, families, communities, businesses, and government to spark collective change to help children become more physically active and eat healthier foods.

The symposium was organized with the goal of providing a summary of the role and contribution of advocacy to create sustainable physical activity opportunities for children and improve the health of future generations.

Spark Together for Healthy Kids was established by the Foundation in 2006, and following a public launch in 2009, quickly gained momentum by garnering partners, funding grassroots advocacy projects, and assessing community priorities for future advocacy work. The symposium outlined the need for partnerships, the work required to make them successful, as well as advocacy practices for healthy school policy development. It emphasized the importance of making a difference at the community level in order to create the sustainable, impactful change required to make progress in the fight against childhood obesity. The session included examples of successful partnerships and success stories from the Foundation's Spark Advocacy Grants, a unique grants competition which provides financial support to groups to implement advocacy initiatives to increase physical activity and/or access to healthy eating opportunities for children across Ontario.

The 4 main topics were an overview of Spark Together for Healthy Kids by Sharon Brodovsky (Heart and Stroke Foundation of Ontario); advocacy practices for healthy school policy development by Andrea Endicott (Heart and Stroke Foundation of Ontario); effective partnership success between Parks and Recreation Ontario and the Heart and Stroke Foundation by Larry Ketcheson (Parks and Recreation Ontario) and Sharon Brodovsky; and an example of a Spark Advocacy Grant success story by Barbara Thompson of the Faith Health Initiative (Toronto, Ontario).

Spark is the Heart and Stroke Foundation of Ontario's strategy calling for public policies that encourage and enable children to be physically active and have access to healthy foods, recognizing that every sector of society needs to play a part in creating sustainable solutions. The mission of Spark is to create social change that has a sustainable impact on the health and well-being of children.

To date, Spark has awarded more than 100 Spark Advocacy Grants totaling more than \$1 million, acquired more than 22,000 signatures of public support, including 12,000 fans on Facebook. The combined effort of Spark and its 170 national, provincial, and regional partners have revealed that Ontarians believe childhood obesity is a serious societal issue which is largely shaped by the