A Healthy, Green and Just Recovery

Active Travel
BACKGROUNDER
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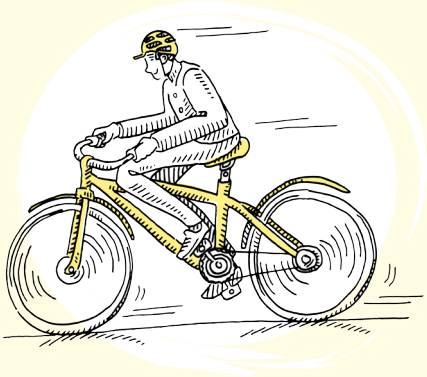
Invest in active travel to create healthy, green & just communities

The COVID-19 pandemic has made many people appreciate the need for more space in the public domain for pedestrians and cyclists. With governments considering the investments needed to kick-start our economy, it is a good time to highlight the health, social and environmental benefits that could result from major investments in active travel.



Active travel is any form of travel that involves physical activity such as walking, cycling or blading. Because active travel allows us to accomplish two goals with one action, it is easier to fit into our schedules. We can get the exercise we need while commuting to work or running errands. Active travel is good for our health, for our communities and for the planet.

PHYSICAL ACTIVITY IMPROVES PHYSICAL AND MENTAL HEALTH

The health benefits of physical activity are well known. It can reduce the risk of over 25 chronic conditions, including coronary heart disease, stroke, breast cancer, colon cancer, Type 2 diabetes and osteoporosis.[1] Estimates suggest that physical inactivity costs Canada about $6.8 billion per year in health-related costs based on its contribution to seven chronic diseases alone.[2]

Physical activity is also good for our mental health. It can improve self-esteem, sleep and cognitive functioning in older adults, and delay the onset of dementia. Physical activity can also relieve depression, anxiety and stress, and support drug and alcohol rehabilitation.[3]

ACTIVE TRAVEL INCREASES PHYSICAL ACTIVITY

Unfortunately, most Canadians are not active enough to achieve the health benefits that physical activity can offer.[4] Many identify time as a major barrier to getting physical activity. Active travel allows busy people to incorporate physical activity into their day-to-day lives by replacing car trips with walking or cycling.[5]

A prospective study that followed thousands of people over five years found that commuting by bicycle was associated with a lower risk of cardiovascular disease, cancer and mortality from all causes, while commuting by walking was associated with a lower risk of cardiovascular disease.[6] One study found that the risk of premature death from all causes decreased by 28% among people who cycled three hours per week,[7] while another found that the risk of premature death from all causes was decreased by 22% among people who walked 29 minutes every day.[8]

ACTIVE TRAVEL CAN IMPROVE HEALTH BY REDUCING AIR POLLUTION

The transportation sector in Canada is a significant source of air pollution.[9] In the Greater Toronto and Hamilton Area (GTHA) alone, traffic-related air pollution is responsible for approximately 700 premature deaths and 2,800 hospital admissions, each year.[10]

Several modelling studies suggest that traffic-related air pollution and its related health impacts can be reduced substantially when short vehicle trips are replaced with active travel. For example, it has been estimated that 31.3 million people living in the Midwestern United States could gain $3.6 billion in air quality-related health benefits and $3.75 billion in physical activity-related health benefits, each year, if all vehicle trips that were eight kilometres or less were eliminated, and half of those trips were replaced by cycling.[11]

PHYSICAL ACTIVITY BENEFITS OUTWEIGH RISK OF AIR POLLUTION EXPOSURE

Concerns have been expressed about the air pollution exposure that cyclists can experience when travelling along roadways. Several studies have found that, while cyclists can be exposed to higher levels of air pollution when travelling beside roads, the health benefits gained far outweigh the health risks posed by their increased exposures in all but a few countries that have exceptionally high levels of air pollution.[12]

ACTIVE TRAVEL NEEDS TO BE SAFE

Studies from several countries have found that there is a decrease in the numbers of cyclists killed or seriously injured when more people cycle.[13] This pattern is attributed to the increased visibility of cyclists and greater awareness among drivers when the number of cyclists is high. The installation of separated bike lanes and cycle tracks can reduce injuries to cyclists and increase a sense of safety among reluctant cyclists.[14] For pedestrians, reduced vehicle speeds, the separation of pedestrians from vehicles, and increased visibility of pedestrians, are the factors associated with the reduced risk of vehicle-related collisions.[15]

Traffic-related air pollution can be reduced substantially when short vehicle trips are replaced with active travel

ACTIVE TRAVEL CAN REDUCE HEALTH INEQUITIES

A number of groups within Canada – such as lower-income populations, newcomers, racial minorities, Indigenous Peoples, and people with health challenges – experience higher rates of illness, chronic diseases, and premature deaths because of social disadvantages such as low-paying jobs.[16] Neighbourhood walkability is expected to have a greater impact on the health and well-being of these groups because they are less likely to own a vehicle and more likely to rely upon local shops, active travel and public transit.[17]

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A number of studies suggest that people who live in more walkable neighbourhoods, walk and cycle more for utilitarian purposes,[18,19] are less likely to be obese,[20] and are less likely to develop Type 2 diabetes.[21]

A Toronto study found that newcomers living in lower-income neighbourhoods with low walkability were three times more likely to develop Type 2 diabetes than newcomers living in high-income neighbourhoods with high walkability.[22]

When lower-income neighbourhoods are more walkable in their design, and serviced by efficient public transit, social and health inequities can be reduced because those who cannot afford one or more automobiles have greater access to jobs, health services, grocery stores and recreational facilities.[23] This is also true for those who cannot drive because of age or ability.

CLIMATE CHANGE IS ALREADY HARMING CANADIANS

On a global scale, climate change is already having a catastrophic impact on human health. In 2018, nearly 300,000 people around the world died prematurely because of hotter temperatures resulting from climate change.[24] And yet, increasing temperatures is only one of the many risk factors presented by climate change.

In different parts of Canada, climate change has increased the frequency and intensity of floods, wildfires, hurricanes, ice storms, and heat waves, over the last several decades.[25] These events have exposed millions to extremely high levels of toxic air pollution,[26] forced hundreds of thousands of Canadians to evacuate their homes, and left hundreds of thousands without power for extended periods. Climate change is also melting permafrost in the far north, increasing sea levels on three coast lines, and extending the range of vector-borne diseases such as Lyme disease.[27]

While climate change can harm the health of everyone, it has a greater impact on some. Young children, older people, and people with pre-existing health conditions are more sensitive to heat waves and wildfire smoke. Indigenous Peoples in Northern communities can experience increased food insecurity as melting permafrost and shifting plant and animal populations disrupt their access to traditional foods. In addition, people who live on lower incomes may not have the resources to protect themselves or recover from extreme weather events.[28]

People who live in more walkable neighbourhoods, walk and cycle more for utilitarian purposes.

The costs of weather-related disasters fuelled by global warming are considerable. The number of catastrophic events has more than tripled since the 1980s. Over the last nine years, these events have resulted in $14 billion in insurance costs in Canada, an increase of 1,250% since the 1970s.[29]

ACTIVE TRAVEL CAN REDUCE GREENHOUSE GASES THAT CAUSE CLIMATE CHANGE

In order to avoid catastrophic levels of global warming, the Intergovernmental Panel on Climate Change (IPCC) has concluded that all countries must reduce greenhouse gases (GHG) emissions by 45% by 2030 and to net zero by 2050.[30] The transportation sector is the second leading source of GHG emissions in Canada, responsible for more than one quarter of all GHG emissions. This sector must be targeted for deep reductions.[31]

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Modelling studies have found that in large urban centres expecting significant population growth, an active travel strategy, when combined with investments in public transit, road pricing, and improvements in the built environment, can substantially reduce vehicle kilometres travelled and GHG emissions.[32] For example, a California study estimated that an ambitious cycling-focused strategy could reduce GHG emissions from passenger vehicles by 8% by 2040.[33]

THE BUILT ENVIRONMENT NEEDS TO FOSTER ACTIVE TRAVEL

The design of communities – or built environments – shapes the way people travel. Highly walkable neighbourhoods have higher rates of walking and cycling and lower rates of car use.[34] The walkability of a neighbourhood can be characterized by its population density, dwelling density, street design, and land use diversity.[35]

Studies have found that people walk and cycle more, and drive less, when their neighbourhoods have the following characteristics:

- *Fairly high population or job densities* – People will walk and cycle more when their neighbourhoods have higher densities that can support local businesses and efficient transit service.
- *A rich diversity of land uses* – People will walk and cycle more when their neighbourhoods have stores, restaurants, and community services located in close proximity to their homes.
- *Supportive street designs* – People will walk more when streets are designed in a grid pattern, which makes it easy and efficient to reach local destinations; when there are sidewalks, crosswalks, good street lighting, and street furniture to make walking safe, easy and pleasant. People will cycle more if there are separated bike lanes or safe bike paths.
- *Transit stops within a short distance* - People will walk or cycle more if transit stops are less than 10 minutes from their homes and workplaces, particularly if transit can deliver them to popular destinations.[36,37]

ECONOMIC RECOVERY

In the 2020 update of Canada's climate action plan, the Government of Canada made a commitment to develop a national active transportation strategy to help deliver more active transportation.[38]

This is great news. The federal government can play an important role to foster active travel in communities across the country. However, it would be more powerful if the federal government also committed funding to support active travel.

The Building Back Better analysis[39] estimated that 18,000 jobs could be created if $2 billion in federal funding were directed at active travel infrastructure such as separated bike lanes, sidewalks and traffic lights. This investment would create construction jobs and provide economic opportunities for smaller communities, while also reducing air pollution and GHG emissions.[39] It could make our communities healthier and more equitable, particularly if lower-income neighbourhoods were prioritized for these investments.

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REFERENCES

1 Public Health Agency of Canada (PHAC). 2011. Benefits of Physical Activity.
2 Janssen I. 2012. Health care costs of physical inactivity in Canadian adults. Applied Physiology, Nutrition, and Metabolism. June 6.
3 Bingham PB. 2009. Physical Activity and Mental Health Literature Review.
4 Colley RC et al. 2011. Physical activity of Canadian adults: accelerometer results from the 2007 to 2009 Canadian Health Measures Survey." Health reports 22.1
5 Canadian Fitness and Lifestyle Research Institute. 1996. Progress in Prevention: Barriers to physical activity.
6 Celis-Morales CA et al. 2017. Association between active commuting and incident cardiovascular disease, cancer, and mortality: prospective cohort study. BMJ. 357:j1456
7 Andersen LB, Schnohr P, Schroll M, Hein HO. 2000. All-cause mortality associated with physical activity during leisure time, work, sports, and cycling to work. Arch Intern Med 2000; 160(11):1621-1628.
8 Hamer M, Chida Y. Walking and primary prevention: a meta-analysis of prospective cohort studies. British Journal of Sports Medicine, 2008, 42:238–243
9 Environment and Climate Change Canada. 2016. Air Pollutant Emissions from the Transportation Sector.
10 Medical Officers of Health in the GTHA. 2014. Improving Health by Design in the Greater Toronto-Hamilton Area.
11 Grabow M, Spak S, Holloway T, Stone Jr B, Menick A, Patz J. 2011. Air Quality and Exercise-Related Health Benefits from Reduced Car Travel in the Midwestern United States, Environmental Health Perspectives. November
12 Tanio M et al. 2016. Can air pollution negate the health benefits of cycling and walking? Preventive Medicine. Vol. 87. June
13 Woodcock J, Edwards P, Tonne C, et al. 2009. Public health benefits of strategies to reduce greenhouse-gas emissions: urban land transport. Lancet, 374 (9705), pp. 1930–1943
14 Toronto Public Health. 2012. Road to Health: Improving Walking and Cycling in Toronto. April.
15 Retting RA, Ferguson SA, McCartt AT. 2003. A Review of Evidence-Based Traffic Engineering Measures Designed to Reduce Pedestrian-Motor Vehicle Crashes. Am J of Public Health. Vol 93(9)
16 Public Health Agency of Canada, Pan-Canadian Public Health Network, Statistics Canada, and the Canadian Institute for Health Information. 2018. Key Health Inequalities in Canada report/Pan-Canadian Health Inequalities Data Tool.
17 Frank LD, Engelke P, & Schmid T. (2003) Health and community design: the impact of the built environment on physical activity. Island Press.
18 Thielman J et al. 2016. Residents of highly walkable neighbourhoods in Canadian urban areas do substantially more physical activity: a cross-sectional analysis. CMAJ Open. Oct-Dec; 4(4): E720–E728.
19 Toronto Public Health. 2012. The walkable city: neighbourhood design and preferences, travel choices and health. Prepared by Kim Perrotta, Monica Campbell, Sean Chirrey, Larry Frank, Jim Chapman.
20 Ontario Agency for Health Protection and Promotion (Public Health Ontario), Thomas K, Manson H, Moloughney B, Thielman J. Evidence brief: Neighbourhood walkability and body mass in urban areas. Toronto, ON: Queen's Printer for Ontario; 2017
21 Ontario Agency for Health Protection and Promotion (Public Health Ontario). 2018. Evidence brief: Neighbourhood walkability and type 2 diabetes. Prepared by Kiflen R, Thielman J, Manson H. Toronto, ON: Queen's Printer for Ontario; 2018.
22 Booth G et al. 2013. Unwalkable Neighborhoods, Poverty, and the Risk of Diabetes Among Recent Immigrants to Canada Compared With Long-Term Residents. Diabetes Care.
23 World Health Organization (WHO). 2011. Health co-benefits of climate change mitigation - Transport Sector.
24 Watts N et al. 2020. The 2020 report of The Lancet Countdown on health and climate change: responding to converging crises. Review. The Lancet.
25 Bush, E. and Lemmen, D.S., editors (2019): Canada's Changing Climate Report; Government of Canada, Ottawa, ON. 444 p
26 Schmunk R. 2020. Smoked in: A look back at B.C.'s haziest wildfire seasons over the past 20 years. CBC News. September 19
27 Doyle HM. 2019. Module 3: Climate Change Health Impacts Across Canada. Climate Change Toolkit for Health Professionals. Editor: Perrotta Kim Perrotta. Canadian Association of Physicians for the Environment (CAPE). 240 pages
28 Berry P, Clarke K, Fleury MD & Parker S. 2014. Human Health in Canada in a Changing Climate: Sector Perspectives on Impacts and Adaptation. Editors: Warren FJ and Lemmen DS. Government of Canada, Ottawa, Ontario.
29 Canadian Institute for Climate Choices. 2020. Tip of the Iceberg: Navigating the Known and Unknown Costs of Climate Change for Canada.
30 Intergovernmental Panel on Climate Change (IPCC). 2018. Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments.
31 Canada, 2016. Canada's Mid-Century Long-Term Low-Greenhouse Development Strategy. Federal Department of Environment and Climate Change.
32 David Suzuki Foundation, Sustainable Transportation Action Research Team (SFU) and Navius Research. 2019. Shifting Gears: Climate Solution for Transportation in Cities. Metro Vancouver Case Study. 75 pages.
33 Maizlish L. et al., 2017 as cited by David Suzuki Foundation, Sustainable Transportation Action Research Team (SFU) and Navius Research. 2019. Shifting Gears: Climate Solution for Transportation in Cities. Metro Vancouver Case Study. 75 pages
34 Sallis JF et al. 2016; Saelens BE and Handy SL. 2008 as cited by Ontario Agency for Health Protection and Promotion (Public Health Ontario). 2018. Evidence brief: Neighbourhood walkability and Type 2 diabetes. Prepared by Kiflen R, Thielman J, Manson H. Toronto, Ontario.
35 Booth G et al. 2013. Unwalkable Neighborhoods, Poverty, and the Risk of Diabetes Among Recent Immigrants to Canada Compared with Long-Term Residents. Diabetes Care.
36 McKibbin, Matthew. 2011; Toronto Public Health, 2014; Dunn et al. 2009; Ewing and Cervero. 2010 as cited by Daniel K. and Perrotta K. 2017. Prescribing Active Travel for Healthy People and a Healthy Planet: A Toolkit for Health Professionals. Prepared for the Canadian Association of Physicians for the Environment (CAPE).
37 Fraser SD, & Lock K. 2011. Cycling for transport and public health: A systematic review of the effect of the environment on cycling. European Journal of Public Health, 21(6), 738-743.
38 Environment and Climate Change Canada. 2020. A Healthy Environment and a Healthy Economy - Canada's strengthened climate plan to create jobs and support people, communities and the planet. December.
39 Torrie R, Bak C, Heaps T. 2020. Building Back Better with Bold Green Recovery Synthesis Report.

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