

# Cycling for health

## Improving health and mitigating the climate crisis

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### Abstract

**Objective** To review the literature about cycling and health, and to provide an overview and discussion of the available evidence.

**Sources of information** The MeSH terms *bicycle* and *transportation* were searched in PubMed. Clinical trials, practice reviews, and systematic reviews were included. All reference lists were reviewed for additional articles.

**Main message** Climate change is a threat to health. In Canada alone, transportation is the second largest source of greenhouse gas emissions. Active transportation, which is any form of human-powered transportation, can mitigate the health effects of the climate crisis while simultaneously improving the health of people. Physical activity improves overall well-being, as well as physical and mental health. Active transportation, particularly cycling, is a convenient way to meet physical activity targets, reduce risk of disease and all-cause mortality, and derive mental health and social benefits. Family physician advocacy for active transportation has been shown to increase cycling levels in patients compared with no physician advocacy.

**Conclusion** Family physicians can help to increase the level of active transportation at the individual patient level through patient education and behaviour change counseling; at the community level through community education and political advocacy; and at the policy level through partnerships with larger organizations.

### Case description

A 48-year-old male in your practice, Mr B., underwent primary percutaneous coronary intervention last month for non-ST-segment elevation myocardial infarction. He is feeling quite well and is here for follow-up. He has 2 school-aged children and a busy law practice. Recently, his children have been expressing anxiety about the environment after learning about the climate crisis at school. At previous periodic health reviews, Mr B. told you that he is too busy to exercise. Mr B. now states, "I know exercise is important to prevent another heart attack, but I still feel like I have no time. How can I do everything I need to do to stay healthy?"

### Sources of information

The authors performed a literature search on cycling and health. The MeSH terms *bicycle* and *transportation* were searched in PubMed. Clinical trials, practice reviews, and systematic reviews were included. All reference lists were reviewed for additional articles.

### Main message

**Cycling and the climate crisis.** The World Health Organization has called climate change the biggest health threat of this century.<sup>1</sup> Climate change has a range of direct and indirect physical and mental health effects, including increased heat-related illness; worsening lung and heart disease from increased air pollution; direct injury and displacement from floods, droughts, and other extreme weather events; and increased food insecurity.<sup>1</sup> As family physicians, we can do more to help mitigate climate change and preserve

### Editor's key points

- ▶ Climate change has many negative physical and mental health effects, such as increased heat-related illnesses, worsening lung and heart disease, and injury from natural disasters. In Canada, greenhouse gas emissions from transportation account for a large proportion of total emissions.
- ▶ Active transportation—any form of human-powered transportation—can mitigate the detrimental health effects of climate change by reducing transportation-related greenhouse gas emissions. Cycling in particular has been shown to reduce carbon footprints, improve overall well-being, prevent chronic diseases and all-cause mortality, reduce noise pollution, and foster social interaction.
- ▶ Family physicians can both encourage active transportation and mitigate climate change by advocating for increased cycling levels in patients, by promoting safe cycling infrastructure in communities, and by collaborating with policy makers in governments.

our planet.<sup>2</sup> Tackling climate change has also been called “the greatest global health opportunity of the 21st century”<sup>3</sup> through the health co-benefits of mitigation.<sup>4</sup>

In Canada, transportation is the second largest source of greenhouse gas emissions, accounting for 25% of total emissions.<sup>5</sup> Private automobile use accounts for about half of all transportation-related emissions.<sup>6</sup> Active transportation, which is any form of human-powered transportation,<sup>7</sup> can mitigate the health effects of the climate crisis by decreasing transportation-related emissions. A recent study that used travel activity data from 7 European cities found that those who switch 1 trip per day from car driving to cycling reduce their carbon footprint by about 0.5 metric tons per year. Thus, if 10% of the population were to change their travel behaviour, the emissions savings would be around 4% of life-cycle carbon dioxide emissions from all car travel.<sup>8</sup>

Cycling is a reliable, convenient, and efficient form of transportation. In Canada, the percentage of bicycle commuter trips varies from 1% to 3%,<sup>9</sup> while in Europe, cities with extensive cycling infrastructure reach levels of 40%.<sup>10</sup> Physicians can both promote cycling as a viable mode of active transportation to their patients and advocate for safe cycling infrastructure to their community leaders.

**Health co-benefits of cycling.** In addition to mitigating the health impacts of climate change by reducing greenhouse gas emissions, there are direct health benefits of cycling. Physical activity improves well-being; allows for prolonged independence as we age; prevents development of chronic diseases such as diabetes, coronary artery disease, and depression; and decreases all-cause mortality.<sup>11</sup> Yet, Canadians do not get enough exercise: only 16% of adults meet the recommended activity target of 150 minutes of moderate to vigorous physical activity per week.<sup>12</sup>

Active transportation provides a convenient way for people to meet physical activity targets, all within the framework of their daily commute.<sup>13</sup> Cycling for transportation is an excellent form of exercise,<sup>14</sup> and a recent systematic review of randomized controlled trials has shown that switching to active commuting can increase physical activity levels and physical fitness.<sup>15</sup> The effect is similar in children.<sup>16</sup> One study showed that commuting a distance of 3 km by bicycle was enough to lead to a statistically significant increase in physical fitness.<sup>17</sup>

Large cross-sectional observational surveys have shown that active commuting is statistically significantly and independently associated with a reduction in risk of cardiovascular disease, cancer, and all-cause mortality,<sup>18-26</sup> which has been confirmed in a recent systematic review.<sup>27</sup> Several recent randomized controlled trials have confirmed similar results.<sup>21,28,29</sup>

Three studies have concluded that the benefits of physical activity from active transportation outweigh the risks of air pollution exposure in most scenarios.<sup>30-32</sup> In

fact, a systematic review of 39 studies investigating the relationship between transportation mode and air pollution exposure concluded that motorists consistently experience the highest exposure to air pollution.<sup>33</sup>

Cycling for transportation may also have important mental health benefits. Some studies have demonstrated a decrease in depression symptoms,<sup>34,35</sup> while others have demonstrated an overall increase in emotional well-being and happiness.<sup>36,37</sup>

Cycling as active transportation has shown to have indirect benefits for health. A study showed that an increase in bicycle use and a reduction in car use reduces air pollution,<sup>38</sup> which is a major cause of respiratory and cardiovascular disease.<sup>39,40</sup> Xia et al reported that a reduction in traffic-related air pollution decreases disability and death from asthma and heart disease,<sup>41</sup> and can help mitigate climate change in the future. Noise pollution has also been directly linked with decreased quality of life,<sup>42,43</sup> and will likewise decrease with a decrease in motorized traffic.<sup>44,45</sup> Finally, time spent sitting in a car is directly associated with poor health outcomes, including obesity and cardiovascular disease<sup>46</sup>; less time spent behind the wheel and more time spent on 2 wheels will lead directly to better health outcomes.<sup>14-29</sup>

Cycling also has substantial social benefits. Car ownership can be expensive; the average household in Canada spends a large proportion of its income on private vehicles and fuel.<sup>47</sup> Extensive and safe cycling infrastructure can enable inexpensive travel around cities.<sup>48</sup> Walkable and bikeable neighbourhoods foster social interaction and community cohesion. Findings from a systematic review on the built environment and health indicate that neighbourhoods that are more walkable are associated with increased physical activity, increased social capital, lower rates of obesity, lower reports of depression, and less reported alcohol use.<sup>49</sup>

**Role of family physicians.** Family physicians can help to increase the level of active transportation in our patients and communities in a number of ways. We can act at the micro or individual patient level, the meso or community level, and the macro or policy level.<sup>50</sup> As family doctors, we are experts at intervening with individual patients. We are also obligated to advocate for strategies that can prevent illness and injury, and to engage in community health promotion.<sup>51</sup>

At the micro level, we can encourage our patients to ride bicycles as a form of exercise. We can work with our patients to overcome individual barriers to cycling using techniques such as motivational interviewing.<sup>52,53</sup> A systematic review found that physician intervention to encourage cycling for transportation statistically significantly increased cycling levels compared with placebo intervention that did not involve physicians.<sup>54</sup> Another review found that written interactive materials, including local maps; local bicycle retailers; and reflective safety accessories can lead to an

increase in active commuting behaviour, especially when provided in tandem with improved cycling infrastructure.<sup>55</sup>

Encouraging active transportation can be understood as a form of social prescribing. A 2012 systematic review confirmed that brief primary care-based interventions promoting physical activity are effective in improving self-reported physical activity at 12 months, with a number needed to treat of 12.<sup>56</sup> A recent Tools for Practice update<sup>57</sup> confirmed that physical activity prescriptions, combined with patient-specific goals and monitoring, may increase physical activity levels by up to 1200 steps per day at 1 year, with an additional 1 person becoming active for every 10 prescribed activities compared with general advice alone.

At the micro level, we can also educate our patients on the individual health impacts of the climate crisis and the importance of mitigating climate change to promote health.<sup>58</sup> A toolkit developed by the Canadian Association of Physicians for the Environment includes several patient handouts that might be useful in discussing the negative health effects of the climate crisis.<sup>59</sup>

At the meso level, family physicians can educate the public and our communities about the aforementioned extensive health benefits of cycling. Family physicians can also encourage our clinics and hospitals to provide bicycle parking and infrastructure for staff who choose to cycle to work, thereby serving as models for their community in using active transportation. The Green Office Toolkit provides further suggestions for reducing transportation-related emissions in clinics and hospitals.<sup>60</sup>

At the macro level, physicians can advocate for policy changes that increase cycling safety and increase the number of cyclists. Several systematic reviews of the health impact of transportation interventions show that the implementation of a robust network of separated bike lanes can increase levels of cycling and fitness.<sup>61-64</sup> There is also limited evidence that removing street parking<sup>62</sup> and implementing bike share programs may help improve cycling levels and fitness.<sup>65</sup>


Family physicians can advocate for safe cycling infrastructure in our neighbourhoods and communities by collaborating with local cycling advocacy and road safety groups, meeting with local city councillors, and engaging with local media. In 2017, several of the authors formed a group called Doctors for Safe Cycling with the goal of advocating for better cycling infrastructure in Toronto, Ont.<sup>66</sup> Policy makers are very interested in hearing from physicians about health and safety issues, and our advocacy work can have an effect on local planning and policy.<sup>67</sup> Family physicians are the most trusted source in their communities on environmental health issues,<sup>68</sup> specifically climate change,<sup>69</sup> and we can use that trust to bolster the work of other organizations that are working to support healthy communities. Partnering with other advocacy groups can lead to productive and effective advocacy work. We

can also encourage our provincial and national organizations, including the College of Family Physicians of Canada, to advocate for safe cycling infrastructure.

## Case resolution

Using motivational interviewing techniques, you suggest that Mr B. consider a form of active transportation to get to work. Mr B. normally drives to the commuter train station, but agrees to consider cycling to the train station, at least on nicer days. You provide him with additional information on the link between the climate crisis, exposure to air pollution, and exacerbation of heart disease to the benefits of active transportation. He is pleased that he can model climate action for his children. Inspired by Mr B.'s case, you also write to your local city councillor, highlighting the need for safer cycling infrastructure in your suburban community.

## Conclusion

While many of the changes we must make to our society in order to mitigate the climate crisis require difficulty and compromise, increasing the level of cycling in our communities has been shown to be beneficial for both the environment and population health. 

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All authors contributed to the content of this manuscript and approved the final version for submission.

### Competing interests

None declared

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### References

- Watts N, Amann M, Arnell N, Ayeb-Karlsson S, Belesova K, Berry H, et al. The 2018 report of the Lancet Countdown on health and climate change: shaping the health of nations for centuries to come. *Lancet* 2018;392(10163):2479-514. Erratum in: *Lancet* 2020;395(10239):1762. Epub 2018 Nov 28.
- Ladouceur R. Our fight against climate change. *Can Fam Physician* 2019;65:766 (Eng), 767 (Fr).
- Watts N, Adger WN, Agnolucci P, Blackstock J, Byass P, Cai W, et al. Health and climate change: policy responses to protect public health. *Lancet* 2015;386(10006):1861-914. Epub 2015 Jun 25.
- Health in the green economy. Geneva, Switz: World Health Organization; 2011. Available from: [https://cdn.who.int/media/docs/default-source/climate-change/health-co-benefits-of-climate-change-mitigation---healthcare-facilities3810d092-f005-4157-94e8-atb17334f3af.pdf?sfvrsn=cf64a8fd\\_1&download=true](https://cdn.who.int/media/docs/default-source/climate-change/health-co-benefits-of-climate-change-mitigation---healthcare-facilities3810d092-f005-4157-94e8-atb17334f3af.pdf?sfvrsn=cf64a8fd_1&download=true). Accessed 2021 Sep 2.
- Greenhouse gas emissions. Ottawa, ON: Government of Canada; 2021. Available from: [www.canada.ca/en/environment-climate-change/services/environmental-indicators/green-house-gas-emissions.html](http://www.canada.ca/en/environment-climate-change/services/environmental-indicators/green-house-gas-emissions.html). Accessed 2021 Sep 2.
- Greenhouse gas emissions from a typical passenger vehicle. Washington, DC: United States Environmental Protection Agency; 2018. Available from: <https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle>. Accessed 2021 Sep 2.
- Active transportation. Ottawa, ON: Government of Canada; 2014. Available from: <https://www.canada.ca/en/public-health/services/being-active/active-transportation.html>. Accessed 2021 Sep 2.
- Brand C, Dons E, Anaya-Boig E, Avila-Palencia I, Clark A, de Nazelle A, et al. The climate change mitigation effects of daily active travel in cities. *Transp Res D Transp Environ* 2021;93:102764.
- Commuters using sustainable transportation in census metropolitan areas. Ottawa, ON: Statistics Canada; 2017. Available from: <https://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016029/98-200-x2016029-eng.cfm>. Accessed 2021 Sep 2.
- Eurobarometer. Mobility and transport. Brussels, Belgium: European Commission; 2020. Available from: <https://europa.eu/eurobarometer/surveys/detail/2226>. Accessed 2021 Sep 9.
- Warburton DE, Charlesworth S, Ivey A, Nettlefold L, Bredin SS. A systematic review of the evidence for Canada's Physical Activity Guidelines for Adults. *Int J Behav Nutr Phys Act* 2010;7:39.



12. *Tracking physical activity levels of Canadians, 2016 and 2017*. Ottawa, ON: Statistics Canada; 2019. Available from: <https://www150.statcan.gc.ca/n1/daily-quotidien/190417/dq190417g-cansim-eng.htm>. Accessed 2021 Sep 2.
13. Götschi T, Garrard J, Giles-Corti B. Cycling as a part of daily life: a review of health perspectives. *Transp Rev* 2016;36(1):45-71.
14. Henriques-Neto D, Peralta M, Garradas S, Pelegrini A, Pinto AA, Sánchez-Miguel PA, et al. Active commuting and physical fitness: a systematic review. *Int J Environ Res Public Health* 2020;17(8):2721.
15. Schäfer C, Mayr B, Fernandez La Puente de Battre MD, Reich B, Schmied C, Loidl M, et al. Health effects of active commuting to work: the available evidence before GISMO. *Scand J Med Sci Sports* 2020;30(Suppl 1):8-14.
16. Larouche R, Saunders TJ, Faulkner G, Colley R, Tremblay M. Associations between active school transport and physical activity, body composition, and cardiovascular fitness: a systematic review of 68 studies. *J Phys Act Health* 2014;11(1):206-27. Epub 2012 Dec 17.
17. Hendriksen IJ, Zuidewald B, Kemper HC, Bezemer PD. Effect of commuter cycling on physical performance of male and female employees. *Med Sci Sports Exerc* 2000;32(2):504-10.
18. Flint E, Cummins S. Active commuting and obesity in mid-life: cross-sectional, observational evidence from UK Biobank. *Lancet Diabetes Endocrinol* 2016;4(5):420-35. Epub 2016 Mar 16.
19. Millett C, Agrawal S, Sullivan R, Vaz M, Kurpad A, Bharathi AV, et al. Associations between active travel to work and overweight, hypertension, and diabetes in India: a cross-sectional study. *PLoS Med* 2013;10(6):e1001459. Epub 2013 Jun 11.
20. Rosenkilde M, Petersen MB, Gram AS, Quist JS, Winther J, Kamronn SD, et al. The GO-ACTIVE randomized controlled trial—an interdisciplinary study designed to investigate the health effects of active commuting and leisure time physical activity. *Contemp Clin Trials* 2017;53:122-9. Epub 2016 Dec 19.
21. Blond MB, Rosenkilde M, Gram AS, Tindborg M, Christensen AN, Quist JS, et al. How does 6 months of active bike commuting or leisure-time exercise affect insulin sensitivity, cardiorespiratory fitness and intra-abdominal fat? A randomised controlled trial in individuals with overweight and obesity. *Br J Sports Med* 2019;53(18):1183-92. Epub 2019 Mar 16.
22. Matthews CE, Jurj AL, Shu XO, Li HL, Yang G, Li Q, et al. Influence of exercise, walking, cycling, and overall nonexercise physical activity on mortality in Chinese women. *Am J Epidemiol* 2007;165(12):1343-50. Epub 2007 May 2.
23. Celis-Morales CA, Lyall DM, Welsh P, Anderson J, Steell L, Guo Y, et al. Association between active commuting and incident cardiovascular disease, cancer, and mortality: prospective cohort study. *BMJ* 2017;357:j1456.
24. Andersen LB, Schnohr P, Schroll M, Hein HO. All-cause mortality associated with physical activity during leisure time, work, sports, and cycling to work. *Arch Intern Med* 2000;160(11):1621-8.
25. Wanner M, Götschi T, Martin-Diener E, Kahlemeier S, Martin BW. Active transport, physical activity, and body weight in adults: a systematic review. *Am J Prev Med* 2012;42(5):493-502.
26. Flint E, Cummins S, Sacker A. Associations between active commuting, body fat, and body mass index: population based, cross sectional study in the United Kingdom. *BMJ* 2014;349:g4887. Erratum in: *BMJ* 2015;350:h2056.
27. Duthiel F, Pélangeon S, Duclos M, Vorilhon P, Merrimold M, Baker JS, et al. Protective effect on mortality of active commuting to work: a systematic review and meta-analysis. *Sports Med* 2020;50(12):2237-50. Erratum in: *Sports Med* 2020;50(12):2251.
28. Reich B, Niederseer D, Loidl M, Fernandez La Puente de Battre MD, Rossi VA, Zagel B, et al. Effects of active commuting on cardiovascular risk factors: GISMO—a randomized controlled feasibility study. *Scand J Med Sci Sports* 2020;30(Suppl 1):15-23.
29. Quist JS, Rosenkilde M, Petersen MB, Gram AS, Sjödin A, Stalknecht B. Effects of active commuting and leisure-time exercise on fat loss in women and men with overweight and obesity: a randomized controlled trial. *Int J Obes (Lond)* 2018;42(3):469-78. Epub 2017 Oct 10.
30. Mueller N, Rojas-Rueda D, Cole-Hunter T, de Nazelle A, Dons E, Gerike R, et al. Health impact assessment of active transportation: a systematic review. *Prev Med* 2015;76:103-14. Epub 2015 Apr 18.
31. Tainio M, de Nazelle AJ, Götschi T, Kahlemeier S, Rojas-Rueda D, Nieuwenhuijsen MJ, et al. Can air pollution negate the health benefits of cycling and walking? *Prev Med* 2016;87:233-6. Epub 2016 May 5.
32. De Nazelle A, Bode O, Orjuela JP. Comparison of air pollution exposures in active vs. passive travel modes in European cities: a quantitative review. *Environ Int* 2017;99:151-60. Epub 2016 Dec 31.
33. Cepeda M, Schoufour J, Freak-Poli R, Koolhaas CM, Dhana K, Brammer WM, et al. Levels of ambient air pollution according to mode of transport: a systematic review. *Lancet Public Health* 2017;2(1):e23-34. Epub 2016 Nov 26.
34. Chekroud SR, Georgieva R, Zheutlin AB, Paulus M, Krumholz HM, Krystal JH, et al. Association between physical exercise and mental health in 12 million individuals in the USA between 2011 and 2015: a cross-sectional study. *Lancet Psychiatry* 2018;5(9):739-46. Epub 2018 Aug 8.
35. Marques A, Peralta M, Henriques-Neto D, Frasilho D, Rubio Gouveira É, Gomez-Baya D. Active commuting and depression symptoms in adults: a systematic review. *Int J Environ Res Public Health* 2020;17(3):1041.
36. Ruiz-Ariza A, de la Torre-Cruz MJ, Redecillas-Peiró MT, Martínez-López E. Influence of active commuting on happiness, well-being, psychological distress and body shape in adolescents [article in Spanish]. *Gac Sanit* 2015;29(6):454-7. Epub 2015 Jul 17.
37. Zander A, Passmore E, Mason C, Rissel C. Joy, exercise, enjoyment, getting out: a qualitative study of older people's experience of cycling in Sydney, Australia. *J Environ Public Health* 2013;2013:547453. Epub 2013 Jun 20.
38. Woodcock J, Edwards P, Tonne C, Armstrong BG, Ashiru O, Banister D, et al. Public health benefits of strategies to reduce greenhouse-gas emissions: urban land transport. *Lancet* 2009;374(9705):1930-43. Epub 2009 Nov 26.
39. Brauer M, Reynolds C, Hystad P. Traffic-related air pollution and health in Canada. *CMAJ* 2013;185(18):1557-8. Epub 2013 Oct 21.
40. Kim JH, Copes R; Public Health Ontario. *Case study: health effects of traffic-related air pollution in a small community*. Toronto, ON: Queen's Printer for Ontario; 2015.
41. Xia T, Zhang Y, Crabb S, Shah P. Cobenefits of replacing car trips with alternative transportation: a review of evidence and methodological issues. *J Environ Public Health* 2013;2013:797312. Epub 2013 Jul 16.
42. Roswall N, Høgh V, Envolv-Bidstrup P, Raaschou-Nielsen O, Ketzler M, Overvad K, et al. Residential exposure to traffic noise and health-related quality of life—a population-based study. *PLoS One* 2015;10(3):e0120199.
43. Passchier-Vermeer W, Passchier WF. Noise exposure and public health. *Environ Health Perspect* 2000;108(Suppl 1):123-31.
44. Bellefleur O, Gagnon F. *Urban traffic calming and health: literature review*. Montreal, QC: National Collaborating Centre for Health Public Policy; 2011. Available from: [http://www.ncccpp.ca/docs/ReviewLiteratureTrafficCalming\\_En.pdf](http://www.ncccpp.ca/docs/ReviewLiteratureTrafficCalming_En.pdf). Accessed 2021 Sep 15.
45. Basu B, Murphy E, Molter A, Basu AS, Sannigrahi S, Belmonte M, et al. Investigating changes in noise pollution due to the COVID-19 lockdown: the case of Dublin, Ireland. *Sustain Cities Soc* 2021;65:102597.
46. Warren TY, Barry V, Hooker SP, Sui X, Church TS, Blair SN. Sedentary behaviors increase risk of cardiovascular disease mortality in men. *Med Sci Sports Exerc* 2010;42(5):879-85.
47. *Detailed household final consumption expenditure, Canada, quarterly (x 1,000,000)*. Ottawa, ON: Statistics Canada; 2021. Available from: <https://www150.statcan.gc.ca/t1/tb1/en/tv.action?pid=3610012401>. Accessed 2021 Sep 15.
48. Pucher J, Buehler R. *City cycling*. Cambridge, MA: MIT Press; 2012.
49. Renalds A, Smith TH, Hale PJ. A systematic review of built environment and health. *Fam Community Health* 2010;33(1):68-78.
50. Buchman S, Woollard R, Meili R, Goel R. Practising social accountability. From theory to action. *Can Fam Physician* 2016;62:15-8 (Eng, 24-7 (Fr)).
51. Gruen RL, Pearson SD, Brennan TA. Physician-citizens—public roles and professional obligations. *JAMA* 2004;291(1):94-8.
52. Wallace R, Green S, Agarwal G. Promoting the health benefits of walking and bicycling to work: a qualitative exploration of the role of healthcare providers in addressing barriers to active commuting. *Sport Exerc Med Open J* 2016;2(2):24-32.
53. *Prescribing active travel for healthy people and a healthy planet: a toolkit for health professionals*. Toronto, ON: Canadian Association of Physicians for the Environment; 2017. Available from: <https://cape.ca/prescribing-active-travel-for-healthy-people-and-a-healthy-planet-a-toolkit-for-health-professionals/>. Accessed 2021 Sep 7.
54. Stewart G, Anokye NK, Pkphrel S. What interventions increase commuter cycling? A systematic review. *BMJ Open* 2015;5(8):e007945.
55. Vuillemin A, Rostami C, Maes L, Van Cauwenbergh E, Van Lenthe FJ, Brug J, et al. Worksite physical activity interventions and obesity: a review of European studies (the HOPE project). *Obes Facts* 2011;4(6):479-88. Epub 2011 Dec 7.
56. Orrow G, Kinmonth AL, Sanderson S, Sutton S. Effectiveness of physical activity promotion based in primary care: systematic review and meta-analysis of randomised controlled trials. *BMJ* 2012;344:e1389.
57. Lindblad AJ, Raha SS, Lun V. *Should family physicians add "physical activity" to their prescription pads?* Edmonton, AB: Alberta College of Family Physicians; 2020. Available from: [https://gomainpro.ca/wp-content/uploads/tools-for-practice/1583162440\\_exrxfp254fv.pdf](https://gomainpro.ca/wp-content/uploads/tools-for-practice/1583162440_exrxfp254fv.pdf). Accessed 2021 Sep 7.
58. Stacy A, Newbery SL. Climate change efforts. *Can Fam Physician* 2020;66:89-93.
59. Perrotta K. *Climate change toolkit for health professionals*. Toronto, ON: Canadian Association of Physicians for the Environment; 2019. Available from: <https://cape.ca/wp-content/uploads/2019/05/Climate-Change-Toolkit-for-Health-Professionals-Updated-April-2019-2.pdf>. Accessed 2021 Sep 7.
60. Arya N, Zigby J, Mah JJ, Jing Mu LJ, Marshall L, Varangu L, et al. *Green office toolkit. For clinicians and office managers*. Halifax, NS: The Canadian Coalition for Green Health Care; 2018. Available from: <https://greenhealthcare.ca/green-office-toolkit>. Accessed 2021 Sep 7.
61. Stappers NEH, Van Kann DHH, Ettema D, De Vries NK, Kremers SPJ. The effect of infrastructural changes in the built environment on physical activity, active transportation and sedentary behavior—a systematic review. *Health Place* 2018;53:135-49. Epub 2018 Aug 20.
62. Winters M, Buehler R, Götschi T. Policies to promote active travel: evidence from reviews of the literature. *Curr Environ Health Rep* 2017;4(3):278-85.
63. Stankov I, Garcia LMT, Mascolli MA, Montes F, Meisel JD, Gouveia N, et al. A systematic review of empirical and simulation studies evaluating the health impact of transportation interventions. *Environ Res* 2020;186:109519. Epub 2020 Apr 15.
64. Giles-Corti B, Vernez-Moudon A, Reis R, Turrell G, Dannenberg AL, Badland H, et al. City planning and population health: a global challenge. *Lancet* 2016;388(10062):2912-24. Epub 2016 Sep 23.
65. Bauman A, Crane M, Drayton BA, Titz S. The unrealised potential of bike share schemes to influence population physical activity levels—a narrative review. *Prev Med* 2017;103S:57-14. Epub 2017 Feb 20.
66. *Doctors for Safe Cycling* [website]. Toronto, ON: Doctors for Safe Cycling; 2017. Available from: <https://www.doctorsforsafecycling.ca/>. Accessed 2021 Sep 8.
67. Green S, Kim S, Gaudet M, Cheung E. Doctor's prescription for cycling. *Can Fam Physician* 2018;64:715-6 (Eng), e416-7 (Fr).
68. *An investigation of the attitudes of Canadians on issues related to health and the environment*. Ottawa, ON: Decima Research; 1992.
69. Maibach E, Frumkin H, Ahdoos S. Health professionals and the climate crisis: trusted voices, essential roles. *World Med Health Policy* 2021;13(1):137-45.

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