

Doctor's prescription for cycling

Samantha Green MD CCFP Sarah Kim MD CCFP(SEM) FCFP DipSportMed Mary Gaudet MD Eileen Cheung MD CCFP(EM)

As family physicians, our primary responsibility is to serve individuals and families, as well as to identify and address their immediate health needs in clinics and hospitals. But if our goal is optimal health for all our patients, we must also speak out about the upstream causes of illness and injury that we witness¹ and intervene on the conditions that “shape and constrain well-being”² in our communities. In the past, our profession has successfully advocated for public health interventions that improve health and safety, such as the restriction of pesticides and the regulation of indoor cigarette smoking. By advocating for safer cycling infrastructure, family physicians can substantially improve the health of all our patients.

Evidence of benefit

Regular physical activity is one of the most important determinants of health and well-being. For most of our patients, an increase in physical activity would have considerable health benefits. Coronary artery disease, diabetes, depression, dementia, and many pain conditions improve with exercise, and people who exercise regularly live longer and have better health.³⁻⁵ Cycling for transportation is an easy way for our patients to fit exercise into their busy lives and improve their health. Indeed, a study in Denmark found that cycling to work decreases the risk of dying by more than 25% per year.⁶ In a recent prospective cohort study of more than 250 000 UK commuters, those who cycled to work had a 41% reduction in all-cause mortality, a 46% lower risk of cardiovascular disease, and a 45% lower risk of developing cancer⁴ compared with commuters who did not cycle. Other studies on cycling for transportation have demonstrated similarly impressive health benefits.^{7,8}

The research demonstrates that the benefits of cycling outweigh the risks of injury by 9 to 77 times.^{9,10} Increasing the proportion of travel done by bicycle would improve the health of our communities through an increase in exercise, while also reducing the deleterious health effects of air pollution and climate change.

Avoidable risks

Yet, to travel by bicycle in Canada can be dangerous. In a given year, approximately 77 cyclists are killed in Ontario alone owing to collisions with motorists.¹¹ Thousands of others are injured. These tragic incidents are preventable.¹² A 2012 report by the Office of the Chief Coroner for Ontario reviewed all cycling deaths in Ontario from January 1, 2006, to December 31, 2010, and concluded that every single cycling death was avoidable.¹¹ In addition, the number 1 reason people give for not cycling is fear of cycling on the road with car traffic.¹³

Solutions

In Germany and the Netherlands, where roads have been redesigned to accommodate people who use multiple modes of transportation, cyclists are 2 to 3 times less likely to be injured and 8 to 30 times less likely to be killed than their North American counterparts.¹⁴ Between-country comparisons demonstrate that modifications to the built environment for cycling, and in particular separated bike lanes, are the best interventions to decrease cycling injuries and deaths.¹⁵⁻²⁰ A 2012 study from Toronto, Ont, and Vancouver, BC, found that painted bicycle lanes reduce cycling injuries by 50%, while separated bicycle lanes reduce injury risk by 89% compared with major streets without them.²⁰ In New York City, bicycle lanes reduced collisions by 57% for cyclists and 29% for pedestrians.²¹ In Boston, improved bicycle infrastructure built between 2009 and 2012 was associated with increases in both bicycle use and cyclist safety.²²

Separated bicycle lanes also improve the perception of safety, encouraging more people to ride bicycles, which in turn creates a “safety in numbers” effect that further reduces the number of injuries and fatalities.^{23,24} In Toronto, the recent bicycle lane pilot project on Bloor Street West has led to improved safety perception among cyclists: before the bicycle lanes were installed, only 3% of cyclists reported feeling “safe” or “very safe” on Bloor Street; after installation 85% reported feeling safe. And ridership has increased by 36%, to about 4500 cyclists per day, including many families with young children.²⁵

Role of family physicians

Family physicians can contribute to the development of safe cycling infrastructure in a number of ways. At the micro or individual level, we can encourage our patients to ride bicycles as an excellent form of exercise. We can work with our patients to overcome individual barriers to cycling using techniques such as motivational interviewing.²⁶

At the meso or community level, we can educate the public and our communities about the health benefits of cycling. We can also encourage our clinics and hospitals to provide bicycle parking and infrastructure for staff who choose to cycle to work.

At the macro or policy level, we can advocate for safe cycling infrastructure in our neighbourhoods and communities by collaborating with local cycling advocacy groups, meeting with local city councillors, and engaging with local media. In 2017, several of us formed a group called *Doctors For Safe Cycling* with the goal of advocating for better cycling infrastructure in Toronto. Our experience has been that policy makers are very

interested in hearing from physicians about health and safety issues, and that our advocacy work can have an effect on local planning and policy. We can also encourage our provincial and national organizations, including the College of Family Physicians of Canada, to advocate for safe cycling infrastructure. Further, we can advocate for the development of a national cycling strategy,²⁷ as we would benefit immensely from joining the many countries that have developed such strategies and seen considerable results.²⁸

As physicians, we are recognized by the public as experts on health and safety, and so we can be a powerful voice when speaking out on these issues. Our collective voice can be used to push for improved cycling safety in our communities. The health and safety of individuals and of our community must be a priority. Safe streets should be available to everyone. 

Dr Green is a family physician at St Michael's Hospital in Toronto, Ont. **Dr Kim** is a family physician with a focused practice in sports and exercise medicine in Toronto. **Dr Gaudet** is a resident in family medicine at St Michael's Hospital. **Dr Cheung** is an emergency medicine physician in Toronto.

Correspondence

Dr Samantha Green; e-mail greenesa@smh.ca

Competing interests

None declared

The opinions expressed in commentaries are those of the authors. Publication does not imply endorsement by the College of Family Physicians of Canada.

References

- 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).
- College of Family Physicians of Canada. *Best advice. Social determinants of health*. Mississauga, ON: College of Family Physicians of Canada; 2015. Available from: http://patientsmedicalhome.ca/files/uploads/BA_SocialID_ENG_WEB.pdf. Accessed 2018 Aug 17.
- 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.
- 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.
- Fisherman E, Schepers P, Kamphuis C. Dutch cycling: quantifying the health and related economic benefits. *Am J Public Health* 2015;105(8):e13-5. Epub 2015 Jun 11.
- 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.
- Grabow ML, Spak SN, Holloway T, Stone B, Mednick AC, Patz JA. Air quality and exercise-related health benefits from reduced car travel in the midwestern United States. *Environ Health Perspect* 2012;120(1):68-76. Epub 2011 Nov 2.
- 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.
- De Hartog JJ, Boogaard H, Nijland H, Hoek G. Do the health benefits of cycling outweigh the risks? *Environ Health Perspect* 2010;118(8):1109-16. Epub 2010 Jun 11.
- Rojas-Rueda D, de Nazelle A, Tainio M, Nieuwenhuijsen MJ. The health risks and benefits of cycling in urban environments compared with car use: health impact assessment study. *BMJ* 2011;343:d4521.
- Office of the Chief Coroner for Ontario. *Cycling death review. A review of all accidental cycling deaths in Ontario from January 1st, 2006 to December 31st, 2010*. Toronto, ON: Government of Ontario; 2012. Available from: www.mcscs.jus.gov.on.ca/sites/default/files/content/mcscs/docs/ec159773.pdf. Accessed 2018 Aug 17.
- Rowe BH, Rowe AM, Bota GW. Bicyclist and environmental factors associated with fatal bicycle-related trauma in Ontario. *CMAJ* 1995;152(1):45-53.
- Carnall D. Cycling and health promotion. A safer, slower urban road environment is the key. *BMJ* 2000;320(7239):888.
- Pucher J, Buehler R. Making cycling irresistible: lessons from the Netherlands, Denmark and Germany. *Transp Rev* 2008;28(4):495-528.
- International Transport Forum. *Road safety annual report 2010*. Paris, Fr: Organisation for Economic Cooperation and Development Publishing; 2011.
- Pucher, Buehler R. Safer cycling through improved infrastructure. *Am J Public Health* 2016;106(12):2089-91.
- Lusk AC, Morency P, Miranda-Moreno LF, Willett WC, Dennerlein JT. Bicycle guide-lines and crash rates on cycle tracks in the United States. *Am J Public Health* 2013;103(7):1240-8. Epub 2013 May 16.
- Reynolds CC, Harris MA, Teschke K, Cripton PA, Winters M. The impact of transportation infrastructure on bicycling injuries and crashes: a review of the literature. *Environ Health* 2009;8:47.
- Lusk AC, Furth PG, Morency P, Miranda-Moreno LF, Willett WC, Dennerlein JT. Risk of injury for bicycling on cycle tracks versus in the street. *Inj Prev* 2011;17(2):131-5. Epub 2011 Feb 9.
- Teschke K, Harris MA, Reynolds CC, Winters M, Babul S, Chipman M, et al. Route infrastructure and the risk of injuries to bicyclists: a case-crossover study. *Am J Public Health* 2012;102(12):2336-43. Epub 2012 Oct 18.
- Measuring the street. New metrics for 21st century streets*. New York, NY: City of New York; 2012. Available from: www.nyc.gov/html/dot/downloads/pdf/2012-10-measuring-the-street.pdf. Accessed 2018 Aug 17.
- Pedroso FE, Angriman F, Bellows AL, Taylor K. Bicycle use and cyclist safety following Boston's bicycle infrastructure expansion, 2009-2012. *Am J Public Health* 2016;106(12):2171-7. Epub 2016 Oct 13.
- Bhatia D, Richmond SA, Loo CKJ, Rothman L, Macarthur C, Howard A. Examining the impact of cycle lanes on cyclist-motor vehicle collisions in the city of Toronto. *J Transp Health* 2016;3(4):523-8.
- Jacobsen PL. Safety in numbers: more walkers and bicyclists, safer walking and bicycling. *Inj Prev* 2003;9(3):205-9.
- City of Toronto [website]. *Bloor Street bike lanes*. Toronto, ON: City of Toronto; 2018. Available from: www.toronto.ca/services-payments/streets-parking-transportation/cycling-in-toronto/cycle-track-projects/bloor-street-bike-lanes/. Accessed 2018 Aug 17.
- 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.
- Canada Bikes. *Towards a bike-friendly Canada. A national cycling strategy overview*. Winnipeg, MB: Canada Bikes; 2016. Available from: www.canadabikes.org/wp-content/uploads/2016/04/TowardsABikeFriendlyCanadaForWeb2.pdf. Accessed 2018 Aug 17.
- European Cyclists' Federation. *National cycling policies*. Brussels, Belg: European Cyclists' Federation; 2018. Available from: <https://ecf.com/what-we-do/cycling-all-policies/national-cycling-policies>. Accessed 2018 Aug 17.

La traduction en français de cet article se trouve à www.cfp.ca dans la table des matières du numéro d'octobre 2018 à la page e416.