

## Being Outside Safely and COVID-19

### Disclaimer:

This *Quick Response Report* was published on May 4, 2020. Given the rapidly changing nature of the coronavirus pandemic, some of the references included in this report may quickly become out-of-date. We further caution readers that researchers at the Newfoundland & Labrador Centre for Applied Health Research are not experts on infectious diseases and are relaying work produced by others. This report has been produced quickly and it is not exhaustive, nor have the included studies been critically appraised.

Readers will note that some text below has been highlighted for emphasis.

### Original Inquiry

We would like to learn more about the transmission of COVID-19 in outdoors settings – what is safe what isn't?

### Summary

Outdoor safety in the context of COVID-19 is a multi-dimensional issue. Evidence and expert opinion suggest it is possible to engage in some outdoor recreation and exercise safely, provided the public maintains basic precautions and hygienic practices. Research on environmental factors suggests Newfoundland and Labrador may be favoured for its clean air, but may be penalized for its low levels of sunlight (in some regions) and northern latitudes.

### Guidance

These are documents from health authorities providing guidance to the public on various topics. Many are short format documents, including flyers, infographics and FAQs.

### Outdoor Safety – Parks and Recreation

NCCEH. **COVID-19 and outdoor safety: Considerations for use of outdoor recreational spaces.**

April 14, 2020. [LINK](#) (1)

- Comprehensive review of available evidence and expert opinion.
- Addresses multiple areas, including: impact of park closures (e.g., mental health, risky behaviour, and health inequities), transmission, actions taken in other jurisdictions, options for risk reduction.

CDC Guidance documents (short format information resources)

- CDC. **Resources for Parks and Recreational Facilities.** April 11, 2020. [LINK](#) (2)
- CDC. **Visiting Parks and Recreational Facilities.** April 10, 2020 [LINK](#) (3)

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COVID-19 *Quick Response Reports*  
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- CDC. **Guidance for Administrators in Parks and Recreational Facilities.** April 10, 2020 [LINK](#) (4)

## Outdoor Safety - Households

Guidance documents (short format information resources)

- CDC. **Cleaning and Disinfection for Non-emergency Transport Vehicles.** [LINK](#) (5)
- CDC. **How to Protect Yourself & Others.** April 24, 2020 [LINK](#) (6)
- CDC. **If You Have Animals.** April 21, 2020 [LINK](#) (7)
- CDC. **Keeping Children Healthy While School's Out.** April 13, 2020 [LINK](#) (8)
- CDC. **Running Essential Errands.** April 10, 2020 [LINK](#) (9)
- CDC. **Social Distancing, Quarantine, and Isolation.** April 28, 2020 [LINK](#) (10)
- Health Canada. **Animals in Canada.** April 24, 2020 [LINK](#) (11)
- Health Canada. **Physical distancing: How to slow the spread of COVID-19.** April 28, 2020 [LINK](#) (12)

## Outdoor Safety - Face masks

Guidance documents (short format information resources)

- CDC. **Recommendation Regarding the Use of Cloth Face Coverings, Especially in Areas of Significant Community-Based Transmission.** April 28, 2020 [LINK](#) (13)
- CDC. **Cloth Face Coverings: Questions and Answers.** April 28, 2020 [LINK](#) (14)
- Health Canada. **About non-medical masks and face coverings.** April 28, 2020 [LINK](#) (15)

## Outdoor Safety – Transmission Biophysics

Guidance documents (short format information resources)

- Health Canada. **Survival of coronaviruses on surfaces.** April 24, 2020 [LINK](#) (16)

Public Health England. **Transmission characteristics and principles of infection prevention and control.** April 27, 2020 [LINK](#) (17)

“Survival on environmental surfaces is also dependent on the surface type. An experimental study using a SARS-CoV-2 strain reported viability on plastic for up to 72 hours, for 48 hours on stainless steel and up to 8 hours on copper.”

## Systematic Reviews

None found.

## Other Reviews

### Policy and Implementation

CEBM. **Can social prescribing support the COVID-19 pandemic?** March 25, 2020 [LINK](#) (18)

- “Although there is limited evidence on how social prescribing can be best implemented within the current COVID-19 pandemic, there are an increasing array of anecdotal accounts that suggest the importance of maintaining community connectedness during this time.”

HIQA (Ireland). **Review of restrictive public policy measures to limit the spread of COVID-19.**

April 24, 2020 [LINK](#) (19)

- Iceland (May 4, 2020): “Mass gatherings: Limited to 50 instead of 20 people. Organised sports for children are limited to 50 children. Organised sports for adults are permitted outdoors and no more than 4 individuals.”
- Netherlands (April 29, 2020): “Children and teenagers will have more scope for participating in organised sports activities and play outdoors. Official matches will not be allowed. Children aged 12 and under will be allowed to play sports together outdoors under supervision. Young people aged 13 to 18 will be allowed to play sports together outdoors under supervision, but must stay 1.5m apart.”

Social Distancing

CEBM. **What is the evidence for social distancing during global pandemics?** March 19, 2020

[LINK](#) (20)

- “Although limited, the best available evidence appears to support social distancing measures as a means of reducing transmission and delaying spread. Staggered and cumulative implementation of these interventions may prove most effective. The timing and duration of such measures is critical.”

Face masks

ECRI (USA). **Cloth Face Coverings Worn by Public to Reduce Transmission of Viral Respiratory Infection.** April, 2020 [LINK](#) (21)

- Despite a range of policies on wearing face masks among countries, there is insufficient evidence to indicate if they are effective at protecting against or preventing COVID-19 transmission.

Outdoor Transmission & Environmental Effects

CADTH. **SARS-CoV-2 Longevity on and Transmission via Materials: Evidence.** April 9, 2020 [LINK](#) (22)

- This is a CADTH Reference List product that found one study indicating SARS-CoV-2 is viable on plastic and stainless steel for up to 72 hours, cardboard up to 24 hours, and copper up to 4 hours (referenced above).

CEBM. **Effect of Latitude on COVID-19.** April 27, 2020 [LINK](#) (23)

- Country-level comparison of latitude and COVID-19 mortality and cases, showing a correlation of  $R^2=0.30$  for deaths and  $R^2=0.35$  for cases within the Northern hemisphere, indicating higher death and infection rates with higher (more Northern) latitudes.

CEBM. **Do weather conditions influence the transmission of the coronavirus (SARS-CoV-2)?**

March 22, 2020 [LINK](#) (24)

- “The weather effect is minimal, and all estimates are subject to significant biases reinforcing the need for robust public health measures”

COVID-19 Critical Intelligence Unit (Australia). **Winter and COVID-19 transmission.** April 1, 2020 [LINK](#) (25)

- Some models are showing distribution patterns associated with latitude, consistent with seasonal respiratory virus. However, “being early in the pandemic there is insufficient evidence to determine whether COVID-19 will behave seasonally like influenza; or will spread in all seasons like MERS”.

Contini & Costabile. **Does Air Pollution Influence COVID-19 Outbreaks?** April 13, 2020 [LINK](#) (26)

- “Exposure to air pollution could increase vulnerability and have detrimental effects on the prognosis of patients affected by the COVID-19. However, the relative weight of air pollution, compared to other confounders, is still to be determined.”

Moriyama et al. **Seasonality of Respiratory Viral Infections.** March 20, 2020 [LINK](#) (27)

- Reviews environmental factors that affect respiratory virus stability and transmission, as well as immune responses to infection, and the potential implications for COVID-19.
- Discussed in **How humidity may affect COVID-19 outcome**, *Medical News Today*, April 2, 2020 [LINK](#) (28)

## Expert Opinion

### Outdoor Safety

CBC. **Chance of contracting COVID-19 while out for a spring walk 'incredibly small', Manitoba researchers say.** April 28, 2020 [LINK](#) (29)

- The risk of transmission while outside is much smaller than while inside.
- Interview with [Andrew Halayko](#) and [Kevin Coombs](#) (U of Manitoba)

Cleveland Clinic. **COVID-19: How to Stay Safe During Outdoor Activities.** April 23, 2020 [LINK](#) (30)

- It is safe to exercise outdoors provided adequate social distancing is maintained and crowded areas are avoided. Adequate social distance increases with exertion levels.
- Interview with [Frank Esper MD](#)

Harvard Health Blog. **7 tips for going outside safely with your children during the COVID-19 pandemic.** April 27, 2020 [LINK](#) (31)

- It is safe to go outside provided while following basic recommendations, including: avoiding crowds and touching unnecessarily, hygiene, physical distancing, and using face masks.
- Post by [Claire McCarthy MD](#)

Reader's Digest. **Exactly How Dangerous Is It to Take a Walk Outside During COVID-19?** April 24, 2020 [LINK](#) (32)

- It is safe to exercise outdoors provided adequate social distancing is maintained and crowded areas are avoided. Adequate social distance increases with exertion levels. Holding your breath when passing someone and face masks help too.
- Interview with [Jason Tetro](#)

## Primary Research

PREPRINT articles have not been peer-reviewed. They report new medical research that has yet to be evaluated and so should not be used to guide clinical practice

## Policy and Implementation

Czeisler et al. COVID-19: **Public Compliance with and Public Support for Stay-at-Home Mitigation Strategies.** April 24, 2020 [LINK](#) (33) **PREPRINT**

- "Public compliance with stringent quarantine and stay-at-home policies was very high, in both highly-affected (US, NY) and minimally-affected regions (AU, LA). Despite extensive disruption of respondents' lives, the vast majority supported continuation of long-term government-imposed stay-at-home orders."
- Interview with lead author: MedicalResearch.com, April 27, 2020 [LINK](#)

Lunn et al. **Motivating social distancing during the Covid-19 pandemic: An online experiment.** April, 2020. [LINK](#) (34) **PREPRINT**

- "The findings suggest that the thought of infecting vulnerable people or large numbers of people can motivate social distancing."
- Cited in the European Council / Council of the European Union: April 30, 2020 [LINK](#)

## Outdoor Safety

Mello. **Pedestrian traffic must be regulated in contagious epidemics.** April 3, 2020 [LINK](#) (35) **PREPRINT**

- Physical exercise can mitigate the impacts of shelter-in-place policies but risks increasing community transmission. Organizing pedestrian traffic greatly reduces the potential for outdoor transmission.
- Reported on here: Globe and Mail, **How far should joggers be when they run past you?** April 8, 2020 [LINK](#) (36)

## Outdoor Transmission and Environmental Effects

Guerrero et al. COVID-19. **Transport of respiratory droplets in a microclimatologic urban scenario.** April 23, 2020 [LINK](#) (37) **PREPRINT**

- Computational model indicating: "larger droplets (400 – 900  $\mu\text{m}$ ) are spread between 2–5 m during 2.3 s while smaller (100 – 200  $\mu\text{m}$ ) droplets are transported a larger range between 8–11 m by the action of the turbulent wind in 14.1 s average."

- Reported on here: News Medical, **Microclimate and turbulent wind can influence COVID-19 spread over long distances**, April 26, 2020 [LINK](#)

Merow & Urban. **Seasonality and uncertainty in COVID-19 growth rates**. April 22, 2020. [LINK](#)  
(38) **PREPRINT**

- Computer modeling with fine-scaled weather data indicate UV light is associated with lower COVID-19 growth rates.
- Reported on here:
  - New York Times, **Could the Power of the Sun Slow the Coronavirus?** April 24, 2020 [LINK](#)
  - Medical Xpress, **Don't expect a summer reprieve from COVID-19**, April 24, 2020 [LINK](#)

### Wellness and Mental Health

Lades et al. **Daily emotional well-being during the COVID-19 pandemic**. April 22, 2020 [LINK](#)  
(39) **PREPRINT**

- “We found that while most time was spent in the home, time spent outdoors was associated with markedly raised positive affect and reduced negative feelings. Exercising, pursuing hobbies and taking care of children were the activities associated with the greatest affective benefits. Home schooling children and obtaining information about COVID-19 were ranked lowest of all activities in terms of emotional experience.”
- Reported on here:
  - Independent (Ireland), **Three weeks that look set to test the Irish public like never before**, April 12, 2020, [LINK](#)
  - Sunday Independent (Ireland), **Signs of hope but dangers lie ahead—the biggest one is complacency**, April 12, 2020, [LINK](#)

Rice et al. **The COVID-19 pandemic is changing the way people recreate outdoors: Preliminary report on a national survey of outdoor enthusiasts amid the COVID-19 pandemic**. April 18, 2020 [LINK](#) (40) **PREPRINT**

- Survey of 1,012 outdoor recreationists in the US. Reports on changes in recreational behaviour, reasons for change, psychosocial factors influencing choices, and likelihood of returning to preferred / pre-pandemic behaviours.

### Science Reporting and News

Popular Science. **A guide to safe outdoor activities during the coronavirus pandemic**. April 28, 2020 [LINK](#) (41)

- Adhere to official guidelines. Minimize contact, shared surfaces with others. Avoid crowds and travel as little as possible. Choose low-risk sports and avoid possibility of hospital visit.

Rails to Trails. **Resources for Safe Outdoor Activity During the COVID-19 Pandemic**. March 27, 2020 [LINK](#) (42)

- Article with multiple references to health authority guidance.

Vice. **The Viral ‘Study’ About Runners Spreading Coronavirus Is Not Actually a Study.** April 9, 2020 [LINK](#) (43)

- Debunks misleading reporting about a modeling study of outdoor transmission.

## Methodology

Newfoundland and Labrador Centre for Applied Health Research (NLCAHR) COVID-19 Quick Response reports are initiated by, and shared with, our partners in the provincial health system, including the four Regional Health Authorities, the Departments of Health and Community Services and Children, Seniors and Social Development, and public health officials.

NLCAHR staff work with topic submitters to clarify the research question. We then search for related systematic reviews, meta-analyses, other reviews, interim and other guidance statements, primary research, expert opinion and health and science reporting.

We use several search strategies, with a focus on the following databases:

- [Alberta Health Services](#) (1)
- [CADTH](#) (1)
- [Canadian Pharmacists Association](#) (0)
- [Campbell Collaboration](#) (0)
- [Cochrane Collaboration](#) (0)
- [Centre for Disease Control](#) (11)
- [Centre for Evidence Based Medicine](#) (0)
- [Evidence for Policy and Practice Information and Co-ordinating Centre](#) (5)
- [European Centre for Disease Prevention and Control](#) (0)
- [Health Canada](#) (4)
- [HIQA \(Ireland\)](#) (1)
- [Joanna Briggs Institute](#) (0)
- [MedRxiv](#)
- [National Collaborating Centres on Methods and Tools \(NCCMT\)](#) (0, 5 in progress)
- [National Institutes of Health](#) (0)
- [National Institute of Allergy and Infectious Diseases](#) (0)
- [National Library of Medicine](#)
- [Public Health Agency of Canada](#) (0?)
- [Trip Database](#)
- [World Health Organization](#)

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## References

1. Freeman S, Eykelbosh A. COVID-19 and outdoor safety: Considerations for use of outdoor recreational spaces [Internet]. Vancouver, BC: BC Centre for Disease Control & National Collaborating Centre for Environmental Health; 2020 Apr [cited 2020 Apr 28] p. 15. Available from: <https://ncceh.ca/sites/default/files/COVID-19%20Outdoor%20Safety%20-%20April%2016%202020.pdf>
2. Centers for Disease Control and Prevention. Resources for Parks and Recreational Facilities [Internet]. Coronavirus Disease 2019 (COVID-19). 2020 [cited 2020 Apr 28]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/community/parks-rec/index.html>
3. Centers for Disease Control and Prevention. Visiting Parks and Recreational Facilities [Internet]. Coronavirus Disease 2019 (COVID-19). 2020 [cited 2020 Apr 28]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/visitors.html>
4. Centers for Disease Control and Prevention. Guidance for Administrators in Parks and Recreational Facilities [Internet]. Coronavirus Disease 2019 (COVID-19). 2020 [cited 2020 Apr 28]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/community/parks-rec/park-administrators.html>
5. Centers for Disease Control and Prevention. Cleaning and Disinfection for Non-emergency Transport Vehicles [Internet]. Coronavirus Disease 2019 (COVID-19). 2020 [cited 2020 Apr 28]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/disinfecting-transport-vehicles.html>
6. Centers for Disease Control and Prevention. How to Protect Yourself & Others [Internet]. Coronavirus Disease 2019 (COVID-19). 2020 [cited 2020 Apr 28]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>
7. Centers for Disease Control and Prevention. If You Have Animals [Internet]. Coronavirus Disease 2019 (COVID-19). 2020 [cited 2020 Apr 28]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/animals.html>
8. Centers for Disease Control and Prevention. Keeping Children Healthy While School's Out [Internet]. Coronavirus Disease 2019 (COVID-19). 2020 [cited 2020 Apr 28]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/children.html>
9. Centers for Disease Control and Prevention. Running Essential Errands [Internet]. Coronavirus Disease 2019 (COVID-19). 2020 [cited 2020 Apr 28]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/essential-goods-services.html>
10. Centers for Disease Control and Prevention. Social Distancing, Quarantine, and Isolation [Internet]. Coronavirus Disease 2019 (COVID-19). 2020 [cited 2020 Apr 28]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/social-distancing.html>
11. Health Canada. Animals in Canada [Internet]. Coronavirus disease (COVID-19). 2020 [cited 2020 Apr 28]. Available from: <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/prevention-risks.html?topic=ex-col-faq#animal-canada>
12. Health Canada. Physical distancing: How to slow the spread of COVID-19 [Internet]. Coronavirus disease (COVID-19). 2020 [cited 2020 Apr 28]. Available from: <https://www.canada.ca/en/public-health/services/publications/diseases-conditions/social-distancing.html>
13. Centers for Disease Control and Prevention. Recommendation Regarding the Use of Cloth Face Coverings, Especially in Areas of Significant Community-Based Transmission [Internet]. Coronavirus Disease 2019 (COVID-



- 19). 2020 [cited 2020 Apr 28]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover.html>
14. Centers for Disease Control and Prevention. Cloth Face Coverings: Questions and Answers [Internet]. Coronavirus Disease 2019 (COVID-19). 2020 [cited 2020 Apr 28]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover-faq.html>
15. Health Canada. About non-medical masks and face coverings [Internet]. Coronavirus disease (COVID-19). 2020 [cited 2020 Apr 28]. Available from: <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/prevention-risks/instructions-sew-no-sew-cloth-face-covering.html>
16. Health Canada. Survival of coronaviruses on surfaces [Internet]. Coronavirus disease (COVID-19). 2020 [cited 2020 Apr 28]. Available from: <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/prevention-risks.html?topic=ex-col-faq#products>
17. Public Health England. Transmission characteristics and principles of infection prevention and control [Internet]. London, UK: PHE; 2020 Apr [cited 2020 Apr 28]. (Guidance). Available from: <https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/transmission-characteristics-and-principles-of-infection-prevention-and-control#survival-in-the-environment>
18. Centre for Evidence-Based Medicine. Can social prescribing support the COVID-19 pandemic? [Internet]. Oxford COVID-19 Evidence Service. 2020 [cited 2020 Apr 28]. Available from: <https://www.cebm.net/covid-19/can-social-prescribing-support-the-covid-19-pandemic/>
19. Health Information and Quality Authority. Review of restrictive public policy measures to limit the spread of COVID-19 [Internet]. Ireland: HIQA; 2020 Apr p. 66. Available from: [https://www.hiqa.ie/sites/default/files/2020-04/Review-of-restrictive-public-policy-measures-to-limit-the-spread-of-COVID-19\\_0.pdf](https://www.hiqa.ie/sites/default/files/2020-04/Review-of-restrictive-public-policy-measures-to-limit-the-spread-of-COVID-19_0.pdf)
20. Centre for Evidence-Based Medicine. What is the evidence for social distancing during global pandemics? [Internet]. Oxford COVID-19 Evidence Service. 2020 [cited 2020 Apr 28]. Available from: <https://www.cebm.net/covid-19/what-is-the-evidence-for-social-distancing-during-global-pandemics/>
21. ECRI. Cloth Face Coverings Worn by Public to Reduce Transmission of Viral Respiratory Infection [Internet]. Plymouth Landing, MA: ECRI; 2020 Apr [cited 2020 Apr 28] p. 12. Available from: <https://assets.ecri.org/PDF/COVID-19-Resource-Center/COVID-19-Clinical-Care/COVID-ECRI-HTA-Cloth-Face-Coverings-Worn-By-Public.pdf>
22. Canadian Agency for Drugs and Technology in Health. SARS-CoV-2 Longevity on and Transmission via Materials: Evidence [Internet]. Ottawa, ON: CADTH; 2020 Apr p. 7. Available from: <https://www.cadth.ca/sites/default/files/covid-19/RB1477%20COVID%20Lifespan%20Final.pdf>
23. Centre for Evidence-Based Medicine. Effect of Latitude on COVID-19 [Internet]. Oxford COVID-19 Evidence Service. 2020 [cited 2020 Apr 28]. Available from: <https://www.cebm.net/covid-19/effect-of-latitude-on-covid-19/>
24. Brassey J, Heneghan C, Mahtani K, Aronson J. Do weather conditions influence the transmission of the coronavirus (SARS-CoV-2)? [Internet]. Oxford, UK: Center for Evidence-Based Medicine; 2020 Mar [cited 2020 Apr 28]. (Oxford COVID-19 Evidence). Available from: <https://www.cebm.net/covid-19/do-weather-conditions-influence-the-transmission-of-the-coronavirus-sars-cov-2/>

25. COVID-19 Critical Intelligence Unit. Winter and COVID-19 transmission [Internet]. Australia: NSW Health; 2020 Apr [cited 2020 Apr 28] p. 11. (Evidence Check). Available from: [https://www.aci.health.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0004/578470/20200401-Evidence-Check-Seasonal-Changes-and-COVID-19.pdf](https://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0004/578470/20200401-Evidence-Check-Seasonal-Changes-and-COVID-19.pdf)
26. Contini D, Costabile F. Does Air Pollution Influence COVID-19 Outbreaks? Atmosphere. 2020 Apr;11(4):377.
27. Moriyama M, Hugentobler WJ, Iwasaki A. Seasonality of Respiratory Viral Infections. Annu Rev Virol [Internet]. 2020 Mar 20 [cited 2020 Apr 29]; Available from: <https://www.annualreviews.org/doi/10.1146/annurev-virology-012420-022445>
28. Sandoiu A. How humidity may affect COVID-19 outcome [Internet]. Medical News Today. 2020 [cited 2020 Apr 29]. Available from: <https://www.medicalnewstoday.com/articles/how-humidity-may-affect-covid-19-outcome>
29. Brass E. Chance of contracting COVID-19 while out for a spring walk “incredibly small”, Manitoba researchers say [Internet]. CBC. 2020 [cited 2020 Apr 29]. Available from: <https://www.cbc.ca/news/canada/manitoba/outdoors-covid-19-winnipeg-researchers-1.5547145>
30. Cleveland Clinic. COVID-19: How to Stay Safe During Outdoor Activities [Internet]. health essentials. 2020 [cited 2020 Apr 28]. Available from: <https://health.clevelandclinic.org/covid-19-how-to-stay-safe-during-outdoor-activities/>
31. McCarthy C. 7 tips for going outside safely with your children during the COVID-19 pandemic [Internet]. Harvard Health Blog. 2020 [cited 2020 Apr 28]. Available from: <https://www.health.harvard.edu/blog/7-tips-for-going-outside-safely-with-your-children-during-the-covid-19-pandemic-2020042719653>
32. Reader’s Digest. Exactly How Dangerous Is It to Take a Walk Outside During COVID-19? [Internet]. Reader’s Digest Canada. 2020 [cited 2020 Apr 28]. Available from: <https://www.readersdigest.ca/health/conditions/take-a-walk-outside-during-covid-19/>
33. Czeisler MÉ, Howard ME, Robbins R, Barger LK, Facer-Childs ER, Rajaratnam SM, et al. COVID-19: Public Compliance with and Public Support for Stay-at-Home Mitigation Strategies. medRxiv. 2020 Apr 24;2020.04.22.20076141.
34. Lunn P, Timmons S, Belton C, Barjakova M, Julianne H, Lavin C. Motivating social distancing during the Covid-19 pandemic: An online experiment [Internet]. Dublin, IE: ESRI; 2020 Apr [cited 2020 Apr 28] p. 21. Report No.: 658. Available from: <https://www.esri.ie/pubs/WP658.pdf>
35. Mello BA. Pedestrian traffic must be regulated in contagious epidemics. ArXiv Prepr ArXiv200400423 [Internet]. 2020 Apr 3; Available from: <https://arxiv.org/pdf/2004.00423.pdf>
36. Hutchinson A. How far should joggers be when they run past you? The Globe and Mail [Internet]. 2020 Apr 8 [cited 2020 Apr 29]; Available from: <https://www.theglobeandmail.com/life/health-and-fitness/article-joggers-need-to-be-even-farther-than-two-metres-when-going-past-you/>
37. Guerrero N, Brito J, Cornejo P. COVID-19. Transport of respiratory droplets in a microclimatologic urban scenario. medRxiv. 2020 Apr 23;2020.04.17.20064394.
38. Merow C, Urban MC. Seasonality and uncertainty in COVID-19 growth rates. medRxiv. 2020 Apr 22;2020.04.19.20071951.

39. Lades L, Laffan K, Daly M, Delaney L. Daily emotional well-being during the COVID-19 pandemic [Internet]. PsyArXiv; 2020 Apr [cited 2020 Apr 29]. Available from: <https://osf.io/pg6bw>
40. Rice WL, Meyer C, Lawhon B, Taff BD, Mateer T, Reigner N, et al. The COVID-19 pandemic is changing the way people recreate outdoors: Preliminary report on a national survey of outdoor enthusiasts amid the COVID-19 pandemic [Internet]. SocArXiv; 2020 Apr [cited 2020 Apr 29]. Available from: <https://osf.io/prnz9>
41. Chrobak U. A guide to safe outdoor activities during the coronavirus pandemic. Popular Science [Internet]. 2020 Mar 25 [cited 2020 Apr 28]; Available from: <https://www.popsoci.com/story/environment/lockdown-coronavirus-covid-go-outside/>
42. Kapp A. Resources for Safe Outdoor Activity During the COVID-19 Pandemic [Internet]. Rails to Trails Trailblog. 2020 [cited 2020 Apr 28]. Available from: <https://www.railstotrails.org/trailblog/2020/march/27/resources-for-safe-outdoor-activity-during-the-covid-19-pandemic/>
43. Koebler J. The Viral 'Study' About Runners Spreading Coronavirus Is Not Actually a Study [Internet]. Vice. 2020 [cited 2020 Apr 29]. Available from: [https://www.vice.com/en\\_ca/article/v74az9/the-viral-study-about-runners-spreading-coronavirus-is-not-actually-a-study](https://www.vice.com/en_ca/article/v74az9/the-viral-study-about-runners-spreading-coronavirus-is-not-actually-a-study)