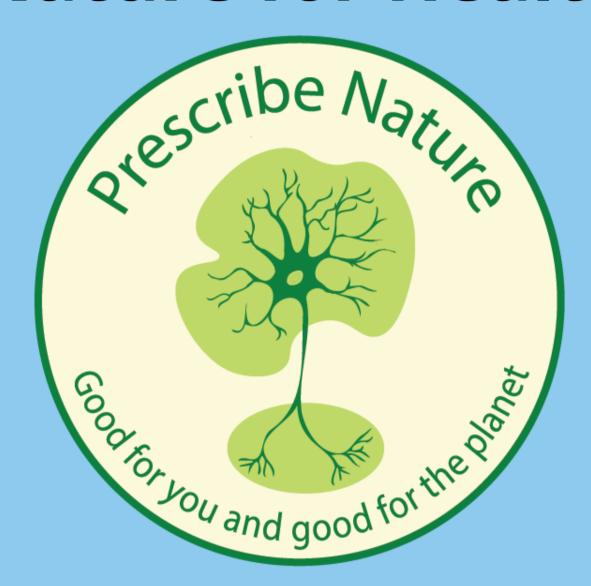


Nature for Health



Author: Dr. Meghan Davis B. Eng MD FCFP & Tatiana Gayowsky H. BASc Design: Teniola Ayeni

Encourage your patients to connect to better health through nature!

- Nature has preventative health benefits and can decrease symptoms from a wide range of mental and physical diseases.
- Park Prescriptions, or PaRx, is a program launched by the BC Parks Foundation to help us prescribe nature. An example prescription and process are below.
- 3. Spending time in nature also increases pronature behaviours, benefitting nature spaces.



HFHT Green Initiative

Nature for Health

1. Health Benefit

The body of literature supporting the benefits of nature for chronic disease and in support of physical and mental health is solid. A 2018 systematic review pointed to an impressive, wide-ranging number of health benefits of increased nature contact, including improved blood pressure, cancer-related outcomes and lipids, and a reduced risk of asthma, preterm birth, coronary heart disease, Type II Diabetes, stroke, and cardiovascular, respiratory and all-cause mortality.1



Chronic Disease Control:

Respiratory^{1, 2} Heart Disease¹,
Diabetes³, Cancer^{1, 4, 5, 6, 7}



Risk Mitigation: General

Wellness^{4, 5} Immunity^{8, 9, 10} Excess Weight¹¹



Healthy Mind: Stress

Reduction,^{12, 13, 14} Improved

Mental Health^{14, 23} & Attention¹⁵



Healthy Pregnancy, 16
Children, 17, 18 and Youth 19, 20

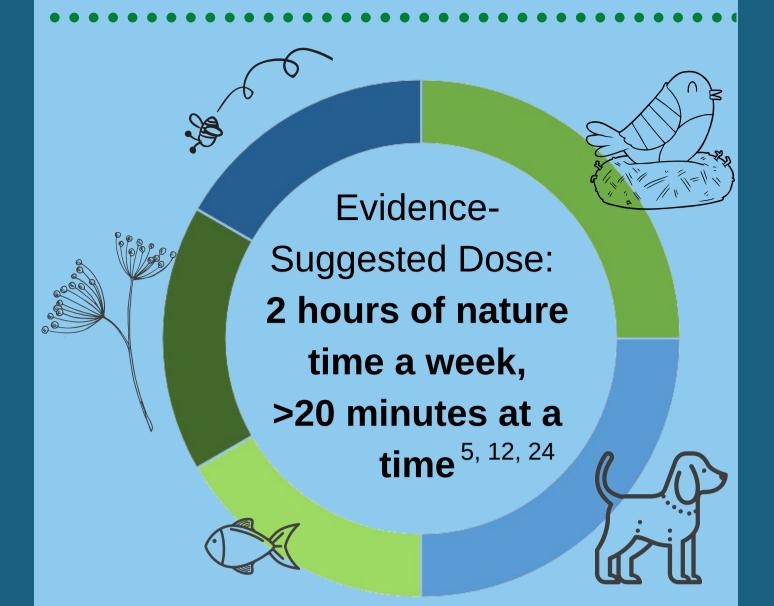


Elder Health 21, 22

When prescribing nature, be aware that patients may have obstacles to being outside, including but not limited to physical, psychological, cultural, or concerns regarding safety.



HFHT Green Initiative Nature for Health



These recommendations contain very few requirements:

- No necessary physical activity when in nature to see results
- "Nature time" can be any time in any amount of nature that the client finds meaningful¹²

How Does it Work? Some Theories:

Decreased cortisol production and activation of the parasympathetic nervous system.

12, 25

Replenishes
attention, focus,
and concentration
with unconscious
changes from being
in nature.
15, 26

Chemical and
Biologic Agents
specific to Natural
Habitats

27*, 28

Spending time in nature not only benefits the health of individuals, but has been shown to improve pro-social behaviour and social bonds, as many enjoy nature with others.^{2, 29, 30}

*A mechanism map from this study has been appended.

HFHT Green Initiative

Nature for Health

2. Park Prescriptions

PaRx, or Park Prescriptions, a program from
British Columbia, has a pathway to help us
prescribe nature. The program provides
evidence-based recommendations and resources
to prescribers, as well as a personalized PaRx
prescription and instructions for how to prescribe
and log prescriptions on the <u>parkprescriptions.ca</u>
website. Patients who receive a prescription "fill"
it by spending time in nature, and both providers
and patients can win prizes!



We have a digital prescription you can use to prescribe nature as evidence shows a written prescriptions are powerful.

We have created a <u>PaRx EMR embedded edoc</u> and eform.

To log your Rx you can either use the HFHT Provider ID: *ON MD 001* that is currently preloaded on the digital tool,or sign up online to receive your own unique number. See our how-to-wideo-on-Park-Prescriptions-here.

BC Parks is developing a patient-facing portal on their website. When available, you can log your patient's Rx so that they can access their own portal on parkprescriptions.ca using the provider ID, date, and their initials as listed on your PaRx.



Many individuals don't know where their closest parks are, so we integrated this <u>map of</u>

<u>Hamilton parks</u> into our Nature Prescriptions for our EMRs.

HFHT Green Initiative

Nature for Health

3. Nature Benefit

More time in nature increases proenvironmental behaviours and thoughts.^{32, 33}

Because taking care of nature improves human health around the world,³⁴ nature time has a dual benefit on human health; directly on those experiencing nature, and indirectly based on the pro-environmental actions taken by those who spend more time in nature.



Park Prescriptions: A branded informational poster that is available to order from our <u>Welcome Package</u>

Prescribing nature is simple, evidence-based, mutually beneficial to patients and the environment, and there are very few barriers towards implementing it as a part of your healthcare provision.

Patient Resources and Motivators:

Health Benefits of Nature: Waiting Room Video

Get the Kids Outside

World Walking app/website

McMaster's Just Walk Program

Forest Therapy Programs

Plant 1 Tree per Patient Seen

Nature for Health: References

<u>Additional Readings</u>

- Bell, N. (2014, June). <u>Teaching by the Medicine Wheel.</u> **Education Canada.**
- Maller C, Townsend M, Pryor A, Brown P, St Leger L. Healthy nature healthy people: 'contact with nature' as an upstream health promotion intervention for populations. Health Promotion International. 2006;21(1):45-54.

References:

- 1. Twohig-Bennett C, Jones A. The health benefits of the great outdoors: A systematic review and meta-analysis of greenspace exposure and health outcomes. Environmental Research. 2018;166:628-637.
- 2. Ng KST, Sia A, Ng MKW, et al. Effects of Horticultural Therapy on Asian Older Adults: A Randomized Controlled Trial. Int J Environ Res Public Health. 2018;15(8).
- 3. Ohtsuka Y, Yabunaka N, Takayama S. Shinrin-yoku (forest-air bathing and walking) effectively decreases blood glucose levels in diabetic patients. Int J Biometeorol. 1998;41(3):125-127.
- 4. James P, Hart J, Laden F. Exposure to Greenness and Mortality in a Nationwide Prospective Cohort Study of Women. Environmental Health Perspectives. 2016;124(9):1344-1352.
- 5. White MP, Alcock I, Grellier J, et al. Spending at least 120 minutes a week in nature is associated with good health and wellbeing. Scientific Reports. 2019;9(1):7730.
- 6. Blaschke S. The role of nature in cancer patients' lives: a systematic review and qualitative meta-synthesis. BMC Cancer. 2017;17(1):370.
- 7. English J, Wilson K, Keller-Olaman S. Health, healing and recovery: therapeutic landscapes and the everyday lives of breast cancer survivors. Soc Sci Med. 2008;67(1):68-78.
- 8. Li Q, Kobayashi M, Wakayama Y, et al. Effect of Phytoncide from <u>Trees on Human Natural Killer Cell Function</u>. Int J Immunopathol Pharmacol. 2009;22(4):951-959.
- 9. Li Q, Kobayashi M, Inagaki H, et al. A day trip to a forest park increases human natural killer activity and the expression of anticancer proteins in male subjects. J Biol Regul Homeost Agents. 2010;24(2):157-165.
- 10. Li Q, Nakadai A, Matsushima H, et al. Phytoncides (Wood Essential Oils) Induce Human Natural Killer Cell Activity. Immunopharmacology and Immunotoxicology. 2006;28(2):319-333.
- 11. Faka A, Chalkias C, Georgousopoulou EN, Tripitsidis A, Pitsavos C, Panagiotakos DB. Identifying determinants of obesity in Athens, Greece through global and local statistical models. Spatial and Spatio-temporal Epidemiology. 2019;29:31-41.
- 12. Hunter MR, Gillespie BW, Chen SY-P. Urban Nature Experiences Reduce Stress in the Context of Daily Life Based on Salivary Biomarkers. Front Psychol. 2019;10.
- 13. Nielsen TS, Hansen KB. Nearby nature and green areas encourage outdoor activities and decrease mental stress. CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources. 2006;1(059). Accessed April 22, 2021.
- 14. Cox DTC, Shanahan DF, Hudson HL, et al. <u>Doses of Neighborhood</u> Nature: The Benefits for Mental Health of Living with Nature. BioScience. 2017;67(2):147-155.
- 15. Berman MG, Jonides J, Kaplan S. The Cognitive Benefits of Interacting With Nature. Psychol Sci. 2008;19(12):1207-1212.
- 16. Cusack L, Sbihi H, Larkin A, et al. Residential green space and pathways to term birth weight in the Canadian Healthy Infant Longitudinal Development (CHILD) Study. Int J Health Geogr. 2018;17.
- 17. Chawla L. Benefits of Nature Contact for Children. Journal of
- Planning Literature. 2015;30(4):433-452. 18. Wells NM, Evans GW. Nearby Nature: A Buffer of Life Stress among Rural Children. Environment and Behavior. 2003;35(3):311-330.

Nature for Health: References

- 19. Huynh Q, Craig W, Janssen I, Pickett W. <u>Exposure to public natural space as a protective factor for emotional well-being among young people in Canada.</u> BMC Public Health. 2013;13(1):407.
- 20. Roe J, Aspinall P. <u>The restorative outcomes of forest school and conventional school in young people with good and poor behaviour</u>. Urban Forestry & Urban Greening. 2011;10(3):205-212.
- 21. Simons LA, Simons J, McCallum J, Friedlander Y. <u>Lifestyle factors</u> and risk of dementia: <u>Dubbo Study of the elderly.</u> Medical Journal of Australia. 2006;184(2):68-70.
- 22. Takano T, Nakamura K, Watanabe M. <u>Urban residential environments</u> and senior citizens' longevity in megacity areas: the importance of walkable green spaces. Journal of Epidemiology & Community Health. 2002;56(12):913-918.
- 23. Buckley R, Brough P, Hague L, et al. <u>Economic value of protected areas via visitor mental health.</u> Nature Communications. 2019;10(1):5005.
- 24. Shanahan DF, Bush R, Gaston KJ, et al. <u>Health Benefits from Nature</u> <u>Experiences Depend on Dose.</u> Scientific Reports. 2016;6(1):28551.
- 25. Kobayashi H, Song C, Ikei H, Kagawa T, Miyazaki Y. <u>Analysis of Individual Variations in Autonomic Responses to Urban and Forest Environments.</u> Evidence-Based Complementary and Alternative Medicine. 2015;2015:e671094.
- 26. Tennessen CM, Cimprich B. <u>Views to nature: Effects on attention</u>. Journal of Environmental Psychology. 1995;15(1):77-85.
- 27. Kuo M. <u>How might contact with nature promote human health?</u>
 <u>Promising mechanisms and a possible central pathway</u>. Front Psychol. 2015;6.
- 28. Dayawansa S, Umeno K, Takakura H, et al. <u>Autonomic responses</u> during inhalation of natural fragrance of "Cedrol" in humans. Autonomic Neuroscience. 2003;108(1):79-86.
- 29. Maas J, van Dillen SME, Verheij RA, Groenewegen PP. <u>Social</u> contacts as a possible mechanism behind the relation between green space and health. Health Place. 2009;15(2):586-595.
- 30. Christian H, Zubrick SR, Foster S, et al. <u>The influence of the</u> neighborhood physical environment on early child health and development: A review and call for research. Health & Place. 2015;33:25-36.
- 31. Swinburn BA, Walter LG, Arroll B, Tilyard MW, Russell DG. <u>The green prescription study: a randomized controlled trial of written exercise advice provided by general practitioners.</u> Am J Public Health. 1998;88(2):288-291.
- 32. Richardson M, Passmore H-A, Barbett L, Lumber R, Thomas R, Hunt A. <u>The green care code: How nature connectedness and simple activities help explain pro-nature conservation behaviours</u>. People and Nature. 2020;2(3):821-839.
- 33. Alcock I, White MP, Pahl S, Duarte-Davidson R, Fleming LE.

 <u>Associations between pro-environmental behaviour and neighbourhood nature, nature visit frequency and nature appreciation: Evidence from a nationally representative survey in England.</u>

 Environment International. 2020;136:105441.
- 34.P-Desrosiers C, Hackett F, McGregor D, Banasiak K. <u>The Lancet Countdown on Health and Climate Change Policy Brief for Canada, Dec 2020</u>. Lancet Countdown: Tracking Progress on Health and Climate Change; Canadian Medical Association

Join the HFHT Green Initiative, and access all infographics, videos, and other resources at:

<u>HFHT Green Initiative Webpage</u>

If you have any questions, please reach out to us: green.team@hamiltonfht.ca







ne):







SGFP



Park Rx:





2 hours/week, 20+ minutes at a time: that's all it takes!

The Benefits of Nature Time

For Adults

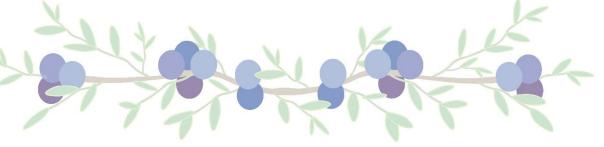
- Reduce Blood Pressure (if elevated)
- ✓ Reduce health effects of excess weight
- ✓ Reduce lung disease symptoms
- ✓ Reduce asthma symptoms
- ✓ Decrease risk of heart disease & stroke
- ✓ Improve immunity
- ✓ Reduce blood sugar in people with diabetes and diabetes risk
- ✓ Improve mental health
- ✓ Increase feelings of wellbeing
- ✓ Reduce stress
- ✓ Feel younger
- ✓ Reduce dementia & improve cognition
- ✓ Have a healthier pregnancy
- ✓ Improve some cancer outcomes

For Children & Youth

- ✓ Better brain & physical development
- ✓ Reduce asthma symptoms & allergies
- ✓ Healthier weight
- ✓ Improve coordination
- ✓ Improve mental health & resilience
- ✓ Feel more confident
- ✓ Decrease stress
- √ Improve social cooperation
- ✓ Improve grades
- ✓ Improve focus at school
- ✓ Reduce ADHD symptoms
- ✓ Improve immune system

Check your local library to see if you can borrow a park pass for free!

Watch <u>our short video</u> to learn more about the health benefits of time in **nature** (https://youtu.be/L7hp1YdF6fk).





One Solution to

Fatigue

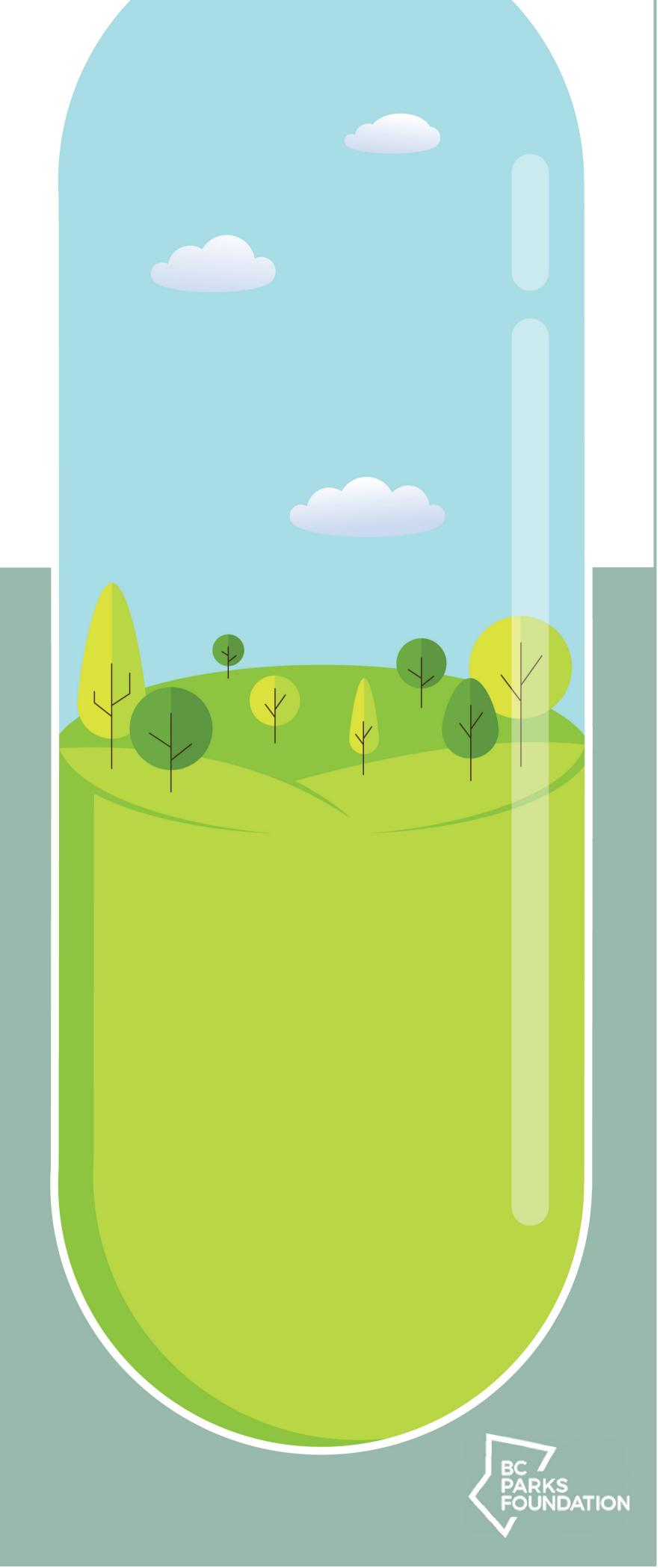
Anxiety

Tension

Stress

Pain reduction

Heart health



Learn more about PaRx at www.parkprescriptions.ca

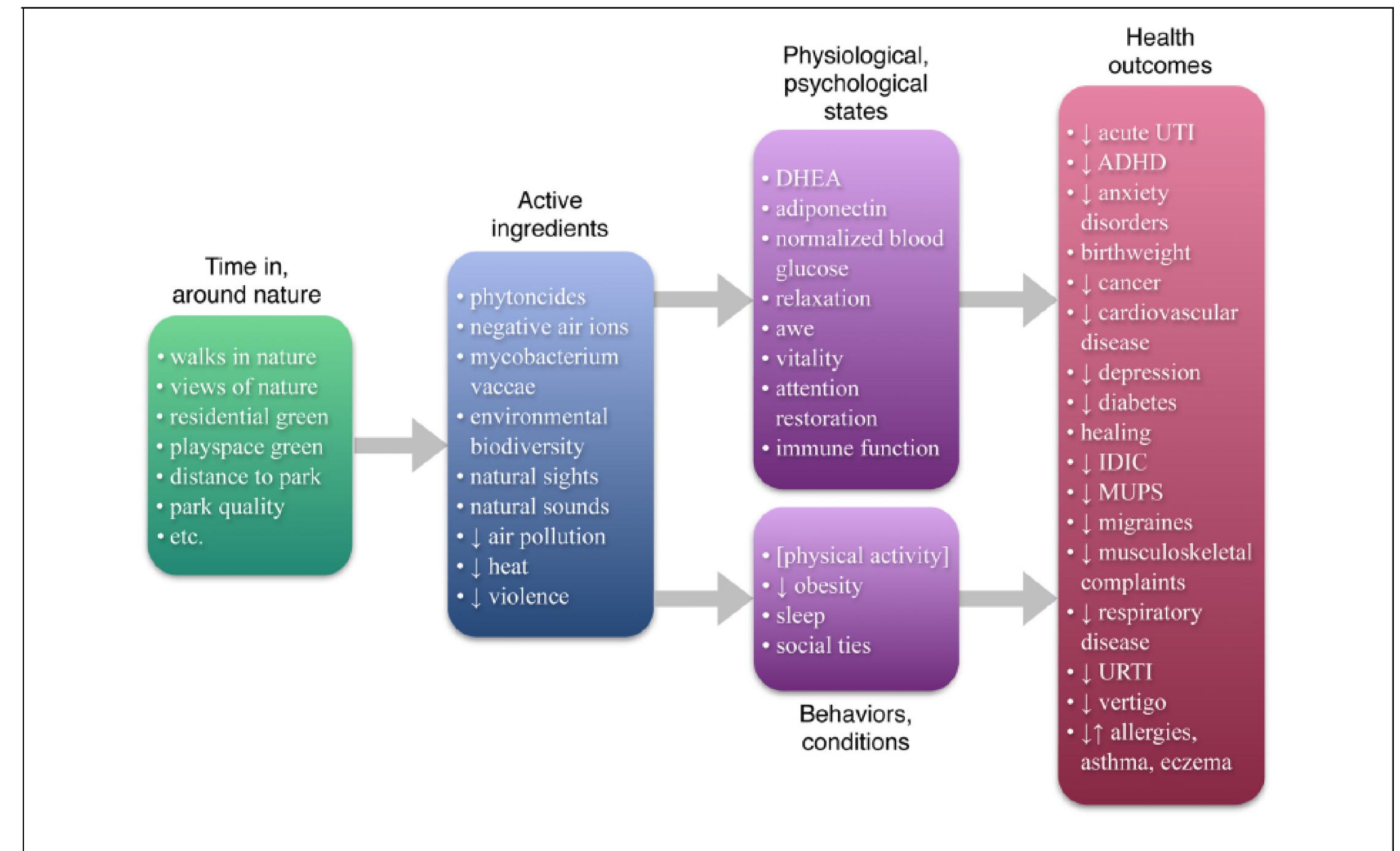


FIGURE 1 | The nature-health link: filling in the details. This Figure summarizes the state of the scientific literature on nature and health, listing (1) the "active ingredients" in nature that have been identified as having impacts on health or health antecedents; (2) physiological/psychological states, behaviors, and conditions tied to both nature and health; and (3) specific health outcomes that have been tied to nature (controlling for socioeconomic variables). Note that

physical activity (in brackets) is only sometimes tied to nature; and that allergies, asthma, and eczema are sometimes positively and sometimes negatively tied to nature. DHEA: didehydroepiandrosterone; acute UTI: acute urinary tract infection; ADHD: attention deficit hyperactivity disorder; IDIC: infectious disease of the intestinal canal; MUPS: medically unexplained physical symptoms; URTI: upper respiratory tract infection.