It’s only natural: How time spent in nature can benefit health and the planet

CLINICAL QUESTION

What are the benefits of recommending time in nature to patients?

BOTTOM LINE

Spending time in the outdoors for periods of 20 minutes or longer leads to many physiological and psychological health benefits, including: decreased cardiac risk factors, lowered blood pressure, reduced symptoms of depression and chronic pain, as well as reduced all-cause mortality. Increasing exposure to nature can positively impact the environment, by increasing environmentalist attitudes and behaviours over time. Giving patients physical nature prescriptions increases daily activity and improves health.

EVIDENCE

Physiological benefit:

- A 2023 meta-analysis of 28 studies determined that nature prescription programs resulted in decreased systolic blood pressure by a mean difference of -4.82 mmHg, and diastolic by a mean difference of -3.82 mmHg (Nguyen et al., 2023).
- A meta-analysis of 143 studies in 2018 concluded that green space exposure was associated with decreased salivary cortisol, heart rate, and diastolic blood pressure. Exposure to green space also decreased the risk of preterm birth, small for gestational age pregnancies, type II diabetes, cardiovascular and all-cause mortality, while increasing self-reported good health. The incidence of stroke, hypertension, dyslipidemia, asthma, and coronary heart disease were also reduced. (Twohig-Bennet & Jones, 2018).
- A 2019 study (n=36) found a significant reduction in salivary cortisol after nature exposure, with greatest impact in exposures of 20-30 minutes duration. (Hunter, Gillespie, & Chen, 2019).
- A double-blind RCT of women with fibromyalgia (n=42) found that multisensory interactions with plants and soil resulted in decreased clinical pain intensity and increased pressure pain thresholds compared to a control group that interacted with synthetic imitations (Gungormus et al., 2023)

Psychological benefits:

- Nature interventions had a moderate impact on depression scores and a moderate to large effect on anxiety scores in a 2023 meta-analysis of 28 studies (Nguyen et al., 2023).
- A review article in 2013 (n=82 studies) found that interactions with nature had a range of psychological benefits, including stress reduction, increased self-esteem and mood, reduced anger, and improved general psychological wellbeing. There was also evidence of positive effects on academic performance and cognitive function (Keniger et al., 2013).

- A US study of 38 healthy participants found that a 90-minute walk in a natural setting decreases self-reported rumination, whereas a 90-minute walk in an urban setting does not produce these effects (Bratman et al., 2015).
- An study in Brisbane, Australia (n=1538) found that green space exposure lasting 30 minutes or longer was linked to a lower prevalence of depression and hypertension as well as an increase in physical activity (Shanahan et al, 2016).
- In a small single-blind control trial of 17 children with ADHD, concentration substantially improved with a 20-minute walk in the park compared to the same length of walk in an urban environment. The effect sizes were comparable to reported effects of methylphenidate. (Faber, Taylor & Kuo, 2009).

CONTEXT

- A study in 2006 (n=2004) found that children's participation in nature positively impacted environmental attitudes and behaviours in adulthood (Wells & Lekies, 2006).
- A 2021 review article (n=67) concluded that overall time spent in nature was associated with increased pro-environmental attitudes and behaviours (DeVille et al., 2021).

REFERENCES

Bratman, G. N., Hamilton, J. P., Hahn, K. S., Daily, G. C., & Gross, J. J. (2015). Nature experience reduces rumination and subgenual prefrontal cortex activation. *Proceedings of the National Academy of Sciences*, *112*(28), 8567–8572. https://doi.org/10.1073/pnas.1510459112

DeVille, N. V., Tomasso, L. P., Stoddard, O. P., Wilt, G. E., Horton, T. H., Wolf, K. L., Brymer, E., Kahn, P. H., & James, P. (2021). Time Spent in Nature Is Associated with Increased Pro-Environmental Attitudes and Behaviors. *International Journal of Environmental Research and Public Health*, *18*(14), 7498. https://doi.org/10.3390/ijerph18147498

Faber Taylor, A., & Kuo, F. E. (2009). Children With Attention Deficits Concentrate Better After Walk in the Park. *Journal of Attention Disorders*, *12*(5), 402–409. https://doi.org/10.1177/1087054708323000

Gungormus, D. B., Fernández-Martín, M., Ortigosa-Luque, M. E., & Pérez-Mármol, J. M. (2023). Effects of Nature-Based Multisensory Stimulation on Pain Mechanisms in Women with Fibromyalgia Syndrome: A Randomized Double-Blind Placebo-Controlled Trial. *Pain Management Nursing*, S1524904223001285. https://doi.org/10.1016/j.pmn.2023.06.014

Hunter, M. R., Gillespie, B. W., & Chen, S. Y.-P. (2019). Urban Nature Experiences Reduce Stress in the Context of Daily Life Based on Salivary Biomarkers. *Frontiers in Psychology*, *10*, 722. https://doi.org/10.3389/fpsyg.2019.00722

Keniger, L., Gaston, K., Irvine, K., & Fuller, R. (2013). What are the Benefits of Interacting with Nature? *International Journal of Environmental Research and Public Health*, *10*(3), 913–935. https://doi.org/10.3390/ijerph10030913

Nguyen, P.-Y., Astell-Burt, T., Rahimi-Ardabili, H., & Feng, X. (2023). Effect of nature prescriptions on cardiometabolic and mental health, and physical activity: A systematic review. *The Lancet Planetary Health*, *7*(4), e313–e328. https://doi.org/10.1016/S2542-5196(23)00025-6

Shanahan, D. F., Bush, R., Gaston, K. J., Lin, B. B., Dean, J., Barber, E., & Fuller, R. A. (2016). Health Benefits from Nature Experiences Depend on Dose. *Scientific Reports*, *6*(1), 28551. https://doi.org/10.1038/srep28551

Twohig-Bennett, C., & Jones, A. (2018). The health benefits of the great outdoors: A systematic review and meta-analysis of greenspace exposure and health outcomes. *Environmental Research*, *166*, 628–637. https://doi.org/10.1016/j.envres.2018.06.030

Wells, N. M., & Lekies, K. S. (2006). Nature and the Life Course: Pathways from Childhood Nature Experiences to Adult Environmentalism. *Children, Youth and Environments*, *16*(1), 1–24. https://doi.org/10.1353/cye.2006.0031

CO-AUTHORS

Shari Fallis, MD, CCFP
Karen Louie, MD, CCFP
Sophie Thornton, BSc Environmental Science