

#DAILY DOSE OF NATURE

inspired by A.S.Adventure



Daily Dose of Nature Manifesto: Experts explain the many benefits of a daily dose of nature.

A call to all Belgians to incorporate this effortless yet powerful habit into their daily routine and lifestyle.

Hiking in nature is more than just part of a healthy lifestyle. More and more research is uncovering the physical, mental and even social benefits associated with spending time in nature. Taking a walk in green surroundings calms the body, mind and soul. Research suggests that spending time in nature is associated with an increase in our well-being and positive emotions, an improvement in memory and ability to concentrate, less stress and negative emotions.

Spending time in nature is also associated with a decrease in our diastolic blood pressure, salivary cortisol and heart rate; and helps prevent diabetes, cardiovascular disease and all-cause mortality.

The social benefits can also be significant. Research suggests that walking in a green environment is associated with positive social interactions, pro-social behaviour, cohesion and engagement.

In short, we feel more connected to each other when we are outdoors.

Even a small daily dose (microdose) of nature can be beneficial. Ten minutes in nature can already have a positive impact on our physical well-being, such as a drop in heart rate and cortisol levels. Or an improvement in our mood and self-esteem.

There is no one right way of getting our daily dose of nature. The key lies in taking time to connect with and to be conscious of the connection with the green environment. Even small green spaces such as parks, walking paths or gardens have the potential to provide us with most of the benefits associated with spending time in nature.

So to experience the benefits of nature, we don't always have to seek out a large open area, lush forest or breathtaking landscape: they are around every corner.

“A daily dose of nature—whether it takes the form of a long walk in the woods, or a leisurely stroll in a nearby park—is an effortless yet powerful way to improve our overall well-being.”

Dra. Tania Noël · PhD in social and environmental psychology, University of Liège, PsyNCog

#DAILY DOSE OF NATURE

inspired by A.S.Adventure



Green environments improve our mental well-being and prevent psychological disorders

Numerous scientific studies, including clinically controlled studies, show that natural elements have a significant impact on our physical and mental health. Since 1984, studies have shown that hospital patients need less pain medication and have fewer symptoms after surgery if they have a view of a natural environment from their hospital beds. A recent review of all the studies conducted shows that—in 98% of those studies—our mental well-being improves. Our physical health and memory also improve, in 83% and 75%, respectively, of the studies. So a green environment not only reduces physical risks such as cardiovascular disease; it can also help prevent stress, depression and even psychiatric disorders.

Children who grow up in environments with little green space are 55% more likely to develop psychiatric disorders later on, according to a large-scale Danish study. Not only the presence of greenery, but also the amount of greenery is important. Green spaces in the immediate school environment is good for the brain's functioning and this has been demonstrated at all ages. And children who grow up in a green neighbourhood score better in attention and memory tests as early as age 4. In later life, a greener environment may even help prevent depression.

We also see a positive effect of nature on adults. The lockdown made us realise how important nature and open space are in our environment. Walking around the neighbourhood was the only way for many to relax. A large-scale study of two thousand mothers of young children found that women living in greener environments were 30% more resilient to COVID-19-related stress.

In other words, a natural environment helps us regain our mental balance, regardless of age. Science attributes this to biological and/or mechanistic factors. Greener environments have an effect on our neurotransmitters, such as serotonin, which ensures that signals in our brain are transmitted properly. There is even an experimental study that demonstrates a cause-and-effect relationship between walking in a busy environment versus in an urban park or natural environment. Walking in a calm environment, such as a forest, reduces blood flow in our brain regions, which is important for regulating our emotions in the prefrontal cortex.

“We need to make spatial planners and permit issuers more aware that their work is relevant to preventing diseases. Public spaces have an important impact on public health and we have not taken this sufficiently into account over the past 70 years.”

Prof. Dr. Tim Nawrot · Professor, environmental epidemiology, Hasselt University and KU Leuven

#DAILY DOSE OF NATURE

inspired by A.S.Adventure



A daily dose of nature combats diabetes

Daily exercise is a crucial tool in the fight against diabetes. Diabetes occurs when the body is no longer able to balance blood sugar levels. This may be because the body does not produce enough insulin or the insulin produced does not have an optimal effect. In both cases, the body's cells do not absorb enough glucose (sugar), leading to an excess of glucose in the blood. Regular exercise improves the body's insulin sensitivity and helps regulate blood sugar levels, reducing the risk of diabetes.

Walking in green surroundings offers additional benefits. From spring to autumn, the sun rises higher on the horizon and its rays are powerful enough to trigger the skin and stimulate the production of vitamin D, the hormone that also improves insulin sensitivity.

A small dose of 10 minutes of nature a day can already have positive effects on our mental, social and physical well-being. However, if we want to combat diabetes, it is important to immerse ourselves more intensively in the healing powers of nature. The rule of thumb is to take a 30-minute brisk walk every

day to increase our breathing and heart rate. Every step counts, as starting from 7,000 steps a day already reduces the risk of diabetes significantly. The optimal dose is 10,000 steps a day. Those who achieve this not only reduce the risk of diabetes, but also of ageing, narrowing of arteries and ageing of blood vessels; associated with risks of heart attack, dementia, depression and stroke. Moreover, 8 out of 10 diabetes patients are overweight. Exercise makes our muscles burn fat, maintains our fat balance and prevents (or reduces) obesity.

“As we get older, the fear of falling can limit us to smooth asphalt paths. However, walking on natural trails actually provides an opportunity to improve our balance and reflexes. With a pair of walking poles for extra stability, we can confidently tackle any challenging terrain.”

Prof. Dr. Dirk Avonts · Author of the book ‘Doctor’s prescription for a Dose of Nature’

#DAILY DOSE OF NATURE

inspired by A.S.Adventure



Nature at work makes us happier and more productive

Nature offers a wealth of physical and mental health benefits, as well as for our professional performance. Research shows that when we work in a natural environment, or go for a walk outdoors during the working day, it improves our ability to concentrate and can reduce our anxiety levels, stress levels and fatigue. Organisations can improve the well-being of their employees by allowing them to interact more with nature during their daily work routine:

Nature in the working environment (‘green workplaces’)

Green workplaces bring the power of nature indoors. This can be achieved by having moss walls, large windows overlooking a natural outdoor space, plants and even images and sounds of nature.

Exercise in nature (‘green exercise’)

Companies can integrate exercise and nature in the working day by focusing on commuting by bike, walks or short bike rides with colleagues during lunch breaks, walking meetings in limited groups or

even ‘walking meetings’ with colleagues and clients. Pre-planned walking routes and time indications facilitate these activities in the work routine.

Conscious contact with nature (‘nature savouring’)

Disconnecting in and with nature improves our mental well-being. Companies can play an active role in this by making employees aware of the nature around them, such as fresh air, water, grass, flowers, plants and birdsong. A vegetable garden, for example, where employees can harvest fresh ingredients for their lunch, is good for mental well-being and produces healthy and sustainable food.

It’s best to decide on options for your organisation in consultation with employees. To increase the chances of success, impact and carrying capacity, companies should take into account incentive-related aspects (e.g. pre-designed routes, showers and a bicycle allowance), as well as potential obstacles (e.g. limited nature in the area and possible allergies).

“Nature makes a huge contribution to our well-being at work and general health. Companies that embrace this not only have happier and more productive employees, but also contribute to a sustainable and healthy society.”

Prof. Dr. Lode Godderis · Full professor at KU Leuven and CEO of Idewe

#DAILY DOSE OF NATURE

inspired by A.S.Adventure



A ‘Daily Dose of Nature’ is good for biodiversity and the fight against climate change

Ninety-eight percent of Belgians live in an urban area. To encourage them to have daily contact with nature, we need to bring nature to the city. Cities that invest in urban forests and green spaces also contribute to biodiversity and the quality of our living environment.

Urban green spaces, forests and parks play a vital role in maintaining biodiversity in our cities. They are indispensable for flora and fauna. Moreover, forests and trees are essential for clean air: they produce the oxygen that all living things breathe, reduce airborne pollutant gases and partially capture particulate matter. In cities, they also regulate the climate, by lowering the often stifling temperature, and increasing ventilation. What’s more, trees improve and protect soil structure, reducing the risks of soil impoverishment and erosion, among other things. They preserve water quality, regulate the water cycle, and reduce the risk of flooding and overflowing rainwater drains. Therefore, trees and forests are our allies in the fight against climate change. Researchers have also discovered that connecting with nature in childhood is a source of more sustainable responsible behaviour later in life.

In short, the more trees, green and wooded spaces we have in the city, the more we will want to walk in the city, and stay in the city to enjoy its benefits. Urban policy thus faces a real challenge: to reforest and ‘rewild’ neighbourhoods so that most residents can reap the benefits and reconnect with nature in their immediate surroundings.

A ‘Daily dose of Nature’ in the city or in natural spaces such as a forest, nature reserves or the countryside is bound by a set of rules for using and respecting the environment. In forests, the Walker’s Code, based on nine principles, applies:

1. Stay on the paths and trails
2. Motor vehicles are prohibited
3. Keep your dog on the lead
4. Do not damage the trees
5. Do not make fire
6. Do not camp in the forest
7. Be careful during the hunting season and respect the prohibition signs
8. Take your rubbish with you
9. The rivers are also teeming with life

“If we take care of nature, she will take care of us!”

Nolwenn Lécuyer · Engineer, guide and trainer in Japanese therapeutic forest bathing (shinrin yoku)

Manifesto endorsers

This science-based manifesto was created by a team of five health and environmental experts: Prof. Tim Nawrot, Prof. Dirk Avonts, Prof. Lode Godderis, Ing. Nolwenn Lécuyer and Tania Noël PhD, as part of the ‘Daily Dose of Nature’ campaign to increase awareness.

The campaign enjoys the support of organisations and experts from numerous sectors. Together, they want to create greater awareness about the importance of a daily dose of nature while promoting the general well-being of all Belgians:

Experts

Ann De Bisschop

Expert Wellbeing
& Work Happiness

Filip Boen

professor in Sport
& Exercise Psychology

Ilse Simoens

Senior researcher 'Nature and
Society', Institute for Nature and
Forest Research (inbo)

Daan Sorgeloos

Expert Change Science,
business manager Ginko

Prof Dr med

Steven Laureys

Neurologist, brain scientist
and author (U Liege, Belgium
and U Laval, Canada)

Prof Dr

Dirk De Wachter

Psychiatrist

Joeri Cortens

Educator at
Natuuracademie

Maarten

Vansteenkiste

Professor of developmental
and motivational
psychology UGent

Anne-Marie Etienne

PO, Research Unit for a
life-Course perspective
on Health & Education
(RUCHE), ULiège

Lieven Maesschalck

Physiotherapist,
Move to Cure

Organisations



About Daily Dose of Nature

‘Daily Dose of Nature’ is an awareness campaign around the health benefits of nature. The campaign was initiated by A.S.Adventure in collaboration with experts and associations. Together, they want to encourage all Belgians to spend some time in nature every day. An insufficiently highlighted and underrated, yet powerful and effortless habit to promote their mental and physical well-being in a positive way.

The campaign starts on April 7 – World Health Day – and runs until April 24. Through A.S.Adventure’s digital channels and supporting associations, Belgians will receive tips and be inspired to incorporate nature in their daily routine and lifestyle. On April 17, ‘Daily Dose of Nature’ will launch a motivational programme that anyone can sign up to.

References

- Berman, M. G., Kross, E., Krpan, K. M., Askren, M. K., Burson, A., Deldin, P. J., ... & Jonides, J. (2012). Interacting with nature improves cognition and affect for individuals with depression. *Journal of affective disorders*, 140(3), 300-305.
- Barton, J., & Pretty, J. (2010). What is the best dose of nature and green exercise for improving mental health? A multi-study analysis. *Environmental science & technology*, 44(10), 3947-3955.
- Bratman, G. N., Olvera Alvarez, H. A., & Gross, J. J. (2021). The affective benefits of nature exposure. *Social and Personality Psychology Compass*, 15(8), 12630.
- Goldy, S. P., & Piff, P. K. (2020). Toward a social ecology of prosociality: why, when, and where nature enhances social connection. *Current Opinion in Psychology*, 32, 27-31.
- Hartig, T., Evans, G. W., Jamner, L. D., Davis, D. S., & Gärling, T. (2003). Tracking restoration in natural and urban field settings. *Journal of Environmental Psychology*, 23(2), 109-123.
- Jennings, V., & Bamkole, O. (2019). The relationship between social cohesion and urban green space: An avenue for health promotion. *International Journal of Environmental Research and Public Health*, 16(3), 452.
- Meredith, G. R., Rakow, D. A., Eldermire, E. R., Madsen, C. G., Shelley, S. P., & Sachs, N. A. (2020). Minimum time dose in nature to positively impact the mental health of college-aged students, and how to measure it: A scoping review. *Frontiers in Psychology*, 10, 2942.
- Noël, T., & Dardenne, B. (2022). Relationships between Green Space Attendance, Perceived Crowdedness, Perceived Beauty and Prosocial Behavior in Time of Health Crisis. *International Journal of Environmental Research and Public Health*, 19(11), 6778.
- Richardson, M., Passmore, H. A., Lumber, R., Thomas, R., & Hunt, A. (2021). Moments, not minutes: The nature-wellbeing relationship. *International Journal of Wellbeing*, 11(1), 8-33.
- Stevenson, M. P., Schilhab, T., & Bentsen, P. (2018). Attention Restoration Theory II: A systematic review to clarify attention processes affected by exposure to natural environments. *Journal of Toxicology and Environmental Health, Part B*, 21(4), 227-268.
- 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.
- World Health Organization. (2017). Urban green space interventions and health: A review of impacts and effectiveness. World Health Organization. Regional Office for Europe. <https://apps.who.int/iris/handle/10665/366036>.
-
- Nejade RM, Grace D, Bowman LR. What is the impact of nature on human health? A scoping review of the literature. *J Glob Health*. 2022 Dec 16;12:04099.
- Ulrich RS. View Through a Window May Influence Recovery from Surgery. *Science*. 1984 Apr 27;224(4647):420-1.
- Engemann K, Pedersen CB, Arge L, Tsirogiannis C, Mortensen PB, Svenning JC. Residential green space in childhood is associated with lower risk of psychiatric disorders from adolescence into adulthood. *Proceedings of the National Academy of Sciences*. 2019 Mar 12;116(11):5188-93.
- Dadvand P, Nieuwenhuijsen MJ, Esnaola M, Fornis J, Basagaña X, Alvarez-Pedrerol M, et al. Green spaces and cognitive development in primary schoolchildren. *Proceedings of the National Academy of Sciences*. 2015 Jun 30;112(26):7937-42.
- Dockx Y, Bijmens EM, Luyten L, Peusens M, Provost E, Rasking L, et al. Early life exposure to residential green space impacts cognitive functioning in children aged 4 to 6 years. *Environment International*. 2022 Mar 1;161:107094.
- Sarkar C, Webster C, Gallacher J. Residential greenness and prevalence of major depressive disorders: a cross-sectional, observational, associational study of 94 879 adult UK Biobank participants. *The Lancet Planetary Health*. 2018 Apr;2(4):e162-73.
- Nurminen N, Lin J, Grönroos M, Puhakka R, Kramna L, Vari HK, et al. Nature-derived microbiota exposure as a novel immunomodulatory approach. *Future Microbiol*. 2018 Jun 1;13:737-44.
- Hanski I, Von Hertzen L, Fyhrquist N, Koskinen K, Torppa K, Laatikainen T, et al. Environmental biodiversity, human microbiota, and allergy are interrelated. *Proceedings of the National Academy of Sciences of the United States of America*. 2012;
- Vos S, Bijmens EM, Renaers E, Croons H, Van Der Stukken C, Martens DS, et al. Residential green space is associated with a buffering effect on stress responses during the COVID-19 pandemic in mothers of young children, a prospective study. *Environmental research*. 2022 Jan;208:112603.
- Dockx Y, Bijmens E, Saenen N, Aerts R, Aerts JM, Casas L, et al. Residential green space in association with the methylation status in a CpG site within the promoter region of the placental serotonin receptor HTR2A. *Epigenetics*. 2022 Dec;17(13):1863-74.
- Bratman GN, Hamilton JP, Hahn KS, Daily GC, Gross JJ. Nature experience reduces rumination and subgenual prefrontal cortex activation. *Proceedings of the National Academy of Sciences*. 2015 Jul 14;112(28):8567-72.
-
- De la Fuente F, Saldías MA, Cubillos C, Mery G, Carvajal D, Bowen M, Bertoglia MP. Green Space Exposure Association with Type 2 Diabetes Mellitus, Physical Activity, and Obesity: A Systematic Review. *Int. J. Environ. Res. Public Health* 2021, 18, 97. <https://dx.doi.org/10.3390/ijerph18010097>.
- Yu L, Li T, Yang Z, et al. Long-term exposure to residential surrounding greenness and incidence of diabetes: A prospective cohort study. *Environmental Pollution*;310(October 2022): 119821. <https://doi.org/10.1016/j.envpol.2022.119821>.
- Battaglia G, Giustino V, Messina G, Faraone M, Brusa J, Bordonali A, Barbagallo M, Palma A, Dominguez L-J. Walking in Natural Environments as Geriatrician's Recommendation for Fall Prevention: Preliminary Outcomes from the "Passiata Day" Model. *Sustainability*. 2020; 12(7):2684. <https://doi.org/10.3390/su12072684>.
-
- Gritzka S, MacIntyre TE, Dörfel D, Baker-Blanc JL, Calogiuri G. The Effects of Workplace Nature-Based Interventions on the Mental Health and Well-Being of Employees: A Systematic Review. *Front Psychiatry*. 2020 Apr 28;11:323.
- Barboza, E. P., Cirach, M., Khomenko, S., lungman, T., Mueller, N., Barrera-Gómez, J., Rojas-Rueda, D., Kondo, M., & Nieuwenhuijsen, M. (2021). Green space and mortality in European cities: A health impact assessment study. *The Lancet Planetary Health*, 5(10), e718-e730. [https://doi.org/10.1016/s2542-5196\(21\)00229-1](https://doi.org/10.1016/s2542-5196(21)00229-1).
- van den Bosch M, Sang Å.O. Urban natural environments as nature-based solutions for improved public health - A systematic review of reviews. *Environ Res* (2017) 158:373-84. doi: 10.1016/j.envres.2017.05.040.
- Hartig T, Evans GW, Jamner LD, Davis DS, Gärling T. Tracking restoration in natural and urban field settings. *J Environ Psychol* (2003) 23(2):109-23. doi: 10.1016/S0272-4944(02)00109-3.
- Parsons R, Tassinary LG, Ulrich RS, Hebl MR, Grossman-Alexander M. The view from the road: Implication for the stress recovery and immuniz.
- Ulrich RS, Simons RF, Losito BD, Fiorito E, Miles MA, Zelson M. Stress recovery during exposure to natural and urban environments. *J Environ Psychol* (1991) 11(3):201-30. doi: 10.1016/S0272-4944(05)80184-7.
- Korpela K, De Bloom J, Kinnunen U. From restorative environments to restoration in work. *Intelligent Build Int* (2015) 7(4):215-23. doi: 10.1080/17508975.2014.959461.
- Damen, Ida, et al. "Understanding walking meetings: drivers and barriers." *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*. 2020.
- Testing a New Protocol of Nature-Based Intervention to Enhance Well-Being: A Randomized Control Trial.
-
- GRAHN, Patrick / STIGSDOTTER, Ulrika A. Landscape planning and stress Urban forestry & urban greening, 2003, vol. 2, p. 1-18 (18 p.).
- BARBOSA, Olga / TRATALOS, Jamie A. / et al. Who benefits from access to green space ? A case study from Sheffield, UK. *Landscape and urban planning*, mai 2007, vol. 83, p. 187-195 (9 p.).
- SULLIVAN, William C. / KUO, Frances E. / DE POOTER, Stephen F. The fruit of urban nature. *Vita.I*.
- neighborhood spaces. *Environment and Behavior*, september 2004, vol. 36, n° 5, p. 678-700 (23 p.).
- JUTRAS, Sylvie. Aller jouer dehors ! Contributions de l'environnement urbain au développement et au bien-être des enfants. *Psychologie canadienne*, 2003, vol. 44, n° 3, p. 257-266 (10 p.).
- FABER TAYLOR, Andrea / KUO, Frances E. / SULLIVAN, William C. Coping with ADD. The surprising connection to green play settings. *Environment and Behavior*, janvier 2001, vol. 33, n° 1, p. 54-77 (24 p.).
- LOVASI, Gina S. / QUINN, J.W. / et al. Children living in areas with more street trees have lower prevalence of asthma. *Journal of epidemiology and community health*, June 2008, vol. 62, p. 647-649 (3 p.).
- FULLER, Richard A. / IRVINE, Katherine N. / et al. Psychological benefits of greenspace increase with biodiversity. *Biology letters*, 15 mai 2007, n° 3, p. 390-394 (5 p.)
- Lessard, G.11, E. Bouffroy.1,2, 2008. Les rôles de l'arbre en ville. Centre collégial de transfert de technologie en foresterie de Sainte-Foy (CERFO). Québec, 21 p.
- <https://fr.statista.com/statistiques/679799/part-population-urbaine-belgique/>.