



Editorial

Effects of Alpine Natural Health Resources on Human Health and Wellbeing

Arnulf Josef Hartl ^{*} , Johanna Freidl and Daniela Huber

Institute of Ecomedicine, Paracelsus Medical University Salzburg, Strubergasse 21, 5020 Salzburg, Austria; johanna.freidl@pmu.ac.at (J.F.); daniela.huber@pmu.ac.at (D.H.)

* Correspondence: arnulf.hartl@pmu.ac.at

As humanity becomes progressively urban, a huge number of people could lose the opportunity to benefit from or develop an appreciation for nature [1,2]. This physical disconnection from natural environments has a diametric impact on health and wellbeing: Urban areas are associated with a number of health risk factors, such as air and noise pollution or overcrowding [3]. In addition, increasing urbanization is accompanied by a potential loss of contact with nature and biodiversity [1], and changes in lifestyle habits such as physical inactivity [4,5], increased stress factors [6] and changes in nutrition [7] and leisure behavior [4]. The consequences are rapid and the risk for noncommunicable chronic diseases and mental illness or distress is rising—health science studies increasingly show significant connections between differences in environment and poor physiological and psychological health [3,8,9]. Furthermore, data from the European Union show that rural dwellers under constant socioeconomic factors present a considerably higher level of life satisfaction compared with the urban population [10]. In this way, urban society demonstrates a continuously growing need for recreation and a reconnection with nature [11]. The COVID-19 pandemic even highlighted the importance of contact with nature to maintain human health [12].

The Alpine region, with its unique nature, terrain, climate, and cultural heritage, offers numerous opportunities to promote human health and wellbeing [13–17]. Regarding the growing scientific evidence on the health effects of natural resources and exercise in natural environments (“green exercise”) [18], there is a huge potential for the development of evidence-based recreation and therapies, as well as tourism products and service chains in the Alpine region that respond to specific health tourist demands [19].

This Special Issue includes relevant, high-quality papers highlighting actual and mainly novel factors concerned with “Effects of Alpine Natural Health Resources on Human Health and Wellbeing”. Nine original papers were published in this Special Issue, with one of them being a study protocol.

Schmude et al. [20] examined the success factors of health tourism based on natural attractions in selected European spa and health destinations. Here, natural resources such as water, salt, and air were assigned a central role in this context, as their evidence-based effects are highly relevant for the health and wellbeing of tourists.

Haid et al. [21] analyzed motives for cycling in the Alpine region and focused on the relative importance of health promotion and the influence of person-specific characteristics on it. Opportunities to advertise cycling tourism were derived from these motifs and characteristics.

In their research, Niedermeier et al. [22] focused on the question of a potential positive effect of alpine sport on development in adolescence. They discussed whether the characteristics of alpine sports have a trigger for a higher experience of agency, consequently satisfying the increased need for autonomy and independence in this age group.

Another important aspect of exercise in alpine surroundings was examined by Niebauer et al. [23], namely, the leading cause of non-traumatic deaths during down-



Citation: Hartl, A.J.; Freidl, J.; Huber, D. Effects of Alpine Natural Health Resources on Human Health and Wellbeing. *Int. J. Environ. Res. Public Health* **2023**, *20*, 6144. <https://doi.org/10.3390/ijerph20126144>

Received: 28 April 2023

Accepted: 19 May 2023

Published: 16 June 2023



Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

hill skiing and mountain hiking: the risk of sudden cardiac death. Differences in the risk factor patterns of this pathology were presented, and requirements for the physical fitness of skiers and hikers were discussed, which can support medical preventive advice.

In their study, Huber et al. [24] examined whether a hiking program with or without mental coaching has an impact on the cardiorespiratory parameters and quality of life of couples with sedentary behavior.

Likewise, Pichler et al. [25] defined people with a sedentary and inactive lifestyle as a group of interest: In their study protocol, they describe how they surveyed the influence of two types of nature-based therapy (nature connection therapy versus moderate mountain hiking) on physiological, psychological, and immunological parameters. Based on this, the long-term results of this study are presented: Forest therapy and mountain hiking could be safe and health-promoting interventions for high-functioning individuals with sedentary lifestyles, with women in particular benefiting even more [26].

Eisenberger et al.'s [27] findings are also interesting: The authors found that the criterion validity of Borg's rating of perceived exertion in mountain hiking depends on the natural environment. Therefore, objective parameters for training control, such as heart rate, should be added to this type of intervention to improve intensity prescription and health safety.

Toussaint et al. [28] investigated the relationship between patient expectations and health-related quality of life in patients with multiple diseases and chronic pain who sought treatment at the Gasteiner Heilstollen in Bockstein near Bad Gastein, Austria.

We were invited as guest editors by the renowned *International Journal of Environmental Research and Public Health* to accompany the review and publication process of these articles. Therefore, we would like to take this opportunity to thank the Editorial Board and the Journal Office for their valuable work. We would also like to express our sincere thanks to all the authors, co-authors, and referees for their high-quality contributions.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Turner, W.R.; Nakamura, T.; Dinetti, M. Global Urbanization and the Separation of Humans from Nature. *BioScience* **2004**, *54*, 585. [\[CrossRef\]](#)
2. United Nations; Department of Economic and Social Affairs; Population Division. *World Urbanization Prospects: The 2018 Revision*; United Nations: New York, NY, USA, 2019.
3. Frumkin, H.; Haines, A. Global Environmental Change and Noncommunicable Disease Risks. *Annu. Rev. Public Health* **2019**, *26*, 261–282. [\[CrossRef\]](#) [\[PubMed\]](#)
4. Saidj, M.; Menai, M.; Charreire, H.; Weber, C.; Enaux, C.; Aadahl, M.; Kesse-Guyot, E.; Hercberg, S.; Simon, C.; Oppert, J.-M. Descriptive Study of Sedentary Behaviours in 35,444 French Working Adults: Cross-Sectional Findings from the ACTI-Cités Study. *BMC Public Health* **2015**, *15*, 379. [\[CrossRef\]](#) [\[PubMed\]](#)
5. Guthold, R.; Stevens, G.A.; Riley, L.M.; Bull, F.C. Worldwide Trends in Insufficient Physical Activity from 2001 to 2016: A Pooled Analysis of 358 Population-Based Surveys with 1.9 Million Participants. *Lancet Glob. Health* **2018**, *6*, e1077–e1086. [\[CrossRef\]](#) [\[PubMed\]](#)
6. Ventriglio, A.; Torales, J.; Castaldelli-Maia, J.M.; De Berardis, D.; Bhugra, D. Urbanization and Emerging Mental Health Issues. *CNS Spectr.* **2021**, *26*, 43–50. [\[CrossRef\]](#)
7. Hruby, A.; Hu, F.B. The Epidemiology of Obesity: A Big Picture. *Pharmacoeconomics* **2015**, *33*, 673–689. [\[CrossRef\]](#)
8. Rappaport, S.M.; Smith, M.T. Environment and Disease Risks. *Science* **2010**, *330*, 460–461. [\[CrossRef\]](#)
9. Flowers, E.P. A Cross-Sectional Study Examining Predictors of Visit Frequency to Local Green Space and the Impact This Has on Physical Activity Levels. *BMC Public Health* **2016**, *16*, 420. [\[CrossRef\]](#)
10. Sørensen, J.F.L. Rural–Urban Differences in Life Satisfaction: Evidence from the European Union. *Reg. Stud.* **2014**, *48*, 1451–1466. [\[CrossRef\]](#)
11. Bratman, G.N.; Anderson, C.B.; Berman, M.G.; Cochran, B.; de Vries, S.; Flanders, J.; Folke, C.; Frumkin, H.; Gross, J.J.; Hartig, T.; et al. Nature and Mental Health: An Ecosystem Service Perspective. *Sci. Adv.* **2019**, *5*, eaax0903. [\[CrossRef\]](#)
12. Pouso, S.; Borja, Á.; Fleming, L.E.; Gómez-Baggethun, E.; White, M.P.; Uyarra, M.C. Contact with Blue-Green Spaces during the COVID-19 Pandemic Lockdown Beneficial for Mental Health. *Sci. Total Environ.* **2021**, *756*, 143984. [\[CrossRef\]](#) [\[PubMed\]](#)
13. Niedermeier, M.; Grafetstätter, C.; Hartl, A.; Kopp, M. A Randomized Crossover Trial on Acute Stress-Related Physiological Responses to Mountain Hiking. *Int. J. Environ. Res. Public Health* **2017**, *14*, 905. [\[CrossRef\]](#) [\[PubMed\]](#)

14. Gaisberger, M.; Šanović, R.; Dobias, H.; Kolarž, P.; Moder, A.; Thalhamer, J.; Selimović, A.; Huttegger, I.; Ritter, M.; Hartl, A. Effects of Ionized Waterfall Aerosol on Pediatric Allergic Asthma. *J. Asthma* **2012**, *49*, 830–838. [[CrossRef](#)] [[PubMed](#)]
15. Prosegger, J.; Huber, D.; Grafetstätter, C.; Pichler, C.; Weisböck-Erdheim, R.; Iglseder, B.; Wewerka, G.; Hartl, A. Effects of Moderate Mountain Hiking and Balneotherapy on Community-Dwelling Older People: A Randomized Controlled Trial. *Exp. Gerontol.* **2019**, *122*, 74–84. [[CrossRef](#)]
16. Haslinger, S.; Huber, D.; Morawetz, D.; Blank, C.; Prosegger, J.; Dünwald, T.; Koller, A.; Fink, C.; Hartl, A.; Schobersberger, W. Feasibility of Ski Mountaineering for Patients Following a Total Knee Arthroplasty: A Descriptive Field Study. *Int. J. Environ. Res. Public Health* **2019**, *16*, 1582. [[CrossRef](#)]
17. Prosegger, J.; Huber, D.; Grafetstätter, C.; Pichler, C.; Braunschmid, H.; Weisböck-Erdheim, R.; Hartl, A. Winter Exercise Reduces Allergic Airway Inflammation: A Randomized Controlled Study. *Int. J. Environ. Res. Public Health* **2019**, *16*, 2040. [[CrossRef](#)]
18. Gladwell, V.F.; Brown, D.K.; Wood, C.; Sandercock, G.R.; Barton, J.L. The Great Outdoors: How a Green Exercise Environment Can Benefit All. *Extrem. Physiol. Med.* **2013**, *2*, 3. [[CrossRef](#)]
19. Steckenbauer, G.C.; Tischler, S.; Hartl, A.; Pichler, C. A Model for Developing Evidence-Based Health Tourism: The Case of “Alpine Health Region Salzburg, Austria”. In *Tourism, Health, Wellbeing and Protected Areas*; CAB International: Wallingford, UK, 2018; pp. 69–81. [[CrossRef](#)]
20. Schmude, J.; Pillmayer, M.; Witting, M.; Corradini, P. Geography Matters, But . . . Evolving Success Factors for Nature-Oriented Health Tourism within Selected Alpine Destinations. *Int. J. Environ. Res. Public Health* **2021**, *18*, 5389. [[CrossRef](#)]
21. Haid, M.; Nöhammer, E.; Albrecht, J.N.; Plaikner, A.; Stummer, H.; Heimerl, P. Health Promotion as a Motivational Factor in Alpine Cycling. *Int. J. Environ. Res. Public Health* **2021**, *18*, 2321. [[CrossRef](#)]
22. Niedermeier, M.; Kogler, C.; Frühauf, A.; Kopp, M. Psychological Variables Related to Developmental Changes during Adolescence—A Comparison between Alpine and Non-Alpine Sport Participants. *Int. J. Environ. Res. Public Health* **2020**, *17*, 7879. [[CrossRef](#)]
23. Niebauer, J.; Burtscher, M. Sudden Cardiac Death Risk in Downhill Skiers and Mountain Hikers and Specific Prevention Strategies. *Int. J. Environ. Res. Public Health* **2021**, *18*, 1621. [[CrossRef](#)] [[PubMed](#)]
24. Huber, D.; Mayr, M.; Hartl, A.; Sittenthaler, S.; Traut-Mattausch, E.; Weisböck-Erdheim, R.; Freidl, J. Sustainability of Hiking in Combination with Coaching in Cardiorespiratory Fitness and Quality of Life. *Int. J. Environ. Res. Public Health* **2022**, *19*, 3848. [[CrossRef](#)] [[PubMed](#)]
25. Pichler, C.; Freidl, J.; Bischof, M.; Kiem, M.; Erdheim-Weißböck, R.; Huber, D.; Squarra, G.; Murschetz, P.; Hartl, A. Mountain Hiking vs. Forest Therapy. A Study Protocol of Novel Types of Nature-Based Intervention. *Int. J. Environ. Res. Public Health* **2022**, *19*, 3888. [[CrossRef](#)] [[PubMed](#)]
26. Huber, D.; Freidl, J.; Pichler, C.; Bischof, M.; Kiem, M.; Weisböck-Erdheim, R.; Squarra, G.; De Nigris, V.; Resnyak, S.; Neberich, M.; et al. Long-Term Effects of Mountain Hiking vs. Forest Therapy on Physical and Mental Health of Couples: A Randomized Controlled Trial. *Int. J. Environ. Res. Public Health* **2023**, *20*, 1469. [[CrossRef](#)]
27. Eisenberger, L.; Mayr, B.; Beck, M.; Venek, V.; Kranzinger, C.; Menzl, A.; Jahn, I.; Sareban, M.; Oberhoffer-Fritz, R.; Niebauer, J.; et al. Assessment of Exercise Intensity for Uphill Walking in Healthy Adults Performed Indoors and Outdoors. *Int. J. Environ. Res. Public Health* **2022**, *19*, 16662. [[CrossRef](#)]
28. Toussaint, L.; Huynh, K.; Kohls, N.; Sirois, F.; Alberts, H.; Hirsch, J.; Hanshans, C.; Nguyen, Q.A.; van der Zee-Neuen, A.; Offenbaecher, M. Expectations Regarding Gastein Healing Gallery Treatment and Their Connection to Health-Related Quality of Life. *Int. J. Environ. Res. Public Health* **2023**, *20*, 5426. [[CrossRef](#)]

Disclaimer/Publisher’s Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.