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# “Environmental Psychology” the Mental Benefits of Physical Activities in Natural Settings



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## Abstract

Practicing sports and physical activities has a huge positive impact on physiological and psychological wellbeing of individuals. Drawing from Environmental and Positive psychology, the idea presented in this paper highlight the even stronger psychological benefits related to training, exercising and playing sports in natural environments. Specifically, given their intrinsic characteristics, such contexts are more prone than urban environments to foster positive emotions, controlled cognitions and aware consciousness. Future research should focus on understanding such effects, also providing guidelines and applications to promote a prolonged engagement in physical activities, which in turn can lead to better health and quality of life.

**Keywords:** Sport; Natural environments; Physical activity; Mental benefit; Psychological wellbeing; Attention restoration; Mindfulness; Flow

## Introduction

We all know that any sport activity is an endless source of physical wellbeing. Yet, we also know that it provides us with a sense of “feeling good”, meaning that it can also boost our psychological wellbeing. In fact, a consistent body of research shows that regular physical activity provides us with a series of psychological and mental benefits, which are essential for our daily wellbeing and can improve our quality of life [1]. For example, it has been shown that training 3-times a week reduces anxiety and depression-related symptoms, while it enhances one’s own baseline mood and self-concept (i.e., the image a person makes of herself) [2]. In other words, when we train or play sports, we like ourselves more both emotionally and physically. Furthermore, training regularly increases self-esteem both in youngster and adults [3]. We feel more confident, which in turn leads us to dare to do more. Also, those who train at least two or three times per week experience a reduction of stress and aggressiveness, feel others to be more trustworthy, perceive greater social cohesion, and experience greater sense of coherence and self-confidence [4]; indeed, the mental benefit of practicing sport and physical activity is so strong that even a single training session can really improve our mood [5].

The abovementioned effects of physical activity on our psychological wellbeing could already be considered quite

satisfying, yet there are other specific psychological benefits for physical activities that are conducted in nature. Such benefits can be grouped at least in three areas: relationship between natural environments and humans, attention restoration and enhancement of attentive capacity, elicitation of mindfulness and flow.

## Natural Environments and Humans

In the early eighties, Professor Edward O. Wilson from Harvard University defined his “*Biophilia*” hypothesis [6]: human beings, as animals, have a positive inclination toward nature, an innate evolutionary tendency that bonds us to it. In other words, we all have, even remotely, a permanent tie with nature. This hypothesis was primarily confirmed by a pioneering work published on Science by Professor Roger S. Ulrich, who demonstrated that a view on a natural (vs. urban) environment may favor a faster and healthier post surgery recovery [7]. Then, a brand new line of research started, aiming at studying the physiological and psychological effects of nature on human beings.

To date, we know that nature has a strong regenerative physiological and psychological effect on humans. More specifically, having pleasant experiences in nature helps

individuals to restore and enhance certain cognitive abilities, such as problem solving, logic reasoning and attention [8-10]. Furthermore, nature exerts a relaxing effect on us: it makes us more able to control our emotions, and it reduces stress and aggressive attitudes and behaviors [11]. So, nature plays a beneficial effect on our emotions, on our cognitions and, more in general, on our psycho-physical wellbeing [12]. In fact, these are exactly some of the enhanced mental benefits of practicing sport and conducting physical activities in natural settings: thank to the intrinsic beneficial effects of nature on individuals' psyche, by working out in nature we all go through a series of heightened psychological benefits, which are more powerful and more effective than those we can experience when training in built or urban settings.

### Attention Restoration and Attentive Capacity

Usually, outdoor physical activities and sports are characterized by some sort of (mostly) sustained interaction with the natural environment where they are carried out. Trail-running, mountain biking, skiing and snowboarding, surfing, canyoning and rafting, rock climbing: all these sport activities not only improve physical abilities, but can train and develop individuals' attention and focus abilities too. Take for example trail-running: by running on irregular trails athletes have to be really focused on the trail itself, and each step must be seen, decided and fulfilled repeatedly and rapidly; that is, each environmental stimulus must be identified, selected, processed and tackled continuously, in a fraction of second, again and again. Thus, in sport activities conducted in nature, because of their intrinsic qualities, it is very likely that athletes will end up training their selective and sustained attention [13,14], which are those cognitive components that help us to maintain our attention on a given stimulus (e.g., the trail) for a sustained period of time (e.g., the training session). This kind of mental training can actually develop new neural connections at the cortical and neocortical level [15]: in other words, similarly to when aerobic training improves our cardiovascular capacity, nature-based training can really develop our attentive capacity, sometimes literally augmenting our gray matter.

### Mindful States and Flow

Another aspect to take into consideration in the debate about mental benefits of sport activities in nature concerns the heightened quality of state of consciousness that people experience in nature and its link with psychological wellbeing: indeed, connectedness with nature, mindfulness and psychological wellbeing appears to be strongly interrelated [12]. Mindfulness has been defined as the process of placing high quality attention in a specific way: intentionally, to the moment-by-moment experience and non-judgmentally [16]. It means to be consciously and voluntarily focused on what is actually happening within and outside one's own body, moment by moment, listening to the self and to one's own internal experience, and observing the experience for what it

is, without assessment or judgments [17]. It has been argued that heightened self-regulation of attention is a key component of mindfulness [18] and in fact mindful states are linked to psychological wellbeing because open awareness and attention play a fundamental role in the optimization of self-regulation [19]. Within this realm, mindfulness practice has been related to lower neuroticism, anxiety, depression and negative affects; as well as to greater positive affects, life satisfaction, self-esteem, optimism, autonomy, competence, and relatedness-the latter three being the basic needs specified within Self-Determination Theory [20].

More specifically in the sport domain, athletes can really boost their performance by practicing mindfulness: they can perform with greater self-consciousness, overcome their limits more easily by take full advantage of their potential and talent, reduce pre-race worries and anxiety, and enhance their attention and focus skills [17]. Furthermore, they usually develop a positive self-image, reduce negative thoughts, and accept and overcome more easily difficult moments during competitions [21,22]. Yet, as an extension, the positive effects of mindfulness on wellbeing and sport performance are not limited here. In fact, mindful states have been linked to athletes' flow [23], meaning that athletes are more likely to perform at their optimal level when mindfulness is present. This effect could be even stronger for outdoor physical activities, especially endurance ones, which are very likely to foster a positive flux of consciousness. That happens because of the series of physiological reactions and the lack of distractors (typical of sport activities in nature) that favor the experience of flow, namely the optimal experience that occurs when body and mind work harmoniously while focused on a given task [24]. Practically speaking, a person experiences flow when she is so focused on a task that time flies and she is barely aware of the surrounding reality and of the effort she is making [25]. When we are in this state of consciousness we really are *in the zone*. It is almost impossible to be distracted, and we are completely focused on the activity we are carrying out. We are absorbed in the *hic et nunc*. Hence, the experience of flow involves a holistic sensation of feeling good, and relates to having fun and being satisfied. Flow has been positively related to happiness, intrinsic motivation, loss of ego, persistence, growth of skills and academic commitment and achievement [25]. Indeed, within the sport domain, it is during flow that we can perform at our best, realizing our peak performance [26] with obvious positive consequences for our psychological wellbeing.

### Concluding Thoughts

Developments in Environmental Psychology have shed light on the importance of the natural environments in individuals' physiological and psychological wellbeing [27-29]. Yet, only few applications have linked this issue to the health promotion domain through sport and physical activities carried out in natural settings [30]. From the evidence on related fields, it is possible to speculate that sport and physical activities carried out in nature could eventually be even more beneficial

for individuals' physical and psychological wellbeing than similar activities carried out in built or urban environments. These effects could be sound and consistent at least in three different yet interrelated domains: emotions, cognitions and consciousness. Sport and physical activity carried out in nature can therefore aid individuals in fostering their psychological wellbeing through at least the following processes:

- a) The experience of epiphanies and awe that decrease stress and negative affects [31].
- b) The reduction of anxiety and depressive thoughts [19,32].
- c) The restoration and enhancement of certain cognitive abilities [9].
- d) The experience of mindful states which in turn will lead to being more self-conscious and self-regulated [12,19].
- e) The execution of peak performances and consequent achievement of desired goals [24-26].

In conclusion, we know that physical activity and fitness in general prolongs and improves life [33,34]. This means that those who are able to be consistent and constant in sustaining fitness in the long term can live longer and healthier lives. Yet, these individuals often represent a self-selective group. While causes of global health issues (such as the so-called "obesity epidemic") and effectiveness of fitness industry models are still matters of debates, fundamental and applied research, as well as real world applications related to physical activities in nature, should focus on the mental benefits of training and exercising in natural environment and how these effects could be translated in promoting collective sustained healthy lifestyles.

## References

1. Penedo FJ, Dahn JR (2005) Exercise and well-being: a review of mental and physical health benefits associated with physical activity. *Current Opinion in Psychiatry* 18(2): 189-193.
2. Di Lorenzo TM, Bargman EP, Stucky Ropp R, Brassington GS, Frensch PA, et al. (1999) Long Term Effects of Aerobic Exercise on Psychological Outcomes. *Preventive Medicine* 28(1): 75-85.
3. Ekeland E, Heian F, Hagen K, Coren E (2005) Can exercise improve self esteem in children and young people? A systematic review of randomised controlled trials. *British Journal of Sports Medicine* 39(11): 792-798.
4. Hassmén P, Koivula N, Uutela A (2000) Physical Exercise and Psychological Well-Being: A Population Study in Finland. *Preventive Medicine* 30(1): 17-25.
5. Yeung RR (1996) The acute effects of exercise on mood state. *Journal of Psychosomatic Research* 40(2): 123-141.
6. Wilson EO (1984) *Biophilia*. Harvard University Press, New York, USA.
7. Ulrich RS (1984) View through a window may influence recovery from surgery. *Science* 224(4647): 420-421.
8. Hartig T, Evans GW, Jamner LD, Davis DS, Gärling T (2003) Tracking restoration in natural and urban field settings. *Journal of Environmental Psychology* 23(2): 109-123.
9. Hartig T, Mang M, Evans GW (1991) Restorative Effects of Natural Environment Experiences. *Environment and Behavior* 23(1): 3-26.
10. Korpela K, Kyttä M, Hartig T (2002) Restorative Experience, Self-regulation, and Children's Place Preferences. *Journal of Environmental Psychology* 22(4): 387-398.
11. Korpela KM, Hartig T, Kaiser FG, Fuhrer U (2001) Restorative Experience and Self-Regulation in Favorite Places. *Environment and Behavior* 33(4): 572-589.
12. Howell AJ, Dopko RL, Passmore HA, Buro K (2011) Nature connectedness: Associations with well-being and mindfulness. *Personality and Individual Differences* 51(2): 166-171.
13. Sarter M, Givens B, Bruno JP (2001) The cognitive neuroscience of sustained attention: where top-down meets bottom-up. *Brain Research Reviews* 35(2): 146-160.
14. Treisman AM (1969) Strategies and models of selective attention. *Psychological Review* 76(3): 282-299.
15. Hölzel BK, Carmody J, Vangel M, Congleton C, Yerramsetti SM, et al. (2011) Mindfulness practice leads to increases in regional brain gray matter density. *Psychiatry Research: Neuroimaging* 191(1): 36-43.
16. Kabat Zinn J (1995) *Mindfulness Meditation*. Simon & Schuster Audio/Nightingale-Conant.
17. Thompson RW, Kaufman KA, De Petrillo LA, Glass CR, Arnkoff DB (2011) One Year Follow-Up of Mindful Sport Performance Enhancement (MSPE) with Archers, Golfers, and Runners. *Journal of Clinical Sport Psychology* 5(2): 99-116.
18. Bishop SR, Lau M, Shapiro S, Carlson L, Anderson ND, et al. (2004) Mindfulness: A Proposed Operational Definition. *Clinical Psychology Science and Practice* 11(3): 230-241.
19. Brown KW, Ryan RM (2003) The benefits of being present: Mindfulness and its role in psychological well-being. *J Pers Soc Psychol* 84(4): 822-848.
20. Deci EL, Ryan RM (1985) *Intrinsic Motivation and Self-Determination in Human Behavior*.
21. Baltzell A, Akhtar VL (2001) Mindfulness meditation training for sport (MMTS) intervention: Impact of MMTS with division I female athletes. *The Journal of Happiness and Well-Being* 2(2): 160-173.
22. Birrer D, Röthlin P, Morgan G (2012) Mindfulness to Enhance Athletic Performance: Theoretical Considerations and Possible Impact Mechanisms. *Mindfulness* 3(3): 235-246.
23. Aherne C, Moran AP, Lonsdale C (2011) The Effect of Mindfulness Training on Athletes Flow: An Initial Investigation. *The Sport Psychologist* 25(2) 177-189.
24. Csikszentmihalyi M, Latter P, Weinkauff Duranso C (2017) *Running Flow*. Human Kinetics.
25. Csikszentmihalyi M (2014) *Flow and the Foundations of Positive Psychology*.
26. Harmison RJ (2011) Peak performance in sport: Identifying ideal performance states and developing athletes psychological skills. *Sport Exercise and Performance Psychology* 1(S): 3-18.
27. Gifford R (2014) *Environmental Psychology Matters*. *Annual Review of Psychology* 65(1): 541-579.
28. Schultz PW (2002) Inclusion with Nature: The Psychology of Human-Nature Relations. In P. Schmuck & W. P. Schultz (Edn.), *Psychology of Sustainable Development* pp. 61-78.
29. Twigger Ross C, Uzzell D (1996) Place and Identity Processes. *Journal of Environmental Psychology* 16(3): 205-220.

30. Bodin M, Hartig T (2003) Does the outdoor environment matter for psychological restoration gained through running? *Psychology of Sport and Exercise* 4(2): 141-153.
31. Clayton S (2012). *The Oxford Handbook of Environmental and Conservation Psychology*. USA.
32. Ryan RM, Weinstein N, Bernstein J, Brown KW, Mistretta L, et al. (2010) Vitalizing effects of being outdoors and in nature. *Journal of Environmental Psychology* 30(2): 159-168.
33. Ryan RM, Deci EL (2000) Self-determination theory and the facilitation of intrinsic motivation, social development and well-being. *American Psychologist* 55(1): 68-78.



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