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THE BENEFITS OF EXERCISING OUTDOORS VERSUS INDOORS

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Outdoor fitness equipment can be installed in public spaces with free access and proximity to residential areas

Introduction

Physical inactivity is a significant health concern in modern society, contributing to rising obesity rates and lifestyle diseases such as type 2 diabetes. Therefore, access to exercise and motivation to be active are essential approaches to address these issues. Exercising outdoors offers numerous advantages over indoor workouts, including indirect benefits like increased motivation and enjoyment. Additionally, there are specific physical and mental health benefits derived from exercising in natural daylight and fresh air. Recent research suggests that the health benefits of natural daylight extend far beyond vitamin D, prompting the need for new guidelines on prioritising outdoor exposure for health (Holick, 2016). Outdoor fitness equipment can be installed in public spaces with free access and proximity to residential areas, which makes it an effective approach to combine the health benefits of exercise and outdoor exposure, particularly for those who need it most. This paper will cover the latest research in relation to the benefits of outdoor exercise.

The Classic Health Effect: Production of Vitamin D from Sunlight Exposure

When our skin is exposed to the ultraviolet wavelengths of sunlight, it produces precursors to vitamin D that are then converted into the active form of the vitamin in the liver. Vitamin D is crucial for bone health, and recent research indicates that it also helps prevent cardiovascular disease (de la Guia-Galipienso et al., 2021). In addition, vitamin D plays a role in maintaining a healthy immune system, reducing inflammation and regulating cell growth (Holick, 2016). Furthermore, low vitamin D levels have been associated with an increased risk of developing autoimmune disorders and certain types of cancer (Sluyter et al., 2020). The general recommendation for achieving healthy vitamin D levels is 10-30 minutes of sunlight exposure on most days of the week, depending on your location and skin tone. By combining sunlight exposure with exercise, individuals can efficiently achieve a dual health benefit.

New Research: The Effects of Infrared (IR) and Near-Infrared (NIR) Wavelengths

Natural sunlight comprises a broad spectrum of wavelengths. Typically, we focus on the ultraviolet wavelengths responsible for vitamin D production, tanning and sunburns. However, recent research highlights the significance of infrared and near-infrared wavelengths for immune function and tissue regeneration (Heiskanen et al., 2020). The regulation of the hormone melatonin likely plays a key role in these processes (Tan et al., 2023). The intriguing aspect of these findings is that the health benefits stem from sunlight's IR and NIR parts rather than the potentially harmful UV wavelengths. In fact, it has been suggested that most of sunlight's health benefits can be attributed to these other effects rather than vitamin D (Minich et al., 2022). NIR sunlight can penetrate clothing and the body's upper tissue layers, interacting positively with mitochondria in various organs. Practically, this means that exercising outdoors while wearing UV-protective clothing still allows individuals to reap many positive effects of sunlight.

Effects on Mental Health

Exposure to sunlight increases the brain's release of the hormone serotonin, which is directly involved in mood regulation. Additionally, sunlight helps regulate melatonin production, which is responsible for our circadian rhythm and healthy sleep patterns. The connection between daylight exposure, healthy sleep, mental health and cognitive function is well-established (Boubekri et al., 2020). Several studies have reported various functional effects of these mechanisms. For example, a recent study measured increased neural responses associated with attention and working memory following a 15-minute walk outside, a result not observed after a 15-minute walk indoors (Boere et al., 2023). Another study found that obese individuals aged 18-21 experienced greater stress relief and restored attention levels when exercising in natural environments compared to indoor activities (Wang et al., 2021). In a review from 2022, it was concluded that physical activity undertaken outdoors in natural environments was more beneficial for a range of psychological outcomes compared with urban environments (Wicks et al., 2022). Interestingly, participants reported feeling more relaxed and calm after 15 minutes of outdoor exercise compared to 40 minutes or more, supporting the notion of short, frequent outdoor exercise sessions as a beneficial strategy.

Increased Exercise Engagement Outdoors

Research indicates that people tend to exercise longer and more intensely outdoors (Kerr et al., 2012; Niedermeier et al., 2017). Most studies have been conducted on activities other than outdoor fitness. Still, as studies all tried to isolate the difference to the environment, it is fair to assume that the positive effect would apply to many different types of activity. It has also been found that people are more likely to repeat the activity when it is done outdoors. However, not all outdoor environments are equal, as the effect appears less pronounced in urban settings with no greenery (Wicks et al., 2022). This highlights the importance of designing activity areas in urban spaces by utilising parks or creating a mini-park atmosphere around the activity area.

A Natural Clean Environment Outdoors

During the COVID-19 pandemic, hygiene and antiviral treatment of surfaces gained significant attention. Research comparing virus degradation on indoor versus outdoor surfaces revealed that sunlight exposure or even light from a cloudy sky cleared live viruses from surfaces within minutes (Bernard et al., 2023). Hence, assuming the same level of hand hygiene, outdoor fitness equipment surfaces are safer than their indoor counterparts.

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A Word of Caution Regarding Over-Exposure to Sunlight

Too much of a good thing can be bad. This also goes for sunlight. Excessive sunlight exposure can be harmful, increasing the risk of skin cancer depending on geographic location, season and skin sensitivity. It is essential to follow local health authority guidelines to minimise risks. However, overly cautious sun avoidance can also negatively impact health, leading to reduced immune function, bone health deterioration and mental health issues.

Exercising outdoors several times per week at appropriate times of the day, with partially exposed skin in a partially shaded setting, generally offers the optimal combination for maximum health benefits.

CONCLUSION

1. Outdoor exercise promotes increased vitamin D production, improving bone health and preventing cardiovascular disease.
2. Exposure to infrared and near-infrared wavelengths during outdoor exercise enhances immune function and tissue regeneration.
3. Outdoor exercise offers mental health benefits, including improved mood and cognitive function, due to increased serotonin levels and regulated melatonin production.
4. Outdoor workouts often result in longer, more intense sessions and a higher likelihood of maintaining a regular exercise routine.
5. Natural outdoor environments provide cleaner and safer exercise spaces than indoor facilities, reducing infection risks.
6. To optimise outdoor exercise's health benefits, exercise in green spaces, and aim for short frequent workouts rather than fewer longer sessions.
7. Balancing sun exposure and protecting the skin during outdoor workouts will help maximise health benefits while minimising potential risks.

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