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Physical Activity, Outdoor and Adventure Sports During the Covid-19 Pandemic Process

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ABSTRACT

The COVID-19 pandemic has created unprecedented chaos worldwide in the current century. Thousands of people died, and millions of people caught the COVID-19 virus. In this tough time, people locked themselves down in their homes for a long time, either voluntarily or mandatorily as part of governmental precautions against the rapid spreading of the virus. This difficult time forced people to change their daily life routines to a sedentary life which affected them mentally and psychologically. Following the lifting of the restrictions, people have started to make an intense effort to do physical activity and spend more time in nature to relax. Consequently, physical activity in a safe environment has become a priority for most people. With this challenging period, open spaces have become more preferred areas for physical activity rather than closed areas. Outdoor and adventure sports have started to consider the safest way of physical activity. Intense physical activity can be done in outdoor and adventure sports, depending on the type of activities. With the necessary precautions taken during the activities, doing outdoor and adventure sports has become a critical step in reducing the effects of mental and psychological factors such as stress, pessimism, bad mood, and unhappiness. Moreover, these sports physically contribute positively to lung capacity. This study provides useful information about outdoor and adventure sports along with highlighting important points and possible risks when doing physical activity in open spaces during the COVID-19 pandemic.

Keywords: adventure sports, COVID-19, physical activity, outdoor sports.

INTRODUCTION

The COVID-19 pandemic has resulted in various destructive effects on society in terms of health, economy, and lifestyle (Woods et al., 2020). According to WHO statistics, there were 6,155,344 confirmed deaths and 490,853,129 confirmed cases of COVID-19 across the world as of April 05, 2020 (WHO, 2022). Because of the potential negative effects of gathering people in indoor environments and spending time therein, there is an increasing trend towards spending more time with nature and adventure sports as outdoor recreational activities during the pandemic. While all countries have been fighting against the spread of COVID-19 with great efforts, the three rules: wearing a mask, hand-cleaning, and social/physical distancing are the basic preventive strategies of the "new controlled life" across the world. In addition to these precautions, avoiding crowded environments, being in contact with as few people as possible, and switching to an isolated lifestyle have been among other important preventive strategies against the spread of COVID-19.

The primary transmission way of SARS-CoV-2 among people is direct contact with an infected person or respiratory droplets (WHO, 2020). The respiratory droplets are mainly spread through talking, breathing, coughing, and sneezing. These respiratory droplets can travel up to a meter and may hang in the air for a while before falling to the ground (Atkinson et al., 2009). Therefore, maintaining a two-meter social/physical distance between two people is the main strategy to prevent the spread of COVID-19 disease (Freeman & Eykelbosh, 2020; WHO, 2022; NASEM, 2020). Because it is much easier to maintain a social distance of 2 meters in open areas, a lower risk of virus transmission is expected in open space with uncrowded surroundings. (Woods et al., 2020). When the necessary precautions are taken, open areas provide safer environments compared to the closed and indoor spaces. Taking all into consideration, there has been increasing interest in spending more time with outdoor and adventure sports in parallel to the trend for doing physical activity in open areas during the COVID-19 time.

Outdoor sports are among the popular leisure activities offering various opportunities, including giving an individual a high sense of freedom, happiness, and socialization, providing flexibility in determining their activity levels according to their performance and conditions, and providing a healthier way of spending their leisure time (Gürer & Caymaz, 2019). With the start of the COVID-19 outbreak, the pandemic has forced many people around the world to stay home in lockdown for a long time (Hammami et al., 2020). After partially or completely lifting COVID-19 restrictions in many countries, the trend in doing an outdoor and adventure/extreme sport has increased. Although unprecedented travel and mobility restrictions have applied during the course of the pandemic, which had a devastating effect on the adventure travel and tourism industry, these restrictions have provided many people with the opportunity to re-plan the philosophy and practice of adventure travel. Nearby isolated adventure/natural areas with lower number of people and low carbon levels have become an attractive alternative for spending leisure time during the pandemic and post-pandemic time (Mackenzie & Goodnow, 2020).

OUTDOOR SPORTS, ADVENTURE SPORTS AND PHYSICAL ACTIVITY

The quarantine or self-isolation process to prevent the rapid spreading of SARS-CoV-2 causes depression, which has also negative effects on the central nervous system (CNS) and the immune system (Woods et al., 2020). It is well-known that regular and frequent exercise strengthens the immune system and protects individuals from infections in all ages (Campbell & Turner, 2018). Studies on this subject emphasize that exercise strengthens the immune system and prevents the spread of the COVID-19 virus (Dwyer et al., 2020; Luzi & Radaelli, 2020). The quarantine process leads to physical inactivity, and this inactivity leads to adverse health changes such as premature aging, obesity, cardiovascular sensitivity, muscle atrophy, bone loss and reduced aerobic capacity (Bortz, 1984). Accordingly, the impact of the pandemic on mental health is expected to be severe in near future (Freeman & Eykelbosh, 2020). Poor mental health and illness are the causes of major illnesses that can contribute to depression (Vigo et al., 2016). Concern about the rapid spread of COVID-19 has also caused the closure of public parks and forests where adventure activities are frequently carried out (NPS, 2020). Recent studies published during the COVID-19 pandemic have shown that regular exercises under quarantine or self-isolation period have a positive effect on both endurance and emotions, as well as reducing depressive feelings (Carriedo et al., 2020). On the other hand, it has been well known that the physical environment around people can trigger human aggression, as factors such as crowds, high temperatures, and noise are associated with aggression and violence (Kuo & Sullivan, 2001). All these negative issues during the pandemic can also be considered as risk factors. Moreover, people with high levels of stress are known to be at greater risk of fatal diseases such as heart attacks and cancer (Brand et al., 2000). In connection with this pandemic, the negative psychological effects of self-isolation and quarantine have been investigated recently (Brooks et al., 2020), and such effects emerge as post-traumatic stress symptoms: confusion, anger, emotional discomfort, depression, stress, negative mood, insomnia, anxiety, and irritability (Kluge, 2020). All these studies indicate that staying home or being quarantined for a long time is a serious cause of stress that is the main factor of various diseases or problems. Beyond such negative effects, this long-time quarantine or self-isolation period could lead to various physical problems. When approaching from a different point of view, the slowdown of daily life, lack of physical activity,

and living under constant stress may also cause nutritional disorders. As another negative effect of this pandemic period, most people tend to eat more in a home environment. In fact, people staying at home watch TV for a long time, and snacks accompany watching TV more frequently (Thomson et al., 2008). Such behavior may trigger various health problems. Therefore, another health benefit of spending time outside is that people are less likely to suffer from overeating and pollution-related health problems. Moreover, people are less likely to be inactive while spending time outside (Godbey, 2009).

Countries differ greatly in their capacity to prevent, detect and react to outbreaks. A study of 182 countries revealed that many countries have different levels of prevention and intervention capacity. According to a study by Kandel et al. (2020), 52 countries do not have the capacity to prevent an event that threatens public health, including infectious epidemics. Some countries have decided on a complete lockdown with strict Covid-19 measures, and some others have started to implement partial measures.

Restrictions also affected sports-related activities, and it was observed that home exercises were the only possibilities to exercise and stay active (Maugeri et al., 2020). However, some countries permitted individual sports at certain times and within certain rules. In the early stages of the pandemic, in the USA, people started to do physical activities in areas such as roads, garages and their gardens. Although American people prefer to exercise at home or in garages, it has been observed that there is a tendency to do outdoor sports. In addition, walking in open areas was allowed as long as social distance was maintained (Dunton et al., 2020).

Even though the latest technologies and rapid urbanization have provided numerous benefits for humanity and society, such benefits are not without negative effects. For example, the increases in a sedentary lifestyle, metabolic diseases, severe depression, and socialization problems have reached an alarming level, which also significantly affects the global economy. (Manferdelli et al., 2019). Because the formation of the state of liminality is achieved through physically entering a new environment or cognitively breaking away from common environments and thought processes, the natural environments and immersive activities, which are the inherent part of the adventure, have become quite appropriate for use in the case of liminality (Goodnow & Bordoloi, 2017). During the COVID-19 pandemic, it has been observed that many people have not left their homes for a long time, and those who did leave their homes mostly preferred to spend time in natural spaces. This preference eventually increases the tendency towards outdoor physical activity and outdoor and adventure sports.

Several previous studies report that excessive "artificial" stimulation and time spent in environments with full of people can cause fatigue, vitality, and loss of health (Katcher & Beck, 1987; Stilgoe, 2001). Such results highlight the importance of participating in physical activity, outdoor and adventure sports. Numerous studies have shown that physical activity is particularly important for physical health, mental health, and well-being (Cavill et al., 2006; Pedersen & Saltin, 2015; Eigenschenk et al., 2019; Woods et al., 2020). More studies have been conducted to investigate the benefits of spending time in nature or being in direct contact with nature as a part of physical activity (Ten Brink et al., 2016). For example, regular exercises at moderate intensity were previously found to increase resistance to upper respiratory tract diseases. It has been further reported that the possibility of upper respiratory tract infection decreases by 20–30% in individuals who exercise moderately (Aktuğ et al., 2020). Another recent study further highlights that exercises that affect breathing mechanically or applied directly to the respiratory muscles reduce the negative effects of diseases with respiratory-centered symptoms such as COVID-19 (Özdal, 2020). Moreover, the benefit of regular exercise has been recently reported as it can relieve the symptoms and consequences of quarantine-induced depression and traumatic disorders with systemic, complex, and potent neuroprotective effects (Woods et al., 2020). Furthermore, regular exercise of moderate intensity reduces harmful effects on the brain related to quarantine and self-isolation (Woods et al., 2020). The numerous positive benefits of extreme sports on physical health, mental health, and well-being are well-known (Eigenschenk et al., 2019). Besides the significant contributions of extreme sports and outdoor recreation activities to mood, endurance, vitality, and willing participation, positive effects such as self-renewal have been reported as well. (Marselle et al., 2014; Mapes, 2016; Pierskalla et al., 2004; Clough et al., 2016).

Because extreme or/and outdoor sports are easily accessible and appealing to a wide range of audiences, their benefits are open to all kinds of stakeholders (Eigenschenk et al., 2019). During the COVID-19 pandemic, shutting down the parks and green spaces could limit healthy outdoor activities and stress relief opportunities; therefore, it could lead individuals to stay in inappropriate and more crowded areas. Thus, careful analysis for the management of outdoor recreation areas is needed in order to balance the needs of the population and potential risks (Freeman & Eykelbosh, 2020). Such potential risks include the intense use of these areas by large numbers of people which could increase the risk of community spread during an emergency such as COVID-19 that threatens public health. However, it is important to note that here outdoor recreation areas make an important contribution to social well-being, as well as physical and mental health. Therefore, promotion strategies revealing the beneficial effects of outdoor sports and physical activities should be strongly supported and developed nationally and globally (Manferdelli et al., 2019). Accordingly, local governments should carry out promotional activities that encourage people to engage in physical activity in the natural environment during the COVID-19 pandemic. With the strict provision of necessary precautions (social/physical distancing, hand-cleaning, and wearing a mask) against the virus, outdoor and adventure sports can be considered as the most suitable type of physical activity. As explained above, the risk of transmission of the virus in the open space is not likely to happen if people strictly follow the precautions. For example, in rock-climbing, the distance between the guard and climber is naturally distant. Therefore, if the inherent distance of this activity is maintained throughout the entire activity, along with wearing a mask and hand-cleaning during the non-climbing period, the activity would happen in an environment with minimum risk. Yet, it should be remembered that the risk of infection will never be "zero".

The benefits of outdoor sports as a physical activity have been discussed widely in the literature. For instance, in a recent epidemiological study, physical exercise is associated with the reduction in infection, pneumonia incidence, and mortality. However, there has not yet been research about the effect of exercise on COVID-19 (Pündük, 2020). The type of outdoor and adventure sports performed also determines the intensity of physical activity. COVID-19 has subjugated the people into a difficult situation with a lack of a safe environment and relaxing activities. It seems that the stress and pressure of COVID-19 on people have significantly encouraged people to participate in outdoor and adventure sports. Many previous studies have shown that doing extreme sports not only affects the emotional state of individuals but also helps participants to better control their emotional state and develop coping strategies for an emotional state (Dickson et al., 2008; 2009; Levin & Taylor, 2011; Burke & Utley, 2013; Puett et al., 2014). Because spending time in nature and even watching nature have an effect on reducing stress level (Kaplan, 1995), negative emotional states such as stress, depression, anxiety, tension, confusion, anger, long-term thinking, loneliness, and emotional instability can be reduced through participating in outdoor sports (Hansmann et al., 2007; Matsouka et al., 2010; Thompson Coon et al., 2011; Marselle et al., 2014; Mutz & Müller, 2016; Andre et al., 2017). Moreover, participation in extreme sports further promotes the psychological development of the athlete and improves their various qualifications, such as decision-making and risk-taking (Gürer et al., 2018). Beyond the health-promoting effects of the natural setting, physical activities, and outdoor sports, they have also been associated with several social benefits such as interpersonal development, crime reduction, and active citizenship, as they offer unique opportunities in natural and social environments. Taking all into account, many positive benefits can be achieved by encouraging people to spend time in open space and nature (Eigenschenk et al., 2019; Dickson et al., 2008). As a different contribution to health benefit, a recent study revealed that outdoor sports influence mental endurance (Gürer & Kılınç, 2019).

Physical activity and outdoor sports, which constitute the focus of our study, provide a great deal of health benefits. Physical activity contributes to the reduction of overall cardiovascular risks (Hegde & Solomon, 2015). However, spending too much time inside reduces the vitamin D ratio in our body: it is a well-known fact that vitamin D can be best taken outdoors from the sun, as well as from food (Powers et al., 2011). The rate of vitamin D intake from the sun can be increased with outdoor and adventure sports. Vitamin D can be easily taken from sunlight by doing outdoor sports. Grant et al. (2020) reported that vitamin D supplementation

may be beneficial in reducing the risk and severity of COVID-19. It is also well-known that vitamin D deficiency may cause various ailments (Grant et al., 2020). These results support doing outdoor and adventure sports together with taking the necessary precautions. One of the most important physical benefits of doing outdoor sports is that it increases aerobic capacity. Doing exercises, especially in nature, has a calming effect on people, and has physical and mental benefits. Doing sports in nature also provides positive opportunities to lead a healthy life (Gürer & Kılınç, 2019; Eigenschenk et al., 2019). In addition, as plenty of oxygen will be taken while doing outdoor sports, the immune system will be strengthened. The positive role of physical activity, affecting the heart, circulation, and respiration, as well as immune function, is known to improve overall health (Romeo et al., 2010).

As discussed, the benefits of outdoor sports can be in various forms, including physical health, mental health and well-being, education and lifelong learning, effective citizenship, crime reduction, and reduced anti-social behavior (Eigenschenk et al., 2019). There has been an increasing number of studies supporting close contact with nature as improving people's health (Godbey, 2009). For example, a previous study found that living in a green environment is positively associated with such health indicators as stress level and the amount of physical activity (De Vries et al., 2003). Accordingly, it is well known that many types of outdoor sports require physical activity (Eigenschenk et al., 2019). Numerous studies have concluded that injuries have a faster recovery time in people in frequent contact with plants or nature; the incidence of diseases in prison inmates who have a window looking at nature is lower, and viewing scenic views has a calming effect on people (Frumkin, 2001; Ulrich, 1984; Parsons et al., 1998). Beyond such effects, several studies emphasize that spending time in nature has a positive effect on children's mental and physical health such as blood pressure, cholesterol, outlook on life, stress, and behavioral problems (Moore, 1981; Kaplan & Kaplan, 1989; Hartig et al., 1991; Rohde & Kendle 1997; Leather et al., 1998; Parsons et al., 1998; Frumkin, 2001; Godbey, 2009). The common outcome of numerous studies is that outdoor and adventure/extreme sports support physical activity throughout life (Rosenberger et al., 2009; Thompson Coon et al., 2011; Kux & Wolfgan, 2014; Izenstark et al., 2016; White et al., 2016; Bodin & Hartig, 2003).

Doing outdoor and adventure/extreme sports during COVID-19 may also create different potential risks in some types of sports requiring close and intense contact, such as traditional adventure travel. In the period of COVID-19, traditional adventure travel is not only more difficult but may not be ethical either, given the serious risk of spreading the virus. However, government admonitions on avoiding open space environments are not an exaggerated approach when considering the current pandemic which puts health systems in a difficult situation, or generates emergencies (Mackenzie & Goodnow, 2020). Maintaining safe access to green spaces is still a challenging process, considering the rapid development of information on disease transmission (Freeman & Eykelbosh, 2020).

DISCUSSION

In this review, it was tried to express that the negative effects of lockdowns on humans could be minimized by doing physical activities in the natural environment. It has been revealed in many studies that the Covid-19 pandemic has both psychological and physical effects on humans (Campbell & Turner, 2018; Gürer & Kılınç, 2019; Hegde & Solomon, 2015). It has been observed that this pandemic process, in which humanity was caught unprepared, affected societies physically, psychologically, mentally, economically and socially. Prolonged self-isolation in particular has a negative effect on psychological response, and this triggers post-traumatic stress symptoms, confusion, and anxiety (Brooks et al., 2020). In the context of the Covid-19 outbreak, significant increases in anxiety, depression, drug use, loneliness, and domestic violence have been observed (Galea et al., 2020).

Like in many countries, in Italy, quarantine caused a significant decrease in physical activity in all age groups, and this decrease negatively affected psychological well-being (Maugeri et al., 2020). Likewise, Germany decided to shut down businesses and public infrastructure comprehensively in order not to strain the capacity of the health system. Mutz and Gerke (2020) revealed that people tried to spend as little time as possible outside and reduced their outdoor activities. However, in Germany, the authorities announced that it was allowed to exercise

in public places as well. Consequently, during the Covid-19 process, an increase in easy outdoor activities and endurance sports performed in nature was observed (Mutz & Gerke, 2020). At this point, we can say that there are some flexible practices that allow doing sports for public and individual health. These types of flexible approaches support the idea that sports have positive effects on public health system. Therefore, it should be considered as an advantage to direct people towards outdoor sports such as mountaineering, trekking and adventure sports. Maintaining a routine exercise is an important strategy for physical and mental health during the mandatory rest period when there is an emergency event such as the coronavirus (Maugeri et al., 2020).

Physical activity has also mental and psychological benefits (Gürer & Kılınç, 2019). It has been proved by studies conducted during the Covid-19 outbreak that physical activity significantly reduces anxiety levels. In the Covid-19 outbreak, the adoption of an isolated lifestyle has increased the exposure to a hypoxic and confined environment. This situation caused high levels of stress and depression, and it was reported that these negative consequences could be coped with by doing exercise, particularly exercise performed in the natural environment (Jurak et al., 2020). Due to its invaluable benefits on physical and mental health, physical activities are recommended, especially during the Covid-19 pandemic, but of course, obeying the rules such as social distance (Dwyer et al., 2020). It is known that among Australian adults psychological distress increased during the Covid-19 pandemic (Stanton et al., 2020). Such psychological problems can be associated with lack of physical activity. In terms of public health, regular physical activity is of great importance since it has a significant impact on health (Ravalli & Musumeci, 2020; Maugeri et al., 2020). It has also an extremely positive effect on psychological health by increasing self-esteem and resilience to stress, and reducing depression and anxiety (Maugeri et al., 2020). Since it is known that there is a positive relationship between physical activity and psychological well-being (Ashdown-Franks et al., 2019), starting or continuing physical activity during the pandemic will most likely help reduce psychological discomforts (Stanton et al., 2020). All the literature mentioned above could be sufficient enough to understand the positive impact of physical activity on individuals and society. Outdoor and adventure sports are very suitable tools for such physical activities. However, it should be noted that although activities in nature are safer, they should be done with appropriate protective measures.

The Covid-19 outbreak resulted in the suspension of outdoor sports events, the closure of gyms and fitness centers, and the restriction of outdoor activities (Toresdahl & Asif, 2020; Lim & Pranata, 2021). Although outdoor and adventure sports can be pursued in open spaces, it may cause problems with the spread of the virus if necessary precautions are not taken. Physical distance measures try to slow the spread of the virus and protect vulnerable groups, but at the same time lead to an enormous risk dilemma, such as an increase in unemployment, domestic violence and loneliness (Balog-Way & McComas, 2020). The outdoor concept described in this study refers to isolated and urban environments away from the city center, rather than parks and gardens. Otherwise, crowds doing sports in city centers could cause unexpected serious consequences. There is an expectation that people tend to do sports in parks because of the obligatory lockdown of many gyms and indoor sports facilities. It would be much more appropriate to choose places far from the city centers to prevent these crowds. Moreover, another disadvantage is that close family members want to spend time together. rather than doing physical activity outdoors during restrictions. Stancati (2020) stated that the high case and death rates in Italy and Spain are likely due to the fact that the old and young adults live and socialize together at home. Such gatherings are not only a great risk but also a factor that increases the spread of the virus. When all this related literature is reviewed and evaluated, it could be easily said that the importance of doing sports becomes more evident.

This pandemic context makes outdoor and adventure sports more feasible, especially when necessary precautions are taken. The fact that outdoor and adventure sports are generally performed in wild and isolated areas will make these sports safer than others during the Covid-19 pandemic. Although this provides a great deal of advantages, it should not be forgotten that preventive health rules must be followed. It is also important to note that key preventive measures include minimizing physical contact and being careful about personal hygiene (Wong et al., 2020), because the danger of viruses can never be known.

Another point to note here is that the natural environments that will meet this intense demand should be meticulously protected by all participants. As mentioned in the related-literature, outdoor and adventure sports have gained a preferable position in this process since they are done outdoors.

CONCLUSION

In this study, the benefits of physical activity, outdoor and adventure sports were discussed and associated with the COVID-19. During the COVID-19 pandemic, physical activity provides many critical benefits for both personal and public health. In terms of outdoor sports, researchers recommend spending leisure time in the natural environment to get away from the stress of modern city life (Gürer & Caymaz, 2019). Increased trend in participation in physical activity can support public health and contribute to the formation of a sports culture. Outdoor and adventure sports can be considered as one of the safest sports during the COVID-19 pandemic because they can be done in nature with a low number of people while maintaining social distance. In addition to the relaxing features of outdoor and adventure sports, they can provide important support to the respiratory and cardiovascular system, muscular system, psychological and mental health as well as the immune system during the pandemic. Strengthening the immune system can reduce the risk of developing many diseases. Taking all into consideration, outdoor and adventure sports have become more commonly preferred activities among people during this pandemic because of the distinct advantages such as being able to be active in open space and nature, requiring a lower number of participants, and most importantly, easily maintaining physical/social distance. During the COVID-19 pandemic, activities such as rock climbing and hiking with a lower number of participants, or individual outdoor sports such as mountain biking, single-person canoeing, and paragliding, should be mostly preferred for safe physical activity in nature.

With the increase in physical activity in open spaces during the periods when quarantine restrictions were reduced, it was revealed that the natural environment was faced with a serious pollution problem. In order to prevent this pollution, it is highly recommended that local governments and the government take preventive measures and support academics.

Conflict of interest

There is no conflict of interest within the parameters of this study.

Author contributions

Authors' contribution: Study design: B.G., manuscript preparation: B.G., M.B., literature search: B.G, M.B.

REFERENCES

Aktuğ, Z. B., İri, R., & Demir, N. A. (2020). COVID-19 immune system and exercise. Journal of Human Sciences, 17(2), 513-520.

Ashdown-Franks, G., Sabiston, C. M., & Stubbs, B. (2019). The evidence for physical activity in the management of major mental illnesses: a concise overview to inform busy clinicians' practice and guide policy. Current opinion in psychiatry, 32(5), 375–380.

Atkinson, J., Chartier, Y., Pessoa-Silva, C.L., Jensen, P., Li, Y., & Seto, W.H. (2009). Natural ventilation for infection control in health-care settings. World Health Organization.

Andre, E. K., Williams, N., Schwartz, F., & Bullard, C. (2017). Benefits of campus outdoor recreation programs: A review of the literature. Journal of Outdoor Recreation, Education, and Leadership, 9(1), 15–25.

Balog-Way, D. H., & McComas, K. A. (2020). COVID-19: Reflections on trust, tradeoffs, and preparedness. Journal of Risk Research, 23(7–8), 838–848.

Brand, N., E. Hanson, & G. Godaert. (2000). Chronic Stress Affects Blood Pressure and Speed of Short-Term Memory. Perceptual and Motor Skills, 91, 291–98.

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.

Bortz II, W. M. (1984). The disuse syndrome. Western Journal of Medicine, 141(5), 691.

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. The Lancet. 395(10227), 912–920.

Burke, S. M., & Utley, A. (2013). Climbing towards recovery: Investigating physically injured combat veterans' psychosocial response to scaling Mt. Kilimanjaro. Disability and rehabilitation, 35(9), 732–739.

Campbell, J. P., & Turner, J. E. (2018). Debunking the myth of exercise-induced immune suppression: redefining the impact of exercise on immunological health across the lifespan. Frontiers in immunology, 9, 648.

Carriedo, A., Cecchini, J. A., Fernandez-Rio, J., & Méndez-Giménez, A. (2020). COVID-19, Psychological Well-being and Physical Activity Levels in Older Adults during the Nationwide Lockdown in Spain. The American Journal of Geriatric Psychiatry. 28(11), 1146–1155.

Cavill, N., Kahlmeier, S., & Racioppi, F. (2006). Physical activity and health in Europe: evidence for action. WHO Regional Office Europe. ISBN 92-890-1387-7.

Clough, P., Mackenzie, S.H., Mallabon, L., Brymer, E. (2016). Adventurous physical activity environments: A mainstream intervention for mental health. Sports Medicine, 46, 963–968.

Dickson, T., & Gray, T., & Mann, K. (2008). Australian Outdoor Adventure Activity. Benefits Catalogue; University of Canberra: Canberra, Australia.

De Vries, S., R. Verheij, H. Groenewegen, & P., Spreeuwenberg. (2003). Natural Environments—Healthy Environments? An Exploratory Analysis of the Relationship between Green Space and Health. Environment and Planning 35(10), 1717–1731.

Dunton, G. F., Wang, S. D., Do, B., & Courtney, J. (2020). Early effects of the COVID-19 pandemic on physical activity locations and behaviors in adults living in the United States. Preventive Medicine Reports, 20, 101241.

Dwyer, M. J., Pasini, M., De Dominicis, S., & Righi, E. (2020). Physical activity: Benefits and challenges during the COVID-19 pandemic. Scandinavian journal of medicine & science in sports, 30(7), 1291.

Eigenschenk, B., Thomann, A., McClure, M., Davies, L., Gregory, M., Dettweiler, U., & Inglés, E. (2019). Benefits of outdoor sports for society. A systematic literature review and reflections on evidence. International journal of environmental research and public health, 16(6), 937.

Freeman, S., & Eykelbosh, A. (2020). COVID-19 and outdoor safety: Considerations for use of outdoor recreational spaces. National Collaborating Centre for Environmental Health. 829.

Frumkin, H. (2001). Beyond Toxicity Human Health and the Natural Environment. American Journal of Preventive Medicine 20(3), 234–40.

Galea, S., Merchant, R. M., & Lurie, N. (2020). The mental health consequences of COVID-19 and physical distancing: the need for prevention and early intervention. JAMA Internal Medicine. 180(6), 817–818.

Godbey, G. (2009). Outdoor recreation, health, and wellness: Understanding and enhancing the relationship.

Goodnow, J., & Bordoloi, S, (2017). Travel and insight on the limen: A content analysis of adventure travel narratives. Tourism Review International, 21(3), 223–239.

Grant, W. B., Lahore, H., & Rockwell, M. S. (2020). The Benefits of Vitamin D Supplementation for Athletes: Better Performance and Reduced Risk of COVID-19. Nutrients, 12(12), 3741.

Gürer, B., Bektaş, F., & Kural, B. (2018). Examination of Psychological Performance of Athletes Who Participate in Outdoor Sports. Journal of Sport and Performance Researches, 9(2), 74–85.

Gürer, B., & Caymaz, E. (2019). Investigation of Leisure Perceptions of Individuals in Outdoor Sports. International Journal of the Sociology of Leisure, 2(3), 255–265.

Gürer, B., & Kılınç, Z. (2019). Doğa Sporları Yapanların Temel Psikolojik İhtiyaçlarının Zihinsel Dayanıklılığa Etkisi. CBÜ Beden Eğitimi ve Spor Bilimleri Dergisi, 14(2), 222–233.

Izenstark, D., Oswald, R. F., Holman, E. G., Mendez, S. N., & Greder, K. A. (2016). Rural, low-income mothers' use of family-based nature activities to promote family health. Journal of Leisure Research, 48(2), 134–155.

Hammami, A., Harrabi, B., Mohr, M., & Krustrup, P. (2020). Physical activity and coronavirus disease 2019 (COVID-19): specific recommendations for home-based physical training. Managing Sport and Leisure, 1–6.

Hansmann, R., Hug, S. M., & Seeland, K. (2007). Restoration and stress relief through physical activities in forests and parks. Urban forestry & urban greening, 6(4), 213–225.

Hartig, T., Mang, M., & Evans, G.W. (1991). Restorative Effects of Natural Environment Experiences. Environment and Behavior 23, 3–26.

Hegde, S. M., & Solomon, S. D. (2015). Influence of physical activity on hypertension and cardiac structure and function. Current hypertension reports, 17(10), 1–8.

Jurak, G., Morrison, S. A., Leskošek, B., Kovač, M., Hadžić, V., Vodičar, J., ... & Starc, G. (2020). Physical activity recommendations during the COVID-19 virus outbreak. Journal of sport and health science, 9, 325–327.

Kandel, N., Chungong, S., Omaar, A., & Xing, J. (2020). Health security capacities in the context of COVID-19 outbreak: an analysis of International Health Regulations annual report data from 182 countries. The Lancet, 395(10229), 1047–1053.

Kaplan, S. (1995). The Restorative Benefits of Nature: Toward an Integrative Framework. Journal of Environmental Psychology 15, 169–82.

Kaplan, R., and S. Kaplan. (1989). The Experience of Nature: A Psychological Perspective. New York: Cambridge University Press.

Katcher, A. & A., Beck. (1987). Health and Caring for Living Things. Anthrozoos 1, 175–83.

Kluge, H. H. P. (2020). Statement–Older people are at highest risk from COVID-19, but all must act to prevent community spread. Retrieved from World Health Organization website: http://www.euro.who.int/en/

health-topics/health-emergencies/coronavirus-covid-19/statements/statement-older-people-are-at-highest-risk-from-covid-19,-but-all-must-act-to-prevent-community-spread.

Kuo, F. E., & Sullivan, W. C. (2001). Aggression and violence in the inner city: Effects of environment via mental fatigue. Environment and behavior, 33(4), 543–571.

Kux, S., & Wolfgang, H. (2014). Health Benefits of Non-Motorized Outdoor Recreation: A Summary of Published Findings. School of Resource and Environmental Management, Simon Fraser University: Burnaby, BC, Canada.

Leather, P., Pyrgas, M., Beale, D., & Lawrence, C. (1998). Windows in the Workplace: Sunlight, View, and Occupational Stress. Environment and Behavior 30(6), 739–62.

Levin, B. J., & Taylor, J. (2011). Depression, anxiety, and coping in surfers. Journal of Clinical Sport Psychology, 5(2), 148–165.

Lim, M. A., & Pranata, R. (2021). Sports activities during any pandemic lockdown. Irish Journal of Medical Science (1971-), 190(1), 447–451.

Luzi, L., & Radaelli, M.G. (2020). Influenza and obesity: its odd relationship and the lessons for COVID-19 pandemic. Acta Diabetol. 57,759–764.

Mackenzie, S. H., & Goodnow, J. (2020). Adventure in the Age of COVID-19: Embracing Microadventures and Locavism in a Post-Pandemic World. Leisure Sciences, 1–8.

Mapes, N. (2016). Green exercise and dementia. Green Exercise: Linking Nature, Health and Well-Being; Barton, J., Bragg, R., Wood, C., Pretty, JN, Eds, 150–160.

Marselle, M. R., Irvine, K. N., & Warber, S. L. (2014). Examining group walks in nature and multiple aspects of well-being: A large-scale study. Ecopsychology, 6(3), 134–147.

Matsouka, O., Bebetsos, E., Trigonis, I., & Simakis, S. (2010). The effects of an outdoor exercise program on mood states among the elderly. World Leisure Journal, 52(1), 34–40.

Manferdelli, G., La Torre, A., & Codella, R. (2019). Outdoor physical activity bears multiple benefits to health and society. The Journal of sports medicine and physical fitness. 59(5), 868–879.

Maugeri, G., Castrogiovanni, P., Battaglia, G., Pippi, R., D'Agata, V., Palma, A., ... & Musumeci, G. (2020). The impact of physical activity on psychological health during Covid-19 pandemic in Italy. Heliyon, 6(6), e04315.

Moore, E. (1981). A Prison Environment's Effect on Health Care Service Demands. Journal of Environmental Systems 11(1), 17–34.

Mutz, M., & Müller, J. (2016). Mental health benefits of outdoor adventures: Results from two pilot studies. Journal of adolescence, 49, 105–114.

Mutz, M., & Gerke, M. (2020). Sport and exercise in times of self-quarantine: How Germans changed their behaviour at the beginning of the Covid-19 pandemic. International Review for the Sociology of Sport, 1–2.

National Park Service. (2020). NPS Public Health Update. Retrieved from https://www.nps.gov/aboutus/news/public-health-update.htm

National Academies of Sciences, Engineering, and Medicine. (2020). Rapid expert consultation on social distancing for the COVID-19 pandemic. National Academies Press.

Özdal, M. (2020). Respiratory muscle exercises may be effective at reducing the symptoms of COVID-19. EC Pulmonology and Respiratory Medicine. 9(6), 45–49

Parsons, R., L. Tassinary, R. Ulrich, M. Hebl, and M. Grossman-Alexander. (1998). The View from the Road: Implications for Stress Recovery and Immunization. Journal of Environmental Psychology 18, 113–40.

Pedersen, B. K., & Saltin, B. (2015). Exercise as medicine–evidence for prescribing exercise as therapy in 26 different chronic diseases. Scandinavian journal of medicine & science in sports, 25, 1–72.

Pierskalla, C.D., Lee, M.A., Stein, T.V., Anderson, D.H., Nickerson, R. (2004). Understanding relationships among recreation opportunities: A meta analysis of nine studies. Leisure Sciences, 26(2), 163–180.

Powers, S., Nelson, W. B., & Larson-Meyer, E. (2011). Antioxidant and Vitamin D supplements for athletes: sense or nonsense? Journal of Sports Sciences, 29(sp1), S47-S55.

Puett, R., Teas, J., España-Romero, V., Artero, E. G., Lee, D. C., Baruth, M., ... & Blair, S. N. (2014). Physical activity: does environment make a difference for tension, stress, emotional outlook, and perceptions of health status?. Journal of Physical Activity and Health, 11(8), 1503–1511.

Pündük, Z. (2020). COVID-19 Salgını, Küresel Trendler, Fiziksel Hareketsizlik ve Sedanter Davranışı Etkiler mi?. Turkiye Klinikleri Spor Bilimleri, 12(2).

Ravalli, S., & Musumeci, G. (2020). Coronavirus outbreak in Italy: physiological benefits of home-based exercise during pandemic. Journal of Functional Morphology and Kinesiology, 5, 31.

Rohde, C., & A. Kendle. (1997). Nature for People. In A. Kendle and S. Forbes (eds.), Urban Nature Conservation—Landscape Management in the Urban Countryside. London: E. and F. N. Spon, 319–35.

Romeo, J., Wärnberg, J., Pozo, T., & Marcos, A. (2010). Physical activity, immunity and infection. Proceedings of the Nutrition Society, 69(3), 390–399.

Rosenberger, R. S., Bergerson, T. R., & Kline, J. D. (2009). Macro-linkages between health and outdoor recreation: The role of parks and recreation providers. Journal of Park and Recreation Administration. 27(3), 8–20.

Stancati, M. (2020). "Family is Italy's Great Strength. Coronavirus Made It Deadly." Wall Street Journal, March 24.

Stanton, R., To, Q. G., Khalesi, S., Williams, S. L., Alley, S. J., Thwaite, T. L., ... & Vandelanotte, C. (2020). Depression, anxiety and stress during COVID-19: associations with changes in physical activity, sleep, tobacco and alcohol use in Australian adults. International journal of environmental research and public health, 17(11), 4065.

Stilgoe, J. (2001). Gone Barefoot Lately? American Journal of Preventative Medicine 20, 243–44.

Ten Brink, P., Mutafoglu, K., Schweitzer, J.-P., Kettunen, M., Twigger-Ross, C., Baker, J., Kuipers, Y., Emonts, M., Tyrväinen, L., Hujala, T., et al. (2016). The Health and Social Benefits of Nature and Biodiversity Protection. A report for the European Commission; Institute for European Environmental Policy: London, UK; Brussels, Belgium,

Thomson, M., J. Spence, K. Raine, and L. Laing. (2008). The Association of Television Viewing with Snacking Behavior and Body Weight of Young Adults. American Journal of Health Promotion 22(5), 329–35.

Thompson Coon, J., Boddy, K., Stein, K., Whear, R., Barton, J., & Depledge, M. H. (2011). Does participating in physical activity in outdoor natural environments have a greater effect on physical and mental wellbeing than physical activity indoors? A systematic review. Environmental science & technology, 45(5), 1761–1772.

Toresdahl, B.G., & Asif., I.M. (2020). Coronavirus disease 2019 (COVID-19): Considerations for the competitive athlete. Sports Health, 12, 221–224.

Ulrich, R. (1984). View through a Window May Influence Recovery from Surgery. Science 224, 420–21.

Vigo, D., Thornicroft, G., & Atun, R. (2016). Estimating the true global burden of mental illness. Lancet Psychiat. 3, 171–178.

White, M.P., Elliott, L.R., Taylor, T., Wheeler, B.W., Spencer, A., Bone, A., Depledge, M.H. & Fleming, L.E. (2016). Recreational physical activity in natural environments and implications for health: A population based cross-sectional study in England. Preventive Medicine, 91, 383–388.

Woods, J., Hutchinson, N. T., Powers, S. K., Roberts, W. O., Gomez-Cabrera, M. C., Radak, Z., ... & Coelho-Júnior, H. J. (2020). The COVID-19 pandemic and physical activity. Sports Medicine and Health Science 2, 55–64.

Wong, A. Y. Y., Ling, S. K. K., Louie, L. H. T., Law, G. Y. K., So, R. C. H., Lee, D. C. W., ... & Yung, P. S. H. (2020). Impact of the COVID-19 pandemic on sports and exercise. Asia-Pacific journal of sports medicine, arthroscopy, rehabilitation and technology, 22, 39–44.

World Health Organization. (2022). Coronavirus Disease (COVID-19) Dashboard. Date accessed: 05.04.2022 https://covid19.who.int/

World Health Organization. (2020). Modes of transmission of virus causing COVID-19: implications for IPC precaution recommendations: scientific brief, 27 March 2020 (No. WHO/2019-nCoV/Sci_Brief/Transmission_modes/2020.1).

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