

**Research Article** 

# THE INFLUENCE OF SPORTS RECREATION ACTIVITIES ON THE PROTECTION OF THE ENVIRONMENT

### \*Elvira Nikšić and Nedžad Prazina

Faculty of Teacher Education, University of Sarajevo, Sarajevo, Bosnia and Herzegovina

Received 19th November 2023; Accepted 28th December 2023; Published online 30th January 2024

# Abstract

Sport is an indispensable part of human society, which, apart from physical activity, competition, and entertainment, also has a significant impact on many aspects of our lives. However, one of the aspects that often remains insufficiently highlighted is the impact of sports on environmental protection. Sport is associated with numerous environmental challenges, but at the same time, it also provides opportunities to promote environmental protection and sustainable development. Understanding the impact of sport on the environment is increasingly important in a world facing climate change, pollution, biodiversity loss, and other environmental challenges. Sustainable development has become imperative, and sport as a mass phenomenon has the potential to mobilize people, raise awareness, and encourage changes in favor of environmental protection. The goal of this research is to examine and determine the impact of sports and recreational activities on environmental protection, and to raise the population's awareness of the role and importance of sports and recreational activities in the preservation and protection of the environment. Through examples of walking, running, cycling, hiking, and other sports activities, we will explore how, as recreational athletes, we can become ambassadors of nature and actively participate in environmental protection. The research was conducted on a sample of respondents of N=144 students of the University of Sarajevo -Faculty of Education. The research included and analyzed dependent and independent variables. Independent variables include the gender of students and the year of study. The dependent variables include sport, environment, and environmental protection. In this research, a survey questionnaire for students was used, consisting of 10 questions, nine of closed type and one of open type, which had to be circled or given an appropriate answer, depending on the attitude, to collect data on the impact of sports and recreational activities on the protection of life environment. We applied different research methods to obtain relevant conclusions. The descriptive method allowed us to determine in detail the impact of sports and recreational activities on environmental protection, while using the method of theoretical analysis we created a framework for a better understanding of the importance of sports for the protection and preservation of the environment. We evaluated the obtained data using the method of analysis and proof. We processed the results of the research using descriptive statistics, frequencies, and percentages, and presented them tabularly and graphically. The obtained results showed that sports can influence the protection of the environment, and the majority of students presented their proposals on how sports can influence the protection of the environment. The largest number of respondents (students) are involved in sports, mostly recreationally, and in their free time they use two sports activities, which they mostly use in nature when the weather allows it. The largest number of students confirmed that they collect their own and other people's waste after a certain sports activity is applied in nature. This indicates the awareness and interest of students in preserving nature and the environment and reducing the negative impact of sports on the environment. The largest number of students participate in one of the recreational and environmental cleaning projects on the occasion of World Cleaning Day. This shows that students are actively involved in actions that promote environmental cleaning and raise awareness of the importance of environmental protection. Based on the research, we conclude that the majority of students are aware that the means of transport and recreational sports activities they use have an important impact on the preservation and improvement of human health, as well as the environment. The results of the research confirm the students' awareness of the importance of using sustainable means of transport, such as public city transport, walking, cycling, or running to reduce greenhouse gas emissions and preserve air quality. Students show that sports can be a tool to promote environmental awareness and positive practices, such as collecting waste and participating in clean-up actions. This conclusion points to the potential of sport as a means of improving human health and preserving the environment. Therefore, it is necessary to support and promote initiatives that combine sports and ecology and to educate young people about the importance of preserving the environment through sports activities.

Keywords: Environment, Protection, Conservation, Recreational-ecological activities, Students.

## INTRODUCTION

Sarajevo, the capital of Bosnia and Herzegovina, is one of the most polluted cities in the world and there is no indication that anyone could endanger it on that list. It is sad that forty years ago someone successfully solved the air pollution in our capital, even though the pollution was much higher then than today, and today we are not able to do that. The use of sports and recreational activities in free time can affect the protection of the environment. Biking, walking, running, rollerblading to college instead of taking public transportation or driving a car can lead to a reduction in air pollution.

#### Table 1.IQAir

_		
Rank	Major city, Country/region	AQI US
1	Sarajevo	431
	Bosnia and Herzegovina	
2	Dhaka	241
	Bangladesh	
3	Kolkata	229
	India	
4	Lahore	213
	Pakistan	
5	Delhi	189
	India	
6	Phnom Penh	178
	Cambodia	
7	Doha	178
	Qatar	

\*Corresponding Author: *Elvira Nikšić* 

Faculty of Teacher Education, University of Sarajevo, Sarajevo, Bosnia and Herzegovina



Figure 1.Sources of air pollution (source: https://mpi.ba/policy-paper-zagadenje-zraka/)



Figure 2.Number of deaths due to air pollution (source: https://mojezdravlje.ba/infografika-utjecaj-zagadjenogzraka-na-zdravlje/)

Sports and recreational activities as well as different, competitively oriented, motor activities of a variable and dynamic nature enable children, youth, and adults to satisfy the need for movement and play, development of abilities, traits and sports knowledge, sports expression and creativity, as well as preservation and improvement of health and achievement of sports results at all levels of competition. We can play sports actively or recreationally. We have many divisions of sports depending on the purpose of playing sports. To participate in sports for everyone, only interest and necessary motivation for regular exercise and the absence of health contradictions are sufficient. Regardless of which sport it is, the most important factor is that the body moves and develops, because this will promote better physical fitness and improve the health of a person. Regardless of whether playing sports has a professional, amateur, or recreational character, we can say that sports play a big role in the life of every individual, as well as in protecting the environment (Milanović, 2009). Hirvensal and Lintunen (2011) also state that sport usually involves activities suitable for people of all ages and abilities with an emphasis on developing positive values. Bartoluci (2003) believes that sport represents "an activity in free time whose dominant feature is physical strengthening through play and work at the same time, and which takes place through competitions covered by rules and specific institutions with the possibility of transformation into a professional activity". One of the researches was carried out to discover the motives for participating in sports and attitudes about sports, as well as the general health status of employees of the Slovenian armed forces. The research was conducted using a questionnaire on motivation for participating in sports, which consisted of 30 motives or reasons for participating in sports, and was dedicated to active sports youth whose motivations are very diverse.Depending on the importance of each motive, the respondents ranked them according to five levels of statements

from "the reason is unimportant to me" to "the reason is very important to me". Through the analysis of motives, the authors determined seven main incentives: social achievement; friendship, recreation and fun; excitement, release of energy and development of skills, group atmosphere; productivity; health and competence, and promotion to a higher level. The research showed that employees are most motivated to participate in sports due to the development of competencies, abilities, and health maintenance. In contrast, the least motivating factor is related to the desire to gain popularity (Masten et al., 2010). Namely, there are many reasons for participating in sports and sports activities, and the promotion of physical activity has become a global public health priority. While many people do not follow the recommendations, those who do sports and exercise have found their suitable practice. Therefore, assessing and knowing the motives of participation among maintainers helps to improve the understanding of sports, exercise practices, and the design of physical activity and programs that match the motives of individuals (Nikšić et al., 2019). Zovko (2011) states that the environment is everything that surrounds us and the sum of all conditions and influences (physical and biological factors) that act on planet Earth. Many environmentalists cite the romanticism of the 18th century as the beginning of environmentalism. Nature was imagined not only as something to be studied, understood, controlled, consumed, and improved, but as an innate beauty, aliveness, and an important phenomenon in its own right (Hinchman & Hinchman, 2007). Environmental protection is a set of activities and measures to prevent environmental hazards, environmental damage, and pollution, reduce and eliminate environmental damage, and restore the environment to the state before the damage occurs (Ministry of Economy, Labor and Entrepreneurship, 2009). According to Pepper (1999), the concept of environmental protection is based on the context of how humanity should live in harmony with nature. This premise is supported by two key arguments, one based on ecocentrism, and the other on anthropocentrism. Ecocentrism puts the focus on the importance and value of nature and stipulates that we should preserve and protect nature because of its inherent value. In contrast, anthropocentrism places humans at the center and suggests man's reliance on nature. According to Gagnon Thomson and Barton (1994), nature conservation is an exercise in selfpreservation. Regardless of philosophical orientation, ecologists advocate for the protection and preservation of nature and natural resources, both now and in the future. Sports and the environment have a two-way relationship. Sports affect the environment just as the environment affects sports (McCullough et al., 2020; Orr, Inoue, 2019). A few years ago, sport was used as a platform to study its impact on the environment, taking into account the fact that only 13% of Americans follow science and 63% follow sports (Orts & Spigonardo, 2013). The International Olympic Committee takes the relationship between sport and the environment very seriously. For this reason, the board has implemented a series of criteria to reduce the negative impact of each sport on the environment. The stated criteria are conservation of biological diversity; ecosystem preservation; correct land use; prevention of pollution (soil, air, water); resource and waste management, preservation of health and safety; reduction of environmental disturbances; and protection of cultural heritage (International Olympic Committee, 1997). The entire sports sector is dependent on the environment to varying degrees. In addition to the obvious reliance of outdoor sports on the necessary natural environment for play, all sports rely at least indirectly

on nature through the use of natural materials needed to produce sports equipment and goods, and natural resources such as clean air and water. It is precisely the dependence of sports on nature that can be used for efforts to preserve and restore the environment. Mallen *et al.* (2010) also point out that event organizers and policymakers are becoming increasingly interested in the environmental impact of major sporting events. Paquette *et al.* (2011) draw attention to the strengthening of the relationship between sport and the environment by citing the inclusion of environmental sustainability in the Olympic field by the International Olympic Committee.

Environmental sustainability is becoming important not only for recreational and other sports activities but also for professional organizations (Iokimidis, 2008). Steg & Vleg (2009) state that certain sports clubs, which are some of the most important participants in the sports system, consider the environmental awareness of their members to a great extent when developing strategies for a sustainable environment. Casper & Pfahl (2015) conclude that sports organizations and events can not only reduce the large impact of the event itself on the environment but also educate spectators about environmental practices that can encourage the practice of sustainable behavior in everyday life. The sports industry is changing to create positive changes to support the environment, but many companies within the sports industry still portray themselves as being much more environmentally focused than they are (Miller, 2017). Organizers of sporting events are increasingly interested in the wider consequences of major sporting events, including their impact on the environment (Collins & Flynn, 2008). For example, the Games were London 2012 Olympic declared an environmentally friendly Olympics, thus giving the sports sector future guidelines for sustainable development that must be followed (Hyun-Duck, 2013). The International Olympic Committee expects the countries that host the sporting event to meet the criteria for achieving the goals of environmental sustainability in sports. Those criteria are indispensable when planning and determining the location of a sports event because they often cause alarming consequences for the environment of the city or country that hosts the sports event (McCool, 2015). Triantafyllidis (2018) states that even the city infrastructure of the countries that are the organizers of the sporting event can hurt the environment. Millions of people are regularly involved in sports, therefore sports generate a lot of waste, and venues have become a major concern for people involved in sports management due to the climate impacts associated with greenhouse gas emissions (Subic, 2007). In recent years, the sports sector has become aware of its impacts on the environment and is therefore making significant efforts towards more positive changes for the environment. These efforts include forming green initiatives and programs, forging partnerships with major environmental corporations, and setting future goals that will encourage more positive change. The United Nations Environment Program (UNEP) developed a special sports and environment squad that started at the 1994 Winter Olympics in Norway (Rosenberg, 2017). Through the "Sports and Environmental Protection Program" draft, environmental protection guidelines and responsibilities for promoting environmental awareness through sports and practicing sustainable practices in designing equipment and building facilities were introduced (Schmidt, 2006; Rosenberg, 2017). The United Nations Environment Program later partnered with the International Olympic Committee (IOC) to

deliver the first World Conference on Sport and the Environment (Schmidt, 2006). According to Rosenberg (2017), Schmidt (2006), and Doran (2002), several important meetings were organized using this program, such as: "Sports Meeting for the Environment 2005" in Sochi and Japan where the participants signed the Joint Declaration on Sport and Life the environment, committing to looking back at environmental problems and creating a sustainable society through sport; "Development and Adoption of "Agenda 21" for the Olympic Movement" committed to fostering sustainability among its members and sports governing bodies; "2002 World Meeting on Sustainable Development" which promoted the integration of the three pillars of sustainable development (economic development, social development and environmental protection). The Green Sports Alliance has partnered with four major North American leagues (NBA, NHL, NFL, and MLB) to implement systems, structures, and processes to engage in green sports activities (Trendafilova et al. 2014). The Alliance for Green Sports" proved to be effective as many organizations received advice and ideas on how to start, where to pursue sustainability efforts, and how to achieve and plan for a greener future. Organizations have introduced several 'green' initiatives, which significantly reduced the negative effects on the environment (Orts & Spigonardo, 2013). The United Nations (2018) points out that the goal of the "Sports for Climate Change" program is cooperation with sports organizations in which mutual support will be provided, good examples of sustainable practices will be shared, new effective tools will be developed, and a forum for cooperation between organizations that is useful for both sides. An additional goal of this program was to act as a major guideline for climate action, where sports organizations can fulfill their fundamental responsibilities in the areas of environmental protection, sustainability, and the fight against climate change. These fundamental responsibilities include: undertaking systemic efforts to promote greater responsibility in environmental protection, reducing overall climate impacts, educating about climate action; promoting sustainable and responsible consumption, and advocating climate action through communication (United Nations, 2018).

In 2009, FIFA launched an appeal for the implementation of an environmental program, called "Soccer for the Planet", which focused on the issues of waste generation and disposal, water and energy consumption, transport, procurement, and climate change (FIFA, 2014). Each sport is unique in its way, and therefore the activities to implement sustainability and environmental change reflect the specific and unique needs of each sport. Changes can be achieved through effective cooperation in which environmental sustainability measures will be focused on issues specific to each sport. Outdoor recreation and environmental protection are two interconnected phenomena. Natural spaces are used for various recreational activities. Most greenways support non-consumptive recreational activities such as walking, running, hiking, nature study, and photography, while others allow consumptive activities such as hunting and fishing. Certain natural areas are also used for specialized recreational activities such as rock climbing, cycling, and horse riding. Each of these recreational activities is bound to have a different impact on the environment, which in turn requires different environmental management practices. Pupils and students use their environment of recreation and exercise, and especially entertainment from the hall and in their free time, in the surrounding areas (nature) in the clean air, sun, and spaces that

have been remodeled by the man himself as a natural sports and recreational park, meadow, forests, playground. Environmental content needs to be integrated with other subjects in the curriculum. In this task of environmental education and action, the subject of Physical and Health Education has an important place. The perspective for the realization of these tasks is found in the methodical approach to the teaching subject of Physical and Health Education, which is emphasized in a differentiated program: hiking, wintering, and summer vacations as activities of direct contact of students with the environment. Through this interaction of students (students) and the environment within the framework of kinesiology activities, students (students) will develop environmental sensitivity (Nikšić et al., 2019). Looking at kinesiological culture as a function of ecological education of children, students, and youth from a kinesiological point of view, it should be said that if human health, harmonious development, maintenance and retention of human traits and abilities, and acquisition of knowledge are necessary for effective life and work and for personal satisfaction, fundamental values and kinesiological ideal of man, then only the exercise process that is based on that ideal can be considered valid. We all have high expectations from Physical and Health Education in the development of sensitivity to the environment, therefore teachers should be continuously educated and motivated so that they can be responsible bearers of these tasks as well (Findak & Prskalo, 2004). Bakašun (2000) points out that future teaching activities should be focused on improving health, which means influencing people from an early age to accept a healthy way of life and preserve the environment.

The relationship between physical and health education and the environment is an important aspect of modern society. The subject of Physical and health education promotes physical activity and a healthy lifestyle, which are related to the preservation of the environment. Through Physical and Health Education, students can also develop skills such as teamwork, cooperation, and leadership, which are crucial to solving complex environmental problems. They can also develop an awareness of the importance of nature conservation and pass these values on to their families and communities. Ultimately, Physical and Health Education can provide the foundation for shaping responsible and sustainable citizens who are aware of their impact on the environment. The integration of this topic into the educational system can contribute to the creation of a society that cares for its environment and works to preserve nature for future generations. In 2019 In Moscow's parks and forests, an ecological trend called "Plogging" (Swedish plocka - to pick up, jogging - running) was launched, which meant collecting garbage in combination with running for a length of 5-10 km. More than 1000 people joined these environmental races and helped to clean the parks from garbage and dirt. Through their efforts, more than 4,000 kg of waste was collected (United Nations Environment Programme, 2022). Man is a rational being who is capable of, to a great extent, changing and adapting the environment to his needs, thereby changing the very essence of those existing factors, and creating new types of factors. He, unlike other living beings, is not so dependent on certain factors because he can, to some extent, adapt them to himself. Suffice it to say that man is the only living being that creates waste and can completely devastate the ecosystem to the point of making life impossible in those places (Prazina & Mahmutović, 2023).

#### **MATERIALS AND METHODS**

#### **Participants**

The sample of respondents consists of students of the First Cycle of Studies at the University of Sarajevo - Faculty of Education. The research was conducted on a population of N=144 students, of which 138 (96.00%) were female and 6 (4.00%) were male. The research was conducted at the University of Sarajevo - Faculty of Education. The research was conducted by the recommendations of the Declaration of Helsinki and participation was voluntary.

### **Research Desing**

The data were collected directly from the respondents (students of the first, second, third, and fourth years of the first cycle of studies), in which a survey questionnaire for students was used. By the set goal, independent and dependent variables were determined. Independent variables about students: gender of the student and year of study. The dependent variables include sport, environment, and environmental protection. The questionnaire for all students consisted of 10 questions, nine closed-ended and one open-ended, which had to be circled or given an appropriate answer, depending on the attitude, to collect data on the impact of sports and recreational activities on environmental protection.

### **Statistical Analysis**

All data collected through the research were processed using descriptive statistics procedures. Frequencies and percentages were calculated from the space of descriptive statistics. The statistical program for personal computers SPSS for Windows version 20.0 was used for data processing.

## **RESULTS AND DISCUSSION**

Presentation of the frequency of examination of students of the University of Sarajevo - Faculty of Pedagogy on establishing the impact of sports and recreational activities on environmental protection. To obtain reliable (relevant) data, the entire sample of respondents was taken from the population of students of all years of the First cycle of studies.

#### Table 2. Sample Structure by Gender

Gender	Frequency	Percentage
М	6	4.00%
Ž	138	96.00%
Total	144	100.00%

 $N{=}144$  respondents were included in the research, namely 138 (96.00%) female respondents and 6 (4.00%) male respondents.

Table 3. Structure of the sample of respondents according to the year of study

Year of Study	Frequency	Percentage
I year	34	24.00%
II year	41	28.00%
III year	32	22.00%
IV year	37	26.00%
Total	144	100.00%

N=144 respondents were included in the research, namely 34 (24.00%) students from the first year of study, 41 (28.00%) students from the second year of study, 32 (22.00%) students from the third year of study and 37 (26.00%) students from the fourth year of study.

 Table 4. Can the use of sports and recreational activities in nature affect the protection of the environment?

Answer	Frequency	Percentage
Yes	106	74.00%
No	38	26.00%
Total	144	100.00%

About the set goal of the research, which, through the survey questionnaire, referred to students I., II. III. and IV. year of study, the question was asked: "Can the application of sports and recreational activities in nature affect the protection of the environment?" Out of a total of 144 (100%) respondents, 106 (74.00%) respondents answered that the application of sports and recreational activities in nature can affect the protection of the environment, while 38 (26.00%) respondents answered that the application of sports and recreational activities in nature can affect the protection of the application of sports and recreational activities in nature cannot affect the protection of the environment.

The presented results indicate that 96 (68.00%) students made suggestions about how sports can influence environmental protection, while 46 (32.00%) did not make any suggestions. List of statements related to the question "If the answer to the previous question is yes, state in which ways we can influence the protection of the environment by applying recreational sports activities."

- Biking, walking, running, rollerblading to college instead of using public transport or a car, as this reduces air pollution. These activities reduce greenhouse gas emissions and encourage a healthy lifestyle. Also, teachers can organize bike trips or plan walks as part of the curriculum.
- Sport is considered, for example, riding a bicycle or exercising in nature, which should not pollute the environment (like a car) and destroy green areas (building gyms).
- Ride a bicycle, pick up trash by walking through nature, and pick up your own and other people's waste while walking.
- We can dedicate ourselves (more) to cleaning, maintaining, and arranging the natural environment, to realize and maintain sports activities. Running or cycling helps preserve air quality.
- We can organize group exercises and clean the surface of the green environment through certain exercises.
- By organizing activities that will involve people from the community, running a marathon, and cleaning the environment, which also includes sports activities and environmental protection.
- We can influence by cleaning up after sports activities, recycling waste, and taking care of nature.
- Learning in sports about environmental protection, be it in the gym or in some other place where we play sports, which we can apply in life outside those rooms, and playing sports in nature.
- Environmental actions that include sports activities, e.g. we also encourage recreation with various actions (e.g. cleaning action).
- By organizing sports activities in nature where the emphasis is on leaving a clean environment behind. For preschool and school children, as well as for students, we can organize competitions to clean the environment to develop awareness of the preservation and protection of the environment. This activity will promote awareness of

environmental pollution and the importance of maintaining clean nature.



Figure 3. and 4. Sports and recreational activities of garbage collection

- Sports activities and clubs can promote sustainable mobility by encouraging their members to use bicycles instead of cars.
- When it comes to some sports events, competitions, etc., we can influence by not throwing waste or leaving it behind on fields, stands, halls...
- In a way to preserve nature in which we will not throw garbage and waste, because we will come there tomorrow and have recreation. We can have fun by competing to collect more and more trash faster.
- Sports competitions in nature lead to the preservation and protection of the environment. The best sports activities take place in clean air and on a clean surface. By applying natural forms of movement and basic movement habits, air pollution is reduced.
- Several examples were also presented directed towards the sports sector and their role in better environmental sustainability:
- Cleaner air near sports venues, due to reduced car traffic, more trees, and all-natural and native grass for sports turf, which could mean safer playing conditions.

- Organization of sports events that promote the use of public transport, cycling, running, or other environmentally friendly means of transport.
- Implementation of measures to save water and reduce waste.
- There is no plastic pollution where sports are played.
- Planted new trees and shrubs at each sports stadium to improve air quality, reduce carbon footprint, and provide habitat.
- Strong partnerships between sports and environmental organizations to raise awareness of the risks of biodiversity loss and bring sports fans together around natural guidelines for environmental quality among sports organizations.

Table 5. Sports and recreational activities in free time

Answer	Frequency	Percentage
Yes	105	73.00%
A walk	127	88.00%
Riding a bike	78	54.00%
Running	57	40.00%
Mountaineering	31	22.00%
Roller skating	29	20.00%
No	39	27.00%

To the question: "Do you engage in recreational sports activities in your free time and what?" 105 (73.00%) respondents answered that they engage in recreational sports activities in their free time, while 39 (27.00%) respondents answered that they do not engage in recreational sports activities in their free time. Sports and recreational activities that students engage in in their free time are: walking, cycling, running, hiking, and rollerblading. Based on the obtained results, we can see that walking is the most popular sport and recreational activity that students use in their free time. It is important to emphasize that in this question students had the option to choose more than one answer. For this reason, the total sample of respondents exceeds 144 (100%).

Table 6. Number of sports and recreational activities in free time

The answer	Frequency	Percentage
1 sports and recreational activity	31	22.00%
2 sports and recreational activities	46	32.00%
3 sports and recreational activities	36	25.00%
4 sports and recreational activities	17	11.00%
5 sports and recreational activities	4	3.00%

To the question: "How many sports and recreational activities do you use in your free time?" The largest number of respondents 46 (32.00%) answered that they use 2 sports and recreational activities in their free time, 31 (22.00%) respondents use 1 sport and recreational activity, 36 (25.00%) respondents use 3 sports and recreational activities, 17 (11.00%) respondents use 4 sports and recreational activities, and 4 (3.00%) respondents use 5 sports and recreational activities. Among students who use two or more sports and recreational activities, the most common choice was a combination of walking, cycling, running, and hiking.

Table 7. Application of sports and recreational activities

The answer	Frequency	Percentage
In nature	118	82.00%
In sports and recreation centers	50	35.00%
In nature and sports and recreation centers	33	23.00%

To the question: "Do I use my sports and recreational activities?" The largest number of respondents, 118 (82.00%), answered that they use their sports and recreational activities in nature, 50 (35.00%) respondents use their sports and recreational activities in sports and recreational centers, while 33 (23.00%) respondents answered that they apply their sports and recreational activities both in nature and in sports and recreational centers. It is important to point out that students had the opportunity to circle two answers to the given question. For this reason, the total sample of respondents exceeds 144 (100%).

 Table 8. After certain sports and recreational activities applied in nature, I take care of the environment

The answer	Frequency	Percentage
I leave my waste in nature	5	3.00%
I collect my waste	102	71.00%
I collect my own and other people's waste	37	26.00%
Total	144	100.00%

To the question: "After a certain sports and recreational activity applied in nature, do I take care of the environment?" The largest number of respondents, 102 (71.00%), answered that they collect their waste and thus take care of environmental protection. 37 (26.00%) respondents collect their own and other people's waste, while 5 (3.00%) respondents leave their waste in nature.

 Table 9. "Have you participated in one of the cleaning action projects on the occasion World Cleaning Day, which is also a form of recreation and environmental protection?"

The answer	Frequency	Percentage
Yes	78	54.00%
No	66	46.00%
Total	144	100.00%

To the question: "Have you participated in one of the cleaning action projects on the occasion of the World Cleaning Day, which is at the same time a form of recreation and environmental protection?" There was a greater number of respondents who confirmed that they participated in certain sports, recreational, and ecological projects of the cleaning action on the occasion of World Cleaning Day. 78 (54.00%) of the respondents gave an affirmative answer, while 66 (46.00%) of the respondents declared that they did not participate in any cleaning action project on the occasion of World Cleaning Day.

Table 10. "The means of transport most often used to get to the Faculty"

The answer	Frequency	Percentage
Public city transport	130	90.00%
Hiking	44	31.00%
Bicycle	3	2.00%
Car	14	10.00%
Romobile	1	1.00%

To the question: "Which means of transport do you most often use to get to the Faculty?" The largest number of respondents 130 (90.00%) answered that they most often use public city transport to the Faculty, 44 (31.00%) respondents walk, 14 (10.00%) respondents come by car, 3 (2.00%) respondents by bicycle, 1 (1.00%) respondents he comes to the Faculty by car. Among the students who declared themselves to use two or more means of transport, the most common choice was the combination of public city transport, walking and cycling.

Table11.Sports and recreational activities represent an important factor for the preservation and improvement of people's health, and therefore for the protection of the environment

The answer	Frequency	Percentage
Yes	142	99.00%
No	0	0.00%
I do not know	2	1.00%
Total	144	100.00%

To the question: "Sports and recreational activities represent an important factor for the preservation and improvement of people's health, and therefore for the protection of life", the largest number of respondents 142 (99.00%) answered yes, while only 2 (1.00%) respondents answered no knows, and none of the respondents answered negatively. Ecological upbringing and education are slowly becoming an indispensable component in the planning and programming of the teaching process. Nature, which is also a part of educational classrooms, should be used in the service of education for the life, growth, and development of students, and as an incentive for interest in environmental protection. Due to its connection with nature and the environment, the teaching of Physical and Health Education enables the promotion of students' and students' interest in environmental protection, whose main role is played by the teacher as an environmentally competent and aware person. Recreational sports such as hiking, climbing, or cycling in nature can be organized as part of Physical and Health Education classes. These sports promote an active lifestyle and allow students to experience the beauty of nature firsthand. It is important to emphasize the rules of behavior in nature to avoid environmental pollution. Students can learn about the concepts of sustainability in sports during the Physical Education and Health Education classes. This may include education about energy-efficient sports facilities, the use of renewable energy on sports fields, or waste reduction at sports events. As part of Education and Health Education classes, Physical environmental sports events can be organized to promote sustainability.For example, a bicycle race can be organized using a pedal bicycle instead of a motor, or a run to collect donations for environmental projects. These examples show how Physical Education and Health Education can be integrated into environmental protection. Through these activities, students will not only develop their physical skills and health awareness but will also become aware of the importance of preserving the environment and recognizing their role in it. Integrating these types of activities into Physical and Health Education classes can have a long-term impact on their awareness of the environment and the promotion of sustainable practices. Such activities can encourage students to think about creative solutions for environmental protection, as students may become motivated to develop innovative ideas such as using renewable energy in sports facilities, recycling sports equipment, or promoting environmentally friendly materials in sports activities. Through Physical and Health Education classes, students can learn how their actions and decisions can have an impact on the environment, and how they can take responsibility for preserving nature. The integration of environmental protection into the teaching of physical and health education will not only promote environmental awareness among students but will also provide an opportunity for the development of complete citizens who are aware of the connection between their health, activities, and the environment.

## Conclusion

Based on all of the above, we can conclude that sports and recreational activities have a significant impact on environmental protection. They provide a platform to promote awareness of environmental issues and encourage sustainability and the necessary changes in behavior to preserve the environment. One of the key ways in which sport can contribute to environmental protection is through connection with nature. Activities such as walking, running, cycling, or hiking allow people to connect with nature, and learn about natural beauty and sustainable resources. This connection with nature encourages the development of awareness of the value of nature and the need for its protection. Encouraging participants and fans to use sustainable forms of transport can reduce traffic congestion and negative environmental impact. Many sports organizations and clubs are increasingly recognizing the importance of sustainability and are taking concrete steps to reduce their environmental footprint. This includes using renewable energy to power sports facilities, using environmentally friendly materials, and recycling waste. Sporting events also provide an opportunity to sustainability. Organizers can implement promote sustainability policies that include reducing waste, recycling, using biodegradable materials, and encouraging participants and spectators to travel by sustainable forms of transportation. Through these analyses and the research that has been carried out, we strive to encourage awareness of the recognition of one's responsibility towards the environment while showing that it is possible to combine sport and entertainment with environmental protection, because only with joint efforts and engagement can we develop sustainable sports practices that will ensure that future generations they can enjoy sports and nature without negative consequences for the environment.

Acknowledgments: The authors would like to thank every participant for their effort and time.

**Funding:** No sources of funding were used to assist in the preparation of this manuscript.

**Conflicts of interest:** The author declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

## REFERENCES

- Bakašun, V. (2000). Environment and health. In: Božić, Ž., Uzelac, V. Ecology - a step closer to a child, Proceedings of a professional scientific meeting. Rijeka: Adamić. ISBN 953-6531-48-8
- Bartoluci, M. (2003). *Economics and management of sport*, Zagreb: Faculty of Kinesiology, Information.
- Casper, J., & Pfahl, M. (Eds.). (2015). Sport Management and the Natural Environment: Theory and Practice (1st ed.). Routledge. https://doi.org/10.4324/9781315881836
- Collins, A. & Flynn, A. (2008). Measuring the Environmental Sustainability of a Major Sporting Event: A Case Study of the FA Cup Final. *Tourism Economics*, 14(4), 751-768. https://doi.org/10.5367/00000008786440120
- Doran, P. (2002). World summit on sustainable development: An assessment for IISD. Briefing Paper. Winnipeg,

Canada: International Institute for Sustainable Development.

- FIFA. (2014). Activity report 2013. Zurich, Switzerland:
  Fédération Internationale de Football Association.
  Dostupnona: https://digitalhub.fifa.com/m/a3f4f2676c
  728bd/original/wpf547zsib0wbsolmev6-pdf.pdf
- Findak, V., Prskalo, I. (2004). *Kinesiology lexicon for teachers*. Petrinja: Teacher Training College in Petrinja.
- Gagnon Thomson, S.C. & Barton, M.A. (1994). Ecocentric and anthropocentric attitudes toward the environment. *Journal of Environmental Psychology*, 14 (2), 149– 157.https://doi.org/10.1016/S0272-4944(05)80168-9
- Hinchman, L.P. & Hinchman, S.K. (2007). What we owe the romantics. *Environmental Values*, 16(3), 333–354. https://doi.org/10.3197/096327107X228382
- Hirvensalo, M. & Lintunen, T. (2011). Life-course perspective for physical activity and sports participation. *Eur Rev Aging Phys Act* 8, 13–22. https://doi.org/10.1007/s11556-010-0076-3
- Hyun-Duck, K. (2013). The 2012 London Olympics: Commercial partners, environmental sustainability, corporate social responsibility and outlining the implications, *The International Journal of the History of Sport*, 30 (18), 2197-2208.https://10.1080/09523367. 2013.845171
- Ioakimidis, M. (2007). Green sport: a game everyone wins. *The sport journal*, 10.
- International Olympic Committee. (1997), Manuel on Sport and the Environment. Switzerland: International Olympic Committee. https://stillmed.olympic.org/media/Document %20Library/OlympicOrg/IOC/Who-We-Are/Commissions/ Sustainability-And-Legacy-Commission/EN-Manuel-Sport-Environment.pdf
- Mallen, C., Lorne, A., Stevens, J. & Thompson, L. (2010). Environmental Sustainability Facility in Sport Management: А Delphi Study, European Sport Management Quarterly, 10 (3),367-389. https://doi.org/10.1080/16184741003774521
- Masten, R., Dimec, T., Ivanovski Donko, A. & Tušak, M. (2010). Motives for sports participation, attitudes to sport and general health status of the Slovenian armed forces employees. *Kinesiology*, 42. (2.), 153-163. Preuzeto s https://hrcak.srce.hr/62902
- McCool, S. (2015). Sustainable tourism: Guiding fiction, social trap or path to resilience? U: Singh, T.V. (ur.), *Challenges in Tourism Research, Bristol: Channel View Publications*, 224-234.
- McCullough, B. P., Orr, M. & Kellison, T. (2020). Sport ecology: Conceptualizing an emerging subdiscipline within sport management. *Journal of Sport Management*, 34(6), 509–520. https://doi.org/10.1123/jsm.2019-0294

Miller, T. (2017). Greenwashing Sport. London: Routledge.

- Ministarstvogospodarstva, radaipoduzetništva (2009). Environmental protection: A mini-guide for the business community. EU CARDS project. https://www.hok.hr/sites/ default/files/page-docs/2019-09/Zastita%20okolisa.pdf
- Milanović, D. (2009). Theory and methodology of training. Zagreb: Department for the training of trainers of the University of Social Sciences in Zagreb: Faculty of Kinesiology, University of Zagreb.

- Nikšić, E., Rašidagić, F., Nurković, N., Mekić & Hadžibulić -Nurković, H. (2019). *History of physical culture with theory and practice of exercise*.Faculty of Education Science, University of Sarajevo, Sarajevo.
- Orr, M. & Inoue, Y. (2019). Sport versus climate: Introducing the climate vulnerability of sports organizations framework. *Sport Management Review*, 22(4), 452–463. https://doi.org/10.1016/j.smr.2018.09.007
- Orts, E. & Spigonardo, J. (2013). Special Report: The Green Sports Movement. Wharton Conference on Leadership in Greening the Sports Industry, Pennsylvania: University of Pennsylvania.
- Paquette, J., Stevens, J. & Mallen, C. (2011). The interpretation of environmental sustainability by the International Olympic Committee and Organizing Committees of the Olympic Games from 1994 to 2008, *Sport in Society*, 14 (3), 355–369. https://doi.org/10.1080/17430437.2011. 557272
- Pepper, D. (1999). *Modern environmentalism: An introduction*. London, UK: Routledge.
- Prazina, N. & Mahmutović, O. (2023). *Health ecology*. University of Sarajevo - Faculty of Education Science, Sarajevo.
- Rosenberg, D. (2017). Ethical Foundations for Sustainability in Sport 1. U: McCullough, B.P., Kellison, T. B., (ur.), *Routledge Handbook of Sport and the Environment. London*, United Kingdom. Routledge. 54-65.
- Schmidt C. W. (2006). Putting the Earth in play: environmental awareness and sports. *Environmental health perspectives*, 114(5), A286–A295. https://doi.org/10.1289/ ehp.114-a286
- Steg, L. & Vlek, C. (2009). Encouraging proenvironmentalbehavior: An integrative review and research agenda, *Journal of Environmental Psychology*, 29 (3), 309– 317. https://doi.org/10.1016/j.jenvp.2008.10.004
- Subic, A. (2007). Materials in sports equipment. Cambridge, United Kingdom: Hardback ISBN: 9781845691318, eBook ISBN: 9781845693664.
- Triantafyllidis S. (2018). Carbon Dioxide Emissions Research and Sustainable Transportation in the Sports Industry. C., 4(4):57. https://doi.org/10.3390/c4040057
- Trendafilova, S., McCullough, B., Pfahl, M., Nguyen, S. N., Casper, J. & Picariello, M. (2014). Environmental sustainability in sport: Current state and future trends. *Global Journal on Advances in Pure & Applied Sciences*, 3, 9-14.
- United Nations (2018). Sports for Climate Action Framework. United Nations Climate Change. https://unfccc.int/sites/ default/files/resource/Sports\_for\_Climate\_Action\_Declarat ion and Framework 0.pdf
- United Nations Environment Programme (2022). Sports for Nature: Setting a baseline – Handbook. Nairobi, Kenya: United Nations Environment Programme. https://wedocs. unep.org/handle/20.500.11822/41095
- Zovko, M. (2011). *Environmental protection:* A view from practice. Mostar: Ecological association "Our beautiful one" Čapljina.

\*\*\*\*\*\*