

Study on Risk Management of Outdoor Sports in the Context of Ecological Civilisation

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Abstract: The release of the Action Programme for Promoting the Construction of Outdoor Sports Facilities and Service Enhancement (2023-2025) and the Outdoor Sports Industry Development Plan (2022-2025), as well as the recreational, natural, and risky nature of outdoor sports, have become important factors attracting the public to participate in outdoor sports. However, outdoor accidents have become a major obstacle to the enjoyment of outdoor sports in a "safe, scientific and environmentally friendly" way. How to identify outdoor risks and how to deal with them have become the key to solving this problem. Through the literature, we clarify the concepts of outdoor sports and outdoor sports risks, and analyses the philosophical value, leisure value, educational value and environmental value of outdoor sports. In the context of ecological civilization construction, the relationship between outdoor sports risk and environment is explored, so as to deal with the dynamic balance between risk, safety and environmental protection, and to deal with the crisis through reasonable and scientific outdoor risk management means, which makes the outdoor sports safe, standardized, green and sustainable development.

Keywords: Ecological Civilization; LNT Law; Risk Management; Outdoor Sports; Rock Climbing

1. Research on Outdoor Sports and Outdoor Risks

Green health has become a universal consensus for global development. There is a natural coupling between outdoor sports and environmental protection. We should promote the development of outdoor sports in a sustainable direction by advocating and

practising the concept of green environmental protection.

1.1 Origins and Concepts of Outdoor Sports

Outdoor sports are traced back to hunting, foraging, medicine gathering, and military training in human survival and development. Outdoor sports in the modern sense originated in the 18th century in the Alpine region of Europe, as well as in the early days of exploration and scientific research in Europe and the United States. The research on the concept of outdoor sports is mainly defined by Li Hongyan [1] from the perspective of leisure; Liang Qiang [2] consumer value of "Great Outdoor" from the perspective of economic and management disciplines in the context of experience economy; Liu Fengxiang [3] mainly elaborates on four major characteristics of outdoor sports, namely, naturalness, adventurous, participatory, and novelty; and then Dengdeng [4], Chen Sun Yongsheng, Shi Dengdeng [4], Chen Kunlun [5] and others extended the concept of outdoor sports to the fields of recreation, education and competition. Natural attributes and adventure attributes are the most significant features of outdoor sports, while outdoor has a variety of functions such as leisure, education, competition, recreation and so on. Therefore, outdoor sports refers to the sports programmes carried out in the natural environment with fashion, adventure, entertainment, experience and can achieve the functions of recreation, education and competition.

1.2 Outdoor Sports Risk Study

Outdoor sports are high-risk sports involving environment, equipment, internal factors and other aspects. Outdoor risk management has become an important compulsory course for conducting outdoor sports. Therefore, an indepth study of outdoor sports risk has

become an important course for participation in outdoor sports. Tao Yuping [6] explored from risk management and safety guarantee methods and approaches; Jiang Meiyang [7] interpreted from the perspective of risk factors and risk results; Liu Huarong [8] interpreted through the damage of people, property, and materials. The definition of the concept of outdoor risk has always been explored around the elements that constitute outdoor risk. If the outdoor risk is simply attributed to the damage or unfavourable aspects, it is a lack of comprehensiveness. The true meaning of outdoor risk is "the possibility of losing or gaining something of value" [9].

At the same time, in 2009, the State promulgated the "Regulations on National Fitness" No. 36, 37 of high-risk sports for prior approval, alpine adventure, rock climbing, ice climbing, mountain outdoor sports have been included in the national catalogue of high-risk sports [10]. 2022 the new revision of the "Sports Law of the People's Republic of China" new "high-risk sports event activities permit The new revision of the Sports Law of the People's Republic of China in 2022 added the "Permission for Highly Dangerous Sports Events and Activities", which clarifies the application conditions, approval procedures, supervision and inspection requirements for organising highly dangerous sports events and activities. It further strengthens the importance and inevitability of risk management of outdoor sports.

2. Research on the Value of Outdoor Sports

2.1 Symbiotic Value of Outdoor Sports

The concept of "the unity of heaven and man" was first proposed by the Taoist thinker Zhuang Zi. According to Zhuangzi, "If there is a man, there is a heaven; if there is a heaven, there is also a man." Heaven and man are originally one. That is, man and nature are compatible in nature, so all personnel should follow the laws of nature to achieve harmony between man and nature." The "unity of heaven and man" officially became a theoretical viewpoint during the Han and Song dynasties. Song Dynasty scientists Zhang Zai, Cheng Yi and Cheng Hao interpreted "the unity of heaven and man" as "all things are one" and "heaven and man are compatible",

emphasising that man and nature have inherent unity [11]. Through the inheritance and development of China's ancient thought of the unity of heaven and man, the "LNT" environmental minimum impact method advocated by today's outdoor, that is, making full use of outdoor skills to affect as little as possible the land, water, plants and animals in the natural environment, etc., the essence of which is the "unity of heaven and man" thought of the practical application and practice. For example, outdoor sports such as rock climbing, in which the traditional way of climbing is mainly on routes where no man-made protection measures have been set up beforehand, through the use of rock plugs, mechanical plugs or other specialised climbing equipment by the climbers, with the help of the mechanics formed between these mechanical equipment and the rock wall to carry out rock climbing activities on the rock wall. At the end of the climb, these devices are removed from the climbing route. The integrity and originality of the rock wall is preserved to the maximum extent possible, and damage to the natural environment is minimised. Since in outdoor rock climbing activities, we often pass by places worth stopping at such as sparsely populated areas and places of interest. However, while appreciating them, we must observe the principle of fine keeping the natural original appearance. This type of rock climbing coincides with the LNT approach to protecting the natural environment. the concepts of "LNT", "The Unity of Heaven and Man" and "The Two Mountains" are highly consistent in their harmonious relationship between human beings and the natural world.

2.2 Leisure Value of Outdoor Sports

The contradiction between the people's growing need for a better life and the unbalanced and insufficient development in the new period and stage of the construction of a moderately prosperous society, the arrival of the overall leisure era of mankind. More and more people have diversified needs for outdoor sports and the pursuit of a higher quality of life. Especially the fitness mode selection more specificity, leisure, challenging, experiential and adventure characteristics. The more popular leisure and fitness camping, Frisbee, creek descending, alpine adventure,

rock climbing, ice climbing, diving, cave exploration, parachuting, kayaking, creek tracing and other outdoor sports are highly sought after by the public leisure and fitness [12]. The experiential value of outdoor sports stimulates people's desire for victory and ambition and stimulates their potential in risks and skills, thus enhancing their confidence and ability to cope with challenges and overcome difficulties. At the same time, outdoor sports emphasise teamwork, unity of thought, unity of pace, solidarity and mutual help in order to achieve success or victory.

2.3 Educational Value of Outdoor Sports

"When young people are wise, the country is wise; when young people are rich, the country is rich; when young people are strong, the country is strong; when young people make progress, the country makes progress." As the future of the motherland and the hope of the nation, the physical and mental health of young people is related to personal growth and family happiness, as well as the future and destiny of the country, and the rise, fall and rejuvenation of the nation. However, at present, primary and secondary school students appear to have uncoordinated limbs, low level of endurance, poor balance, lack of joint flexibility, which is manifested in many physical health problems such as stiff muscles, clumsy movements, running and wrestling, and vision loss [13]. At the same time, mental health problems such as interpersonal tension and sensitivity, depression, anxiety, hostility, and emotional imbalance also occur [14]. Outdoor sports as an important part of experiential education and nature education. Through the primary and secondary school study and practice courses and youth outdoor camp education has become an effective supplement to alleviate the physical and mental health problems of primary and secondary school students, and it has become an important hand in the reform of quality education and physical education curriculum. The Compulsory Education Curriculum Programme and Curriculum Standards (2022 Edition) issued in 2022 in the Physical Education and Health Standard Interdisciplinary Thematic Learning Cases about orienteering cross-country, aquatic sports, ice and snow sports and so on in the Sports in the natural environment is more both

physical and mental exercise and the perception of nature double value. In the same year, the newly amended Sports Law of the People's Republic of China states that "the State gives priority to the development of youth and school sports, insists on the integration of sports and education, the coordination of cultural learning and physical exercise, and the equal importance of physical fitness and personality, and promotes the allround development of young people".

2.4 The Value of Building an ecological Civilisation for Outdoor Sports

In the mid-1980s, the U.S. Forest Service and the U.S. Department of Agriculture officially launched the Leave No Trace campaign and adopted many new methods and outdoor concepts to minimise impact on the environment. 1993 saw the formation of the LNT, an educational, non-profit organisation, at a summit of the outdoor industry, including outdoor industry organisations, sports trade unions, the National Outdoor Leadership School, non-profit organisations, outdoor manufacturers, and the Bureau of Land Management. Administration, and many others, aneducational, non-profit organisation, the LNT Organisation, was formed at an Outdoor Industry Summit. After decades of development of the outdoor environmental protection developed a set of environmental protection law LNT (Leave No Trace), that is, the law of minimum impact on the environment, aims to enlighten people how to respect nature and care for the environment. The core of the LNT is to promote the outdoor sports ethical code of conduct, is committed to guiding the global people in the outdoor activities of the shared responsibility [15]. LNT is about using your outdoor skills to have as little impact as possible on the land, water, plants and animals in the natural environment, also known as "Leave No Trace", and consists of eight elements:

(a) Advance planning and preparation.

In order to minimise damage to the environment, we need to plan and prepare in advance, with adequate planning and preparation can achieve a clear purpose. Otherwise, procrastination and repeated trips will not only cause damage to the outdoor environment, but also wear down the physical

strength and willpower of the players, increasing the risk of outdoor.

(b) Travelling and camping on tolerable ground. That is, hiking along rocky or gravelly surfaces, camping in hay or snow and in planned fixed campsites.

(c) Proper disposal of rubbish. Rubbish generated during outdoor activities includes food scraps, excreta and other household wastes.

(d) Maintaining the original state of nature. Maintaining the original form includes the original state of natural, ecological and cultural monuments.

(e) Reduce the use of fire in the wild. In the wild, try not to cut down trees to make fires, as the destructive power of fires on the environment and the ground is very long-lasting, and the permanent damage caused by fires to the soil can be as deep as 10 centimetres, and in some cases cannot be recovered for decades.

(f) Respect the habits of wild animals. Animals are the creatures of nature, we should give them enough respect in the wild, understand their habits and try not to disturb them, so that we can live in harmony with them.

(g) Consideration for other outdoorsmen. Respect other activists so that others' outdoor experience is not disrupted. Also, when camping near villages, consider not disturbing people or making noise.

(h) Respect for local folkways and customs. In ethnic minority areas, special attention is paid to their living customs and eating habits.

3. Outdoor Sports Risk Factor Study

In 2011, the State General Administration of Sports (SGS) included alpine adventure, ice climbing, rock climbing and mountain outdoor sports in the list of high-risk sports. 2023, in order to implement the newly revised Sports Law, strengthen the management of high-risk sports and promote the healthy development of the sports industry, the SGS revised the Measures for the Administration of Licences for Operating Highly Dangerous Sports. The state further strengthens the management and development of outdoor sports from the perspective of law and industry regulation. "Safety, science, environmental protection" as the ultimate goal of outdoor sports projects, safety has become the premise of outdoor sports if there is no safety escort outdoor sports will not be able to talk about. In addition, outdoor sports itself has the pro-nature and adventure is destined to be inseparable from the environment, personnel, equipment, and there will be real risks, potential risks, accidental risks are always accompanied by the left and right.

3.1 The Environment is an Objective Factor Influencing Outdoor Risk

Outdoor sports can not be separated from the natural environment and The main factors that lead to outdoor risk or outdoor accidents are the environment, equipment, personnel and other factors. And these factors are not isolated, but the superposition of the factors make the outdoor risk geometrically increased, thus bringing irreversible personal safety, property damage, reputation damage and other results.

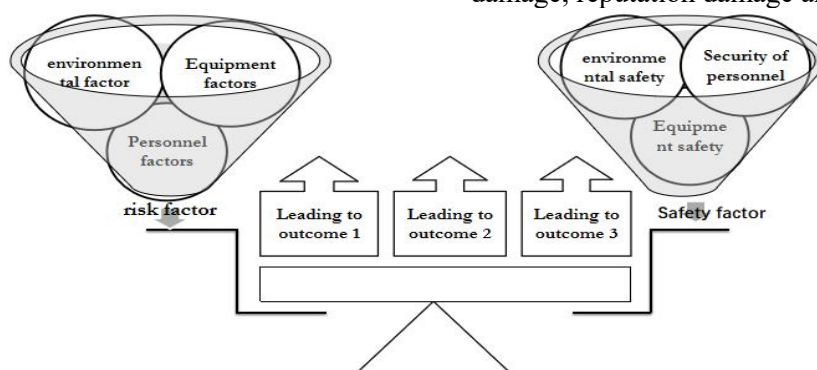


Figure 1. Risk Management Model Diagram

3.2 Personnel and Equipment as Subjective Factors Affecting Outdoor Risk

The risk of outdoor sports is closely related to the physical and mental state of the personnel,

team management, scientific judgement, as well as the quality and quantity of equipment and experience in its use. Taking the typical rock climbing project in outdoor sports as an example, climbers have a great deal of choice

in the way they climb and the equipment they use (Table 1). And the size of the risk is directly related to the damage to the environment, want to avoid the risk will produce irreversible damage to the rock wall. On the contrary, if you want to experience

adventure, you will increase the risk and reduce the damage to the outdoor environment. The analysis and judgement of outdoor risk and the user of outdoor equipment are often people themselves.

Table 1. Comparison of the Environmental Impacts and Risks of Sport Climbing, Traditional Climbing and Equipment Climbing in the Sport of Rock Climbing

Climbing Style	Protective station setup method	Action on natural rock walls	Impact on the environment	Risk size
Sport Climbing	Mellon locks, nuts, expansion bolts, rock nails, etc. become permanent protection	Drill holes to install expansion bolts and pegs	Destruction of the rock mass	very low
Traditional Climbing	Flat belts, rock plugs, mechanical plugs, etc., only serve as temporary protection points	Apply the principles of mechanics in physics	Crush Friction	Larger
Equipment Climbing	Wire, lanyards, expansion bolts, stabilising protection points	More damage to the rock face	between the two	Lower

4. Risk Management in Outdoor Sports

Risk management in outdoor sports is a complex and systematic project. It is necessary to make scientific analysis and rational judgement and assessment on the basis of collecting risk information, and finally make a response. At the same time, it is necessary to choose appropriate management tools for different possible risks and deal with the crisis in combination with the actual situation. The specific methods are as follows:

- (a) Risk avoidance and prevention, cutting off at the source. Preventing outdoor accidents caused by subjective factors
- (b) Risks are manageable. We can develop a risk management programme. Identifying, analysing and evaluating accidents before they occur allows us to classify them in order to reduce or eliminate risks.
- (c) Risk transfer, risk diversification and risk sharing. We can buy special outdoor insurance before the outdoor activities, such as "the world - comprehensive outdoor sports insurance plan"; in addition, you can hire professional outdoor personnel such as drivers, coaches, leaders.
- (d) Maintaining risk and pursuing maximum gain. This practice is a manifestation of the attribute of adventure in relation to outdoor sports themselves, but it requires a relatively high level of match between the participants' individual outdoor adventure ability and the size of the risk, and requires a rational balance of the value of the relationship between loss

and gain.

5. Conclusions

The key to the green and sustainable development of outdoor sports is to deal with the relationship between ecological priority, green development and safety and sustainable development. We will endeavour to build a bridge between "green mountains" and "silver mountains", so that people can enjoy the charm of outdoor sports and the beauty of natural ecology at the same time.

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