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## Risk management pattern of sports activities in middle and primary schools and analysis research

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### ABSTRACT

This study, based on the current sports risk management in primary and middle schools, performs corresponding analysis on the current sports risk management pattern in primary and middle schools. It is concluded that, for primary and middle schools especially those in Xinjiang, the primary measures for risk management is to identify the risk factors, including personnel factor, space and equipment factors, and the characteristics of sports activities in the province. Then, in accordance with the risk factors existing in the sports activities in middle and primary schools, this study performs risk assessment and evaluation on various risk factors in sports activities in Xinjiang middle and primary schools. And, according to the types, characteristics and natures of risks, proposes a series of effective solution strategies to shift risk, retain risk, reduce risk, avoid risk. It aims to prevent students from harm or reduce the damage as far as possible, to improve the risk management pattern in sports activities in the middle and primary schools, and ensure safe and effective sports activities in middle and primary schools in our country.

### KEYWORDS

Sports; Risk management; Primary and middle school students.



## INTRODUCTION

Sports is an important part of the primary and middle education. It plays an indispensable role in promoting the healthy development of primary and middle school students. Sports is different from other social activities. It includes physical contact between people, between people and sports equipment, and between people and the fixed sports equipment. And primary and middle school students are lively, facing the risk of injury during exercise. Major accidents in sports activities are characterized by sudden, diversity and complexity, and the reasons are multifaceted. Some scholars have done statistics on injuries in physical activities and physical education in primary and middle schools, and it turns out nearly 80% of students have had different degrees of damage. The data of Xinjiang is similar with the mainland, about 80% of students have had different degrees of damage in physical education or sports activities. Large amount of data shows that the accidents occurred suddenly, and they were uncontrollable. Although damage degrees are not identical, the possibility of accidents is still larger. In this context, it is the main purpose of the study in this paper to analyze the risk in sports activities in primary and middle school, and find the methods and measures on the basis to prevent the primary and middle school students from harm or reduce the damage as much as possible.

### SPORTS RISK MANAGEMENT THEORY OVERVIEW

#### "Risk" overview

Researchers in different fields, from their own disciplines and areas, expatiated the concept "risk". Different statements did not give "risk" a recognized definition applicable to various disciplines and fields. Although each definition of risk contains the feature "uncertainty", but different disciplines have new divisions on "uncertainty" and its effect on the risk.

The current definitions of "risk" can be divided into objective perspective and subjective perspective. Lenz, (1989) pays attention to the objectivity that risk is the uncertainty that may be a risk, emphasizes the possibility of loss in activities. That means people know where the loss mainly occurs, but whether the loss will occur or not is unclear. Kulp and Hall pay more emphasis on subjective factors, on personal qualities and psychological state. They think risk is a series of "uncertain" in the event: time is uncertain, the consequences are uncertain, the loss is uncertain, the degree is uncertain... and so on. And all the kinds of "uncertainty" are the key factors lead to the success or failure.

Through the above analysis, considering the effect on sports activities in primary and middle schools, such as teaching mode, students' physical quality, education environment and facilities, teaching equipment maintenance and maintenance level, these are likely to bring accident harm on primary and middle school students' sports activities, but whether it can be avoided is uncertain. So this study applies to the first definition, which is, the risk is the uncertainty that some loss (accidental damage on student) may occur.

#### Risk management overview

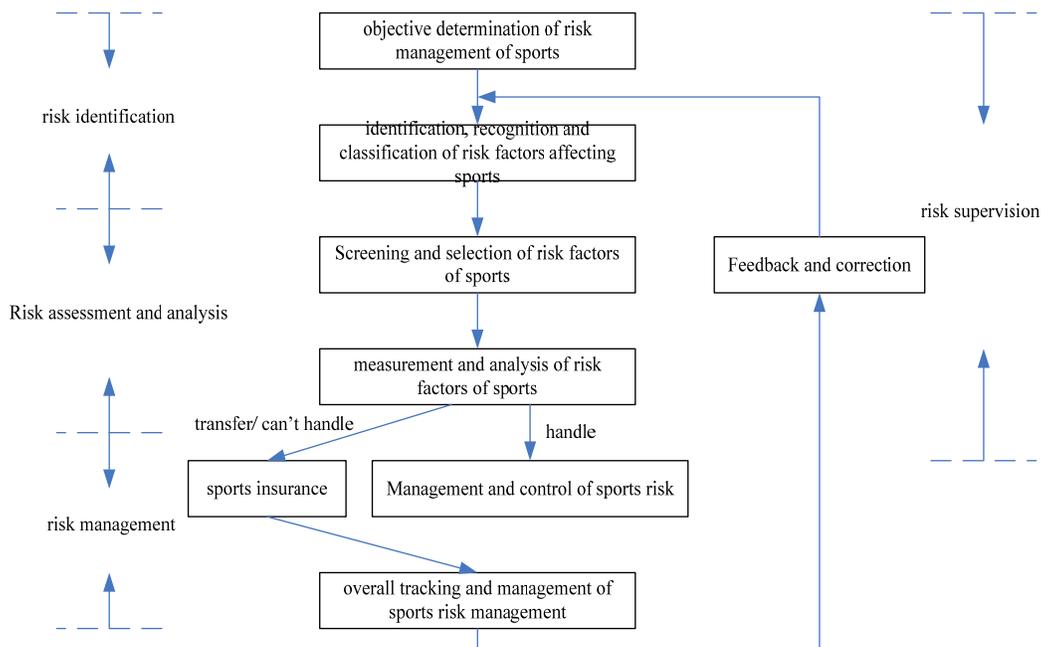
Risk management means taking risk as an object for construction and response, various monitoring methods and the whole process are referred as risk management. To apply this concept in the middle and primary school sports activities, it refers to the process to divide, confirm and evaluate the potential accident risk in physical activities. Risk management focuses on beforehand assessment and prediction before danger happening. At the same time, on the basis of assessment and prediction, for each process considered through assessment may cause dangerous, establish a set of corresponding processing method to prevent injuries (Cristiansen, 1986). Horine holds similar view that risk management should be a whole plan to analyze when and how the risk will occur and how to control these risk factors in target-oriented way.

In all kinds of management in the modern economic society, risk management has been increasingly valued. Many organizations and agencies begin to try risk management. But unfortunately, in the high-risk area: sports, few people notice this concept, and it is rarely mentioned in the theoretical field. In real life, it can be found that, in addition to sports games, in physical education, sports activities, sports training, sports facilities usage, management, and other aspects and fields, there are many potential risks. Therefore, according to current scholars views, to effectively reduce the accidents in school sports, a complete risk management plan on primary and middle school students' sports activities is required. It can not only provide injury prevention, but also provide a set of standard processes and processing methods for P.E. workers, so that they can handle accident immediately, decrease the loss as much as possible, and avoid other unnecessary risks.

### RISK MANAGEMENT PATTERN IN MIDDLE AND PRIMARY SCHOOL SPORTS

In sports activities in middle and primary school, to perform risk management, it is required to understand the possible risk causes and the corresponding treatment methods in the middle and primary school sports activities. At the same time, plan in advance on the basis. Meir and Hedges (1974) study, points out that the goal of risk management should be "economic security before loss, satisfactory response after loss". the goal of risk management in middle and primary school sports activities can be divided accordingly into goal before loss and goal after loss. Goal before loss refers to risk identification, analysis, control and prevention measures before the possible accident, trying the best to minimize the possibility of risk accident. Goal after loss refers to reduce and eliminate the consequences, protect students' safety, and ensure the normal sports activities in campus, after accident. The combination of the two constitutes the goal of risk management in middle and primary school sports.

According to the goal of risk management in middle and primary school sports, risk management in sports is divided into four steps, including risk identification, risk assessment and analysis, risk management strategy selection, strategy implementation and evaluation. As shown in the Figure1.



**Figure 1 : Risk management pattern in middle and primary school sports**

## Risk identification in middle and primary school sports

### (1) Potential risk factors

Risk identification of sports activities refers to identify and confirm the potential risk factors and the potential risk events before the risk occurs, and perform the corresponding classification. The main purpose is to have a rational understanding on the risk sources, risk distribution, risk causes, factors relation and risk consequences, which may be caused by sports activities, in advance, so as to lay a foundation for the risk prevention. For identification of potential risk in primary and middle school sports.

### (2) Analysis on potential risk factors

The key of sports activities in middle and primary schools is "person", which is also one of the main sources of risk. Personnel factor risk is mainly caused by all kinds of direct or indirect unpredictable behaviors. Personnel factors to be considered in risk management include physical education teachers, who are the leaders in sports activities. In the teaching process, whether the leaders perform preparation in strict accordance with the teaching rules, whether perform the use of equipment in sports activities in strict accordance with the requirements, whether provide the necessary guidance in the teaching process on primary and middle school students, etc., are all personnel factors to consider. On the other hand, for the main body of sports activities, which is primary and middle school students, whether they can understand their own physical condition, whether they can accurately describe the physical condition to teachers, whether they perform the necessary preparation activities under the guidance of teachers, is another risk source caused by personnel factor.

Sport site is the main space for primary and middle schools to have sports. The hardware condition is the material basis for normal physical activities. Perfect venue facilities and equipment can ensure the smooth operation of the sports activities. But for a long time, affected by the exam-oriented education, many schools attach more importance to the conventional teaching hardware. Besides some individual schools famous for sports specialty, most schools pay little attention in sports facilities. They not only cannot update sports facilities regularly, but also sometimes even cannot perform necessary maintenance on a regular basis. In the course arrangement in some school, the educational administration departments don't consider the usage of sport site. The arrange many classes at the same time. The crowded people and limited facilities virtually increase the possibility of accident.

Physical activity itself would inevitably produce some risk and damage, this is understandable. Some scholars found that, ranking in accordance with the chance of injuries of middle school students in sports activities, the most popular basketball and football are the main sources of injuries among middle school students, this ratio is 31.4% and 27.7% respectively, which are more than half; The following are gymnastics and running, are 11.4% and 8.3% respectively. Fashion sports is about 7.2%, volleyball is relatively safe about 6.4%. There are some other projects such as swimming will also cause some damage, but the ratio is smaller.

**Sports risk assessment and evaluation**

It will get a large amount of data in the risk identification process. After necessary quantitative and qualitative analysis on the data, statistical information can be obtained. The statistics data can be used to determine the cause, the place and time of the various occurred losses, and understand the influence of various factors on the risk management objectives.

**(1) Time of sports risk in middle and primary schools**

Time of sports risk in middle and primary schools and reason analysis, as shown in TABLE 1.

**TABLE 1 : Time statistics of sports injuries in primary and middle school**

year	Number of injury	time of sports injury happening %			
		sports course	Extracurricular activities of	sports competition	Training
1998		15.4	54.50	29.10	
2001	551	14.9	41.6	27.6	15.9
2002	478	45.40	47.70	6.90	
2003	552	10.29	58.40	27.30	4.10
2004	470	21.20	38.10		40.70
2005	361	21.60	43.50	21.60	14.30
2006	310	15.4	57.5	9.60	
2007	385	182.	81.8		

**Note: "Year" refers to the time for different researchers' investigating**

The implementation of the new curriculum reform, leads to corresponding change in curriculum system, but physical education curriculum and sports activities in most primary and middle schools are still mainly traditional sports, like volleyball, basketball, running. Occasionally, there will be pull-ups or sit-ups, etc., for the test. These programs are suitable for students with different sports ability. However, the current primary and middle school students, due to different family economic conditions, different parents' health consciousness, and even different sports consciousness of teachers, have different physical qualities, which also increases the risk of sports in some extent.

Extracurricular sports activity is effective supplement to physical education curriculum in primary and middle schools, so that students can choose the corresponding projects besides busy schoolwork activities. Some current curriculum content has new change, and the diversity has been strengthened. In the Xinjiang autonomous region, some schools also creatively combine the characteristics of Uighur, and arrange some sports activities or dance lessons with national characteristics; There are schools provide students with a rich variety of sports activities according to the climate and natural environment in Xinjiang. But it can be seen from the table, in mainland, Xinjiang and other ethnic minority areas, extracurricular activities have been the main source of sports injuries in primary and middle school students.

**(2) Reasons of sports injuries in primary and middle school students**

Reasons of sports injuries in primary and middle school students are also varied, and present the trend of diversification. Results from different scholars studies show consistency. Preparation activities, technical problems and their own factors and location equipments are the causes of damage (see TABLE 2).

**TABLE 2 : Reasons of sports injuries in primary and middle school students statistics**

year	number of the injured	preparation	technical issues	large amount of exercise	ideological factors	facilities	physical reasons	self factors	teachers
2001	551	41	23	14	11	10			
2002	478	43	18			87	17	13	
2003	552	23	14	19	6.3	11	4.7	12	11
2004	1470	18	37	8	14	13	9.2		
2005	808					20		46	26
2006	385	26	17	12	5.8	14	12		13
2007		14			5.8	19		26	21

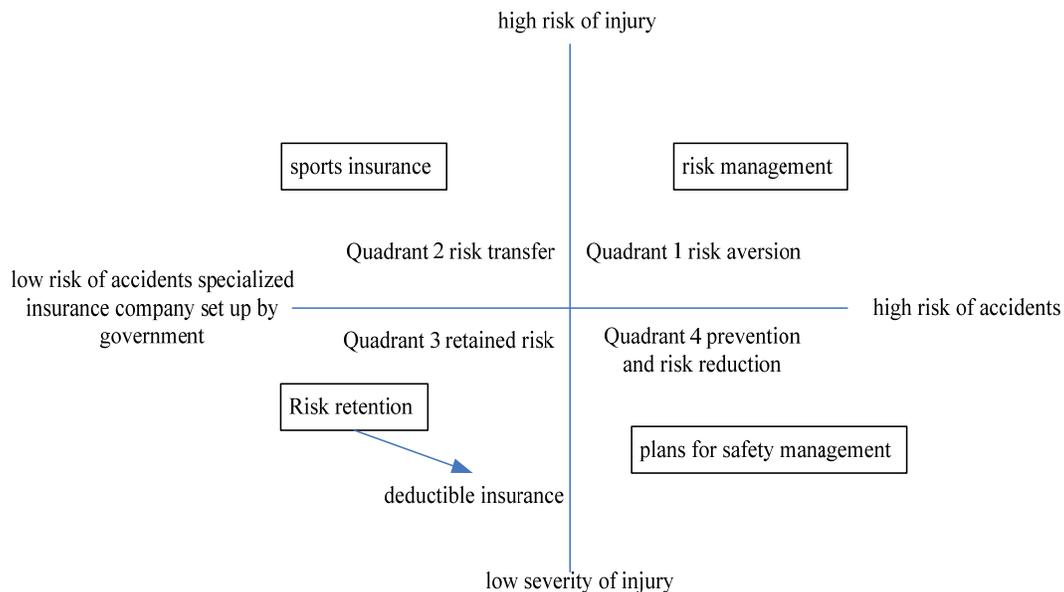
From the table, as time passing by, influence of the facilities presents the characteristics of volatile ups and downs, but the general trend is gradual increasing. On the other hand, some scholars find that the economic development in the

economic region of school, in a certain extent, also affects the sports accident rate in middle and primary school. Take Xinjiang Uygur autonomous region as an example, the primary and middle school students in Urumqi, which has relatively developed economy, have less damage in sports activities due to hardware problems such as location equipment, or issues of teachers' professional quality. More of the damage are occurred due to poor personal skills, and failure in warm-up exercise in accordance with the provisions, etc. The primary and middle school students in altay, hotan regions, which have relatively underdeveloped economy, have more damage in sports activities due to hardware problems such as location equipment, or issues of teachers' professional quality. But this is not involved in the main scope of this study, so there is no need to talk more.

### (3) Sports risk management strategy selection

Sports risk management strategy refers to making corresponding plan, according to the types, characteristics and properties of risks in physical activities, and establishing warning system based on it. After the right decision, the process of execution is more important. In the execution process, it is necessary to control implementation, perform real-time feedback and timely adjustment, and evaluate the effect and difference immediately after the implementation.

Based on the above research and discussion, the paper uses the 2D risk analysis matrix as the main tool for risk in sports activities. In the matrix, the horizontal axis represents the probability of accident, and the vertical axis represents the degree of damage. The four quadrant respectively refers to the "shift risk", "retain risk", "reduce risk" and "avoid risk". At the same time, the matrix includes the required risk coping strategies of sports organizations in primary and middle schools in the corresponding quadrant. The risk management strategy and selection is shown as Figure 2.



**Figure 3 : Risk management strategy and selection**

#### (1) Shift risk

Effective risk management can perform prevention and control on the risk in middle and primary school sports activities. At present, in addition to the mainland, Xinjiang has schools, which take risk factors of sports activities into the teaching management. But the sport's unique characteristics lead to unknown risks no matter how many preventive measures are taken. Risk cannot be prevented and organized, can only be done by "Shift". The most effective measure to shift risk is insurance. For those injuries or accidents with high risk, but not accidental, they can be shifted in the corresponding insurance system. Insurance provides effective solution once damage and accidents occur.

Sports insurance is similar with other insurances. The insurance company charges premium and bears the corresponding risks. Functional insurance system and the application can effectively improve the management level and management efficiency of sports organizers. More importantly, it can effectively protect the interests of sports participants - the primary and middle school students and their guardians. As one of the important tasks of primary and middle schools, students' safety obtains more and more attention from school leaders. Even in such cases, injuries and accidents are inevitable. So, necessary risk shift and assessment are equally important.

#### (2) Retain risk

When the loss caused by sports activities with low frequency or small loss, primary and middle schools have the duty and ability to bear, generally, retain risk strategy can be taken. However, students guardians should have risk-sharing consciousness. For sports activities with balls, physical touch and minor bruises, contusion are inevitable, however, teachers should not ignore them. In the teaching process, they should pay attention to the student movement security at any time, try to

avoid small injuries. Specifically, in Xinjiang, some parents not special support their children going to school, so "risk-sharing" and produce misunderstanding and cause a backlash. Therefore, the school management should also pay attention to job skills, and do a good job of interpretation.

### **(3) Reduce risk**

For common accidents with minimal harm, it is necessary to formulate a series of preventive measures through risk management planning, which is the reduce risk strategy. The main purpose of this strategy is to reduce the damage degree, at the same time, to reduce economic loss as far as possible. For example, students with serious injuries should be taken to the hospital in time, but students with slight contusion, can be handled by the school hospital. In addition, students, after large damage, sometimes can also have psychological damage. Schools can also take the necessary psychological counseling measures to help students out of the psychological harm.

### **(4) Avoid risk**

When the above several strategies fail to play their role, and the accident would happen at a relatively high frequency and cause serious damage, only avoid risk strategy can be taken. It means getting rid of unnecessary activities with high incidence and high damage rate. For example, physical education teachers sometimes have to teach classes they are not familiar with, in that case, even if the substitute teacher requires, the teaching should be avoid, so as to prevent major accidents in the process of teaching.

### **Strategy implementation and evaluation**

After the identification, analysis and control on risks in sports activities, related managers and management departments should make the corresponding report on the process and effect of the risk management, in the form of file or so, and call related person to perform the summary and reflection on the effect of the implementation, to further perfect the plan, and improve the risk management level in sports activities. Any primary and middle schools, in front of the risks in sports activities, must take necessary measures and perform the corresponding management strategies, and perform necessary adjustment according to the nature of the risk. Only when primary and middle schools are able to fully understand and master the strategies of risk management and perform effective implementation, can the risks and the accidents be effectively reduced.

## **CONCLUSION**

The concept of "risk" is abstract. The implementer of risk management, in front of risks which may occur in the middle and primary school sports, should evaluate and plan ahead of time, taking different strategies to cope with the situation, seeking the best solution, and assessing the implementation effect regularly. At the same time, they also should fully consider the change of risks, constantly accumulating experience and professional quality in the daily management, constantly adjusting the risk management decisions, in response to the risks and new problems in sports activities.

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## **REFERENCES**

- [1] Wang Miao, Wang Yan; Primary school sports safety and risk prevention theory study[J], Journal of Physical Education and Science, **4**, 40-43 (2006).
- [2] Wang Yan; Sports risk study [J], Journal of Physical Education and Science, **11(1)**, 67-70 (2012).
- [3] Liu Hong, Shi Yan; Theory and method research on risks in school sports activities [J], Journal of Physical Education and Science, **11(1)**, 54-56 (2008).
- [4] Shi Yan. Lu Songbo; Qualitative research and measurement methods on risk cognition of physical education teachers [J], Journal of Tianjin Sports College, **11(1)**, 36-38 (2012).
- [5] Wang Miao, Wang Yan; Risk identification, assessment and response on primary school sports [J], Journal of Tianjin Sports College, **1(1)**, 96-99 (2011).
- [6] Zhang Dachao, Li Min; Theory study on sports risk management system abroad [J], Journal of Sports Science, **7**, 43-50 (2009).
- [7] Shi Yan, Hou Chanli; Theory study on sports risk cognitive characteristics and affect factors [J], Journal of Sports Science, **10(7)**, 43-50 (2008)., **31(5)**, 576-579 (2008).
- [8] Yang Jialing; Sports activities planning and risk management from the perspective of system theory [J], Journal of Nanjing Institute of Sport (Social Science Edition), **11(2)**, 83-85 (2010).
- [9] Shi Yan, Nan Lijun; Theory study on sports risk cognitive in high school students [J], Journal of Xi 'an Sports Institute, **11(1)**, 67-70 (2012).