



## A Development of the Teaching Plan on Flower Ball Cheerleading in Physical Education Course to Improve Physical Fitness and Mental Health for Primary School Students

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### Abstract

**Background and aim:** Cheerleading is an important project in the physical education teaching process of primary schools. Introducing cheerleading into primary school physical education can not only guide students to improve their physical functions but also effectively enrich their spiritual world. It plays an important role in the healthy development of student's physical and mental health. This article analyzes and studies this. Playing its role in improving the physical and mental health of primary school students is the significance of this article. Formulate the "Teaching Plan for Ball Cheerleading in Physical Education Classes" to improve the physical and mental health of primary school students. This is the purpose of this study.

**Materials and Methods:** (1) Experimental sample: Among the 300 students in six classes of the fifth grade of a primary school in Rizhao City, students with the same level of physical fitness and no obvious difference in appearance were selected from low to high scores based on the physical fitness test scores. According to their personal wishes, 15 boys and 15 girls were finally selected as experimental samples. (2) Research instrument: ① 《National student physical health standard》 Ministry of Education of the People's Republic of China. ② 《Mental Health Rate Scale for Pupil; MHRSP》 ③ Teaching the IOC value is 0.8 and is approved by 5 experts. (3) Statistics: Independent samples t-test, standard deviation.

**Results:** Through the experimental results, it is concluded that the most significant effects of ball cheerleading on the physical fitness of primary school students are one-minute sit-ups, one-minute rope skipping, a 50-meter run, and seated forward bends. The teaching and training process of ball cheerleading has a positive role in promoting students' emotional disorders, social adaptation disorders, behavioral disorders, etc. Flower ball cheerleading has a profound impact on the physical fitness and mental health of primary school students, and plays a good role in promoting the physical production and mental health development of primary school students.

**Conclusion:** The results of this experimental study show that ball cheerleading plays a good role in improving the physical development of primary school students, especially their agility, coordination, explosive power, and core strength. It can provide a strong guarantee for the physical health of primary school students. Ball cheerleading is beneficial to the mental health of primary school students. Ball cheerleading classes can help primary school students learn to regulate their emotions, improve their bad character and moral defects, and help primary school students develop lively and cheerful characters and develop good behaviors. habits, strong social adaptability, and ability to communicate with classmates. This shows that the flower ball cheerleading teaching program constructed in this experiment can be applied to physical education classes for primary school students.

**Keywords:** Flower Ball Cheer; Lesson Plan; Physical Education Class for Elementary School Students

### Introduction

With the rapid development of society and the continuous improvement of living standards, people have begun to pay more and more attention to sports. Tang Liang, Wang Hexia, and Yin Luo (2020) pointed out in "The Application of Flipped Classroom in Cheerleading Teaching in Primary and Secondary Schools" that the "Economic and Social Development Plan of the People's Republic of China" during the "Thirteenth Five-Year Plan" period (referred to as the "Thirteenth Five-Year Plan Outline"), my country launched the National Fitness Plan for 2021-2025, which mentioned eight main tasks. The seventh and eighth aspects focus on national fitness, the integration of sports and education, and the social atmosphere of national fitness. The construction marks that the national fitness movement has officially shifted from society to campus, achieving comprehensive coverage of national fitness. Covering all ages. To this end, our country has proposed a decision to comprehensively



implement quality education in response to this issue, clearly stating that the healthy physical and mental development of children and adolescents is the foundation of national development, and children's sports rights must be protected and protected. Lay the foundation for their physical and mental health through sports.

The recognition of the multidimensional benefits that physical education can offer to students. Acknowledging the crucial role of physical activity in promoting both physical fitness and mental health, the study seeks to explore an innovative approach—flower ball cheerleading. The background of the research underscores the need for diversified and engaging physical education activities that not only contribute to the enhancement of physical fitness but also address the mental well-being of students. By focusing on the development of a teaching plan for flower ball cheerleading, the research aims to provide educators with a structured and effective tool to integrate this unique form of physical activity into the curriculum, fostering a holistic approach to student health and wellness. Additionally, the study aligns with the broader educational discourse on the importance of incorporating enjoyable and culturally relevant activities in physical education to enhance overall student engagement and contribute to their comprehensive well-being.

Cheerleading movements are clean and neat, with a stable center of gravity. Movements are smooth and body control is accurate. With his unique enthusiasm and sunny characteristics, he has accumulated strong team strength and is deeply loved by students. When students participate in cheerleading teaching and training, they can not only exercise their bodies, but also regulate the psychological pressure during the learning process, gain a positive attitude towards life, and make students' campus life more colorful. Introducing cheerleading into primary school physical education teaching can not only guide students to improve their physical performance but also effectively enrich their spiritual world. It plays an important role in the healthy development of student's physical and mental health. This article analyzes and studies this.

## Objectives

Main objectives: To develop the Teaching Plan for the Flower Ball Cheerleading in Physical Education course to improve physical fitness and mental health for Primary School Students.

Affiliate objectives:(1) To understand the current situation and operation mode of cheerleading in the primary school. (2) To study the impact of the exercise on primary school students. (3) To make a teaching plan for flower ball cheerleading. (4) To the comparative analysis of the effects on physical fitness and mental health before and after the flower ball cheerleading experiment.

## Literature Review

Cheerleading is a dynamic and multifaceted activity that combines elements of dance, gymnastics, and team coordination, typically performed to support and motivate sports teams. It has evolved from traditional sideline cheering to a competitive sport with intricate routines and skill requirements. Cheerleading is not only a form of entertainment but also an avenue for physical activity and skill development. Research indicates that participation in cheerleading can contribute positively to physical fitness, including improvements in cardiovascular endurance, strength, flexibility, and coordination (Webster, et al., **2015**). Additionally, cheerleading fosters teamwork, leadership skills, and discipline, providing participants with valuable life skills beyond the physical aspects of the activity (Scanlan & Simons, **2014**).

The cultural and social significance of cheerleading has grown, particularly in educational settings. In many schools and colleges, cheerleading is an integral part of the sports culture, boosting morale and creating a sense of community among students. However, it is essential to note that cheerleading has faced challenges, including concerns about safety due to the acrobatic nature of routines. Scholars argue for the need to ensure proper training, supervision, and safety measures to mitigate the risks associated with cheerleading activities (National Center for Catastrophic Sport Injury Research, **2020**). As cheerleading continues to evolve, research remains vital in understanding



its impact on physical well-being, skill development, and the broader sociocultural context in which it exists.

The academic literature on cheerleading encompasses various perspectives, including its historical development, cultural significance, and physiological and psychological benefits for participants. It is crucial to consider cheerleading not only as a performance art but also as a physically demanding and socially relevant activity with implications for education, health, and well-being.

Through a summary of domestic and foreign literature in recent years, the research on ball cheerleading includes theoretical research and practical research. A large portion of this literature is about cheerleading. A study of the current state of cheerleading. The research results of this article on the development status of college cheerleading, the formation of cheerleading teams, and the content of cheerleading choreography not only guide this study but also provide some research methods and theoretical references for my research. Cheerleading has been introduced to our country for a short time, its development is not perfect, and research in various aspects is still relatively shallow. Therefore, the research and development of cheerleading in our country has a huge market and prospects.

Finally, through the analysis of the actual development and research of cheerleading at home and abroad, in this case, Rizhao No. 1 Primary School was selected as the experimental base to comprehensively combine factors and carry out teaching practice to make cheerleading a link in the construction of campus culture. The beautiful scenery provides a scientific basis for the exploration of a new round of development of Rizhao School, as well as for the rich cheerleading theory and continuous updating of content.

### Conceptual Framework

The design of this research topic "The formulation of the teaching program for primary school students" is as follows:

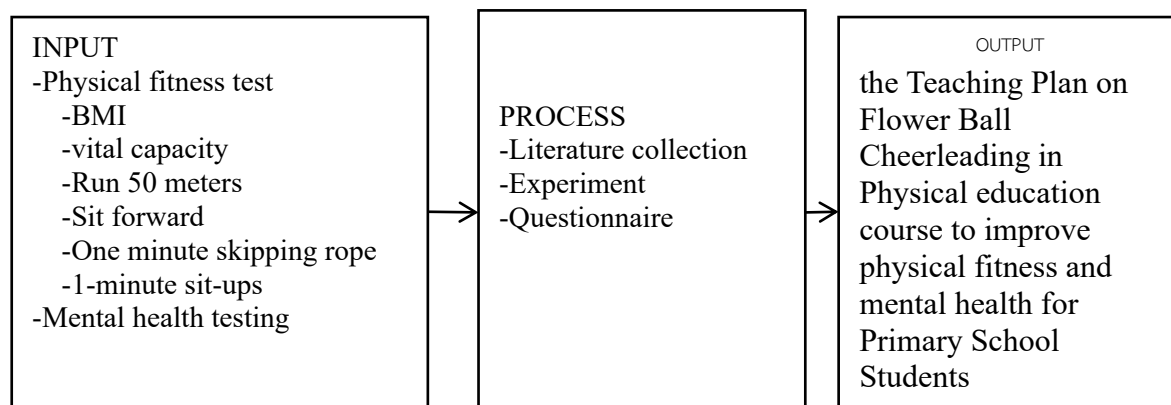


Figure 1 Conceptual Framework

### Methodology

Step 1: is to review the literature and research. (1) In response to the needs of this article, relevant theories on cheerleading, primary school students' physical and mental health, sports science, psychology, etc. were reviewed through domestic databases such as China National Knowledge Infrastructure. Obtain information from it, summarize it, and provide a theoretical basis for this article. (2) Consult with experts, coaches, and sports scientists.

Step 2: Develop a test draft and develop research tools:(1) Develop an 8-week teaching plan. (2) Analyze the factors related to cheerleading performance and the testing of these factors, and select them as research tools. And (3) Develop a questionnaire.

Step 3: Data collection:(1) Distribution and collection of questionnaires. (2) Collection of physical fitness test data before the experiment.



Step 4: data analysis and conclusion: (1) Use the data obtained from the physical fitness test experimental results to conduct an independent sample t-test. (2) Conduct an independent sample t-test on the data obtained from the psychological test experimental results.

## Results

The final development of the flower ball cheerleading on the primary school student's physical and mental health development of the teaching plan

Table 1 The final development of the flower ball cheerleading on the primary school students' physical and mental health development of the teaching plan

Class time	course content	Specific implementation
1-2	1. Cheerleading overview 2. Cheerleading basic posture 3. Cheerleading Music	1. The origin and development overview of cheerleading 2. Concept and characteristics of cheerleading (explanation) 3. External and internal characteristics of the cheerleading body (explanation and demonstration) 4. Learn about music and introduce melody, syntax, rhythm, and beat. (explain)
3-4	1. Basic arm movements 2. Basic lower limb movements	1. Hand position: M, M, lift M, high V, lift V (explanation and demonstration) 2. Foot position: attention station, Junzi station, lunge station, side lunge station (explanation and demonstration) 3. Stand at attention 4. Junzi standing arm and doing hand position (independent practice)
5-6	1. Review and continue to learn the arm and lower limb movements of cheerleading 2. Combine arm and lower limb movements	1. Practice how to correctly based on basic posture (explanation) 2. T, oblique T, small T, straight arm X, high X, (explanation demonstration) 3. Lock station and suction station (explanation demonstration) 4. Stand at attention 5. Junzi standing arm and doing hand position (independent practice)
7-8	1. Basic quality exercises 2. Learn the basic arm movements 3. Learn the basic technical movements	1. Sit-ups in 20 / groups, and 3 groups 2. Squat 20 / group, 3 groups 3. Lower X, arm X, X, upper A, lower A, arm A, upper H, lower H, small H, H, L (demonstration) 4. One leg and knee balance, small leg jump, jump, group jump (demonstration)
9-10	1. Basic quality exercises 2. Learn the basic arm movements 3. Learn the basic technical movements	1. Abdominal and back muscle practice, from both ends (girls 15, boys 25) Group 2 2. oblique L, lower L, K, side K, R, large bow and arrow, small bow and arrow (Explanation and demonstration) 3. Hurdle jump, flexion and leg jump, flexion and leg jump (demonstration and explanation)
11-12	1. Basic quality exercises 2. Learn the basic arm movements	1. Short sword, W, O, high punch, side punch, oblique punch, lower punch, (demonstration and explanation)



Class time	course content	Specific implementation
	3. Learn the basic technical movements	2. Leg rotation, longitudinal jump, jump, (explanation and demonstration) 3. Abdominal and back muscle practice, from both ends (girls 20, boys 40) 4. Jump in 10 / group, 3 groups
13-14	1. Basic action combination 2. Basic quality exercises	1. Practice the combination of basic arm and basic lower limb movements above lower limbs (independent practice) 2. Review jumping exercises (group practice) Review basic action combinations (independent practice) 3. Flexible practice
15-16	1. Basic action combination 2. Flexible and balance exercises	1. Flexible practice 2. High leg side balance, high leg after balance 3. Practice the combination of basic arm and basic lower limb movements above lower limbs (independent practice) 4. Review jumping practice (group practice) Review routine combination (group practice, repeated)
17-18	1. Learn the basic routines 2. Quality practice 3. Balance exercises	1. Learn the basic routines for 1-16 beats 2. Learn the basic routines for the 17-32 beats 3. Jump 20 / group, 2 groups, sit-ups 15 / group 3 groups 4. Front suction leg control leg balance, back flexion leg move leg
19-20	1. Learn the basic routines 2. Quality practice 3. Review the basic movements	1. Learn the basic routines 33-48 beat 2. Flexible practice, big kick 20 / group 4 groups 3. Push-ups (girls 10, boys 15) 4. Review the jumping exercises (group practice) 5. Review and balance the rotation movements (group practice)
21-22	1. Review the basic movements 2. Learn routine combinations	1. Practice the combination of basic arm and basic lower limb movements above lower limbs (independent practice) 2. Review jumping exercises (group practice) Review routine combination (group practice, repeated) 3. Review the combination of routines and follow the music
23-24	1. Routine practice 2. Final performance and presentation	1. Review the routine combination (collective practice, repeated) 2. 80% of skills, routine performance, in a group of 4 people. Usually perform at 20%.

In this study, the obtained data were entered into the WPS table, and then SPSS22.0 software was used to calculate the mean and standard deviation values. The mean is the mean of the data, and the standard deviation is a measure of the dispersion of the mean of a set of data. Finally, an independent sample t-test was performed on the statistical data before and after the experiment. The t-value is a statistical value used to analyze data and quantify the relationship between them. The p-value tests whether two sets of data are different. Compare the corresponding p-values to determine whether a difference exists. Statistical significance ( $p > 0.05$ , then there is no significant difference.  $p < 0.05^*$ , then there is a significant difference).





Table 2 The results of mental health indicators of primary school students before and after the experiment were compared and analyzed

Factors	Before the experiment	After the experiment	t	P-value
Learning Disability	3.57±2.417	3.52±2.341	0.088	0.834
mood disorders	3.73±2.581	3.65±2.164	-2.677	0.009*
character flaws	4.22±2.833	3.50±2.515	-1.682	0.086
social adjustment disorder	3.58±3.145	2.44±2.176	-2.137	0.035*
moral defects	2.70±2.267	2.67±2.234	0.097	0.913
bad habit	3.22±3.009	3.19±2.926	-0.033	0.952
conduct disorder	4.21±2.677	3.11±1.610	-2.132	0.005*
special disorder	2.40±2.513	2.37±2.370	0.070	0.980

After 8 weeks of cheerleading training for 30 primary school students, T-test analysis showed that the P value for social adjustment disorder was 0.035 ( $P < 0.05$ ), which was significantly different from before the experiment. The P value for mood disorders was 0.009 ( $P < 0.01$ ). There is a very significant difference compared with before the experiment. The P value of conduct disorder and mental health factors is 0.005 ( $P < 0.01$ ), which is significantly different from before the experiment. The P values of learning disabilities, character defects, moral defects, bad habits, and special disorders are all greater than 0.05, with no significant difference. The average values of these five psychological factors are all lower than the average values before the experiment, but they are not statistically significant.

In summary, ball cheerleading teaching and training have a positive impact on the three factors of primary school students' emotional disorders, social adjustment disorders, and behavioral disorders. Through mutual communication among classmates, students can communicate more happily. From the learning of ball cheerleading movements to language communication, the expression of body movements makes students happy physically and mentally. After repeated practice of ball cheerleading, students learn how to face difficulties and pass on their own. Through their efforts to overcome difficulties, students' personalities become more optimistic and cheerful, and their mentality becomes more positive.

The results of the physical fitness test of primary school students before and after the experiment were compared and analyzed

Table 3 BMI test before and after the test (Unit: kg / m<sup>2</sup>)

sex	Before the experiment	After the experiment	t	p-value
boy	21.02±2.03	20.29±2.23	0.942	0.345
girl	21.36±1.47	20.96±1.55	0.726	0.474

BMI test results: The P value for boys was 0.345, with no significant difference ( $P > 0.05$ ), and the P value for girls was 0.474, with no significant difference ( $P > 0.05$ ). The comparative analysis results show that cheerleading course teaching has a certain impact on the BMI value of primary school students, but it is not obvious and has no statistical significance. According to the data, it can be seen that there is not much difference in the height and weight indicators of primary school students before and after the experiment. The reasons are nothing more than two points: nature and nurture. Congenital factors are mainly caused by genetics are determined by genes and cannot be intervened by external forces. Therefore, the factors that can affect the height and weight of primary school students can only be acquired factors (exercise, nutrition, and hygiene). However, due to the short duration of this experiment, the slight increase in height of the two groups of students in this experiment is likely to be the natural growth of primary school students.



Table 4 50 m run test before and after the test (in unit: seconds)

sex	Before the experiment	After the experiment	t	p-value
boy	10.37±0.75	9.84±0.66	2.054	0.049*
girl	11.11±0.56	10.41±0.81	2.726	0.011*

In the 50-meter running test, there was a significant difference in the scores of boys in the experimental group before and after the test ( $P=0.049$ ,  $P<0.05$ ), which was statistically significant. There is a significant difference in the scores of female students before and after the test ( $P=0.011$ ,  $P<0.05$ ), which is statistically significant. Data shows that after 8 weeks of ball cheerleading teaching, students' endurance, explosive power, and speed qualities can be effectively improved. The reason is that in the ball cheerleading teaching, each class includes various forms of running. move. As well as explosive force and fixed-point positioning training, most of the students' activities are carried out in a moving state. Combining explosive force exercises and fixed-point positioning exercises of hands and feet, after implementing cheerleading courses three times a week, students' endurance quality can be effectively improved. Explosiveness and speed qualities.

Table 5 T-test before and after the one-minute sit-up experiment (Unit: pcs)

sex	Before the experiment	After the experiment	t	p-value
boy	25.80±9.17	32.13±7.10	-2.114	0.044*
girl	23.40±7.38	31.07±8.60	-2.621	0.014*

In the one-minute sit-up test, there was a significant difference in the scores of boys in the experimental group before and after the test ( $P=0.044$ ,  $P<0.05$ ), which was statistically significant. There is a significant difference in the pre-and post-test scores of female students in the experimental group ( $P=0.014$ ,  $P<0.05$ ). During the 8-week teaching of the flower ball cheerleading course, one-minute sit-ups exercised the abdominal core strength. The abdominal core strength of the primary school students in the experimental group was exercised with the help of jumping, rotation, and balance. exercises, as well as body movement and waist and abdominal strength exercises to ensure breakthroughs in sit-ups.

Table 6 Before and after the minute skipping rope experiment (Unit: individual)

sex	Before the experiment	After the experiment	t	p-value
boy	79.45±26.23	98.67±21.79	-2.181	0.038*
girl	73.33±22.73	93.40±30.09	-2.061	0.049*

In the one-minute rope skipping test, there was a significant difference in the scores of boys in the experimental group before and after the test ( $P=0.038$ ,  $P<0.05$ ), which was statistically significant. There is a significant difference in the scores of girls in the experimental group before and after the test ( $P=0.049$ ,  $P<0.05$ ), which is statistically significant. One-minute rope skipping mainly tests the physical coordination ability of primary school students. During the 8-week teaching of the flower ball cheerleading course, the students' coordination and endurance were exercised with the help of hand and foot positions, combination movements, difficult movements, and other exercises, ensuring the improvement of the one-minute rope skipping performance.

Table 7 T-test before and after the sitting body forward bending experiment

sex	Before the experiment	After the experiment	t	p-value
boy	-1.79±3.55	1.60±4.10	-2.421	0.022*
girl	5.43±5.40	9.59±4.59	-2.277	0.031*

In the seated forward bending test, there was a significant difference in the scores of boys in the experimental group before and after the test ( $P=0.022$ ,  $P<0.05$ ), which was statistically significant. There is a significant difference in the scores of girls in the experimental group before and after the



test ( $P=0.031$ ,  $P<0.05$ ), which is statistically significant. Sitting forward and bending mainly tests students' physical flexibility. The development of the forward bending ability of the seated body is mainly affected by static stretching and dynamic stretching. In this experiment, the teaching content of cheerleading has a certain impact on flexibility quality. The teacher will set stretching flexibility and limb stretching training content for each session. Flexibility and stretching training before class is the main factor in improving students' performance in seated forward bends.

Table 8 T-test before and after spirometry test (Unit: ml)

sex	Before the experiment	After the experiment	t	p-value
boy	1247.33±360.33	1406.27±229.87	-1.44	0.161
girl	1013.93±261.41	1148.20±229.08	-1.496	0.146

In the vital capacity test, there was no significant difference between the male students in the experimental group before and after the test ( $P=0.161$ ,  $P>0.05$ ), which was not statistically significant. There were differences in various indicators of female students in the experimental group before and after the test, but the difference was not significant ( $P=0.146$ ,  $P>0.05$ ), and there was no statistical significance. It can be seen that although the 8-week experiment can improve vital capacity results, the results are not significant.

## Discussion

The conclusion of this experiment is very similar to the conclusion of Shi Zhihua's "Experimental Study on the Effects of Dance Cheerleading on the Physical and Mental Health of Primary School Girls". Shi Zhihua (2018) mentioned in the article that after 16 weeks of teaching training, the physical fitness of primary and secondary school girls was tested. The performance of various indicators is uneven, with large gaps in improvement. The improvement of various physical indicators in the experimental group was mainly reflected in the strength, flexibility, and agility of the waist and abdomen. It shows that the teaching and training of dance cheerleading, the teaching characteristics of dance cheerleading, and the training intensity of dance cheerleading are more suitable for girls to carry out in primary school, and have a profound impact on the physical fitness and health of primary school girls. It also has a positive impact on the physical health level of primary school girls.

Dance cheerleading can not only exercise students' healthy physique, but also allow students to vent their inner emotions while participating in dance and cheerleading, block the influence of negative emotions, and allow students to recognize their own emotional problems and learn to self-regulate. In addition, during the teaching of dance and cheerleading movements, their behavior will also be controlled to a certain extent. In this process, good behavioral habits will gradually form.

However, it was found that dance cheerleading serves as a multifaceted activity that not only contributes to the physical fitness of students but also provides a platform for emotional expression. Engaging in dance cheerleading involves dynamic movements, coordination, and cardiovascular exercise, which collectively contribute to the enhancement of students' overall physical well-being. Research highlights the positive impact of dance on cardiovascular health, muscular strength, and flexibility, all of which are crucial components of physical fitness (Quiroga Murcia et al., 2010). Dance cheerleading, with its combination of choreographed routines and athletic elements, offers an enjoyable and culturally relevant way for students to engage in regular physical activity, promoting a healthy lifestyle.

Beyond the physical benefits, dance cheerleading serves as a creative outlet for students to express their emotions and individuality. The rhythmic and expressive nature of dance allows individuals to communicate feelings and thoughts non-verbally, providing a unique avenue for emotional release and self-discovery (Cruz-Ferreira et al., 2015). Engaging in dance cheerleading can be particularly beneficial for students navigating the challenges of adolescence, offering them a constructive means to channel their energy, build self-esteem, and develop a positive self-image.





(Hanna, 2006). The incorporation of dance in cheerleading not only supports physical fitness but also contributes to the holistic development of students' emotional and mental well-being.

Thus, the psychological benefits of dance, including its capacity to improve mood and reduce stress, have been well-documented in the literature (Quiroga Murcia et al., 2010). Dance cheerleading, with its combination of physical activity and artistic expression, aligns with these findings, offering students a holistic approach to well-being. The incorporation of dance into physical education curricula underscores the importance of considering both the physical and emotional dimensions of students' health, emphasizing the interconnectedness of mind and body in the educational context.

### Recommendation

Teachers of flower ball cheerleading should participate in professional flower ball cheerleading training and learn more advanced teaching methods and more unique forms of expression so that the flower ball cheerleading team's teaching flower ball cheerleading is deeply loved by students and inspires students. Interested in ball cheerleading.

For the development of campus cheerleading, it first needs the attention of relevant education departments. Relevant educational functional departments can start from the actual situation of schools at all levels in the region and develop sports projects based on the specific conditions of students. Students show different physical conditions and different psychological characteristics according to different ages. The arrangement of teaching content should be based on the actual situation of each academic year or even each semester, taking into account the comprehensive development of students' physical and mental health levels.





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