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Improvement of Physical Health of Primary School Students in the Haibo Bay Area

Zhang Xiaoqiang
Faculty of Sports Science and Technology, Bangkokthonburi University, Thailand
E-mail: 2419596969@qq.com, ORCID ID: https://orcid.org/0009-0005-1463-5546

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Abstract

Background and Aim: A healthier population will have a positive impact on the entire community. In recent years, more and more attention has been paid to the physical health of children, but the current physical health of primary school students in the Bay Area is still worrying. Lack of awareness in schools, limited resources, and insufficient attention to physical education are among the major causes of the decline in physical health caused by irregular lifestyles, the increase in electronic products, lack of physical activity and unhealthy eating habits, and the urgent need to implement effective interventions, The aim is to improve the physical health of primary school students in Haibo Bay to ensure that the overall health level of primary school students in Haibo Bay is improved. Thus, the purpose of this study is to find the decline in the physical health of primary school students in Haibu Bay Area, to develop appropriate teaching and training plans to improve the decline in the physical health of primary school students in Haibu Bay Area and to provide reasonable suggestions to improve students' cardiorespiratory endurance, strength, coordination, flexibility, and weight reduction through exercises.

Materials and Methods: This study is an experimental study. G*power is used to calculate that the minimum sample size required for the experiment is 40 people (20 men and women each). A total of 80 students (40 men and women each) are recruited for this study. There are 141 students in grade 5. We randomly select 20 male and female students from each class for training as the experimental group (40 people in total), and 20 male and female students from each class as the control group (40 people in total). The experimental group receives systematic teaching training while the control group receives routine training. The data collected before and after the experiment were sorted out and analyzed. SPSSAU statistical software was used to conduct paired sample T-tests for intra-group comparison and paired sample T-tests for inter-group comparison. The statistical results were represented by mean ± standard deviation and the significance level was set as $P<0.05$, which made the test scores of students more accurate and more conducive to the formulation and implementation of teaching plans. Understand the student's physical condition.

Results: (1) Through systematic physical education training, the experimental group of men and women had different degrees of improvement than before the experiment, in which weight, 50 meters, one-minute jump rope, one-minute sit-up, and seat body forward bending were the most obvious, and the control group also had improvement, but compared with the experimental group, the improvement was smaller. (2) After systematic physical training, the scores of physical health tests of both male and female students in the experimental group were significantly improved, indicating that systematic physical training has a positive effect on improving the physical health of primary school students. And (3) After systematic physical training, the physical health scores of both men and women in the experimental group were higher than those of the control group. It shows that the systematic teaching and training method is more effective than the conventional teaching and training method.

Conclusion: the systematic physical education training employed in the study yielded notable improvements in various fitness parameters for both male and female primary school students. The experimental group exhibited superior enhancements compared to the control group, highlighting the efficacy of the systematic teaching and training approach. These findings underscore the positive impact of structured physical education programs in enhancing the overall physical health and fitness of young students.

Keywords: Improvement; Physical Health; Haibo Bay District; Primary School; Physical Education and Training

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Introduction

Children are the future and hope of a country, and their physical health is related to the development of a country and the rise and fall of a nation. To strengthen youth sports and enhance youth physical fitness, on April （19, 2021）the General Office of the Ministry of Education of China issued a notice on Further Strengthening the Physical Health Management of Primary and Secondary School Students: To implement the spirit of the Healthy China Action (2019-2030), Opinions on Comprehensively Strengthening and Improving School Physical Education in the New Era and other documents, and ensure that the National Students' Physical Health Standards in 2030 meet the specified requirements: 1. Strengthen publicity, education and guidance; 2. Open full physical education and health courses; 3. Ensure time for sports activities; Fourth, improve the quality of physical education; Fifth, improve the physical health management evaluation system; 6, do a good job of physical health monitoring; 7. Improve the responsibility mechanism; 8. Strengthen supervision and inspection; On July （24, 2021）the General Office of the CPC Central Committee and The General Office of the State Council issued the Opinions on Further Reducing the Burden of Homework and Off-campus Training for Students in Compulsory Education. The state has issued a series of policies on physical health in primary and secondary schools, to improve students' physical health and strengthen their physical fitness. In recent years, the physical health of primary and secondary schools in the Bay Area has shown a declining trend, especially the increase in obesity, irregular work and rest, sedentary, myopia, and bone diseases, resulting in a decline in strength, speed, endurance, agility, flexibility, coordination, and other physical qualities. Aroused people's concern and concern. Therefore, aiming at the problems of students' physical health, this paper will improve students' physical health through systematic physical training and break the original conventional teaching mode. Li (2014) "Experimental Research on the Influence of Physical Training on the Physical Fitness of Students in Beijing Yucai Primary School," said: "Physical training for teenagers can promote physical health and health is a necessary condition for students to carry out normal study and life, and good health is an important guarantee for excellent academic performance. Physical training can effectively improve the physical functions of young athletes, such as the cardiovascular system, respiratory system, circulatory system, etc., at the same time, it can also enhance the function of their bones, muscles, tendons, ligaments and other motor organs. Through physical training, young students can overcome the physiological inertia of the human body, improve metabolism, enhance the ability to adapt to the external environment, as well as the ability to resist various diseases, and then promote the healthy development of students.

President Xi (2022) said: "Guided by the educational philosophy of health first. To cultivate students' morality and character, it is not only necessary for them to learn scientific and cultural knowledge and cultivate noble character but also for them to have a strong physique, so that they can better participate in socialist construction after graduation. The body is the capital of revolution, and physical education is closely related to students' health. In the overall education and teaching work of schools, physical education plays a special and important role. In talent cultivation, it is necessary to be firm and vigorous The educational concept of "Health First" regards achieving, maintaining, and developing the physical health of students as the starting point and foothold of school physical education work, comprehensively strengthening and improving school physical education work in the new era, always highlighting the requirements of health, and promoting the healthy development of students This fully demonstrates the importance of health, with physical health being the first prerequisite. In recent years, the physical health of primary school students in the Haibowan District has been continuously declining and has been affected by various factors such as family, society, the epidemic, and schools, resulting in a decline in their physical fitness. Yang's (2021) article "Horizontal Coordination and Vertical Deepening to Promote Physical Health" pointed out that we should pay attention to home-school co-education, and the physical health management goals of students cannot be achieved overnight, nor can they be fully realized only through school sports. In addition to physical exercise in school, students also need to develop the habit of physical exercise and master the knack of combining work and rest. You can continue to exercise at home. At present, some parents do not know enough about students' physical exercise, put students' studies in the first place, and do not urge and encourage students to exercise in the family. In the long run, it is difficult for students to develop the habit of exercise, which is not only conducive to the development of health concepts but also hinders the growth of students. Therefore, schools should take the initiative to communicate with parents and guide parents to form a correct understanding. It is necessary to make rational use of public social resources, encourage young people to actively participate in physical exercise, and form

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an atmosphere in which families, schools, and communities cooperate to jointly protect the time and space of young people's sports.

The decline of primary school students' physical health has become an important topic of concern, and the improvement of physical health still needs to be carried out in schools, President Xi (2022) said: "Education carries the dream of national prosperity and national revitalization." As an important part of school education, physical education plays a role in cultivating morality, intelligence, diligence, and beauty, and is a basic project to realize the fundamental task of cultivating morality and improving students' comprehensive quality. Sports plays an important role in accelerating the building of a strong education country and a healthy China, in carrying forward the core socialist values, and in cultivating students' patriotism and collectivist spirit as well as the quality of their will to work hard and fight hard." Baidu magazine (Baidu, 2023) said in an article that physical education plays an important role in the growth of students. It is not only good for students' physical health but also can cultivate students' teamwork spirit and competitive sense so that they will be more competitive in their future lives and work. Therefore, we should attach importance to the educational value of PE class, and provide better protection for students' physical and mental health and all-round development.
Despite the recognition of the importance of physical health, the current physical health status of primary school students in the Bay Area remains a concern. Lack of awareness, limited resources, and insufficient attention to physical education in schools is one of the important reasons for this problem. There is an urgent need to implement effective interventions aimed at improving the physical health of primary school students in the Bay Area to ensure that the overall health of primary school students is improved. The results of the Eighth National Survey on Students' Physique and Health in China (2019) show that the height, chest circumference, lung capacity, and other indicators of college students across the country continue to improve, but in terms of physical flexibility, speed, strength, endurance, and other aspects, only in primary and secondary school students have been improved to a certain extent, and the problem of college students' declining physical health level still needs to be solved.

The influence of improving physical health is multifaceted. China Sports News (2018) said: "Improving physical health can 1. Promote children's brain development: keeping physically fit can stimulate the activity of the heart and sweat glands, thereby increasing the volume of the hippocampus in the brain, which is related to language memory and learning." Physical activity affects the health of brain cells and can promote cardiovascular growth in the brain, and even make new brain cells vigorous and survive. Not only that, exercise can also improve a child's intelligence, as increased blood flow to the brain promotes brain development, and therefore, this exercise generally shows faster reaction times and concentration compared to other children. 2. Can enhance social skills: In addition to physical aspects, physical and mental health can also promote children's social skills. As we all know, in the teenage years, the cultivation of personal ability, in addition to parents, more often comes from the communication between peers. The simple way for young people to meet like-minded friends and build long-term friendships through communication with others can improve their ability to cooperate and enhance their communication skills. A healthy body and mind are conducive to children's enhanced self-confidence when they succeed, knowing how to face setbacks when they fail, to overcome difficulties, so that they can better get along with people in the future work and life, communication, and cooperation. 3. Improve learning efficiency: physical and mental health can help children clear their minds, focus on learning, improve efficiency, help children to be mindful, and focus on learning in the moment, physical health can also allow children to have more efficient time to learn, get twice the result with half the effort. 4. Long-term physical health and lower health care costs: Inculcating healthy habits in childhood can have lasting effects in adulthood. By promoting physical health among elementary school students, we can reduce the burden of preventable diseases in the future and ultimately reduce healthcare costs. 5. Community well-being: A healthier population has a positive impact on the entire community. Healthy children help build a more vibrant and active community, potentially leading to a more productive and engaged society. General Secretary Xi (2022) "Physical health is extremely critical for learning cultural knowledge, for the growth of children and adolescents, and for the study and work of children's lives in the future, and physical exercise is the most effective means to enhance the physical fitness of children and adolescents." In physical exercise, children can enjoy fun, enhance physical fitness, improve personality and temper will." Physical health is important to the overall development of children, but good physical health needs to be improved through physical exercise, and the impact of physical health components on students is also different.

Therefore, it is urgent to improve the physical health of students in the Haibo Bay Area. Judging

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from the overall physical health data of students in Haibo Bay Primary School in Wuhai City in recent years, the physical health of students shows a downward trend year by year. Therefore, this paper adopts the method of literature, interview, field investigation, and teaching experiment to investigate and study the status quo of the physical health of students in Haibo Bay, Wuhai City, and finds problems from it, changes the conventional teaching methods, adopts systematic physical training methods to improve the physical health of students in Haibo Bay, and puts forward scientific and reasonable suggestions on existing problems.2020 "Teaching Practice of Improving the Physical Quality of Junior Middle School Students Based on Physical Education Classroom" Middle school students are at a relatively lively and active age and will have an involuntary interest in a variety of games, teachers can introduce some teaching games in the teaching process to exercise students' practical ability.

Objectives

Main objective:

1. To investigate the physical health of primary school students in Haibo Bay.
2. Compare the exercise results of the control group and the experimental group.

Literature Review

1. Related research at home and abroad

The physical survey data of Japanese adolescents and children is the most complete. As early as (1879) began to have records, at this stage, "Japan and China's understanding of physique is roughly the same, including morphological structure, physiological function, psychological factors, physical fitness, athletic ability, and other aspects, only in the form and formulation of different." Japan believes that physique is a combination of physical and mental factors. Physical factors refer to the body's physique, body type, physical strength, and the ability to respond and adapt to the stimuli of the external environment; Spiritual factors refer to certain psychological factors, such as will, temperament, intelligence, judgment, and so on.

As a country with an advanced economy and science in the world today, the United States began to pay attention to the physical condition of its people as early as the 1880s. "The content and indicators of physical fitness measurement in the United States continue to develop and progress with the development of social productivity and people's living standards and quality of life." Physical fitness measurement in the United States mainly refers to the measurement of physical fitness. The United States has different indicators and contents of physical testing at different times. With the continuous development of physical fitness research, people's understanding of physical fitness has also changed, so the indicators and contents of physical fitness measurement are constantly changing and developing. "The final test measures included four aspects: cardiopulmonary function, muscle strength and endurance, body flexibility, and body composition.

British scholars believe that in the relationship between physical exercise and nutrition, the combination of the two can achieve good results, and only emphasizing one aspect of the effect is not good. In the process of learning, primary and secondary schools have always emphasized selectivity, and examinations are the baton of students. Therefore, the examination system in the UK is based on a new relationship between examination and measurement. Various physical testing methods in the UK are trying to accurately and objectively reflect students' learning and exercise.

In physical exercise, children can enjoy fun, enhance physical fitness, improve personality and temper will." Physical health is important to the overall development of children, but good physical health needs to be improved through physical exercise, and the impact of physical health components on students is also different.

An article in China Sports Daily (2018) pointed out that a good body is the most basic condition for maintaining a healthy life, and the physical fitness of young students is the material basis for national construction and social development and is the precious wealth of the country. If a country wants to stand out in the future competition in the world, it must improve the physical fitness of young students as a whole.

To sum up, the development of physical health is of great significance to the development of students. How to talk about the future without a good body, so we should pay attention to physical health, strengthen physical exercise, and develop a good habit of physical exercise.

2. Health problems in all countries and regions of China

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According to the World Population Review (2021), the highest rates of overweight and obesity in the world are still concentrated in countries in Europe, North America, South America, and Oceania, most of which have obesity rates above 20% and even above 35%. In July, a European Union report found that a third of teenagers in the EU are now overweight or obese. In contrast, obesity rates are higher in southern Europe than in northern Europe. In response, some experts believe that obesity in children and adolescents is related to a lack of physical exercise. EU countries urgently need more time for physical education and extra-curricular sports.

To alleviate the serious problem of poor physical fitness among young people, the Ministry of Education launched the Basic Plan to Promote Active School Sports in (2020), which gives strong support to enrich school sports, activate school sports clubs, and support the training of student-athletes. For example, the fund supports the school sports club full-time teacher allowance, student sports club activity expenses, participation funds, sports textbooks, facilities, equipment, supplies, etc. Jing (2020) conducted a survey on students' physical health status in the article Analysis of Physical Health Status and Countermeasures of Primary and Secondary School students in Zhengzhou, and the results showed that the physical development of students showed an upward trend, but the index of vital capacity had a significant decline, and the rate of poor eyesight of students remained high. At the same time, the overall physical quality of the students decreased significantly, and the endurance quality decreased most significantly. Yang (2022) pointed out in The Physical Fitness Level and Its Relationship with Health Risks of College Students in Western Hunan 2022 that the body shape of college students in Western Hunan showed no significant changes in the height, weight, and BMI index of male students in different grades, while the weight and BMI index of female students showed a downward trend. The height of male and female students of Han nationality is higher than that of ethnic minorities, while the weight and BMI of male students and BMI of female students are lower than that of ethnic minorities. There were significant differences in BMI levels among genders, grades, and nationalities. In terms of physical function, the vital capacity and body mass index of males and females in sophomores were significantly higher than those in other grades. In terms of physical fitness, the speed endurance of male and female students has a downward trend, and the standing long jump, the forward bend of the seated position, the pull-up of boys, and the sit-up of girls have varying degrees of irregular changes."

China In（2019）, the results of the eighth national survey on the physique and health of students show that the height, chest circumference, lung capacity, and other indicators of college students continue to improve, but in terms of physical flexibility, speed, strength, endurance, and other aspects, only in primary and secondary school students have been improved to a certain extent, and the problem of the decline in the physical health level of college students still needs to be solved.

To sum up, at present, for both primary and secondary school students and college students in our country, their overall quality and health status are in the declining stage, and on the whole, they are declining year by year, especially the physical function and physical quality decline. According to the interviews with relevant comrades in charge of the municipal and district education bureaux and relevant school leaders, through the statistical analysis of students' national physical health test results in 2022, the physical health of students in the Haibu Bay Area also tends to decline. Therefore, we need to strengthen students' physical exercise, improve teaching methods and teaching methods, and find out the main problems.

Conceptual Framework

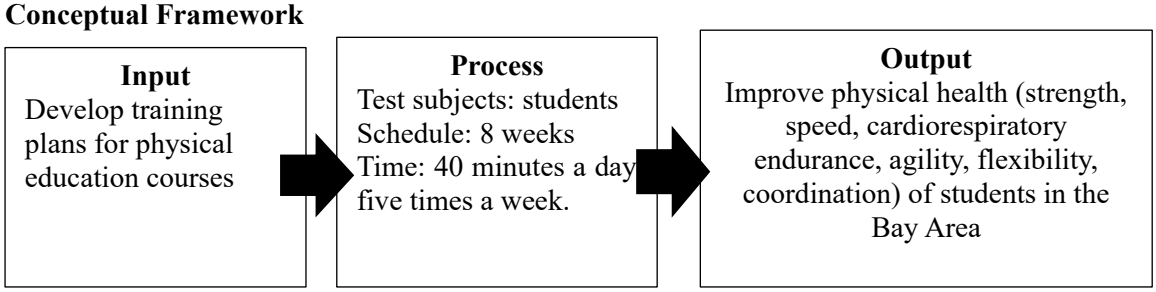

Figure 1 Conceptual Framework

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Methodology

Sample population: The test objects of this study are the fifth-grade students of the Sixth Primary School in the Haibu Bay Area. G*power is used to calculate the minimum sample size required for the experiment is 40 (20 men and women each), and the test is repeated three times. A total of 80 students (40 men and women each) are recruited for this study. A total of 40 people, 20 men, and women were selected as the control group, a total of 40 people, the experimental group took systematic teaching training, the control group took routine training, and the two groups' teaching intervention period was 8 weeks.

The first test took place at the stadium on August 13, 2023. First, BMI and body fat percentage were measured. The subjects then took part in a physical fitness test. Participants in the experiment underwent 8 weeks of cardiorespiratory endurance, muscle strength, muscle endurance, and flexibility system teaching training. At the end of the 8th cycle of training, a second physical fitness item measurement was taken to assess changes in body composition and physical health performance of the study subjects.

Health testing research begins with anthropometry. The measurement methods are as follows: height, weight, vital capacity, using a height-weight tester, vital capacity tester, (OMRON) Subjects are informed of the measurement method. The direct observation method was used in this study. Physical standards:50 meters, 50 meters x8 test (stopwatch), one-minute jump rope (stopwatch, exam jump rope: the number of jumps in 1 minute), sit-up test (stopwatch: the number of sit-ups in 1 minute), seated forward bend (OMRON seat body tester).

Before each test, the subjects were told the test content and measurement method, and after the test, the subjects were told the test result. This experiment aims to improve students' physical health through systematic teaching and training plans. Training programs provided by researchers that allow subjects to perform cardiorespiratory endurance, muscle strength, muscle endurance, and flexibility training; In the first stage of the experiment, the subjects were informed of the daily training schedule and time; A Physical health test was carried out out out out out out out in the third stage of the experiment, and the data collected before and after the experiment were sorted and analyzed. SPSSAU statistical software was used to conduct paired sample T-tests for intra-group comparison and paired sample T-tests for inter-group comparison. The statistical results were represented by mean ± standard deviation, and the significance level was set at $P<0.05$.

Each exercise plan was supervised by a researcher. The subjects were cross-trained after class. The training program lasts 8 weeks. Subjects exercised for more than 40 minutes a day from Monday to Friday, with each training module consisting of a warm-up (10 minutes), a main section (25 minutes), and a relaxation exercise (5 minutes). Exercise load: 60%-70% at the beginning of the second week, increasing by 5%-10% per week, no more than 10%. Intervals are organized according to different components. The training plan is shown in Table 1.

Table 1 8-week training plan

Cycle	Class time	Training plan	remark
1	1	Speed Exercise 50 meters fast run and jump rope exercise (speed game hot stretch, stretching, 200 jump rope exercise, arm swing exercise, trot, high leg lift, balanced acceleration run, backpedals 30 meters sprint, 50 meters exercise) 40 minutes	
	2	Sit-ups and skipping exercises (reflecting game warm-up, 200 jumps, three sets, then 20 sets of sit-ups, 5 sets of backs, two sets of planks, 3 sets of 10 supine leg raises) for 40 minutes	
	3	Seat forward bending, 50m x8 exercises (warm-up, stretching, interval running, walking 20 meters and running 30 meters, running three laps, two sets of exercises) for 40 minutes	
	4	Games and competitions (skipping 50-meter run, 50-meter head-on relay, football relay competition	

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Cycle	Class time	Training plan	remark
	5	Endurance and flexibility exercises (rope ladders, jumping bars, running back and forward) 40 minutes	
2	1	Seat forward bending, 50m x8 exercises (warm-up, stretching, interval running, walking 20 meters and running 30 meters, running three laps, two sets of exercises) for 40 minutes	
	2	Sit-ups and skipping exercises (reflecting game warm-up, 200 jumps, three sets, then 20 sets of sit-ups, 5 sets of backs, two sets of planks, 3 sets of 10 supine leg raises) for 40 minutes	
	3	Endurance and flexibility exercises (rope ladders, jumping bars, running back and forward) 40 minutes	
	4	Speed Exercise 50 meters fast run and jump rope exercise (speed game hot stretch, stretching, 200 jump rope exercise, arm swing exercise, trot, high leg lift, balanced acceleration run, backpedals 30 meters sprint, 50 meters exercise) 40 minutes	
	5	Games and competitions (50-meter jump rope run, 50-meter head-on relay, two-foot ball relay)	
3	1	Speed Exercise 50 meters fast run and jump rope exercise (speed game hot stretch, stretching, 200 jump rope exercise, arm swing exercise, trot, high leg lift, balanced acceleration run, backpedals 30 meters sprint, 50 meters exercise) 40 minutes	
	2	Sit-ups and skipping exercises (reflecting game warm-up, 200 jumps, three sets, then 20 sets of sit-ups, 5 sets of backs, two sets of planks, 3 sets of 10 supine leg raises) for 40 minutes	
	3	Endurance and flexibility exercises (rope ladders, jumping bars, running back and forward) 40 minutes	
	4	Games and competitions (50-meter jump rope run, 50-meter head-on relay, two-foot ball relay)	
	5	Seat forward bending, 50m x8 exercises (warm-up, stretching, interval running, walking 20 meters and running 30 meters, running three laps, two sets of exercises) for 40 minutes	
4	1	Speed Exercise 50 meters fast run and jump rope exercise (speed game hot stretch, stretching, 200 jump rope exercise, arm swing exercise, trot, high leg lift, balanced acceleration run, backpedals 30 meters sprint, 50 meters exercise) 40 minutes	
	2	Sit-ups and skipping exercises (reflect game warm-up, 200 jumps, 3 sets, then 20 sets of sit-ups, 5 sets of backs, 2 sets of planks, 3 sets of 10 supine leg lifts) 40 minutes of endurance and flexibility exercises (rope ladders, jumping bars, and running back and back) 40 minutes	
	3	Endurance and flexibility exercises (rope ladders, jumping bars, running back and forward) 40 minutes	
	4	Seat forward bending, 50m x8 exercises (warm-up, stretching, interval running, walking 20 meters and running 30 meters, running three laps, two sets of exercises) for 40 minutes	

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Cycle	Class time	Training plan	remark
	5	Games and competitions (skipping 50-meter run, 50-meter head-on relay, football relay competition	
5	1	Test 50 meters	
	2	Test skipping rope and seat body forward bend	
	3	Test 50 m x8	
	4	Test sit-ups	
	5	Test height, weight, lung capacity	
6	1	Speed Exercise 50 meters fast run and jump rope exercise (speed game hot stretch, stretching, 300 jump rope exercise, arm swing exercise, trot, high leg lift, balanced acceleration run, backpedals 30 meters sprint, 50 meters exercise) 40 minutes	
	2	Sit-ups and skipping exercises (reflecting game warm-up, 200 jumps, 5 sets, then 20 sets of sit-ups, 5 sets of backs, 2 sets of planks, 3 sets of 10 supine leg raises) for 40 minutes	
	3	Seat forward bending, 50m x8 exercises (warm-up, stretching, interval running or return running, walking 20 meters and running 30 meters, running three laps, two sets of exercises) for 40 minutes	
	4	Games and competitions (skipping 50-meter run, 50-meter head-on relay, football relay) 40 minutes	
	5	4x50m relay and return relay for 40 minutes	
7	1	Games and competitions (skipping 50-meter run, 50-meter head-on relay, football relay) 40 minutes	
	2	Speed Exercise 50 meters fast run and jump rope exercise (speed game hot stretch, stretching, 300 jump rope exercise, arm swing exercise, trot, high leg lift, balanced acceleration run, backpedals 30 meters sprint, 50 meters exercise) 40 minutes	
	3	Sit-ups and skipping exercises (reflecting game warm-up, 200 jumps, 5 sets, then 20 sets of sit-ups, 5 sets of backs, 2 sets of planks, 3 sets of 10 supine leg raises) for 40 minutes	
	4	Seat forward bending, 50m x8 exercises (warm-up, stretching, interval running or return running, walking 20 meters and running 30 meters, running three laps, two sets of exercises) for 40 minutes	
	5	4x50m relay and return relay for 40 minutes	
8	1	Test 50 meters	

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Cycle	Class time	Training plan	remark
	2	Test skipping rope and seat body forward bend	
	3	Test 50 m x8	
	4	Test sit-ups + rest	
	5	Test height, weight, lung capacity	

The specific process of the teaching experiment is as follows: Step 1: pre-intervention test for height, weight, lung capacity, one-minute sit-up, one-minute jump rope, seated forward bend, 50m fast running, 50m x8. Step 2: By sorting out and analyzing the physical health test data of the experimental group, communicating with experts and teachers, and developing a scientific and appropriate systematic training program. Step 3: Teaching experiment intervention was carried out, the experimental group adopted the systematic training program, and the control group adopted the conventional training means. During the intervention period, ensure that the teaching training time of the two groups is equal. Step 4: After the teaching experiment, the scores and physical health test scores of the experimental group and the control group were recorded, and the physical health scores of the two groups were analyzed before and after the experiment. Step 5: Organize and analyze the data and write the report. 4. Data collected before and after the experiment were sorted and analyzed by mathematical statistics. SPSSAU statistical software was used to conduct paired sample T-tests for intra-group comparison and paired sample T-tests for inter-group comparison. Statistical results were represented by mean ± standard deviation, and the significance level was set as $P<0.05$

Results

1. Through systematic physical education training, the experimental group of men and women had different degrees of improvement than before the experiment, of which weight, 50 meters, one-minute jump rope, one-minute sit-ups, and seat body forward bending were the most obvious, and the control group also had improvements, but compared with the experimental group, the improvement was small.

2. After systematic physical training, the scores of physical health tests of both male and female students in the experimental group were significantly improved, indicating that systematic physical training has a positive effect on improving the physical health of primary school students.

3. After systematic physical training, the physical health scores of both men and women in the experimental group were higher than those of the control group. It shows that the systematic teaching and training method is more effective than the conventional teaching and training method.

Comparison of scores in the experimental group before the experiment and after the experiment

Table 2 Comparison of test scores of male students in the experimental group before and after the experiment

Test content	Before the experiment		Post-experiment		t	P
Height	152.30	±7.51	152.50	±7.55	-1.710	0.104
Weight	42.55	±6.23	41.50	±5.65	2.666	0.015*
Vital capacity	2049.30	±450.40	2121.60	±393.11	-2.207	0.040*
50m race	10.37s	±1.25s	9.33s	±1.05s	9.790	0.000*

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Test content	Before the experiment		Post-experiment		t	P
Jump rope	81.20	±22.32	114.65	±15.70	-13.420	0.000*
Sit in a forward bend	4.50	±6.72	9.18	±6.61	-8.280	0.000*
Sit-ups	31.30	±9.04	37.95	±6.68	-6.753	0.000*
50m x8	2’07	±40.15s	1’57	±30.75s	-1.617	0.122

Note: * P< 0.05 means the difference is significant;

From 2, it can be seen that in the comparison of male students' height, weight, lung capacity, 50 meters, one-minute skipping rope, one-minute sit-ups, seat body forward bend, and 50x8 test results, the weight, lung capacity, 50 meters, one-minute skipping rope, one-minute sit-ups, seat body forward bend, showed the opposite sex ($p<0.05$). Specific analysis shows that: There was a 0.05 level of significance between the weight before and after the experiment ($t=2.666$, $p=0.015$), and the specific comparison difference showed that the average weight before the experiment (42.55) was significantly higher than the average weight after the experiment (41.50), indicating that our reasonable diet control and systematic training had played an effective role. There was a 0.05 level of significance between the pre-test and post-test vital capacity ($t=-2.207$, $p=0.040$), and the specific comparison difference showed that the mean value of pre-test vital capacity (2049.30) was significantly lower than the mean value of post-test vital capacity (2121.60). The difference between 50 meters before and 50 meters after the experiment showed a 0.01 level of significance ($t=9.790$, $p=0.000$), and the specific comparison difference showed that the average value of 50 meters before the experiment (10.37) was significantly higher than that of 50 meters after the experiment (9.33). The difference between sit-ups one minute before the experiment and one minute after the experiment was 0.01 level ($t=-6.753$, $p=0.000$), and the specific comparison difference showed that the mean value of sit-ups one minute before the experiment (31.30) was significantly lower than that of sit-ups one minute after the experiment (37.95). The difference between skipping rope one minute before the experiment and skipping rope one minute after the experiment showed a significance of 0.01 level ($t=-13.420$, $p=0.000$), and the specific comparison difference showed that the average value of skipping rope one minute before the experiment (81.20) was significantly lower than that of skipping rope one minute after the experiment (114.65). There was a 0.01 level of significance between the anterior flexion of the seated position before the experiment and the anterior flexion of the seated position after the experiment ($t=-8.280$, $p=0.000$), and the specific comparison difference showed that the mean of the anterior flexion of the seated position before the experiment (4.50) was significantly lower than the mean of the anterior flexion of the seated position after the experiment (9.18). Through systematic physical training, boys' height, weight, and lung capacity increased less, 50 meters, one-minute jump rope, one-minute sit-ups, and seat body forward bending had obvious improvements, and the average value of 50 meters x8 had only a small increase. Because the primary school stage is not suitable for developing endurance, only the right amount can be used, so there is less endurance training in the training process, resulting in a small increase.

Table 3 Comparison of test scores in the experimental group of female students after the experiment

Test content	Before the experiment		Post-experiment		t	P
Height	151.65	±8.76	151.75	±8.80	-1.453	0.163
Weight	40.80	±6.30	39.75	±6.39	2.304	0.033
Vital capacity	1915.80	±577.62	2030.80	±470.9	-1.830	0.083
50m race	10.62s	±0.79s	9.76s	±0.86s	14.888	0.000
Jump rope	80.45	±32.07	106.70	±27.19	-14.011	0.000
Sit in a forward bend	11.02	±6.98	16.49	±5.75	-9.211	0.000
Sit-ups	34.00	±10.07	40.80	±8.37	-9.958	0.000
50m x8	2’07	±40.15s	1’58	±40.46s	-0.075	0.941

Note: *P< 0.05 means the difference is significant;

As can be seen from Table 3, in the comparison of girls' height, weight, lung capacity, 50 meters, one-minute jump rope, one-minute sit-up, seat body forward bend, and 50x8 test results, the

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results of weight, 50 meters, one-minute jump rope, one-minute sit-up, and seat body forward bend were different ($p<0.05$). Specific analysis shows that there is a 0.05 level of significance between pre-experiment and post-experiment body weight ($t=2.304$, $p=0.033$), and the specific comparison difference shows that the average weight before the experiment (40.80) is significantly higher than the average weight after the experiment (39.75). There was a 0.01 level of significance ($t=14.888$, $p=0.000$) between 50 meters before and 50 meters after the experiment, and the specific comparison difference showed that the average value of 50 meters before the experiment (10.62) was significantly higher than that of 50 meters after the experiment (9.76). The difference between sit-ups one minute before the experiment and one minute after the experiment showed a significance of 0.01 ($t=-9.958$, $p=0.000$), and the specific comparison difference showed that the mean value of sit-ups one minute before the experiment (34.00) was significantly lower than that of sit-ups one minute after the experiment (40.80). The difference between skipping rope one minute before the experiment and skipping rope one minute after the experiment showed a significance of 0.01 level ($t=-14.011$, $p=0.000$), and the specific comparison difference showed that the average value of skipping rope one minute before the experiment (80.45) was significantly lower than that of skipping rope one minute after the experiment (106.70). There was a 0.01 level of significance between the anterior and post-experimental seated flexion ($t=-9.211$, $p=0.000$), and the specific comparison difference showed that the mean of anterior flexion before the experiment (11.02) was significantly lower than the mean of anterior flexion after the experiment (16.49). Through systematic physical training, boys' height, weight, and lung capacity increased less, 50 meters, one-minute skipping rope, one-minute sit-ups, and seat body forward bending have significantly improved. Through systematic physical training, girls' height, weight, and lung capacity increase is small, in addition to weight, there is almost not much change, 50 meters, one-minute jump rope, one-minute sit-ups, seat body forward bending have significant improvement, 50 meters x8 from the average only a small increase. Because the primary school stage is not suitable for developing endurance, only the right amount can be used, so there is less endurance training in the training process, resulting in a small increase.

Comparison of results between experimental group and control group after experiment.

Table 4 Comparison of test scores between the experimental group of male students and the control group of male students after the experiment

Test content	Experimental group N=20		Control group N=20		t	P
Height	152.50	±7.55	151.85	±7.73	0.245	0.809
Weight	41.50	±5.65	44.50	±11.67	-0.994	0.333
Vital capacity	2121.60	±393.11	2007.90	±295.38	1.015	0.323
50m race	9.33s	±1.05s	10.47s	±0.91s	-4.038	0.001*
Jump rope	114.65	±15.70	87.45	±26.76	4.006	0.001*
Sit in a forward bend	8.93	±6.86	6.75	±7.73	0.820	0.422
Sit-ups	37.95	±6.68	32.30	±5.85	2.668	0.015*
50m x8	1’57	±30.75s	2’06	±33.50s	1.392	0.180

Note: *P< 0.05 means the difference is significant;

From Table 4, it can be seen that in the comparison of the height, weight, lung capacity, 50 meters, one-minute jump rope, one-minute sit-up, seat body forward bend, and 50x8 test scores of boys in the experimental group and control group, 50 meters, one-minute jump rope, and one-minute sit-up presented the opposite sex ($p<0.05$). The specific analysis shows that there is a 0.01 level of significance between 50 meters in the experimental group and 50 meters in the control group ($t=-4.038$, $p=0.001$), and the specific comparison difference shows that the average value of 50 meters in the experimental group (9.33) is significantly lower than that in the control group (10.47). The one-minute jump rope of the experimental group and the control group showed a significance of 0.01 level ($t=4.006$, $p=0.001$), and the specific comparison difference showed that the average value of one-minute jump rope in the experimental group (114.65) was significantly higher than that of the control group (87.45). There was a significance of 0.05 level between one-minute sit-ups in the experimental

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group and one-minute sit-ups in the control group (t=2.668, p=0.015), and the specific comparison difference showed that the mean value of one-minute sit-ups in the experimental group (37.95) was significantly higher than that of the control group (32.30). From the test results, there were significant differences between boys in 50m, one-minute jump rope, and one-minute sit-up, but there were also significant changes in body weight, lung capacity, and the average yield of seat body. It shows that systematic physical training has an obvious effect on the physical health of male students. Although regular training also improves the physical health of students, the improvement rate is lower than that of the experimental group. Therefore, we should break the original teaching mode and change the teaching method to better improve the physical health of students.

Table 5 Comparison of test scores between the experimental group of female students and the control group of female students after the experiment

Test content	Experimental group N=20		Control group N=20		t	P
Height	151.65	±8.76	147.8540.	±11.60	1.250	0.226
Weight	39.75	±6.39	10	±9.21	-0.119	0.907
Vital capacity	2030.80	±470.69	1808.90	±537.53	1.360	0.190
50m race	9.76	±0.86	10.87	±0.77	-4.560	0.000*
Jump rope	106.70	±27.19	77.05	±26.29	3.552	0.002*
Sit in a forward bend	16.49	±5.75	8.50	±6.85	4.503	0.000*
Sit-ups	40.80	±8.37	35.60	±6.35	2.000	0.060
50m x8	1‘58	±40.46s	2’08	±40.45s	0.077	0.939

Note: P< 0.05 means the difference is significant;

As can be seen from Table 5, in the comparison of the height, weight, lung capacity, 50-meter, one-minute jump rope, one-minute sit-up, seat body forward bend and 50x8 test scores of girls in the experimental group and the control group, 50-meter, one-minute jump rope, seat body forward bend was different (p<0.05). The specific analysis shows that the difference between 50 meters in the experimental group and 50 meters in the control group is 0.01 level (t=-4.560, p=0.000), and the specific comparison difference shows that the average value of 50 meters in the experimental group (9.76) is significantly lower than that in the control group (10.87). The one-minute jump rope of the experimental group and the control group showed a significance of 0.01 level (t=3.552, p=0.002), and the specific comparison difference showed that the mean value of one-minute jump rope of the experimental group (106.70) was significantly higher than that of the control group (77.05). There was a significant difference of 0.01 level between the experimental group and the control group (t=4.503, p=0.000), and the specific comparison difference showed that the mean value of the experimental group (16.49) was significantly higher than that of the control group (8.50). From the test results, there were significant differences in girls' 50m, one-minute jump rope and seat body forward bend, but there were also significant changes in body weight, lung capacity, seat body forward bend, and one-minute sit-ups on average. It shows that systematic physical training has an obvious effect on girls' physical health. Although regular training also improves students' physical health, the improvement rate is lower than that of the experimental group. Therefore, we should break the original teaching mode and change the teaching method to better improve students' physical health.

Discussion

At present, the overall physical health of primary school students in the Haibu Bay Area is in a declining stage. The main reasons affecting the physical health of primary schools in Haibu Bay Area are irregular work and rest time, students' failure to develop good physical exercise habits, families' excessive spoiling of children, school venues, and teachers' monotonous and boring teaching methods, which lead to the decline of students' physical health. Moreover, the teaching method of teachers is also the key factor leading to the physical health of students, because most of the students do physical

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exercise in the physical education classroom, and the school is also the main place for the growth of students. Through systematic physical education, the physical health of students has been greatly improved, and the cardiovascular endurance, muscle strength, muscle endurance, and flexibility of students have been improved. In 2021, Fan Changchun's (Fan, 2021) research concluded that routine physical education and ordinary physical exercise could not meet the needs of students' physical and mental development, and had little effect on the promotion of students' physical fitness. Through 8 weeks of concentrated teaching, skipping rope and track and field training have a significant role in promoting students' physical health, and students' physical qualities such as speed, endurance, and flexibility have been better developed. The experiment proves that different teaching and training can better improve students' physical health, arouse students' interest, and form the habit of physical exercise. The purpose of this study is to determine the influence of 8 weeks of cardiopulmonary endurance, muscle strength, muscle endurance, flexibility, and coordination training on students' physical health. The results of this study show that different teaching and training can change students' body composition. Reduced BMI and body fat percentage, subjects improved cardiopulmonary endurance, muscle strength, muscle endurance, flexibility, and coordination through 8 weeks of different instructional training, which improved health-related physical fitness. Mainly reflected in flexibility, coordination, flexibility, waist and abdominal strength, lower limb explosive power, as well as cardiopulmonary endurance, compared with the first week, the fourth week has a significant change, the eighth week has a significant change, boys 50 meters improved (1.04 seconds), 1-minute jump rope increased by 33.45. Seat body forward bend increased by 4.68cm, sit-ups increased by 0.95, girls increased by 50 meters (0.05 seconds), skipping rope increased by 26.25, seat body forward bend increased by 5.47cm, sit-ups increased by 6.65, repeated T-test showed that these changes were statistically significant ($P<0.05$). The experimental results are significantly different.

Recommendation

Teachers should design corresponding training programs according to the test results of physical health and conduct targeted systematic training to improve students' physical health.

In the process of physical education teaching in primary schools, teachers should pay attention to systematic physical education training to better improve students' physical health.

the school should cooperate with the parents of the community, trinity, mutual promotion, to better improve the physical health of students, parents should also pay attention to the physical health of children, encourage children to actively participate in physical exercise, and the community to increase the investment in sports venues and equipment, more organization of community sports activities, the formation of a good exercise environment.

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