

INFLUENCE OF SOCCER ON THE PHYSICAL PERFORMANCE OF UNIVERSITY STUDENTS



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INFLUÊNCIA DO FUTEBOL NO DESEMPENHO FÍSICO DOS ESTUDANTES UNIVERSITÁRIOS

INFLUENCIA DEL FÚTBOL EN EL DESEMPEÑO FÍSICO DE LOS ESTUDIANTES UNIVERSITARIOS

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ABSTRACT

Introduction: Football is a sport with good acceptance among contemporary university students; it integrates competition, entertainment, and physical fitness. However, few studies demonstrate the concrete advantages found in college players. **Objective:** Explore the impact of football on the physical performance of university students. **Methods:** 100 university volunteers in elementary class 1-3 soccer practitioners, aged 19.2±2.1 years, were evaluated by a battery of tests in body composition, body function, and physical fitness. The results were compared with the literary data, and the experiment went through a mathematical, statistical method to separate the soccer intervention and conduct empirical research on physical health. **Results:** After the 18-week elective course intervention, the 50m and 1000m sprint results changed significantly, especially the 1000m sprint performance greatly improved; the difference was significant ($P < 0.01$). **Conclusion:** Soccer is a sport that improves the physical function and quality of university students and is more conducive to maintaining the physical health of university students. **Evidence level II; Therapeutic Studies - Investigating the results.**

Keywords: Soccer; Student Health; Performance, Physical.

RESUMO

Introdução: O futebol é um esporte com boa aceitação entre os universitários contemporâneos, integra a competição, o entretenimento e a aptidão física. Porém há poucos estudos demonstrando as vantagens concretas encontradas nos jogadores universitários. **Objetivo:** Explorar o impacto do futebol no desempenho físico dos universitários. **Métodos:** Um total de 100 universitários voluntários na classe fundamental 1-3 praticantes de futebol, com idade de 19.2±2.1 anos, foram avaliados por bateria de testes em áreas de composição corporal, função corporal e aptidão física. Os resultados foram confrontados com os dados literários, e o experimento passou por método estatístico matemático, para separar a intervenção do futebol e realizar pesquisas empíricas sobre a saúde física. **Resultados:** Após a intervenção de curso eletivo de 18 semanas, os resultados de corrida de 50 metros e 1000 metros mudaram significativamente, especialmente o desempenho da corrida de 1000 metros melhorou muito, a diferença foi muito significativa ($P < 0,01$). **Conclusão:** O futebol é um esporte que melhora a função física e a qualidade dos universitários, além de validar-se como mais propício para a manutenção da saúde física dos universitários. **Nível de evidência II; Estudos terapêuticos - Investigação de resultados.**

Descritores: Futebol; Saúde dos Estudantes; Desempenho Físico.

RESUMEN

Introducción: El fútbol es un deporte con buena aceptación entre los estudiantes universitarios contemporáneos, que integra la competición, el entretenimiento y la forma física. Sin embargo, hay pocos estudios que demuestren las ventajas concretas encontradas en los jugadores universitarios. **Objetivo:** Explorar el impacto del fútbol en el desempeño físico de los estudiantes universitarios. **Métodos:** Un total de 100 voluntarios universitarios en el grado elemental 1-3 que practicaban el fútbol, con una edad de 19,2±2,1 años, fueron evaluados mediante una batería de pruebas en áreas de composición corporal, función corporal y aptitud física. Los resultados se confrontaron con los datos de la literatura, y el experimento pasó por el método estadístico matemático, para separar la intervención del fútbol y realizar una investigación empírica sobre la salud física. **Resultados:** Después de la intervención del curso electivo de 18 semanas, los resultados de la carrera de 50 metros y de 1000 metros cambiaron significativamente, especialmente el rendimiento de la carrera de 1000 metros mejoró mucho, la diferencia fue muy significativa ($P < 0,01$). **Conclusión:** El fútbol es un deporte que mejora la función y la calidad física de los estudiantes universitarios, y se valida como más propicio para mantener la salud física de los estudiantes universitarios. **Nivel de evidencia II; Estudios terapéuticos - Investigación de resultados.**

Descritores: Fútbol; Salud del Estudiante; Desempenho Físico.



INTRODUCTION

Football is a sport that contemporary college students love, it integrates antagonism, entertainment and fitness.¹ In college, the various organs of the human body are at the critical stage of growth and development, especially in recent years, the improvement of living standards, undergraduates have insufficient exercise, increased obesity, weakened immunity, and increased respiratory diseases. Judging from the current physical health of college students, most students have some physical health problems, for example, the obesity rate is exceeded, the eyesight is poor, the physical fitness is not high, and so on.² The physical health of college students is part of their comprehensive literacy, It should be taken seriously in college education. Football can promote the physical fitness of college students, colleges and universities should fully develop and utilize the advantages of football, provide assistance to college students' physical health education. Football is one of the earliest sports in the world, it is loved by people all over the world. Its unique sports characteristics can exercise people's body functions and various qualities well. Football can mobilize various organs on the body to coordinate movement in a short period of time. Complete the missions of passing people and shooting through various technical actions under your feet. Football is a sport involving high-intensity aerobic and anaerobic participation at the same time.³

METHOD

Research objects

A total of 100 boys from the elementary class 1-3 of a certain college football option were used as the experimental subjects (Table 1).

Table 1. Basic information of subjects (n=100).

Group	Number of people	Age	Height (cm)	Weight (kg)
Test group	100	19.2±2.1	173.5±5.2	65.5±5.3

Method

Literature data method

With campus football and physical health as the key words, check relevant references through China HowNet to provide theoretical references for this thesis.

Teaching experiment method

The purpose of the experiment: Through the teaching experiment of football elective courses, explore the impact of campus football on the physical fitness of students. Teaching content: The teaching content is divided into two parts: football technical action teaching and teaching competition, exercise intensity is medium intensity (heart rate is 120-150 beats/min.) Test items: Body shape: Height, weight, body fat index; Body function: Vital capacity, heart rate; Physical fitness: Sitting posture, bend forward, stand long jump, pull-ups, 50-meter run, and 1000-meter run.

Mathematical Statistics

Use EXCEL, SPSS21.0 and other software to perform statistical processing on the test data. Use EXCEL, SPSS21.0 and other software to perform statistical processing on the test data, the data is compared in depth with the average score of test students as a reference standard.

Experimental method design

In order to ensure the equality of experimental conditions, the experimental class and the control class are taught in accordance with their own syllabus, the teaching content of the two classes includes technology, tactics, theory, and competition, the teaching progress of the experimental class is basically the same as that of the control class, that is, the learning content of the same class contains the same teaching

content type, within the teaching hours of football and basketball lessons in two semesters, no additional physical fitness exercises are arranged, in order to test the difference in the impact of football on the physical fitness of college students.^{4,5}

RESULTS

The impact of campus football on the body shape of college students.

The concept of "Healthy China" advocates "people's health as the center", under this premise, the ultimate goal of football teaching in colleges and universities will be to improve the physical fitness of students. Judging from years of educational experience, the effective development of football, it has a very positive effect on the weight and physique percentage of college students.⁶ Body fat aspects: College students insist on playing football, will consume a lot of calories, and then promote the metabolism of students' body and the efficiency of fat oxidation. At the same time, students need to run continuously in the process of football, there is also a situation of instantaneous acceleration, this can effectively improve the speed and strength of students. In the process of a lot of physical energy consumption as above, the percentage of body fat of students will decrease rapidly, in other words, football can reduce the body fat content of college students, conducive to the health of college students; In terms of weight: The body fat content of college students is reduced, and the weight remains the same, this shows that the lean body mass of the students has increased, which is very helpful for the improvement of the physical strength of the students. (Table 2)

The impact of campus football on the physical function of college students

Vital capacity and response are the actual responses of students' physical function indicators. A large vital capacity indicates that students are in good physical condition. The vital capacity can be strengthened through reasonable exercise, so as to promote the improvement of the breathing skills of the body; The response is the response to the speed of the nervous system of the student's body, the faster the response, the better the nervous system skills of the student's body. It can be seen from "Theoretical Research on Youth Football Teaching and Training in the Context of Healthy China", after scientific football training and teaching, college students' breathing skills and nervous system functions have been significantly improved, the respiratory muscles of college students have been effectively exercised, increased vital capacity; During the football game, students should combine the situation on the spot, constantly change positions and perform rapid priming, this will enable students to effectively exercise their body's response ability, and improve the function of the students' nervous system. As can be seen from Table 3, after passing the 18-week football elective course intervention,

Table 2. Body shape indexes of subjects before and after the experiment (n=100).

Index	Before the experiment	After the test	P
Height (cm)	1.72±7.1	1.72±7.3	0.183
Weight (kg)	64.43±11.2	63.01±7.4	0.034
BMI	23.14±4.1	22.97±3.6	0.022

Note: P<0.01, which means there is a very significant difference; P<0.05, indicating that there is a significant difference; P>0.05, indicating that there is no statistical significance.

Table 3. Physical function indexes of subjects before and after the experiment (n=100).

Index	Before the experiment	After the test	P
Vital capacity (ml)	3103.1±512.67	3693±627.23	0
Resting heart rate (times/min)	71.45±6.11	69.73±6.86	0.035

Note: P<0.01, indicating a very significant difference; P<0.05, indicating a significant difference; P>0.05, indicating no statistical significance.

the subject's vital capacity has been significantly improved, and showed a very significant difference ($P < 0.01$). At the same time, the resting heart rate decreased significantly, showing a significant difference ($P < 0.05$). This shows that football has a good adaptability to the body of college students, enhance the blood supply function of the heart and have a good exercise effect on the ventilator, effectively enhance the depth and efficiency of breathing and increase lung capacity. The enhancement of aerobic oxidation capacity promotes the increase of the oxygen demand of the subjects, and the enhancement of the working capacity of the heart, lung and respiratory muscles is closely related to them.

The impact of campus football on the physical fitness of college students

Sitting forward bending is an important indicator of human flexibility, it reflects the range of motion, elasticity and extensibility of each joint and the tissues around the joint. Flexibility is essential for the correct mastering of football skills, preventing injuries in football, maintaining muscle elasticity and shaping a good body shape play an important role. As can be seen from Figure 1, although the subjects' pull-ups and seated forward bends increased, but it is not statistically significant ($P > 0.05$). The subjects' performance in sitting forward bends and pull-ups and their continuous running on the football field, and the continuous changes of body movements are closely related to the promotion of full muscle stretching; However, it is not statistically significant because the football intervention time is relatively short, and the enhancement effect on flexibility and trunk strength is not obvious.

DISCUSSION

The physical quality of students is determined by many factors, including explosive power, sensitivity, response, flexibility, etc. The stronger the abilities in these areas, the better the student's physical coordination, the stronger the ability to resist external damage, the better its health.

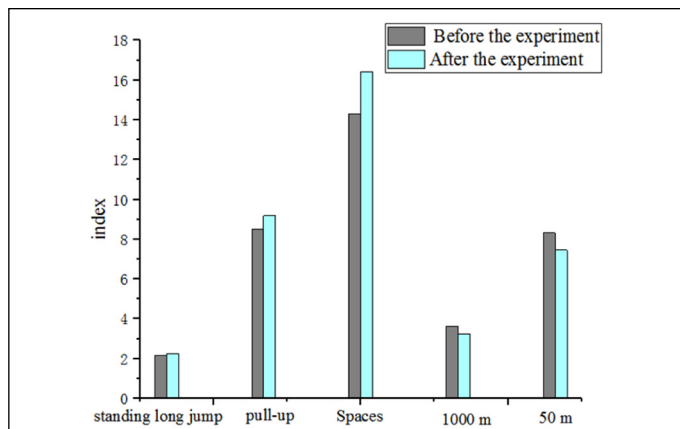


Figure 1. Physical fitness indicators of subjects before and after the experiment.

"Theoretical Research on Youth Football Teaching and Training in the Context of Healthy China" has a positive impact on improving students' grip strength, back strength, and acuity in football.⁷ Football provides students with speed quality and promotes the development of students' physical coordination ability. Football is a project that requires the comprehensive and coordinated development of physical fitness.⁸ Physical fitness is the various functional abilities that people show in physical activities. Speed quality is a prerequisite for athletes to seize advantageous positions and use various football skills, such as catching the ball, dribbling the ball, shooting, etc., all require athletes to have the ability to run fast and brake emergency. Endurance quality is the guarantee for football participants to maintain a high level of skill and play for a long time.⁹ In the test project, the 50-meter race is a project that reflects the ability of reaction, fast running and acceleration; The 1000-meter run is a way to reflect the anti-fatigue ability of muscles and the strength of cardiovascular function, projects focusing on the development of endurance. After the 18-week football elective course intervention, the subjects' 50-meter run and 1000-meter run results have changed significantly, in particular, the performance of the 1000-meter race has improved greatly, showing a very significant difference ($P < 0.01$). Standing long jump, pull-ups, and sitting body forward bending reflect the strength of the subjects' lower limbs, upper limbs, and waist and abdomen flexibility. Standing long jump can develop the explosive power and jumping ability of the lower limbs of the human body. The subjects' standing long jump performance changed significantly, and the improvement was large, and there was a significant difference ($P < 0.05$). Football exercises high-frequency stimulation of the leg muscles, it promoted the strength of the subjects' lower limbs, which played an important role in fast running, continuous change of direction running and emergency stop.¹⁰ In summary, the results of this experiment show that campus football can effectively improve the flexibility and coordination of college students, improve speed, endurance and other physical qualities.

CONCLUSION

Football can effectively improve the cardiovascular and respiratory functions of college students, it has a significant effect on improving the aerobic endurance and physical fitness of college students. Through long-term and systematic physical exercise, the physical fitness of college students who are born in the long development period, psychological quality, ideological quality, and intellectual training are extremely important values. Therefore, I hope that college students can keep exercising, exploit the potential and promote the development of comprehensive quality, The contemporary university will be transformed into an outstanding talent who is comprehensively developed in moral, intellectual and physical, and meets the needs of the development of modern society.

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