INFLUENCE OF SPORTS ELECTIVE COURSES ON COLLEGE STUDENTS' PHYSICAL HEALTH

INFLUÊNCIA DOS CURSOS ELETIVOS ESPORTIVOS SOBRE A SAÚDE FÍSICA DOS ESTUDANTES UNIVERSITÁRIOS

INFLUENCIA DE LAS ASIGNATURAS DEPORTIVAS OPTATIVAS EN LA SALUD FÍSICA DE LOS ESTUDIANTES UNIVERSITARIOS

Original Article
Artigo Original
Artículo Original

Li Qianqian[1]
(Physical Education Professional)
Sun Yan[2]
(Physical Education Professional)
Wang Longlong[2]
(Physical Education Professional)
Wang Peng[3]
(Physical Education Professional)
Xiaocui Sang[4]
(Physical Education Professional)

1. Beijing Sport University, School of Management, Beijing, China.
2.Shandong Sport University, Office of Science and Technology, Jinan, Shandong, China.
3. Liaocheng University, Dongchang College, Liaocheng, Shandong, China.
4. Qingdao Agricultural University, Shandong, Qingdao, China.

Correspondence:
Xiaocui Sang
Shandong, Qingdao, China.
266109.
vkkc_408314@163.com

ABSTRACT

Introduction: The college sports environment is characterized by breadth, diversity, and personality. This is an important period to develop students' physical ability and improve their personality. Objective: Compare the effects of different exercise methods on students' health status. Methods: 2991 college students participated in different sports activities. These sports were conducted based on the selection course (PE), all during one semester. The students' physical health status was observed through experiments performed before and after the intervention. Results: Activities such as basketball and soccer showed high effectiveness in improving students' vital capacity index, volleyball expressively improved students' performance in the long jump, tennis and table tennis were effective in improving students' strength and adherence index, being lower in other indices. Martial arts also stood out in improving the students' vital capacity index. Conclusion: Improving physical health should be an overall process of students' fitness development, and universities should actively encourage college students to participate in long-term sports to improve their health. ***Level of evidence II; Therapeutic studies - investigation of treatment outcomes.***

Keywords: Universities; Physical Education and Training; Health Status Indicators; Benchmarking.

RESUMO

Introdução: O ambiente do esporte universitário é caracterizado pela abrangência, diversidade e personalidade. Este é um período importante para desenvolver a capacidade física dos estudantes e melhorar a sua personalidade. Objetivo: Comparar os efeitos de diferentes métodos de exercício sobre o estado de saúde dos estudantes. Métodos: 2991 estudantes universitários participaram de diferentes atividades esportivas. Estes esportes foram conduzidos com base no curso de seleção (PE), todos durante um semestre. O estado de saúde física dos estudantes foi observado através de experimentos executados previa e posteriormente à intervenção. Resultados: Atividades como basquetebol e futebol demonstraram alta efetividade para melhorar o índice de capacidade vital dos estudantes, voleibol melhorou expressivamente o desempenho dos alunos no salto em distância, o tênis e o tênis de mesa foram efetivos para aprimorar o índice de força e de adesão dos alunos, sendo inferior noutros índices. Também as artes marciais se destacaram ao melhorar o índice de capacidade vital dos alunos. Conclusão: O aprimoramento da saúde física deve ser um processo global de desenvolvimento da aptidão física dos estudantes e as universidades devem encorajar ativamente os estudantes universitários a participar de esportes de longo prazo para melhorar sua saúde. ***Nível de evidência II; Estudos terapêuticos - investigação dos resultados do tratamento.***

Descritores: *Curso Eletivo de Educação Física; Estudantes Universitários; Indicadores de Saúde Física; Análise Comparativa.*

RESUMEN

Introducción: El entorno del deporte universitario se caracteriza por su alcance, diversidad y personalidad. Es un periodo importante para desarrollar la capacidad física de los alumnos y mejorar su personalidad. Objetivo: Comparar los efectos de diferentes métodos de ejercicio sobre el estado de salud de los estudiantes. Métodos: 2991 estudiantes universitarios participaron en diferentes actividades deportivas. Estos deportes se llevaron a cabo basándose en el curso de selección (PE), todo ello durante un semestre. El estado de salud física de los alumnos se observó mediante experimentos realizados antes y después de la intervención. Resultados: Actividades como el baloncesto y el fútbol mostraron una alta eficacia para mejorar el índice de capacidad vital de los alumnos, el voleibol mejoró expresivamente el rendimiento de los alumnos en salto de longitud, el tenis y el tenis de mesa fueron eficaces para mejorar el índice de fuerza y adherencia de los alumnos, siendo inferiores en otros índices. También las artes marciales se destacaron en la mejora del índice de capacidad vital de los alumnos. Conclusión: La mejora de la salud física debería ser un proceso global del desarrollo de la forma física de los estudiantes y las universidades deberían animar activamente a los universitarios a participar en deportes de larga duración para mejorar su salud. ***Nivel de evidencia II; Estudios terapéuticos - investigación de los resultados del tratamiento.***

Descriptores: *Universidades; Educación y Entrenamiento Físico; Indicadores de Salud; Evaluación Comparativa.*

DOI: http://dx.doi.org/10.1590/1517-8692202329012022_0790
Article received on 12/16/2022 accepted on 12/20/2022

INTRODUCTION

Under China's quality education is higher than the physical education system, the vast majority of students' parents and schools pay more attention to students' cultural quality education, and shift their attention from the focus of physical quality training to cultural quality education. In 2006 national students physical health test results show that: primary school, junior high school, high school and university students' physical quality level slow down, decreased year by year, obesity rate, cardiopulmonary endurance, muscle strength and muscle endurance and so on health problems obviously exposed, as teenagers into the society in the last stage of learning, college students of physical health, improve and consolidate is very necessary, so college students actively participate in physical education course learning and strengthen independent exercise education and practice activity is very essential.[1] The President of the United States Youth Fitness Program", with scientific, advanced physical fitness test system and results evaluation system, summarize the best physical fitness of the sports course guidance, cultivate youth exercise, improve the level of physical health habits. Since the reform and opening up, China has taken various favorable measures to continuously improve the physical quality of the people. The outline of the "Healthy China 2030" Plan guides the direction for the healthy development of the Chinese people in the next 15 years.[2] College physical education is the last stop of school physical education, and it is also the key period for college students to change from school physical education to lifelong physical education. Every college teaching worker needs to think about how to maximize the role of college physical education in training socialist builders of the new era, and strive to create a successor with healthy birth, strong physique and perfect personality.[3] The National Guidelines for Health Education in Ordinary Colleges and Universities requires that the curriculum reform be accelerated.[4] At the same time, colleges and universities should arrange teaching progress and content according to the actual situation of students. Ordinary colleges and universities across the country should set up no less than 15 sports programs.[5] Innovate the teaching mode of education, guide students to carry out scientific exercise, enhance the attraction of physical education teaching to students, and enhance the characteristics and effectiveness of physical education teaching.[6] The establishment of a sports teaching and scientific research system, the establishment of a high-level scientific research team, and the development of multi-channel strategic, forward-looking and applied project research are aimed at improving students' physical health, teaching quality, after-school training level and sports cultural level, and promoting the improvement of the overall level of school sports.[7]

Due to the full consideration of students' physical education interest factors, it is deeply welcomed by the majority of students, and after continuous improvement and improvement, it has gradually developed into the basic organization mode of physical education courses in ordinary colleges and universities.[8] However, the further development of this teaching organization form also faces some problems, whether the influence of different option courses on students' physical health is different, and whether students choose a scientific items need to be answered.[9] This team members using Heilongjiang bayi agricultural reclamation university, Daqing petroleum college students physical health database data of basketball, football, volleyball, table tennis, tennis, martial arts, six independent options class test data tracking research, to solve the autonomous options class the above related problems provide data research results and basic solutions.[10]

Research object and research method

Subjects of study

This article to southwestern university of finance and economics 2015 freshman students 15 college (insurance, finance, taxation, law, business administration, public administration, international business, accounting, finance, economic mathematics, economic information engineering, economics, economy and trade, foreign languages, humanities, statistics, securities and futures) a total of 2991 male and female students (research object has been excluded suspension, sick leave, test, test and no data of 71 people), including the 1114 boys, people, girls 1877 people. By participating in a one-year in our school aerobics, sports dance, basketball, basketball, football, volleyball, tennis, table tennis, badminton, martial arts and other nine sports course health fitness data change before and after the matching T test statistical analysis, analysis of body fitness project for height, weight, cardiopulmonary endurance, speed quality, upper limb strength (male), lower limb strength, waist strength (female), muscle endurance, flexibility, nine health fitness indicators.

The study is Purely observational studies which no need to registry ID of ICMJE, and all the participants were reviewed and approved by Ethics Committee of Qingdao Agricultural University, China (NO. 2022028)

Research Method

Literature method: through the library of Southwestern University of Finance and Economics consulted a large number of books on physical fitness and health sports, through searching cnki, Baidu and other websites, as well as the university physical education curriculum and physical education teaching reform, a more comprehensive understanding of domestic and foreign universities, physical education curriculum, sports curriculum reform and students' health fitness dynamics, to provide a theoretical basis for the research topic.

Mathematical statistics method: the Excel 2010 software is used to collect and organize the health fitness data of grade 05 freshmen conducted by Southwestern University of Finance and Economics. The Excel2010 data is imported into SPSS19.0, complete the paired sample T test analysis of the paper data, and finally analyze the effective data.

Comparative analysis method: the method of comparing the physical fitness data of the students of grade 2015 twice (October 2015 and October 2016) was adopted to find out the differences and analyze the reasons. Comparative analysis of nine health fitness indicators, namely, height, body weight, cardiopulmonary endurance, speed quality, upper limb strength (male), lower limb strength, waist and abdominal strength (female), muscle endurance and flexibility in 2015.

This article to southwestern university of finance and economics, 2015 students as the survey object, southwestern university of finance and economics, 2015 students in basketball, football, volleyball, tennis, badminton, table tennis, martial arts, sports dance, aerobics and other nine sports course students study a total of 2991 people, including 1114, men, accounting for 37% of the total number, girls for 1877 people, accounting for 63% of the total number. According to students' personal needs and personal preferences, and referring to the management methods of the College of Southwest University of Finance and Economics, students choose courses independently on the campus network. The specific male course selection is counted as follows in Figure 1.

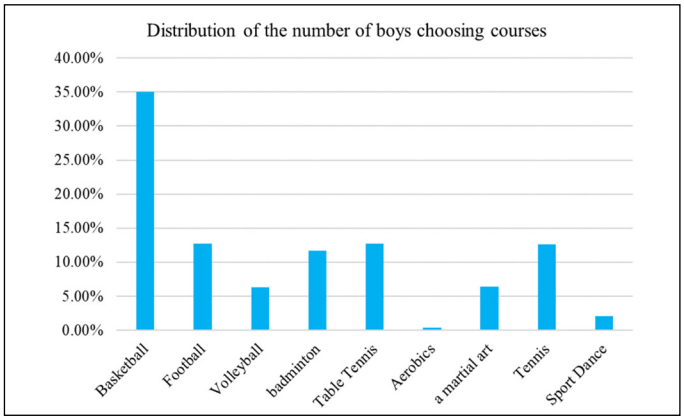

Figure 1. Distribution of the number of male students who selected courses.

The evaluation method of Students' Physical Health Standard of the Ministry of Education and the General Administration of Sport is selected. The test instrument is the cstf-2000 tester developed by China Tongfang: height and weight meter, spirometer meter, long jump meter, grip strength test meter and step test meter. Through statistical methods, the results of the first physical health test were analyzed. 30 students were selected from the total score of 70 to 85. There was no significant difference between each test item and the total score of each group. According to the evaluation criteria compiled by the research group of the Ministry of Education and the General Administration of Sport, and combined with the actual situation of the two schools, three categories and five indicators were finally selected as the evaluation indicators of this test. (Table 1)

Experimental result and analysis

BMI index is the square ratio of weight and height in kg / square meter. It is a commonly used and reliable measure of human weight and health. In our study subjects, Most BMI in male and female students is normal, The normal number of BMI was 756 and 1515, respectively, Accounting for 67.86% and 80.71% of the total number of people, respectively; Male and female students with a BMI of low body weight followed closely, The number of boys and girls was 171 and 245, respectively . Accounting for 15.35% and 13.05% of the total number, respectively; The number of male and female students with BMI was 137 and 103, respectively, Accounting for 12.30% and 5.49% of the total population; a small number of obese boys and girls, Men with 50 people, or 4.49% of the total, With 14 girls, 0.75% of the total population, Girls overall are better than boys, Maybe girls care more about their body shape. BMI, abnormal genes, lifestyle, eating habits, usual exercise and other reasons. Different sports items have different influence on students with the same index due to different sports characteristics. As can be seen from Table 2, basketball, football to improve the students 'vital capacity index effect is very significant, volleyball to improve the students' standing long jump performance, but to the students 'vital capacity index, step test index has negative effects, tennis and table tennis to improve the students' grip strength index effect, less influence on other index, martial arts has a positive effect on improving the students' vital capacity index.

Different sports items have different influence on students 'different physical health index. Therefore, how effective is the total score of each project on students' physical health quality? According to Table 2. For specific results, the statistical test varies significantly, which shows that the scores of students in the physical health test of football students improve the most. The basketball program saw the second increase in scores, more than the other four events outside football. The volleyball item itself comparison was the only item where the total score of students' physical health decreased, and the comparison difference with other items all reached a very significant level.

At the present stage, rock climbing, orienteering and other sports projects are rarely carried out in various university physical education courses, and the curriculum method of competitive sports courses is generally adopted to build university physical education courses. Different competitive sports have different functions in the human body form, body function and physical quality. Therefore, different physical education courses will have different effects on students' physical health index. At the same time, we must also pay attention to another point. Because basketball, football and other programs are popular with boys in high school, many boys have a certain technical foundation in these two programs when they enter college. And volleyball, table tennis, tennis, martial arts and other projects, students' technical foundation is poor, so in the teaching arrangement of teachers inevitably focus on the teaching of basic technology. As a result, basketball and football students have begun to conduct high intensity and high confrontation tactical practice stage, while other projects are still learning the basic technology and basic tactics, and the sports load of students is obviously different. Therefore, the author believes that the above data differences are not only the characteristics of the project itself, but also the teaching progress differences to a certain extent.

Table 1. List of selected test indicators.

Test content	Measurement indicators	Derived Metrics
Body Form	Height and weight index	
Body functions	Bench test index	Test instrument electronic system
	Spirometry Index	Default calculation method
	Grip strength index	
Physical Fitness	Standing Long Jump Index	

Table 2. Comparison and Increase of Pre-test and Post-test Values of College Boys' Physical. Health Index.

	Basketball	Soccer	Volleyball	Table Tennis	Tennis	Martial Arts
Height and weight index	-0.06	-0.03	0.01	0.03	0.01	-0.02
Spirometry Index	1.65**	1.88**	-1.33*	0.36	-0.22	0.88*
Bench test index	0.35	2.13**	-1.35*	-0.37	-0.09	-0.08
Grip strength index	1.24**	-0.1	0.36*	0.41*	1.12**	-0.21
Standing Long Jump Index	0.32*	0.56*	0.97**	-0.03	-0.11	0.19

Note: *—P<0.05;**—P<0.01.

CONCLUSIONS

The test index of Students 'Physical Health Standard> " reflects many aspects of students' physical health. And human constitution includes human body structure, function of human organs, psychological state and other aspects. Therefore, many factors have an impact on students' physical health, among which genetics, nutrition and physical exercise are more prominent, like students are between 19 and 20 years old, when their physical development basically stops their natural growth. At the same time, due to the residential school system generally adopted in various universities, students are nutritious. The difference in intake is not very big, so in comparison, the impact of physical exercise on the physical health of students is more important. The improvement of physical health should be a comprehensive development process of students 'physical fitness. Although the sports options courses fully meet students' interest in sports, the previous research data also show that different projects have different focus on practice. Volleyball project, for example, although the students 'standing long jump performance improved larger, but the steps of the students' test performance is a downward trend, so on the sports options course structure should be according to the teaching objectives, consider and competitive sports different teaching content, not competitive sports materials, rigidly introduced into physical education teaching in colleges and universities, to consciously strengthen the development of the weak link of practice.

ACKNOWLEDGEMENT

This work is supported by2019'sShandong Province social science planning and research project Research on the development path of people's livelihood sports service and health promotion under the background of "healthy Shandong". Shandong Province social science planning and research project research result (19CTYJ23).

All authors declare no potential conflict of interest related to this article

AUTHORS' CONTRIBUTIONS: The author made significant contributions to this manuscript. Li Qianqian & Sun Yan: writing and performing surgeries;Wang Longlong & WangPeng data analysis and performing surgeries; Xiaocui Sang: article review and intellectual concept of the article.

REFERENCES

1. Di Lu L, Heinze KL, Soderstrom S. Playing multiple positions: Student-athlete identity salience and conflict. J Intercolleg Sport. 2018;11(2):214-41.
2. Cerbito AF. Comparative Analysis of Mathematics Proficiency and Attitudes Toward Mathematics of Senior High School Student. IJSRP. 2020;10(5):211-22.
3. Salehi S, Burkholder E, Lepage GP, Pollock S, Wieman C. Demographic gaps or preparation gaps?: The large impact of incoming preparation on performance of students in introductory physics. Phys Rev Phys Educ Res. 2019;15:020114.
4. Ross A, Legg E, Wilson K. The influence of peer and coach relationships in after-school sports on perceptions of school climate. Health Educ J. 2021;80(4):487-97.
5. García-Vázquez J, Quintó L, Agulló-Tomás E. Impact of a sex education programme in terms of knowledge, attitudes and sexual behaviour among adolescents in Asturias (Spain). Glob Health Promot. 2020;27(3):122-30.
6. Yang C, Chen A, Chen Y. College students' stress and health in the COVID-19 pandemic: The role of academic workload, separation from school, and fears of contagion. PLoS One. 2021;16(2):e0246676.
7. Zeng Y, Wang G, Xie C, Hu X, Reinhardt JD. Prevalence and correlates of depression, anxiety and symptoms of stress in vocational college nursing students from Sichuan, China: a cross-sectional study. Psychol Health Med. 2019;24(7):798-811.
8. Ke Q, Liao CC, Tan XH, Guo BP, Cen H, Li LQ. Diagnostic accuracy of pelvic magnetic resonance imaging for the assessment of bone marrow involvement in diffuse large B-cell lymphoma. PLoS One. 2021;16(5):e0252226.
9. Romero-Blanco C, Rodríguez-Almagro J, Onieva-Zafra MD, Parra-Fernández ML, Prado-Laguna MC, Hernández-Martínez A. Physical activity and sedentary lifestyle in university students: changes during confinement due to the COVID-19 pandemic. Int J Environ Res Public Health. 2020;17(18):6567.
10. Luo W, He Y. Influence of sports applications on college students' exercise behaviors and habits: A thematic analysis. Alex Eng J. 2021;60(6):5095-104.