

INFLUENCE OF AEROBIC EXERCISE ON THE FEMALE UNIVERSITY STUDENTS HEALTH

INFLUÊNCIA DO EXERCÍCIO AERÓBICO NA SAÚDE DE ESTUDANTES UNIVERSITÁRIAS

INFLUENCIA DEL EJERCICIO AERÓBICO EN LA SALUD DE LAS ESTUDIANTES UNIVERSITARIAS



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ABSTRACT

Objective: To analyze the influence of aerobic exercise on the health of female university students. **Methods:** To ensure the scientificity and objectivity in the system of evaluation indexes on the quality of aerobic exercise, four first-level indexes were included: teaching purpose, teaching content, teaching method, and teaching attitude. **Results:** Effective improvement in body shape and function of young women could be observed. There was also improvement in the physical health of most of the women: weight reduction and body measurements were observed. Consequently, improvement in the sense of self-fulfillment, self-esteem, and encouragement of sports habits was observed. **Conclusions:** Factors such as eliminating excess fat and muscle strengthening contribute to the physical and psychological improvement of university students who practice aerobic physical exercises. **Level of evidence II; Therapeutic studies - investigation of treatment results.**

Keywords: Student Health; Aerobic Exercise; Public Health.

RESUMO

Objetivo: Analisar a influência do exercício aeróbico na saúde das estudantes universitárias. **Métodos:** Para assegurar a cientificidade e objetividade no sistema de índices de avaliação sobre a qualidade do exercício aeróbico, foram incluídos quatro índices de primeiro nível: propósito de ensino, conteúdo do ensino, método de ensino e atitude de ensino. **Resultados:** Pode-se observar melhora efetiva na forma e função corporal das mulheres jovens. Também houve melhora na saúde física da maioria das mulheres: redução de peso e medidas corporais foram observadas. Consequentemente, foi observada a melhora na sensação de autorrealização, autoestima e estímulo aos hábitos esportivos. **Conclusões:** Fatores como a eliminação do excesso de gordura e fortalecimento muscular contribuem para a melhora física e psicológica das estudantes universitárias que praticam exercícios físicos aeróbicos. **Nível de evidência II; Estudos terapêuticos – investigação de resultados de tratamento.**

Descritores: Saúde do Estudante; Exercício Aeróbico; Saúde Pública.

RESUMEN

Objetivo: Analizar la influencia del ejercicio aeróbico en la salud de las estudiantes universitarias. **Métodos:** Para garantizar la cientificidad y la objetividad en el sistema de índices de evaluación de la calidad del ejercicio aeróbico, se incluyeron cuatro índices de primer nivel: propósito de la enseñanza, contenido de la enseñanza, método de enseñanza y actitud de la enseñanza. **Resultados:** Se pudo observar una mejora efectiva en la forma y función del cuerpo de las mujeres jóvenes. También hubo una mejora en la salud física de la mayoría de las mujeres: se observó una reducción de peso y de las medidas corporales. En consecuencia, se observó una mejora en el sentimiento de realización personal, la autoestima y el estímulo de los hábitos deportivos. **Conclusiones:** Factores como la eliminación del exceso de grasa y el fortalecimiento muscular contribuyen a la mejora física y psicológica de los estudiantes universitarios que practican ejercicio físico aeróbico. **Nivel de evidencia II; Estudios terapéuticos – investigación de resultados de tratamiento.**

Descriptorios: Salud Estudiantil; Ejercicio Aerobico; Salud Pública.



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INTRODUCTION

The university stage is the golden age of rapid growth of knowledge, but also an important period of physical development and maturity. Female college students in this stage, the body from the longitudinal long to horizontal development.¹ Aerobics is a popular and popular sport with the combination of collective exercise, dance, music, fitness and entertainment.² Aerobics is a unique way of exercise based on aerobic exercise, which integrates gymnastics, dance and music. It shows the youth vitality, body-building and good temperament of modern female

college students with free, varied and artistic modeling methods, which not only conforms to their physiological characteristics, but also meets their psychological needs and wishes.^{3,4} At the university stage, students are at the stage of physiological and psychological development towards maturity, and aerobics is of great significance to improve the basic shape of students' body, cultivate correct body posture, promote the coordinated development of various organ systems, and cultivate brave and indomitable good morality.⁵

With the continuous improvement of people's living standards, more and more people pay attention to the practical value of health care, fitness, fitness and entertainment of Aerobics.⁶ With the increasing employment pressure in modern society, compared with male college students under the same social conditions, female college students need to have rich professional knowledge, and good physical and mental quality is also one of the indispensable conditions for women to succeed in the fierce social competition.⁷ By analyzing the changes of physiological indexes of female college students before and after participating in the aerobics course, we can objectively reflect the influence of the setting of aerobics teaching content on students' physical health, and provide practical guidance for female college students to carry out aerobics reasonably. Long term adherence to aerobics exercise can enhance female college students' cardiovascular and ventilator, significantly improve their physical fitness, body shape and body composition. Based on this, this paper uses the theory and method of sports human science to analyze the influence of College Aerobics Teaching on female college students' physical health.

The influence of Aerobics on physical quality

Physical fitness is the basis of mastering sports technology and improving sports performance. Long term adherence to aerobics can significantly improve the physical fitness. In sports training, competitive aerobics belongs to the technical leading sports, and skill training plays a leading role. Through the combination of aerobics teaching activities and physical fitness exercise, the concept of healthy physical fitness is transmitted, and it also helps students learn to choose their own physical exercise methods for their own health. Aerobics training is usually accompanied by music. Female students have entered the middle and late adolescence when they enter university. They are looking forward to a bright future, vigorous and energetic, and can better adapt to the changes of the external environment. During this period, the psychological state of female students is also unstable and plastic, which has an important impact on their life and is the most volatile stage in their growth process. In the aerobics training, there are some Aerobics movements, such as support, jump and twist, which are not suitable for difficulty. This puts forward the extremely high request to the human body's balance.

Through aerobics practice, can make the body joints get full activity, all parts of the muscles are balanced development. Therefore, insisting on taking part in aerobic exercise can reduce excess fat in the body, promote muscle development, help young women to keep fit, lose weight, and achieve the goal of self shaping and keeping fit. The experimental teaching system of aerobics is shown in Figure 1.

In training practice, only by improving both muscle strength and muscle speed can we get the best effect of speed and strength. High-quality completion of a set of technical movements requires female college students to have good upper and lower limbs, waist and abdomen

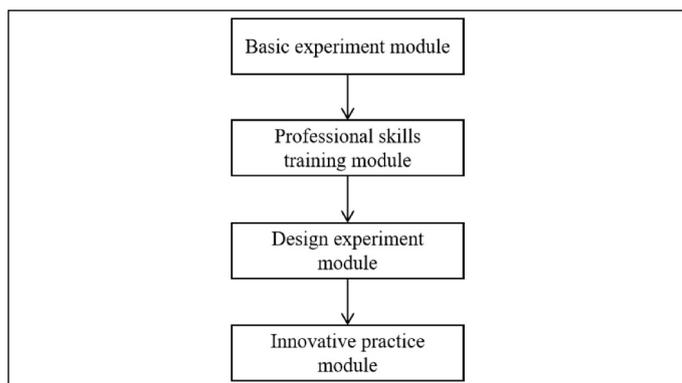


Figure 1. Aerobics experimental teaching system.

strength, abundant physical strength and the ability to coordinate and accurately complete movements. During aerobics training, various difficult movements such as support, jumping and turning will have a great influence on the muscles of various parts of college students. Female college students have good physical fitness as the foundation, so that their competition psychology can reach the best state, and they can calmly exert their training level and achieve the best competition effect. In the process of aerobics activities, the influences of music, venue, movements and other factors are preserved in the exerciser's body through cognition, emotion and will activities, which constitute a certain stable attitude and manifest itself in the exerciser's behavior in a certain form. Figure 2 shows the mixed teaching mode of aerobics and cooperative learning.

Good cardiopulmonary function is the guarantee for female college students to complete heavy load exercise. The good cooperation among heart, blood vessels and respiratory system affects the ability of muscles to use energy to work for a long time. The completion of all difficult movements must be guaranteed by the strength and quality of each part. Strength quality is the key to achieve good results in competitive aerobics competition. Aerobics is composed of different movements such as type, direction, route, amplitude, strength, speed, etc. Through learning, students' action memory and reproduction ability are enhanced, so that the flexibility and balance of students' nervous system are improved, and students' coordination is further developed. Students' strength, speed, endurance, flexibility, coordination and rhythm are also improved. Because many female college students need to take on multiple competition tasks, correspondingly, subtle psychological changes of female college students will inevitably occur after each competition. Coaches should guide students to carry out extra-curricular exercise and fitness according to their current state.

Shaping bodybuilding and correcting posture

All aerobics training movements must rely on good muscle endurance as a support, so as to make aerobics movements standard enough, and finally achieve the purpose of improving the efficiency of life and study. Good physical fitness can make female college students fully mobilize the functions of various sports organs before the competition and adjust and recover in time after the competition. In aerobics, the range and intensity of physical activity are relatively large. Aerobics is also a sport with high requirements for aerobic endurance, and every

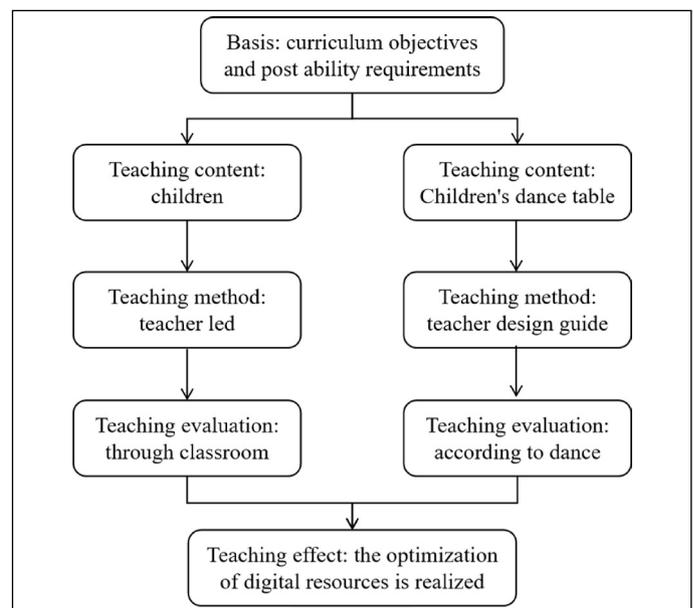


Figure 2. A mixed teaching model of aerobics and cooperative learning.

training should have enough exercise time and exercise load. Therefore, if the exerciser feels tired and sore muscles, it is difficult to persist and work without good self-control ability and firm will. After taking part in aerobics exercise, the heart and lung function of the experimental group improved obviously, which showed that the quiet heart rate decreased, the vital capacity increased obviously, and the cardiovascular function index and respiratory function index also improved obviously.

Female college students are in a mature period of physiological function. Due to ossification, the growth of morphological development index tends to be slow, the change is not obvious, and it has basically been finalized, but the internal components of the body are still changing. In order to ensure the scientificity and objectivity of the evaluation index system of aerobics teaching quality, this evaluation index system includes four first-level indexes, namely, teaching purpose, teaching content, teaching method and teaching attitude, among which five first-level indexes contain 15 second-level indexes (Table 1).

The test of aerobics athletes' lower limb stretching and bending can be used as one of the indexes of special strength evaluation. Comparison of muscle contribution rate by different methods is shown in Figure 3.

Female college students with the characteristics of the times not only yearn for the unique charm of modern women, but also hope to have a more symmetrical and graceful figure. Comprehensive physical fitness training is an important way to prevent sports injuries. Coaches should work hard on various competition factors, such as events, routine combination and technical difficulty. Aerobics exercises control the exercise load by changing the factors such as time, music speed and movement range. Aerobics is an effective exercise means to improve female college students' body composition, shape body-building and cultivate correct body posture. It starts from the purpose of fitness, according to the different physiological characteristics of different parts of the body, it is created reasonably in strict accordance with the arrangement principle, and it also has certain regulations and requirements for exercise load.

Table 1. Comprehensive evaluation system of aerobics teaching quality.

Primary index	Weight	Secondary index
Academic goal	0.1	Meet the teaching goal of aerobics
		Conform to students' physical and mental development
Content of courses	0.15	Basic teaching
		Comprehensive education
Teaching method	0.25	Teaching method
		Auxiliary teaching method
Teaching attitude	0.15	Personal style
		Business attitude
		Character state

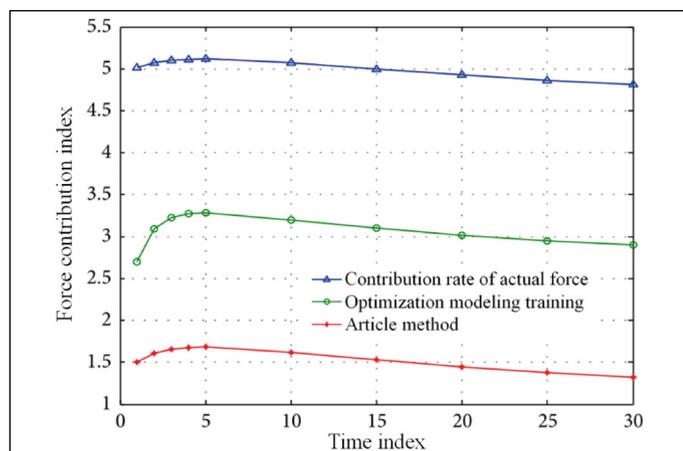


Figure 3. Contribution rate comparison.

Aerobics exercise also has a significant effect on the improvement of heart function. Like other tissues, long-term moderate-intensity exercise can enhance its contractile strength, and the improvement of coronary circulation and capillary hyperplasia can make its nutrition supply sufficient. Aerobics has a certain influence on the heart rate of female college students when they are quiet, which makes the exercisers show bradycardia when they are quiet, the cardiovascular system gets satin, and produces adaptive response to load training. Fat is essential for human body to maintain normal life activities and health, and lean body weight is more important for improving sports performance.

Aerobics technical movements are mostly done by lower limbs. According to the changing trend of aerobics athletes' flexion angle and muscle force, the changes of knee joint's three-dimensional motion angle and muscle force in each analysis step are applied to the finite element model as boundary conditions. The motion angle parameters applied to the finite element model are shown in Figure 4.

General physical fitness training can lay a good foundation for the improvement of special physical fitness. Coaches should always combine and apply general physical fitness training with special physical fitness training effectively. Aerobic exercise with low intensity and long duration can improve the oxygen exchange function of respiratory system, increase lung capacity and ventilation, and improve lung function. At the same time, through this kind of aerobic exercise, the muscle fibers become thicker, the contraction becomes stronger, and the cardiac output increases, thus improving the function of cardiovascular system. With the improvement of students' desire to express, their psychological state is more stable. In the process of establishing information, students experience that their ability is constantly improving, so their confidence in learning is also constantly increasing. In the process of aerobics practice, various jumping and kicking exercises can not only improve the strength and jumping ability of limbs, but also enhance the coordination between various muscle groups of the body and improve the conversion ability of excitement suppression in the motor center of cerebral cortex. All aerobics movements should be completed at this speed. Jumping training in a set of aerobics training requires college students to have good jumping ability and explosive power. The subjects, especially girls, should strengthen the training of reducing body weight and fat content, so that the body fat content can be reduced to the ideal standard. Only in this way can we show better body shape and improve muscle working efficiency during exercise.

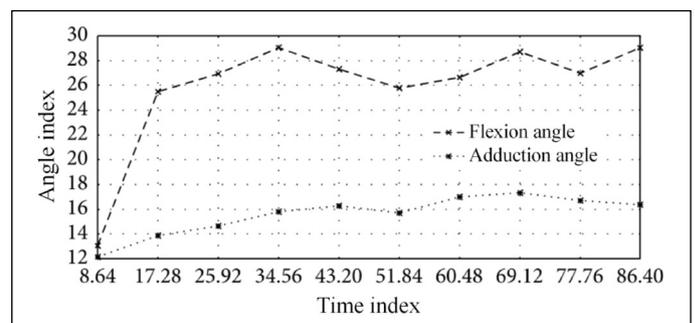


Figure 4. Motion angle data applied to the finite element model.

CONCLUSIONS

Long-term adherence to aerobics exercise can enhance cardiovascular and respiratory functions, and significantly improve various physical qualities, especially lower limb strength and aerobic endurance. Aerobics exercise can achieve greater exercise load, consume excess body fat, improve body shape and composition, and help college girls keep fit and healthy physique. Female college students get psychological satisfaction under the influence

of art, cultivate their sentiment, establish correct aesthetics and make their body and mind develop harmoniously. Aerobics is a sport that integrates music, gymnastics and dance, which helps to guide students to actively participate in physical exercise, stimulate students' interest in exercise, cultivate students' sports hobbies and specialties, and cultivate their awareness of lifelong sports. Aerobics exercise can effectively improve the body shape and function of young women, and at the same time improve the physical

health of the majority of female students, such as weight reduction and waist reduction, so that they can realize the sense of accomplishment of exercise, enhance self-confidence, develop exercise habits, improve aesthetic feeling, and lay a good foundation for mass fitness and lifelong sports.

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