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A study on the influence of Sanda training on the physical fitness of ordinary male college students

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ABSTRACT
As an important branch of martial arts, Sanda is deeply loved by students in colleges and universities because it combines sports competition, physical fitness and the promotion of national culture. Almost all colleges and universities have public sports Sanda elective courses, and most of them are male students. In order to more clearly explore the impact of Sanda on the physical fitness of male college students, 40 first-year male students of public sports in our school were selected as test subjects. According to the "National Student Physical Fitness Standards", physical fitness tests were performed before and after 12 weeks of systematic training. It was found that Sanda can effectively improve the physical fitness of boys, especially in vital capacity, standing long jump, sit-and-reach, 50 meters and 1000 meters. This provides a good physical foundation for the annual physical fitness test of college students, and also provides a factual basis for the better development of Sanda in colleges and universities.

KEYWORDS
Sanda; public sports; male college students; physical fitness

1 Introduction

As the pressure of life, study and employment increases, college students are too dependent on the Internet and are lazy about exercising, resulting in a gradual decline in the physical fitness of college students, especially for public sports students. College students are the pillars of China's modernization construction. They must master rich knowledge and excellent skills, and have a strong body to undertake the important tasks of national construction. This also requires that college education should return to the concept of healthy physique and continuously improve their healthy physique on the basis of supervising students to improve their academic level [1]. Sanda is very popular among male college students in colleges and universities, and the number of students who take it as an elective course every year is large. Sanda is a modern competitive sports project in which the two sides of the confrontation follow certain rules and use Sanda's kicking, hitting, throwing and other technical movements to defeat the opponent. Participating in the study and training of Sanda, mastering and proficient in Sanda's technical movements can develop people's strength, endurance, flexibility, agility and other qualities [2].

2 Research objects and methods

2.1 Research objects

40 male students from the first year class of public physical education in our school were selected

to undergo a 12-week continuous Sanda elective course training, with two classes per week and each class lasting 100 minutes. Physical fitness tests were conducted before and after the training in accordance with the National Student Physical Fitness Standards.

2.2 Research methods

2.2.1 Experimental method

Based on the weekly training situation, understand the physical and psychological changes of students, pay attention to the amount and intensity of students' exercise, make timely adjustments, and do statistics and analysis.

2.2.2 Experimental content

It mainly focuses on basic boxing, kicking and wrestling techniques. Before each training session, students will do a 5-10 minute warm-up run, followed by general and special warm-up exercises to ensure that all major joints of the students are warmed up.

2.2.3 Descriptive Statistics

Through basic statistics, we summarize and analyze small sample data to compare the changes in physical fitness before and after Sanda training.

3 Research results and analysis

For the accuracy, representativeness and convenience of experimental data, the professional equipment of the National Student Physical Fitness Standards was used to test students' height and weight, vital capacity, sit-and-reach, 50-meter and standing long jump, pull-ups, and 1,000-meter run. The results are shown in the following figure:

As can be seen from the above figure:

Height and weight: Height basically did not change, and weight decreased by an average of 0.38KG. This is the result of 12 weeks of persistent training. Exercise can change the body shape.

index	Group	Number of cases	average value	Change	standard deviation	Standard error
height	Before the experiment	40	169.38	-0.231	7.286	1.167
	After the test	40	169.62	-0.231	7.454	1.194
weight	Before the experiment	40	64.31	0.385	10.441	1.672
	After the test	40	63.92	0.385	10.022	1.605
Vital capacity	Before the experiment	40	4593.72	-314.718	721.603	115.549
	After the test	40	4908.44	-314.718	666.148	106.669
50-meter run	Before the experiment	40	8.833	0.4103	0.7124	0.1141
	After the test	40	8.423	0.4103	0.6718	0.1076
Seated forward bend	Before the experiment	40	16.077	-2.5051	5.1342	0.8221
	After the test	40	18.582	-2.5051	4.0651	0.6509
Standing long jump	Before the experiment	40	215.97	-9.436	20.952	3.355
	After the test	40	225.41	-9.436	19.638	3.145
Pull-ups	Before the experiment	40	4.49	-0.821	3.034	0.486
	After the test	40	5.31	-0.821	2.783	0.446
1000m run	Before the experiment	40	3.9049	0.19308	0.41634	0.06667
	After the test	40	3.7118	0.19308	0.41774	0.06689

Vital capacity: It is an important indicator for measuring cardiopulmonary function and aerobic exercise. It is often used as a physical fitness assessment indicator for teenagers. After the test, the vital capacity increased by 314.71ML, indicating that persisting in aerobic exercise can effectively improve cardiopulmonary function.

50 meters and standing long jump: These two items are important indicators for measuring the explosive power of students' lower limbs. After intervention, the 50 meters was effectively improved by 0.41 seconds, and the standing long jump was improved by 9.43CM. It shows that systematic Sanda training can effectively improve the strength and explosive power of the lower limbs, which is also closely related to the characteristics of Sanda.

Sitting forward bend: It reflects the flexibility of the trunk, waist and hip joints. After training, it increased by 2.5CM, indicating that Sanda exercise is helpful to improve flexibility.

Pull-ups: It is an indicator for testing the upper limb strength and back muscle strength of boys. Although there is an improvement, the magnitude is not large, which reflects that boys have relatively weak upper limb strength and poor basic physical fitness, which is one of the areas that need to be improved in sports.

1000-meter run: It is an important indicator for evaluating boys' endurance and cardiopulmonary function. It is also an important and comprehensive test item in the physical fitness test for male college students. After training, it has improved by 0.19 seconds.

In order to test whether the difference between the two groups of data after the experiment is obvious, and to verify whether the teaching methods and content are reasonable, an independent sample t-test is used, and the results are shown in the figure:

index	Variance test	average value	Sig.(Double tail)	Standard error
height	0.003	-0.138	0.89	1.669
		-0.138	0.89	1.669
weight	0.028	0.166	0.869	2.317
		0.166	0.869	2.317
Vital capacity	0.32	-2.001	0.049	157.257
		-2.001	0.049	157.257
50-meter run	0.909	2.616	0.011	0.1568
		2.616	0.011	0.1568
Seated forward bend	2.291	-2.389	0.019	1.0486
		-2.389	0.02	1.0486
Standing long jump	0.091	-2.052	0.044	4.598
		-2.052	0.044	4.598
Pull-ups	0.116	-1.245	0.217	0.659
		-1.245	0.217	0.659
1000m run	0.705	2.044	0.044	0.09444
	0.003	2.044	0.044	0.09444

Before and after the experiment, the data of height, weight, vital capacity, 50-meter run, standing long jump, sit-and-reach, pull-up and 1000-meter run were evaluated to see if there were significant changes, and the data were verified by t-test.

Significant change indicators (p value < 0.05):

There were significant changes in vital capacity, 50-meter run, sit-and-reach, standing long jump and 1000-meter run, indicating that after 12 weeks of systematic Sanda training, cardiopulmonary function, lower limb explosive power, flexibility and endurance were well improved. The training methods and content were relatively appropriate, and large-scale experiments could be conducted for deeper research.

Non-significant indicators (p value >= 0.05):

The changes in height, weight and pull-up were not very obvious, which reflected that the

intensity and volume of training did not meet the corresponding requirements, which was also related to the weak basic physical fitness of current students.

4 Discussion and suggestions

Discussion:

Reasonable arrangement of Sanda teaching content, adoption of appropriate teaching methods, and formulation of appropriate exercise intensity and volume based on students' actual physical fitness can effectively improve boys' cardiopulmonary function, flexibility, explosive power, speed and endurance. Sanda can effectively promote students' physical fitness, and systematic training can enable boys to successfully meet the standards in the annual national student physical fitness test.

suggestion:

The Ministry of Education stated in the 2004 National Student Physical Fitness Test that although the overall nutritional status of Chinese teenagers is good and the level of physical development is constantly improving, their physical quality is not high, and some of them have even shown a clear downward trend in physical fitness [3]. It is imperative to improve the physical fitness of college students. Sanda can effectively solve this problem. It is recommended that all universities promote it or use it as an indicator for assessing the physical fitness of boys, so as to provide a small contribution to schools, society, and the promotion of national culture.

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