The Effects of Wushu Training on Physical Fitness in Chinese Adolescents

Zhu Dongyang, Ekasak Hengsuko,
Kreeta Promthep and Onsuda Wiangthongsarat
Udon Thani Rajabhat University, Thailand
Corresponding Author, E-mail: ekasak.he@udru.ac.th

****

Abstract

The purpose of this study was to study the effects of Chinese Wushu martial arts training. It affects two aspects of physical performance : Cardiovascular endurance and Muscle strength using experimental research. The population used in the research is students of Henan Mechanical and Electrical Vocational College and use specific random sampling. The sample consisted of 150 people, divided into 75 male and 75 female students. The research instrument was wushu training program for 8 consecutive weeks. Using 8 weeks of training, testing the cardiovascular endurance and muscle strength from running 1000 meters for men and running 800 meters for women and testing 60s sit ups before training and after training 8 weeks. The effects of wushu training on cardiovascular endurance and muscle strength of college students were analyzed by using mean and independent sample t-testing and the results found that:

The results show that:

1. The gender and height of college volunteers had no significant influence on the endurance and strength of college students comparing before and after the training 8 week there were no statistically significant differences.

2. There was a statistically significant increase in cardiovascular endurance from running 1000 meters for men and running 800 meters for womens test at 0.01 when comparing before and after the 8 weeks of training.

3. There was a statistically significant increase in muscle strength from the 60s sit ups test at 0.01 when comparing before and after the 8 weeks of training.

Keywords: Wushu, Martial arts training; Chinese students; Cardiovascular endurance; Muscle strength

Introduction

Wushu, or Chinese boxing (Wushu), is a Chinese martial art with a long history. Wushu means "art of fighting" and has its roots in ancient Chinese training that emphasized both self-defense and health. Wushu has been developed and integrated with Chinese culture over thousands of years and is a popular sport in China. The origin of Wushu can be traced back to the primitive society, which is the result of the primitive tools used by human beings to fight against wild beasts for survival, self-defense, and the search for living matter. With the development of society, Wushu has not only become a military technique, but also gradually developed into a sport with the functions of fitness, protection, defense against enemies and victory. There is also promotion of teaching and learning in educational institutions and it is a subject related to martial arts that can be used to develop physical fitness. along with learning history. Wushu education in China is systematically organized to promote martial arts skills

* Received: July 25 2024; Revised: August 9 2024; Accepted: August 13 2024

and physical development. The sport of Wushu, also known as "kung fu," has its origins in China. and has developed into both a sport and a martial art that has received international recognition. Wushu not only helps strengthen the body. But it also promotes mental health and ethics.

Sports research wushu is versatile because wushu is a martial art rooted in combining the physical and mental and has been developed as both a sport and a physical training tool. Some research has focused on the physical and health benefits of wushu training, such as improving muscle strength, flexibility, and improving the circulatory and respiratory systems. But there are no specific research results related to physical fitness. Another important indicator of a healthy body is physical fitness is ability shown in performing activities can be improved, developed and maintained by exercising regularly. The physical fitness is an important part in the physical development of humans. physical fitness of a person generally, it can occur from moving the body or exercising regularly. Always but if stopped out when do you relax or move your body less physical fitness will decrease. physical education subject It is considered to be an important branch of science or education in order to promote human development both physically, mentally, emotionally, socially and intellectually, able to live in society for a long time effective especially children and youth.

Therefore, according to the wushu rules and physical training programs in schools, many studies have been conducted on the physical performance of Chinese students' physical performance. But there is no specific research looking at muscle strength. and the function of the circulatory and respiratory systems, this study is therefore important to explore and confirm the effects of Wushu training on physical fitness in Chinese students. To promote good health and increase the physical efficiency of students in the long term. Therefore, it is important and necessary in education to develop the physical fitness of students for efficiency and effectiveness in teaching Wushu in the future.

Research Objective

To study the effects of wushu training on cardiovascular endurance and muscle strength in Chinese adolescents

Literature Review

At present, heart rate is basically considered as a physiological index to study the exercise load of competitive wushu routines, and there are research reports on long fist, Nanquan, taijiquan, and equipment. The load intensity of each item in wushu routines was analyzed in the hope of providing a theoretical basis for the scientific training of wushu routines (Wenbing&Dongdong&Enjie,2010), (Wenbing& Xiaojuan&Yudong,2007) It is generally accepted that physical fitness refers to the body under the control of the central nervous system in the exercise of various basic motor abilities, which usually include strength, speed, endurance, flexibility, and sensitivity. These abilities are determined by the body's morphological structure, level of functioning, energy reserves, and its metabolic level (Maijiu, 2000). Physical fitness is the ability of the body's form and structure and the functioning of the organ systems to adapt positively to the needs of sports training and competition. As can be seen, physical fitness and physical health are two concepts that are both closely related and distinct from each other. The connection between the two lies in the fact that they are both based on the morphological structure and functional level of the human body. The difference

between the two lies mainly in the different extensions of these two concepts, which are greater for physical abilities than for physical qualities.

Sports research wushu is versatile because wushu is a martial art rooted in combining the physical and mental and has been developed as both a sport and a physical training tool. Some research has focused on the physical and health benefits of wushu training, such as improving muscle strength, flexibility, and improving the circulatory and respiratory systems. But there are no specific research results related to physical fitness. Another important indicator of a healthy body is physical fitness is ability shown in performing activities can be improved, developed and maintained by exercising regularly. The physical fitness is an important part in the physical development of humans. physical fitness of a person generally, it can occur from moving the body or exercising regularly. Always but if stopped out when do you relax or move your body less physical fitness will decrease. physical education subject It is considered to be an important branch of science or education in order to promote human development both physically, mentally, emotionally, socially and intellectually, able to live in society for a long time effective especially children and youth.

It is clear from the above theory that it has many benefits and implications. It is more than just physical exercise; it is a lifestyle that contributes to the physical, mental and spiritual development of the individual. Martial arts training leads to an improved, happier and more balanced life. In addition, it is a valuable cultural heritage that needs to be passed on from generation to generation.

Research Methodology

This research was conducted using the steps involved in experimental research as follows.

Literature Review Method

This study uses the method of literature research to organize and analyze the research background, research significance and research status, and propose research hypotheses. Through the experimental control method, through the experimental design, data acquisition, data analysis and other steps. Statistical analysis was used to collate the data results and then verify the study hypothesis.

Population and sample size.

The research design is experimental research. By using students of Henan Mechanical and Electrical Vocational College use specific random sampling. The sample consisted of 150 people, divided into 75 male and 75 female students. The research instrument was wushu training program for 8 consecutive weeks. Using 8 weeks of training, testing the cardiovascular endurance and muscle strength from running 1000 meters for men and running 800 meters for women and testing 60s sit ups before training and after training 8 weeks. The effects of wushu training on cardiovascular endurance and muscle strength of college students were analyzed by using mean and independent sample t-testing

Research Instrument

According to the research needs of this paper, martial arts training.Effects on cardiovascular endurance effects on muscle strength were used as keywords in CNKI database. Studies highly relevant to this study were identified, classified, analyzed and summarized. This process laid the foundation for the theoretical knowledge of this paper and has been developed together with the Wushu sports teaching curriculum According to the curriculum of the

educational institution Until we have a training program that covers both teaching and physical fitness. Then it was taken to 5 experts to inspect the research instrument 3 times. When complete, it was used in the research process.

Data Collection

According to study the effects of Chinese Wushu martial arts training. It affects two aspects of physical performance : cardiovascular endurance and muscle strength using experimental research.

1. Calculate the average mean of age, weight, height.
2. Compare the results of training using t-test statistics.

Research Conceptual Framework

The conceptual framework from this study consists of Wushu Martial Arts Literature Review and used to design a Wushu sports training program that covers the entire Wushu teaching curriculum in schools and physical fitness of students.

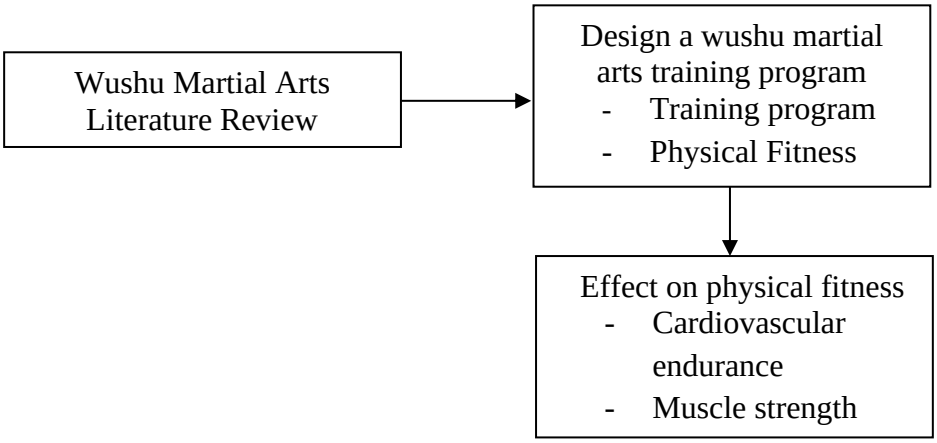

Figure 1 Research Conceptual Framework

Research Scope

This study focuses on the effects of martial arts training on Chinese adolescents' endurance and strength, exploring the effects of martial arts training on Chinese adolescents' endurance and strength, comparing the effects of martial arts training on Chinese adolescents' endurance and strength, describing and analyzing the effects of martial arts on Chinese students' endurance and strength by using the SPSS27.0 statistical software, and checking the credibility of the experimental data. Correlation analysis was conducted between the independent variable factors and the students' experimental data, and correlation analysis was conducted during the experiment to explore the effects of the independent variables on the data, and independent samples t-test and normality test were used to explore the relationship between the effects of the independent variables and the experimental data. This chapter summarizes the results of the study and generalizes the effects of martial arts on Chinese students' endurance and physical strength.

Research Results

A total of 150 male and female students were investigated in this study, of which 75 were male and 75 were female. The average height was 170.38 cm and the average weight was 58.47 kg.During the study, two tests were conducted including pre-test and post-test. The tests included 1000 meters (male), 800 meters (female), and 1 minute sit-ups. The results of data collection are shown in Table 1.

Table 1. Basic information of the sample. (N=150)

	Number of students	**Mean age**	**Average height**	**Average body weight**
Male	75	18.01	175.55	61.83
Female	75	18.35	165.21	55.12
Total	150	18.18	170.38	58.47

The average height was 175.55 for males and 165.21 for females, higher than the average height of 170.38. The average weight was 61.83 for males and 55.12 for females, higher than the average weight of 58.47 The average age was 18.18 years.

Table 2 : Physical changes in students' participation in martial arts

		Pre-test	**Post-test**	**Mean**	**t-test**	**P-value**
1000m/800M	Male	5.45±0.41	3.92±0.32	9.07	25.72	＜0.01*
	female	5.22±0.12	3.70±0.18	28.56	60.612	＜0.01*
60s Sit ups	Male	6.89±0.86	16.35±1.56	-14.28	-49.23	＜0.01*
	female	16.99±0.79	47.07±1.45	-45.08	-166.33	＜0.01*

From Table 2 shows the results of comparing the averages from two physical fitness tests before and after training. It was found that there were differences: running a distance of 1,000 meters (male) the t value was equal to 25.72, running a distance of 800 meters (female) the value of t was equal to 60.612, sitting up for 1 minute (male) value of t was equal to -49.23 and sitting up for 1 minute. (Female) t value is -166.33, with every item having a statistical significant difference at the .01 level.

Discussion

1. The effect of wushu training program increase in cardiovascular endurance after the experiment, it was found that A group that practices an exercise program with the sport of wushu. Physical fitness in the circulatory and respiratory systems has increased. Statistically significant at the .01 level. Wushu exercises are characterized by movement that combines many styles continuous and moving quickly by exercising to issue xercise with wushu moves, if the intensity is specified proper length and frequency may have beneficial effects can affect various systems of the body you can work efficiency and will inevitably affect mechanical ability aspects such as muscle strength, endurance of muscles, flexibility, speed and agility endurance of the circulatory and respiratory system the nervous system of various organs (The National Primary Education, 1989).This is because the sport of Wushu is an aerobic exercise. (Aerobic Exercises) are exercises in which the body uses oxygen to create energy. Can stimulate the heart and lungs to work up to a certain point and for a period of time that is long enough to cause changes that are Can be beneficial to the body and increase efficiency Effectiveness of the circulatory and respiratory systems which is the general ability of body work because exercising by aerobic dancing helps with the exchange of oxygen. in blood vessels and muscle cells more and better increases the amount of blood that nourishes the muscles make you work hardand longer Makes the heart muscle stronger The heart can distribute blood to all parts of the body.improved, resting heart rate decreased Eye blood pressure is lower than normal and dancing increases metabolism.subcutaneous fat The lower part of the body is tightened and the muscles throughout the body are more toned. To develop circulatory and respiratory endurance capacity and body mass index. This is consistent with the research of Schmidt et al. (2001) studying the effects of continuous exercise of 30 minutes per day, cumulative 3 periods of 10 minutes per day, cumulative 2 periods of 15 minutes per day, at the intensity level. Pulse: 75 percent of heart rate on cardiovascular fitness and reduction of body weight in overweight women by training 5 days per week for 12 weeks. It was found that all 3 groups were able to increase their maximum oxygen consumption and decrease their body weight. Waist circumference decreased All three groups were not different.

2. The effect of wushu training program increase in muscle strength after the experiment, it was found that various muscles and joints in standing and stepping postures, it requires the strength of the leg muscles for balance and the balance of the body together with the functioning of the system the nerves that control the muscles make the body able to maintain balance better (Sawaengwaisayasuk,2005) and will be consistent with the recommendations of the association Sports medicine of the United States (American College of Sport Medicine, 2018) has recommended Exercises to improve control of balance It is recommended to exercise 2-3 days per week. By gradually adjusting the posture to make it more difficult to have change of both feet or reduce the area of the base supporting the body (Base of support) for example, standing on two legs is standing on one leg movement of the center of gravity (Center of Gravity) of the body more, such as using the heel muscle group. and the toe muscle group and corresponds to Lan Chen, and Lai (2008) studied exercise.Tai Chi is characterized by slow movements. Continuously by exercising the muscles and various joints in a standing position. and every step of the way must rely on the strength of leg muscles for balancing and balancing the body together with the work of the nervous system control duties Muscles allow the body to maintain balance better.

Recommendations

1. Theoretical Recommendation

Study the differences between other types of exercise. that can develop the physical fitness of students and and other aspects of physical fitness such as balance and flexibility, etc.

2. Policy Recommendations

The results of this study should be used to plan the development of teaching and learning arrangements. To promote physical fitness of students in schools to cover all years. and is a guideline for developing the physical fitness of students and personnel at the university.

3. Practical Recommendations

Research should be done on circulatory endurance and fat percentage in other age groups to find factors and relationships and Research should be done to compare martial arts and other sports in relation to other resistance physical abilities, such as strength, flexibility, and agility, etc.

References

Sawaengwaisayasuk, S. (2005). *Journal of Sport*. Bangkok: Sports Authority of Thailland.

Schmidt, W. D., Biwer, C. J., & Kalscheuer, L. K. (2001). *Effects of long versus short bout exercise on fitness and weight loss in overweight females.* Journal of the American College of Nutrition. 20 (5), 495-501.

The National Primary Education. (1989). *Basic skills mae mai muay thai of physical exercises.* Bangkok: Kurusapa Printing Ladphrao.

Wenbing,T., Dongdong,C.& Enjie,X. (2010). *Literature review on the load intensity of competitive wushu sparring set athletes - heart rate as an example*. Consumer Guide. 12 (02),204.

Wenbing,T., Xiaojuan,W.& Yudong,C. (2007). *A study on the load intensity of sparring set rehearsal for high-level wushu athletes*. Journal of Xi'an Institute of Physical Education. 12 (02),61-65