

# Physical Fitness of College Indonesian Martial Arts

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**Abstract**— The purpose of this study was to determine how good the level of physical condition of the martial arts athletes of the Persaudaraan Setia Hati Terate (PSHT) Merdeka University of Malang. This research is quantitative descriptive research. Retrieval of data by using tests and measurements. The results of this study indicate the results of the test of the physical condition of strength, 10 male athletes were declared very good with a percentage (100%), and 5 female athletes were declared very good with a percentage (100%). The explosive power of 10 male athletes was stated as good with a percentage (100%), and 5 female athletes were stated as good with a percentage (80%). Endurance of 10 male athletes is stated as less by percentage (90%), and 5 female athletes are expressed as an average by percentage (80%). Agility of 10 male athletes is stated as moderate (50%), and 5 moderate female athletes as a percentage (40%). It was concluded that the level of overall physical condition of the Pencak Silat Athlete of Merdeka University of Malang was stated to be very good for sit-ups, bad for bleep tests, good for vertical jump tests, and moderate for illinois tests. It is recommended for athletes of Pencak Silat Persaudaraan Setia Hati Terate University of Merdeka Malang to be expected to improve their physical condition by improving proper and regular training to aim to improve physical condition and maintain physical condition.

**Keywords**— *physical condition, martial arts athlete, College Athlete*

## I. INTRODUCTION

Pencak silat is one way to maintain good health both physically and emotionally. The role of sport in human life is very important because through sport a healthy human being can be formed physically and spiritually as well as having a disciplined character and ultimately a quality human being is formed. In Indonesia there are many types of sports that are very popular with the community, one of which is martial arts. According to [1] said that pencak is a defense attack in the form of dance and rhythm with certain courtesy rules and demonstrated, while silat is the science of fighting or defending themselves to death which cannot be demonstrated. Pencak silat is one of the sports that helped shape Indonesian

people who are physically and mentally healthy, as well as contributing to the name, dignity, national and state dignity in the eyes of the world. Pencak silat there are some basic techniques that need to be mastered by the pesilat which consists of attitude, stance, tide, stride, and attack. That physical training, technical training, tactics training, and mental training can improve athletes' skills and achievements. The four main completeness can only be achieved by exercises and matches that are planned and carried out continuously and continuously. It is important to do a physical condition test to determine how well the physical condition is owned by the athlete. The physical condition of the Pencak Silat Persaudaraan Setia Hati Terate Merdeka University of Malang is not so good if the athlete has a good physical condition, the athlete will perform physical tasks without experiencing fatigue. The results of the physical condition test can be used as a reference in evaluating the results of training conducted by athletes, so that sports practitioners, especially trainers at all levels of development, whether twigs, branches, universities or schools and centers can improve athlete performance and make the most appropriate training program in achieving achievement.

## II. METHODS

The research plan used in this study is descriptive. In general descriptive is a way to describe something This research is a survey research using data collection techniques using tests and measurements. The research is a quantitative study using the same structured / systematic physical fitness and freshness tests for all samples, for then all the data obtained by researchers are recorded, processed, and analyzed. The population in this study were martial arts athletes of the Persaudaraan Setia Hati Terate, Merdeka University of Malang, totaling 15 athletes. The research instrument in the physical condition survey of Setia Hati Terate Pencak Silat Athlete at Merdeka University of Malang using instruments that were adjusted to the characteristics of the fighter and the needs were as follows.

1. Aerobics (Vo2 max) uses a multistage fitness test
2. instrument.

3. Muscle explosive power using a vertical jump instrument.
4. Agility uses Illinois instruments.
5. Strengths using 60 seconds sit up.

The data collection method used in this study is a test method which is one of the steps of the study, because it will relate to the data obtained during the study. The results of the data obtained from the results of data analysis using quantitative descriptive data analysis techniques then the data results are grouped by category

### III. RESULTS

#### A. Sit-up Test Results

Based on the research results of the tests that have been carried out on 10 athletes from the total Athlete Persaudaraan Setia Terate University of Merdeka Malang, the average value of sit-up tests is 70.3 / 60 seconds, with a maximum score of 80/60 seconds, and a minimum score 60/60 seconds. While the results of these tests that have been carried out on 5 athletes from the total Athlete Persaudaraan Terate University of Merdeka Malang, obtained an average value of sit-up tests of 41.6 / 60 seconds, with a maximum score of 49/60 seconds, and a minimum score of 35 / 60 seconds. Based on the research results of the tests that have been carried out on 5 athletes from the total Athlete Persaudaraan Setia Hati Terate University of Merdeka Malang, the average value of sit-up tests is 41.6 / 60 seconds, with a maximum score of 49/60 seconds, and a minimum score 35/60 seconds.

#### B. Vertical jump muscular power

Based on the research results of the tests that have been carried out on 10 athletes from the Persaudaraan Setia Hati Terate Athletes of the Merdeka University of Malang, the average value of the vertical jump test is 65.4 cm, with a maximum score of 71 cm, and a minimum score of 62cm. Based on the results of tests on 5 athletes from the total Setia Hati Terate Brotherhood Athlete of Merdeka University of Malang, the average value of the vertical jump test was 41.6 cm, with a maximum score of 49 cm, and a minimum score of 35 cm.

#### C. Endurance Test Results VO<sub>2</sub> max

Based on the research results of the tests that have been carried out on 10 athletes from the total Athlete Persaudaraan Setia Harti Terate University of Merdeka Malang, an average Vo<sub>2</sub> max test score of 20.71 ml / kg / minute, with a maximum score of 42.5 ml / kg / minute, and a minimum score of 30.2 ml / kg / minute. Based on the results of tests that have been carried out on 5 female athletes from the total Association of Fidelity Athletes of the Persaudaraan Setia Hati Terate Heart University of Merdeka Malang, an average Vo<sub>2</sub> max test score of 37.5 ml / kg / minute, with a maximum score of 42.5 ml / kg / minute, and a minimum score of 33.6 ml / kg / minute.

#### D. Illinois Agility Test Results

Based on the research results of the tests that have been carried out on 10 Loyal Heart Terat Athlete Pencak Silat

Athletes, Merdeka University of Malang, the average value of the illinois test is 15.80 seconds, with a maximum score of 15.02 seconds and a minimum score of 17.19 seconds. Based on the results of tests that have been carried out on 5 female athletes of Pencak Silat Setia Hati Terate University of Merdeka Malang, the average value of the illinois test is 17.45 seconds, with a maximum score of 17.00 seconds and a minimum score of 18.10 seconds.

### IV. DISCUSSION

Strength does have an important role because strength is the driving force of every activity. According to [2] sports cannot manipulate athlete's genetic characteristics, absolute and relative muscle strength, muscle strength of an athlete can be improved by regular strength training. The results of sit-up tests will be regrouped based on the type of category in the sit-up standardization norms which refers to gender and age. Based on the results of the assessment of tests that have been carried out on 10 martial arts athletes who get results based on the excellent category of 10 people (100%), good categories 0 people (0%), enough categories of 0 people (0%), 0 people less categories (0%), and the category is very less 0 people (0%). The average value of sit ups is 70.3 / 60 seconds, with a maximum score of 80/60 seconds, and a minimum score of 60/60 seconds. So it can be concluded that the results of the physical condition test of the Pencak Silat of the persaudaraan Setia Hati Terate University of Merdeka Malang based on the results of the men's sit-up test as a whole are categorized very well. While the results of the assessment of sit-up tests with female sex can be categorized based on the results of the test studies that have been conducted on 5 martial arts athletes. The results are obtained based on very good category 5 people (100%), good category 0 people (0%), enough categories 0 people (0%), 0 people less categories (0%), and very less categories 0 people (0%) . The average value of sit ups is 41.6 / 60 seconds, with a maximum score of 49/60 seconds and a minimum score of 35/60 seconds. So it can be concluded that the results of the physical condition test of the Persaudaraan Setia Hati Terate Athlete's Pencak Silat Athlete at the Merdeka University of Malang based on the women's sit-up test were classified as very good.

Muscle power is the ability of a muscle or group of muscles to contract explosively in a short time. According to [3] Side Jump Sprint exercises affect the increase in leg muscle explosive power can be explained as follows: Side Jump Sprint is an exercise that works for muscles so that the muscle groups that are affected in this exercise are the thigh muscles, knees, so movements in Side Jump Sprint exercises to train the element of muscle power burst therefore this exercise will provide a very good impact for increasing muscle explosive power.

Based on the vertical jump test with the male gender which can be categorized based on the results of the research the test has been carried out on 10 Pencak Silat Athletes of the Persaudaraan Setia Hati Terate University of Merdeka Malang, obtained very good category results of 0 people (0%), good category 10 people (100%), 0 people (0%) enough categories,

0 people less (0%) categories, and 0 people very poor categories (0%). The average value of vertical jump is 65.4 cm, with a maximum score of 71 cm, and a minimum score of 62 cm. So it can be concluded that the results of the physical condition of the Pencak Silat Fraternity Athlete of Persaudaraan Setia Hati Terate of Merdeka University of Malang based on the vertical jump test of the entire male are categorized very well. While the female sex based on the results of the test research that has been conducted on 5 Pencak Silat Athletes of the Persaudaraan Setia Hati Terate of the Merdeka University of Malang, obtained results based on the excellent category of 0 people (0%), good category 4 people (80%), categories 1 person is enough (20%), the category is less 0 people (0%), and the category is very less 0 people (0%). The average value of vertical jump is 41.6 cm, with a maximum score of 49 cm and a minimum score of 35 cm. So it can be concluded by the authors that the results of the physical condition of the Pencak Silat Fraternity of the Persaudaraan Setia Hati Terate of the Merdeka University of Malang based on the vertical jump test are quite good.

Understanding the resilience of the energy system is the ability of the body's organs within a certain period of time, to improve respiratory endurance requires some form of exercise in a relatively long time. According to [4] endurance training (endurance training) is an exercise that is characterized by repeated isotonic muscle contractions of large skeletal muscle groups. Therefore maximal oxygen consumption is the main measure that indicates the functional capacity of the cardio breathing system. Based on the research results of the tests that have been carried out on 10 Pencak Silat Athletes of the Persaudaraan Setia Hati Terate Fraternity University of Merdeka Malang, the results are obtained based on poor categories of 9 people (90%), categories below the average of 0 people (0%), the average category as many as 1 person (10%), categories above an average of 0 people (0%), a good category of 0 people (0%), and a very good category of 0 People (0%). The average  $Vo_2$  max value is 20.71 ml / kg / min, with a maximum  $Vo_2$  max score of 42.5 ml / kg / min and a minimum  $Vo_2$  max score of 30.2 ml / kg / min. So it can be concluded by the authors that the results of the physical condition of  $Vo_2$  max based on the male bleep test of the Pencak Silat Fraternity Athlete's Association of Terate Heart University of Merdeka Malang are quite poor. While based on the results of tests that have been conducted on 5 Pencak Silat Fraternity Athletes of the Persaudaraan Setia Hati Terate University of Merdeka University of Malang, obtained results based on poor categories of 0 people (0%), categories below the average of 1 (10%), average categories of 3 people (80%), categories above an average of 1 person (10%), good category 0 people (0%), and very good category 0 people (0%). The average  $Vo_2$  max is 37.5 ml / kg / min, with a maximum  $vo_2$  max score of 42.5 ml / kg / min and a minimum  $Vo_2$  max score of 33.6 ml / kg / min. So it can be concluded by the authors that the results of the physical condition of  $Vo_2$  max based on the bleep test of the female athletes of the Persaudaraan Setia Hati Terate Athlete Merdeka University of Malang are classified as average.

Agility is the ability to change one's position in a certain area. Someone who is able to change one different position in high speed with good coordination, means that his agility is quite good. According to [5] agility is a coordinated ability that involves rapid whole body movements, with changes in direction and speed in response to stimuli one of the important components of physical condition in sports is a component of agility. Based on the research results of the tests that have been carried out on 10 Pencak Silat Athletes of the Persaudaraan Setia Hati Terate, Merdeka University of Malang, obtained results based on the excellent category of 1 person (10%), good category 4 people (40%), medium category 5 people (50%), the category lacks 0 people (0%), and the category has very few 0 people (0%). The average value of Illinois is 15.80 seconds, with a maximum score of 15.02 seconds, and a minimum score of 17.17 seconds. So it can be concluded by the authors that the results of physical conditions based on the illinois test of the Pencak Silat Persaudaraan Athlete of the Setia Hati Terate Merdeka University of Malang are classified as moderate. While the test results according to standardization norms *illinois* based on his gender of women categorized by age. Based on the results of these tests that have been carried out on 5 Pencak Silat Athletes of the Persaudaraan Setia Hati Terate of Merdeka University of Malang, the results are obtained based on the excellent category of 1 person (20%), good category 2 people (40%), medium category 2 people (40%), a category of less than 0 people (0%), and a category of very less 0 people (0%). The average value of Illinois is 17.45 seconds, with a maximum score of 17.00 seconds, and a minimum score of 18.10 seconds. So it can be concluded by the authors that the results of physical conditions based on the illinois test of the Athlete Pencak Silat Fraternity Athlete's Association of Persaudaraan Setia Hati Terate University of Malang are categorized as moderate.

## V. CONCLUSION

### A. Conclusions

The results of physical conditions based on the men's sit-up test for martial arts athletes were classified as very good (100%), female were very good (100%). 90% of the male test sample of martial arts athletes have a physical condition  $vo_2$  max based on bleep classified as poor, and the rest (10%) is classified as average. 80% of the total sample of female martial arts athlete martial arts tests had  $vo_2$  max physical condition classified as average, 10% were classified as below average, and the remaining 10% were classified as above average. 100% of the total sample of male pencak silat athletes have a physical condition based on vertical jump classified as very good, 80% of the total sample of female pencak silat athletes have a relatively good physical condition, and 20% of the total number of female martial arts athlete tests are sufficient. 50% of the total male athlete martial arts test samples have a physical condition based on the illinois test is classified as moderate, 40% of the total male athlete martial arts test samples have a relatively good physical condition and 10% of the total male test sample has a physical condition

classified as very good. 40% of the total number of female test samples for martial arts athletes based on the Illinois test have a moderate physical condition, 40% of the total number of female test samples have a relatively good physical condition, and 20% of the total number of female test samples have a very good physical condition.

The overall physical condition level of the Persaudaraan Setia Hati Terate Athlete's Pencak Silat Athlete at the Merdeka University of Malang was stated to be very good for sit-up tests, declared bad for bleep tests, declared good for vertical jump tests, and was for illinois tests.

#### *B. Recommendation*

Based on what the author has obtained from the results of research and discussion on how to find out the level of physical condition of the Pencak Silat Persaudaraan Setia Hati Terate Athlete of the Merate Heart University of Malang, there are some suggestions and input in the form of personal thoughts from the author, namely as follows:

- For the Pencak Silat Persaudaraan Setia Hati Terate Merdeka University of Malang, especially in the case of this research, it is hoped to pay more attention to their physical condition by being more active in doing sports activities precisely and regularly and increasing the physical component components of Endurance and Explosion, which aims to maintain the state of physical conditions so as not to decrease.
- For all Pencak Silat Persaudaraan Setia Hati Terate Merdeka University, Malang, pay attention to healthy and

balanced nutrition, because it can maintain and improve body condition.

- For other researchers, it is expected to examine the components of physical conditions that have not been studied by the authors in this study.
- It is expected that PSHT trainers at Merdeka University in Malang have a training license or certificate.

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