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Profile of Taekwondo Athletes in Situbondo Indonesian

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ABSTRACT
This study aimed to determine the profile of physical condition by measuring the level of physical illness and physiology of Taekwondo athletes in the Situbondo Regency. A total of 8 athletes as research subjects. The study results consisted of physical conditions, which were divided based on anthropometrics and athlete physiology. Anthropometrics consist of height, weight, and body mass index (BMI) plus body fat. Other physical conditions include anaerobic power (explosive power of muscles and running 30 m), aerobic power (VO2max), flexibility, agility, expanding Strength, and balancing. This study concludes that the physical and physiological conditions of Situbondo taekwondo athletes are in pretty good shape for anaerobic power and anthropometrics but still lacking in aerobic power.

Keywords: *Taekwondo, Physical, Physiology.*

1. INTRODUCTION

Taekwondo is one of the most popular sports in the world. In the last few centuries, Taekwondo has been developed by more than 60 million people on six continents in 205 countries worldwide [1]. Indonesia itself is a country that also participates in the development of Taekwondo. This can be proven since Taekwondo competed in the exhibition match at the Barcelona Olympics in 1992, Indonesia got three silver medals and one bronze medal [2]. However, in recent years, Indonesia's achievements have tended to decline [2]. Taekwondo can be done by all people, from children to adults. Taekwondo can be played by the general public, both men and women

Taekwondo in Indonesia, especially in East Java, has started many clubs that are established and growing. East Java itself often holds championships intended to produce new athletes who can compete in the world. However, Situbondo Regency is a district that is still developing in Taekwondo. The athletes are still involved in district-level competitions, and none have entered the national or international level. This must be a concern to be able to achieve the highest achievement.

Many things determine the achievement of a sport. These include combining the player's physical attributes, skill, ability, technique, determination, strategy, and mental preparation before the competition begins. Some of the features that must be improved in Taekwondo include Strength, flexibility, speed, agility, endurance, muscle strength, and power [3]. In addition, Taekwondo has specific fast high and high spinning kicks [4].

Many studies have determined the basic technical and physical abilities needed by a taekwondo athlete. These studies can serve as examples or benchmarks for the physical skills and techniques required for success in Taekwondo [1]–[10]. Several studies have shown that physical condition attributes affect Taekwondo performance. Research by [4] shows that successful taekwondo athletes have a higher power of anaerobic and endurance than less successful athletes. [8] research shows that athletes who get medals have better kicking techniques and coordination than those who do not get the medal. The study conducted [5] indicates a significant correlation between body mass index and body fat percentage on the success of taekwondo athletes. Physically and physically, aerobic and anaerobic endurance, speed, and agility affect athletes' success, but Strength, muscle endurance, and flexibility have no significant relationship [5]. Research conducted by [11]E. Bouhlel shows that aerobic and anaerobic are still significant in taekwondo competitions.

Therefore, the purpose of this study was to analyze the level of the physical condition of taekwondo athletes in the Situbondo Regency so it can improve athlete achievement in Situbondo Regency and create an appropriate training program to enhance the athlete's ability. Furthermore, the results of this study are expected

to provide advice and become a basis for technical and physical skills to achieve achievements in the future.

2. METHODS

2.1 Subject

The subjects of this study were taekwondo athletes KONI Situbondo Regency, totaling eight male athletes. The age of the research subjects was 16 ± 1.4. The sampling technique in this research is purposive sampling. The criteria for the research subjects are the research subjects who have competed in district-level competitions in the last few years and athletes who have also participated in competitions for the previous year. After the issue is willing to be the research subject, the subject fills out the informed consent prepared previously as a form of approval to participate in the study from beginning to end.

2.2 Procedure

This type of research is quantitative research with a descriptive method. Description method to describe the physical condition profile of taekwondo athletes in Situbondo Regency. First of all, research subjects were collected to explain the aims and objectives of this research and the benefits that athletes and coaches would get in particular to achieve the best performance.

The subject will be measured anthropometrically in height, weight, and body mass index (BMI) in this study. Measurement of fat thickness using a skinfold caliper. Size of endurance (aerobic capacity) using the Multistage Fitness Test (MFT). Muscle explosive power is carried out vertically by using a jump DF tool. Flexibility was measured using the sit and reach test. Hand power is calculated using a tool. Speed was measured using a 30 m sprint. Static balance measurements were carried out using a stock stand test. Running site steps count agility.

2.3 Data Analysis

The data obtained from the measurements that have been carried out are then analyzed by taking into account the average of the data obtained. The standard accepted is then analyzed with several previous research results to produce a discussion and conclusion about the results of this study.

3. RESULTS

This study contains the characteristics and components of the physical and physiologic conditions of taekwondo athletes in the Situbondo district. The results of the anthropometric measurements of the research subjects are shown in table 1. The height of the research subjects was 167 ± 4.89 cm, the weight was 63.14 ± 6.36 kg, and the BMI was 22.68 ± 2.43 kg/m2. The body fat level (mm) is 34 ± 9.72. Seen in the variable BMI, research subjects get an average value, which means body composition is ideal or standard.

Table 1. Characteristics of the research subject

Variable	Mean ± SD
Height (cm)	167 ± 4.89
Weight (kg)	63,14 ± 6.36
Body Mass Index (BMI) (kg/m^2)	22,68 ± 2.43
Body fat (mm)	34 ± 9.72

Table 2. Physical characteristics and physiology of the research subject.

Variable	Mean ± SD
Explosive Power (cm)	75.14 ± 2.35
VO_2max (ml'kg/min)	40.89 ± 1.85
Flexibility (cm)	38.42 ± 2.66
Agility (time)	31.33 ± 4.92
Speed 30 meter(s)	4 .47± 0.37
Expanding Strength (kg): Pull Push	 23.71 ± 2.31 21 ± 4.14
Balance (s)	14.85 ± 9.77

The level of the physical condition of the subject is shown in table 2. It can be seen that the Explosive Power (cm) value of 75.14 ± 2.35 is included in the excellent category. The value of Aerobic capacity (ml'kg/min) of 40.89 ± 1.85 is included in the superb category. Flexibility value (cm) 38.42 ± 2.66 is included in the excellent category. Agility value (time) is 31.33 ± 4.92, which is included in the superb category. The speed value of 30 meters (s) is 4.47± 0.37, which is very good. The value for Expanding Strength (kg) Pull 23.71 ± 2.31 is in the excellent category, while Push 21 ± 4.14 is in a good category.

4. DISCUSSION

Taekwondo is a martial art with technical elements, tactics, and mental and physical requirements. Taekwondo is a modern martial art based on traditional Korean martial arts, and it is also a barefoot and hand-to- hand combat sport. Therefore, taekwondo athletes must maintain a high level of physical fitness. In Taekwondo, there are numerous matches to compete in, including poomsae and kyorugi. As a result, taekwondo athletes require several physical characteristics, including VO2max, leg muscle explosive power, agility, and flexibility, all of which play a significant role in their overall physical condition. Taekwondo, on the other hand, is a martial art that incorporates both

foot and hand skills. The author will discuss some of these material circumstances in this article; in this paper, we will attempt to describe some of the physical conditions required and the equipment used to test the components of these material conditions [12].

Taekwondo in Indonesia is in the process of developing to achieve the highest achievements. Many clubs have sprung up in each city in Indonesia. The general public has widely practiced Taekwondo even though Taekwondo is not an original sport originating from Indonesia. Even in schools, there have been many taekwondo extracurriculars.

The selection of the athlete's age is a priority that must be done because each generation has a different training pattern. Each generation has its level that should not be equalized. Each coach must be able to provide an appropriate training pattern according to the age of the athlete. Age determines an athlete can enter their national team because the level will be higher when they enter the national team [13].

Kicks in Taekwondo are often done to get points. Research [7] shows that 98% of the techniques used to earn points in Taekwondo are kicking [7]. This shows that Strength and design in the legs must be re-honed in the training program. According to [6], taekwondo athletes who can achieve success can maximize the bottom of their feet and their anaerobic power to the maximum. Kicks require a pretty good explosive power to be able to kick the opponent quickly and precisely. This requires good anaerobic power.

Anaerobic power in this study is muscle explosive power and running. This Anaerobic variable is the same as the research of [2]. The speed in this study is faster than the [8], which states that the medal winner's rate is around 5.07 ± 0.39. This shows that the speed of the Situbondo athletes is better in terms of speed. Anaerobic power has a significant relationship with the athlete's success in achieving maximum performance [5]. This requires the trainer to make the right program for this anaerobic power.

In addition to requiring anaerobic factors, aerobic power factors are also a determinant in the success of a match. The study results show that the athlete's VO2max is still lacking, even though endurance is one of the supporting factors for achieving success. Aerobic power in Taekwondo is significantly related to the success of taekwondo athletes [5]. Speed and endurance are a combination that must be integrated to achieve success [1]. Athletes must be able to increase their aerobic power level with an appropriate training program.

Achievement of performance in Taekwondo depends not only on the physical condition itself but also on the ability to coordinate between techniques and the athlete's ability. Anthropometrical characteristics and general motor abilities change significantly in preadolescent athletes, so the coach must be planned to program coordination- based to support an athlete [14], [15]. The high level of technical skill manifested by the performance of kicks and punches may also result from the integration of better motor skills and coordination [8]. This shows that many factors influence the achievement of success in the match. The coordination and integration of the suitable physical, mental and strategic conditions will also determine the match's outcome.

5. CONCLUSION

This research concludes that the physical condition is quite good for the anthropometric and anaerobic power sections but lacks aerobic power sections. Aerobic and anaerobic power is an essential part of achieving success. Maximum achievement of athlete performance and achievement is also required by coordinating and integrating the athlete's physical and physiological condition factors. Coaches are expected to create training programs that can support the performance of athletes to achieve success..

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