Profile of Physical Condition and Techniques of Padang Police Taekwondo Athletes

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Abstract

The problem in this research is to find out the factors that cause the Padang Police Taekwondo Athlete's performance to not be optimal. This research aims to determine the physical condition and techniques of Padang Police Taekwondo Athletes. This type of research is descriptive statistics. The population in this study consisted of 15 sons and 5 daughters of the Padang Police Dojang. Sampling in this study used the census method. This research instrument used tests consisting of aerobic endurance with a 15 minute running test, leg muscle explosive power was measured with a standing board jump test, speed was measured with a 20m sprint test, strength was measured with a push up and sit up test, agility was measured with a side step test, flexibility was measured by the sit and reach test, kicking technique was measured by the dollyo chagi test. The data obtained was then analyzed using descriptive statistical methods (frequency tabulation) with the formula P= F/N x 100%. From the results of this research, it can be seen that the ability of Padang Police Taekwondo athletes on all assessment indicators can be categorized as good/very good.

Keywords: *Physical Condition, Techniques, Padang Police Taekwondo Atheles*

1. INTRODUCTION

Taekwondo is a martial art originating from the country of Korean ginseng which mostly uses hand and foot techniques to attack and defend (C.
A. Bridge et al., 2013). Taekwondo is a martial arts sport that exists and runs well in Indonesia. Although Taekwondo is not an original sport in Indonesia, Taekwondo sports have a special place in the hearts of the Indonesian people. If individuals participate in Taekwondo to develop their potential, then the Taekwondo sport has entered the realm of achievement sports that are developed and competed in stages starting from the regional, national, and even international levels. Tirtawirya, D. (2005).

In coaching good achievements also fosters good and consistent athletes, the optimal performance of athletes is also influenced by physical, technical, tactical, and mental conditions (Maulana & Deswandi, 2019). The achievements of Indonesian Taekwondo martial arts must be supported by programmatic, gradual and continuous coaching or development with the support of sports science and technology, besides that talent and potential are also needed to obtain an achievement. Confidence is a psychological state at the time of athlete performance which is shown by ability, effort, optimism, independence, stamina, ability to adjust, manage fatigue, and have mental and physical abilities (Aristiani, 2016).

In the Ministry of National Education (2000:8-10), the component of physical condition is a whole unit of physical freshness. Physical condition is one of the important factors in getting sports achievements, with good physical condition and achievements so that they are easy to achieve, besides also needing technical, tactical, and mental development for each athlete. In sports there are many components of physical condition, for example, endurance, speed, agility,

explosiveness, coordination, balance, flexibility and strength, each component is interrelated and all sports require components of physical condition.

Taekwondo is a Korean martial art that consists of punches, kicks, and punches (Shin et al., 2016). The word Taekwondo itself consists of three syllables in Korean, namely tae which means to kick or destroy; kwon is to hit with a hand or fist; and do the same with the system or method. So the combination of the three raises the awareness that Taekwondo is a way of defending oneself with bare feet and hands. Taekwondo is a martial art that mainly uses foot techniques to attack (Jariono et al., 2020).

According to (Fong and Tsang 2012) "Taekwondo is a martial art that originated in Korea which is famous for its spinning and fast kicks. Taekwondo

There is a deep physiological aspect, so by exploring Taekwondo, our mind, soul and body with the whole will be grown and developed. Taekwondo does not use martial arts skills, but also includes physical, mental and spiritual aspects. Taekwondo is divided into *Kyorugi* and *poomsae* (Novian et al., 2020).

Based on explanations and observations, it turns out that there are quite a lot of factors that affect the achievements of Dojang in Padang City, including Dojang Gor and Pu West Sumatra. In order to see that there are quite a lot of factors that result in the non-optimal achievement of other dojang in Padang City, including the Gor and Pu West Sumatra dojangs, it is necessary to conduct research, hopefully the results of this research can be used as a reference for dojang in Padang City for the development of Taekwondo in Padang City.

Seeing the above reality, on this occasion the researcher is interested in carrying out research on the physical condition of the Padang Police Taekwondoin so that the physical condition of other dojang in Padang City begins to be improved and improved through the benchmark of the physical condition of the Padang Police Taekwondoin athletes.

2. METHOD

The type of research chosen in this study is a type of descriptive research. According to Arikunto (2010:3). Descriptive statistics, namely statistics that are used to analyze data by describing and illustrating data that are put together in such a way, without the purpose of drawing conclusions or generalizations of a general nature. In this study, a calculation method was used for sampling, where all athletes were used for samples, namely. There are a total of 20 athletes. This research instrument used a test consisting of *aerobic endurance* with a 15-minute running test, *a balke test*, leg muscle explosiveness measured by *a standing board jump* test, speed measured by *a 20m sprint* test, strength measured by *a push up* and *sit up* test, agility measured by *a side step* test, flexibility measured by *a sit and reach test*, kicking technique is measured by the *dollyo chagi test*. The data obtained was then analyzed using a descriptive statistical method (frequency tabulation) with the formula P= F/N x 100%.

3. RESULT

Based on the results of aerobic endurance with the *aerobic endurance test* of the Padang Police Taekwondo Male Athletes with a *balke test*, the maximum score was 56,290 and the minimum score was 47,117. In addition, the mean value (average) = 49.257 and standard deviation = 4108.309 so that a clearer description of aerobic endurance can be seen in table 1 below:

Table 1. Male *aerobic* endurance frequency distribution

It	Vo2max	F.absolute	F. relative	Category
1	≥ 61	0	0%	Perfect
2	60.90 - 55.10	3	20%	Very good
3	55.00 - 49.20	6	40%	Good

4	49.10 - 43.30	6	40%	Enough
5	≤ 43	0	0%	Less
	Sum	15	100%	

Based on the results of aerobic endurance with the *aerobic endurance test* of the Padang Police Taekwondo Women's Athletes with *a balke test*, the maximum score was 49,410 and the minimum score was 42,530, in addition, a mean value (average) = 46,119 and a standard deviation = 3478,034 were obtained, so that a clearer description of aerobic endurance can be seen in table 2 below:

Table 2. Frequency distribution of *women's* aerobic endurance

It	Vo2max	F.absolute	F. relative	Category
1	≥54	0	0%	Perfect
2	54.20 - 49.30	2	40%	Very good
3	49.20 - 39.20	3	60%	Good
4	44.10 - 39.20	0	0%	Enough
5	≤39	0	0%	Less
	Sum	5	100%	

Based on the results of the explosive power of the leg muscles of the Padang Police Taekwondo Male Athletes with *a standing board jump* , the maximum score was 235 and the minimum score was 170, in addition, the mean value (average) = 210 and the standard deviation = 21.65 For a clearer description of aerobic endurance, it can be seen in table 3 below:

Table 3. Frequency distribution of the explosive power of the muscles of the male leg

It	Reach (cm)	F.absolute	F. relative	Category
1	≥ 224	6	40%	Perfect
2	195 – 223	7	13,33%	Very good
3	165 – 194	2	46,66%	Good
4	136 – 194	0	0%	Enough
5	≤135	0	0%	Less
	Sum	15	100%	

Based on the results of the leg muscle explosiveness test of the Padang Police Taekwondo Female Athletes with *a standing board jump* , the maximum score was 235 and the minimum score was 170 In addition, the mean value (average) = 210 and the standard deviation = 21.65 To make it clearer, the description of aerobic endurance can be seen in table 4 below:

Table 4. Frequency distribution of the explosive power of the female leg muscles

It	Reach (cm)	F.absolute	F. relative	Category
1	≥ 178	0	0%	Perfect
2	153 – 177	0	0%	Very good
3	129 – 152	5	100%	Good
4	104 – 128	0	0%	Enough
5	≤ 103	0	0%	Less
	Sum	5	100%	

Based on the results of the speed of

the Padang Police Taekwondo Male Athletes with the *20m sprint* test, the maximum score was 3.6 and the minimum score was 2.7 In addition, the mean value (average) = 3.1 and the standard deviation = 0.27 For a clearer description of aerobic endurance, it can be seen in table 5 below:

Table 5. Male speed frequency distribution

It	Time (seconds)	F.absolute	F. relative	Category
1	< 3	5	33,33%	Perfect
2	3	4	26,66%	Very good
3	3,1	2	13,33%	Good
4	3,2	1	6,66%	Enough
5	3,3	3	20%	Less
	Sum	15	100%	

Based on the results of the speed of the Padang Police Taekwondo Female Athletes with the *20m sprint* test, the maximum score was 3.4 and the minimum score was 2.8 In addition, the mean value (average) = 3.1 and the standard deviation = 0.27 For a clearer description of aerobic endurance, you can see in table 6 below:

Table 6. Frequency distribution of the princess speed

It	Time (seconds)	F.absolute	F. relative	Category
1	< 3.1	2	40%	Perfect
2	3,2	1	20%	Very good
3	3,4	2	40%	Good
4	3,5	0	0%	Enough
5	3,6	0	0%	Less
	Sum	5	100%	

Based on the results of the Padang Police Taekwondo Male Athletes with a *push up* test, the maximum score was 42 and the minimum score was 26 In addition, the mean value (average) = 33.2 and the standard deviation = 4.83 To make it clearer, the description of aerobic endurance can be seen in table 7 below:

Table 7. Frequency distribution *of male* push up force

It	Interval Class	F.absolute	F. relative	Category
1	≥ 38	4	26,66%	Perfect
2	29 -37	8	53,33%	Very good
3	20 - 28	3	20%	Good
4	12 - 19	0	0%	Enough
5	4 - 11	0	0%	Less
	Sum	15	100%	

Based on the results of the Padang Police Taekwondo Women's Athletes with a *push up* test, the maximum score was 34 and the minimum score was 22 In addition, the mean value (average) = 29.4 and the standard deviation = 4.72 Supay more clearly described aerobic endurance can be seen in table 8 below:

Table 8. Frequency distribution of the force *of the princess* push up

It	Interval Class	F.absolute	F. relative	Category
1	≥ 33	2	40%	Perfect
2	24 – 32	2	40%	Very good
3	15 – 23	1	10%	Good
4	7 – 15	0	0%	Enough
5	1 – 6	0	0%	Less
	Sum	5	100%	

Based on the results of the Padang Police Taekwondo Male Athletes with a *sit up* test, the maximum score was 44 and the minimum score was 33 In addition, the mean value (average) = 38.2 and the standard deviation = 3.84 To make it clearer, the description of aerobic endurance can be seen in table 9 below:

Table 9. Frequency distribution of male *sit up* strength

It	Interval Class	F.absolute	F. relative	Category
1	≥ 38	7	46,66%	Perfect
2	28 -37	8	53,33%	Very good
3	19 - 27	0	0%	Good
4	8 - 18	0	0%	Enough
5	0 - 7	0	0%	Less
	Sum	15	100%	

Based on the results of the Padang Police Taekwondo Women's Athletes with a *sit up* test, the maximum score was 31 and the minimum score was 22 In addition, the mean value (average) = 27.2 and the standard deviation = 4.38 For a clearer description of aerobic endurance, you can see in table 10 below:

Table 10. Frequency distribution of the power *of the princess* sit up

It	Interval Class	F.absolute	F. relative	Category
1	≥ 28	3	60%	Perfect
2	19 – 27	2	40%	Very good
3	9 – 18	0	0%	Good
4	3 – 8	0	0%	Enough
5	0 – 2	0	0%	Less
	Sum	5	100%	

Based on the results of the agility of the Padang Police Taekwondo Male Athletes with *a side step* test, the maximum score was 31 and the minimum score was 24 In addition, the mean value (average) = 28.20 and the standard deviation = 2.42 For a clearer description of aerobic endurance, it can be seen in table 11 below:

Table 11. Frequency distribution of male agility

It	Interval Class	F.absolute	F. relative	Category

1	>25	12	80%	Very good
2	23-26	3	20%	Good
3	20-23	0	0%	Enough
4	20-22	0	0%	Less
5	<20	0	0%	Less
	Sum	15	100%	

Based on the results of the agility of the Padang Police Taekwondo Female Athletes with *a side step* test, the maximum score was 27 and the minimum score was 22 In addition, the mean value (average) = 24.2 and the standard deviation = 2.59 To make a clearer description of aerobic endurance, you can see in table 12 below:

Table 12. Frequency distribution of princess agility

It	Interval Class	F.absolute	F. relative	Category
1	>25	2	40%	Very good
2	23-25	1	20%	Good
3	22-23	2	40%	Enough
4	17-20	0	0%	Less
5	<17	0	0%	Less
	Sum	5	100%	

Based on the results of the flexibility of the Padang Police Taekwondo Male Athletes with *the sit and reach* test, the maximum score was 20.8 and the minimum score was 17.3 In addition, the mean value (average) = 19.07 and the standard deviation = 1.14 For a clearer description of aerobic endurance, it can be seen in table 13 below:

Table 13. Frequency distribution of male flexion

It	Reach (cm)	F.absolute	F. relative	Category
1	> 19.5	7	46,66%	Very good
2	17,0 – 19,0	8	53,33%	Good
3	14,5 – 16,5	0	0%	Enough
4	12,5 – 14,0	0	0%	Less
5	< 12.0	0	0%	Less
	Sum	15	100%	

Based on the results of the flexibility of the Padang Police Taekwondo Female Athletes with *the sit and reach* test, the maximum score was 24.3 and the minimum score was 18.2 In addition, the mean value (average) = 21.04 and the standard deviation = 2.18 To make it clearer, the description of aerobic endurance can be seen in table 14 below:

Table 14. Frequency distribution of female flexion

It	Reach (cm)	F.absolute	F. relative	Category
1	20,0 – 23,0	4	80%	Very good
2	18,5 – 19,5	1	20%	Good

3	17,0 – 18,0	0	0%	Enough
4	15,0 – 16,5	0	0%	Less
5	13,5 – 14,5	0	0%	Less
	Sum	15	100%	

Based on the results of the kicking technique of the Padang Police Taekwondo Male Athletes with *the dollyo chagi* test, the maximum score was 29 and the minimum score was 19 In addition, the mean value (average) = 24.67 and the standard deviation = 3.01 For a clearer description of aerobic endurance, you can see in table 15 below:

Table 15. Frequency distribution of men's kick technique

It	Interval Class	F.absolute	F. relative	Category
1	>25	9	60%	Very good
2	20-24	5	33,33%	Good
3	17-19	1	6,66%	Enough
4	15-16	0	0%	Less
5	< 14	0	0%	Less
	Sum	15	100%	

Based on the results of the kicking technique of the Padang Police Taekwondo Female Athletes with *the dollyo chagi* test, the maximum score was 25 and the minimum score was 18 In addition, the mean value (average) = 23 and the standard deviation = 2.91 For a clearer description of aerobic endurance, it can be seen in table 16 below:

Table 16. Frequency distribution of women's kick technique

It	Interval Class	F.absolute	F. relative	Category
1	>23	4	80%	Very good
2	18-22	0	0	Good
3	15-17	1	20%	Enough
4	13-14	0	0%	Less
5	< 12	0	0%	Less
	Sum	5	100%	

4. DISCUSSION

Based on the analysis and data processing of "Profile of Physical Condition and Technique of Padang Police Taekwondo Athletes" so in this chapter the research question is answered in accordance with the formulation of the problem that has been raised, namely how the physical condition and technique of Padang Police Taekwondo Athletes, which includes aerobic endurance, explosive power of leg muscles, speed, strength, agility, flexibility, kicking techniques So that the answer to the question can be described as follows:

1. Durability

Resilience is the ability to survive in carrying out an action without experiencing changes (the state remains the same) after acting. Endurance is a necessary element of physical condition. As stated by Rika Sepriani, et al. (2018) "that endurance is defined as the

ability to work with a certain intensity over a long period of time, without excessive fatigue. Excessive fatigue will cause a person to be unable to do his job". A person who is considered to have Endurance if he is not easily tired, or if a person has the ability to continue to do it in a tired state. In this case, the main factor that limits and affects Endurance is fatigue. A person is said to have endurance if he or she does not get tired easily. According to Syahara (2004:47) stated, "Endurance is defined as a time limit that goes beyond where work with a certain intensity is carried out". Taekwondo, kyorugi and poomsae require good endurance to survive a match for a long time and

also consumes energy, when Taekwondoin has good endurance and can enforce the performance they have when competing (Panji, 2019).

2. Leg muscle explosiveness

Explosiveness is a filsilk condyle element that plays a pentilent role and is useful in supporting the mill of filsilk (Syukur et al, 2019). According to Donile & Yenes (2020), explosive power is the ability of a muscle to carry out filsilk actitation in a short time. According to Iqbal et al (2015), explosive power is a force that is affected by strength and speed. Muscle explosive force is a group of muscles to overcome load resistance with a speed of movement (Willlilam et al, 2020). Muscle explosive power is a combination of strength and speed, that is, the ability to use energy (force) at the right time. According to Rozil (2019), explosive power is a bilomotor component that is dependent on athletic grinding. Muscle explosiveness is the ability to reach a fast force at a short time in order to exert a momentum that is swaying on the body or object in an explosive motion that is good to achieve the desired goal (Oktavilanil & Donile, 2020). The explosive power of the leg muscles is the ability of a person to empower his leg muscles for maximum strength in a short time but the contractions run quickly (Ramos et al., 2020). According to Hariladil & Mardela (2020), the explosive power of the leg muscles is one of the abilities of a group of dumb leg muscles to produce the axils in a short time. According to Syafruddin (2013:73) there are many factors that can affect the explosive power of leg muscles, namely: 1) the strength of the leg muscles, 2) the speed of related muscle contractions (slow muscle fibers and fast muscle fibers, 3) the amount of weight moved, 4) intra and extra muscle coordination, 5) muscle length at the time of contraction as well, 6) joint angle. The explosive power of the leg is the ability of the athlete to carry out a kick towards the goal by using a leg with a fast movement, with high strength (Reza, 2019). Jansen in Arsil (1999:75) states that: Strength is so necessary for performance because it can determine how hard a person can hit, how high and far a person can jump, how fast a person can run and swim. In taekwondo martial arts, the strength of the leg muscles is the ability of an athlete to perform

attack on target by using a leg firmly and quickly (Wahyuni, et al., 2020:7). (PutriI et al, 2022) The relationship between leg muscles and the ability to hit dollyo chagi Taekwondo is unidirectional, meaning that the better the strength of the leg muscles and

the better the ability to hit dollyo chagi.

3. Speed

Speed is the shortest time a person needs to move a certain distance and combines two important phases, namely acceleration (change in speed to reach maximum speed) and maintenance (maintaining speed for the remaining distance (Triplett, 2012). Speed is an ability of the body to move quickly and precisely against weight, weight, and time (Edywarsyah, 2017). A taekwondo athlete must have kick speed and agility when competing, this is because taekwondo is a fighting technique without weapons for self-defense that uses the application of skilled techniques including punches, jump kicks, blocks, dodging, and parrying with hands and feet (Singh et al., 2018). When the opponent fails to attack. reaction time, and speed are components that determine the quality of physical condition in taekwondo (Arabaci et al., 2010).

4. Strength

Strength is a combination of strength and speed or maximum exertion of muscle strength that uses dynamic and explosive muscle contraction force and speed, and uses the ability of muscles to contract optimally and optimally in a short period of time (Cormie et al., 2011). Motor control is also necessary for the strength of the kick through the stimulus with the physical target. This control of accuracy and movement is obtained through exercises with physical goals (Wasik and Shan, 2015). Setiawan et al (2018) said that leg strength is very helpful in taekwondo, especially when doing the momtong *dollyo chagi kick technique.*

5. Agility

Agility is a person's physical ability to quickly change direction or body part without any obstacles to compatibility that is indicated to maintain static and dynamic balance (Aksoy, 2019). A Taekwondo athlete must have high speed so that when the stimulus comes, in a short time

In the shortest possible time, he releases a kick/attack to the designated target. But apparently, the speed and agility of kicking are difficult for athletes (Jeong et al., 2021)

6. Flexibility

According to Xianglin Wan (2017) "the optimal length of the hamstring muscles is positively correlated for flexing flexibility between individual athletes. With the same flexibility score, women have shorter hamstring muscles with optimal length compared to men." Suppleness is an element of physical condition that determines analyzing movement skills (Hardiansyah, 2018). A taekwondo athlete must be able to carry out blows from above or to the opponent's head to reach a high point, therefore flexibility is also needed in order to be able to carry out wide movements through the joints to the maximum (Panji, 2019). A Taekwondo athlete must be able to carry out high kicks or to the opponent to produce high points, so flexibility is also very important in order to be able to carry out wide movements through the joints to the maximum (Panji, 2019).

7. Dollyo chagi *technique*

According to (Suryadi, 2002), dollyo-chagi kicks mostly use the soles of the feet (ap

chuk), but baldeung (feet) are also used very often, especially when used during matches. The variations of the kick are: I and dollyo chagi (oblique kick with sliding) and dolke chagi (oblique kick with 360° body rotation). *Dollyo chagi is a*basic kicking technique taught at the beginning of martial arts and is commonly practiced by athletes because it is easier to score points in a match (Firdaus, 2018). Suryadi (2002: 34) stated: "The power of this kick is produced apart from the knee stroke is also very supported by the waist rotation which is actually the distribution of energy from the body mass". The *dollyo chagi* leg movement uses both the upper and lower legs, so a taekwondo athlete cannot perform a quick kick if the leg muscle strength is weak due to a lack of initial leg lift movement (Basri et al., 2021). In the development of kicking technique skills for the level of functional as well as physical specifics of the design in athletes (Haddad, 2014).

5. CONCLUSION

Based on the results of the Aerobic Endurance Ability, the average male and female Taekwondo athletes of the Padang Police are classified as good categories. The average Leg Muscle Explosive Ability of the Padang Police Taekwondo athletes is classified as very good. The average speed ability of the Padang Police Taekwondo Male and Female athletes is classified as a good category. The average strength of the Padang Police Taekwondo Male and Female athletes is in the very good category. The average agility ability possessed by Padang Police Taekwondo Male and Female athletes is in the very good category. The average flexibility ability of the Padang Police Taekwondo Male and Female athletes is in the very good category. The average kicking ability of the Padang Police Taekwondo Male and Female athletes is relatively good.

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