Level of Physical Condition of Daughter Taekwondo MTC (Manunggal Taekwondo Centre) Pekanbaru-Riau

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ABSTRACT
The problem of this research is to see the physical condition of the taekwondoque athlete at MTC (Manunggal Taekwondo Center) Pekanbaru and give a description of the physical condition condition of the taekwondoin daughter at MTC (Manunggal Taekwondo Center) Pekanbaru. The purpose of this study is to see the level of physical condition of female athletes taekwondoin at MTC (Manunggal Taekwondo Center) Pekanbaru 2014. Research subjects are athletes taekwondo daughter who follow training center (TC) program as many as 12 people. The research type is descriptive research, with data collecting technique using test and measurement referring to norm, and then done data analysis using relative frequency distribution (percentage distribution) to know the level of physical condition of female athlete taekwondo. Based on the results of physical condition measurement test, it turns out from 12 female athletes taekwondo, there are 2 people or 16.67% which is classified level of physical condition enough and 10 people or 83,33% which is classified level of physical condition less. So it can be concluded that the level of physical condition of female athletes taekwondo MTC (Manunggal Taekwondo Center) Pekanbaru-Riau in general is mostly at a sufficient level with an average of 4.5.

Keywords: *Physical Condition, Female Athlete Taekwondo*

1. INTRODUCTION

Taekwondo is a self-defense sport that maximizes all body movements to defend yourself from threats both in the form of evasion and carrying out deadly attacks. In this taekwondo sport really needs a good physical condition, the physical conditions needed in this taekwondo self-defense sport are agility, flexibility, strength, speed, accuracy and good endurance.

Physical conditions are a unified whole of components that cannot be separated just like that, both improvement and maintenance. This means that in an effort to improve physical conditions, all of these components must be developed, although here and there is done with a priority system according to the condition or status of each component and for what needs the state or status needed [1].

The 10 kinds of physical condition components that support taekwondo martial arts are as follows:

1. Strength (strength), is a component of a person's condition about his ability to use muscles to accept the burden while working.
2. Endurance (endurance), in this case there are two kinds of endurance, namely:
   a. General endurance (general endurance) a person's ability to use the heart system, lungs and blood circulation effectively and efficiently to carry out work continuously that involves the contraction of a number of high-intensity auto-muscles in a long time.
   b. Muscle endurance (local endurance) is the ability of a person to use his muscles to contract continuously in a relatively long time with a certain burden
3. Muscular power (muscular power) a person's ability to use the maximum power that is deployed in the shortest possible time.
4. Speed (speed), the ability of a person to do continuous movement in the same form in the shortest possible time.
5. Flexibility (flexibility), one's effectiveness in adjusting to all activities with extensive body stretching. This is very easily marked by the level of joint flexibility in the entire body.
6. Agility (agility), is the ability to change one's position in a particular area. Someone who is able to change one different position in high speed with good coordination, means that agility is quite good.

7. Coordination (coordination), is the ability of a person to integrate a variety of different movements into a single movement pattern effectively. For example in playing tennis; a player will appear to have good coordination if he can move towards the ball while swinging a racket, then hitting it with the right technique.
8. Balance (balance), a person's ability to control the nerve organs of the muscles, as in a hand stand or in achieving balance when someone is walking and then disturbed (for example, slipping and others). In the field of sports many things athletes must do in this balance problem, both in eliminating or maintaining balance.
9. Accuracy (accuracy), is someone to control the free movements of a target. This target can be a distance or maybe a direct object that must be worn with one part of the body.
10. Reaction (reaction), is the ability of a person to act immediately as soon as possible in response to stimuli caused through the senses, conditions or other feelings. As in anticipation of the arrival of the ball that must be caught and others.

To train the physical conditions needed in taekwondo, the role of a trainer is really needed, because as a trainer must know what must be done so that the physical condition of taekwondoin needed in taekwondo sport is achieved.

Physical condition plays an important role in taekwondo sports especially when in a match that requires a lot of energy, therefore a taekwondoin must have a very good physique so that in a match it can produce satisfying achievements. In a taekwondo match a taekwondoin must have a good physical condition, because this is where all the results of the training can be seen whether the results match what we want or vice versa. Because in the competition all the techniques will come out whether the taekwondoin has a good physical condition or during the competition the taekwondoin has decreased physically so the technique is not done perfectly.

A taekwondoin to achieve maximum achievement is influenced by 4 elements namely physical, technical, tactic and mental. One element that strongly supports taekwondoin achievement is the physical component including muscle strength (strength), endurance (endurance), flexibility, power, muscle endurance, stamina and agility. A taekwondoin will produce good achievements if it has good physical condition and does not experience a decrease in physical condition. In order to maintain the physical condition of taekwondoin, taekwondoin must maintain adequate food and drink and rest so that taekwondoin is not easily tired. In addition, the role of a coach is also very important because the training program provided by the trainer also greatly affects the physical condition of taekwondoin in this taekwondo martial arts sport.

Based on Dojang Manunggal taekwondo trainer information and several observations, there are several taekwondoin that have quite good achievements both in daily training and in the taekwondo championship but the physical condition of taekwondoin is still low. This can be seen from the time they took part in the practice of target sparing and sparing partners of fellow taekwondoin. Many taekwondoin get tired quickly as well as in a match so that the endurance possessed by taekwondoin is very lacking, sometimes some taekwondoin often ask for permission to rest while in training. In learning taekwondo, it cannot only touch on the aspects of the skill of self-defense techniques, but must include the physical, mental, and spiritual aspects. For this reason, someone who practices or learns taekwondo should show good physical condition, strong mentality and high spirits. However, it must be able to be shown in good attitudes and daily actions based on a noble soul. Only then can a person be said to be successful in practicing taekwondo [2].

Based on the details stated above, it is necessary to know the level of physical condition of taekwondoin female athletes in MTC (Manunggal Taekwondo Center) Pekanbaru-Riau, so that in the future it can be used as reference material in the implementation of taekwondo martial arts training by trainers, especially at MTC (Manunggal Taekwondo Center) Pekanbaru-Riau.

2. METHODS

This type of research is descriptive research. Descriptive research is a problem to find out the status and describe phenomena that intend to know the state of something about what, how, how much, to what extent and so on [3]. The sampling in this study is the Total Sampling technique that is all populations sampled.

This quasi-experiment research which was to see the effect of aerobic exercise on physical fitness uses the One Group Pre-test Post-test Design. Population in this study was all the students in the Faculty of Sport Science, Padang State University. Through purposive sampling technique, 84 male students were selected to participate in this study.

As for the sample in this study the authors only took the taekwondoin that was previously selected by the management and trainer by looking at the characteristics of the sample as follows:

a) Average age of 13-17 years.
b) Already have a satisfactory achievement and can be the desired sample of approximately 12 people.

The development of instruments in this study was carried out by conducting the following tests:

1. Test name: Leg Dynamometer [4]
   Objective: Measuring leg muscle strength
   - Tools / facilities: Leg Dynamometer
   - Implementation of the test: People try to wear a waistband, then stand up by bending both knees to an angle of approximately 45 degrees and then the belt is attached to the dynamometer leg. After that people try their best to straighten both legs. After that it turns out that the maximum length of both legs has been straightened, then we see the needle of the tools shows what number. This figure represents the amount of leg muscle strength.
   - Score: The amount of leg muscle strength, which can be seen on the device. The number indicated by the needle of the tool states the magnitude of the leg muscle strength.
2. Test name: Back Dynamometer
   - Objective: Measuring the strength of the back muscles
   - Tools / facilities: Back Dynamometer
   - Implementation of the test: People try to stand up, hips tight against the wall, body bent forward, both hands holding the dynamometer straight with both arms straight. Then the person tries his best to lift his body up, so that it leads to an upright attitude. The tool shows a number that states the magnitude of the contraction strength of the back muscles.
     Score: The amount of tensile strength of the person's back muscles that can be seen on the measuring device, after the person has done the test.
3. Test name: Sits-Ups
   - Objective: To measure the endurance component of abdominal muscles.
   - Tools / facilities: Flat field equipment
   - Test implementation: People try to sleep on their backs, hands intertwined behind the head, legs folded to form a 90-degree angle, a helper holds the ankles of the person try and press when the person tries to get up. The person tries to get up so that he is in a sitting posture and his elbows are worn on his knees and then he returns to his original posture. Perform this movement repeatedly and continuously, until people try not able to lift his body again. Caution that the legs always form a 90-degree angle on doing sit-ups
     Score: Correct number of sit-ups
4. Test name: Vertical-Jump
   - Objective: to measure the local endurance component of leg muscles
   - Implementation: People try to stand facing the wall with one arm straightened up. Then note the height of the range. Then the person tries to stand with the side of his body towards the wall, and one of the arms closest to the wall is straight up, then he takes a squatting posture so that his knees form an angle of approximately 45 degrees. After that, people try to jump up as high as possible. At the highest point of the jump, he immediately touched the fingertips of one of his hands on the size board then landed on both feet. People try to be given the opportunity as much as 3 (three) attempts.
   - Scores: The biggest difference between range height after jump and range height before jumping, from three attempts. The height of the range is measured in cm.
5. Name of test: Running 50 meters
   - Objective: measure speed components
   - Tools / facilities: Stop Watch, Meter, Track 50 meters, Pluit, Start Flag.
   - Implementation: People try to stand behind the starting line, with a floating star attitude. On cue "yes" he tried to run as fast as possible to finish. Each person tries to give twice a chance.
   - Score: The best amount of travel time from two attempts.
6. Test name: Flexibility
   - Objective: measure components of flexibility
   - Tools / facilities: Measuring tape, Mattress / flat area, Flexometer
   - Implementation: People try to stand upright on the measuring instrument with both feet tight and both ends of the big toe flat with the edge of the measuring instrument. The body is bent down, hands straight. Grab the body slowly down as far as possible, both hands trace the measuring instrument and stop at a certain range.
   - Score: The furthest range that can be reached by the person trying from two trials, measured in cm.
7. Name of test: Run for 15 minutes
   - Objective: to measure the component of cardiovascular endurance
   - Tools / facilities: Stop Watch, Whistle, Field / track
   - Implementation: People try to stand behind the starting line. When the "yes" signal is given, people try to start running for 15 minutes, until there is a sign that the time of 15 minutes has ended and the whistle sounds.
   - Score: The distance traveled by the person trying for 15 minutes, recorded up to meters, and then modified to score according to the available table.

This research was conducted at Dojang MTC (Manunggal Taekwondo Center) Pekanbaru-Riau in 2014. When the research was conducted in November 2014. The subjects in this study were female altlet taekwondo, with 12 female athletes with an average age of 13- 17 years and already has quite satisfying achievements.

The instrument used in this study was a test instrument to measure the physical condition of MTC taekwondo female athletes. While the data analysis used is to use relative frequency distribution analysis (percentage distribution) with the formula: [5]

$$P = \frac{F}{N} \text{ x100\%}$$

3. RESULT AND DISCUSSION

1. Data on Physical Condition Test Results for Leg Muscle Strength (Leg-Dynamometer)

Based on the test results of the Leg Dynamometer physical condition, the highest results were 67 and the lowest results were 19 with an average of 39.08. From 12 people intervals of 19-28 there are 4 people or 33.33%, 29-38 there are 3 people or 25%, 39-48 there are 2 people or 16.67%, 49-58 there are 1 people or 8.33%, and 59-68 there were 12 people or 16.67%. for more details can be seen in table 1 below.

Tabel 1. Frequency Distribution of Leg Dynamometer Test Results

No.	Interval Class	Frequency	Relatif (fr)
1.	19-28	4	33,33%
2.	29-38	3	25%
3.	39-48	2	16,67%
4.	49-58	1	8,33%
5.	59-68	2	16,67%
Total		12	100%

Source: Processed Results of Taekwondo Physical Condition Test Data

2. Data on Physical Condition Test Results of Back Dynamometer

Based on the physical condition test results on the Back Dynamometer the highest results were 71 and the lowest results were 20 with an average of 44. From 12 intervals <20 there were 3 people or 25%, intervals of 30-39 there were 2 people or 16.67%, intervals 40 -49 there were 1 people or 8.33%, intervals of 50-59 there were 5 people or 41.66%, and intervals> 60 there were 1 person or 8.33%. for more details can be seen in table 2 below.

Tabel 2. Frequency Distribution of Back Dynamometer Physical Condition Tests

No.	Interval Class	Frequency	Relatif (fr)
1.	<20	3	25%
2.	30-39	2	16,67%
3.	40-49	1	8,33%
4.	50-59	5	41,66%
5.	>69	1	8,33%
Total		12	100%

Source: Processed Results of Taekwondo Physical Condition Test Data

3. Data on Physical Condition Test Results for Abdominal Muscle Endurance (Sit-Ups)

Based on the results of physical condition tests on Sit-Ups the highest results were 37 and the lowest results were 20 with an average of 27.5. From 12 people interval <20 there are 5 people or 41.66%, intervals 23-25 there are 1 people or 8.33%, intervals 26-28 there are 2 people or 16.67%, 29-32 there are 3 people or 25% , and> 34 there were 1 people or 8.33%. for more details can be seen in table 3 below.

Tabel 3. Frequency Distribution of Physical Conditions Tests Sit-Ups

No.	Interval Class	Frequency	Relatif (fr)
1	< 20	5	41,66%
2	23-25	1	8,33%
3	26-28	2	16,67%
4	29-31	3	25%
5	>34	1	8,33%
Total		12	100%

Source: Processed Results of Taekwondo Physical Condition Test Data

4. Data on Physical Condition Test Results for Vertical Jump Leg Muscle Power

Based on the results of physical condition tests on Vertical Jump the highest results were 28 and the lowest results were 14 with an average of 24.25. From 12 people intervals <14 there are 1 people or 8.33%, intervals 18-21 there are 1 people or 8.33%, 22-25 there are 6 people or 50%, 26-29 there are 4 people or 33.33%, and> 32 there are 0 people. for more details can be seen in table 4 below.

Tabel 4. Frequency Distribution of Vertical Jump Physical Condition Tests

No.	Interval Class	Frequency	Relatif (fr)
1	< 14	1	8,33%
2	18-21	1	8,33%
3	22-25	6	50%
4	26-29	4	33,33%
5	>32	0	0
Total		12	100%

Sumber : Source: Processed Results of Taekwondo Physical Condition Test Data

5. Data Physical Test Results Running 50 Meter.

Based on the results of tests of physical conditions on running 50 meters the fastest results are 8.50 seconds and 10.63 seconds late results with an average of 9.45 seconds. From 12 people, the interval 8.50 - 8.92 there were 2 people or 16.67%, the intervals of 8.93 - 9.35 there were 4 people or 33.33%, 9.36 - 9.78 there were 3 people or 25% , 9.79 - 10.21 there are 2 people or 16.675%, and the interval 10.22 - 10.64 there are 1 person or 8.33%. for more details can be seen in table 5 below.

Tabel 5. Frequency Distribution of Physical Test Conditions Running 50 Meters

No.	Interval Class	Frequency	Relatif (fr)
1	8,50-8,92	2	16,67%
2	8,93-9,35	4	33,33%
3	9,36-9,78	3	25%
4	9,79-10,21	2	16,67%
5	10,22-10,64	1	8,33%
Total		12	100%

Sumber : Source: Processed Results of Taekwondo Physical Condition Test Data

6. Data on Physical Condition Test Results Flexibility

Based on the results of physical condition tests on Flexibility the highest results are 17 and the lowest results are 7 with an average of 12.83. From 12 people interval <7 there are 2 people or 16.67%, intervals 9-10 there are 3 people or 25%, intervals 11-12 there are 5 people or 41.66, 13-14 there are 2 people or 16.67, and interval> 16 there are 0 people. for more details can be seen in table 6 below.

Tabel 6. Frequency Distribution of Physical Conditions Test Flexibility

No.	Interval Class	Frequency	Relatif (fr)
1	< 7	2	16,67%
2	9-10	3	25%
3	11-12	5	41,66%
4	13-14	2	16,67%
5	>16	0	0
Total		12	100%

Source: Processed Results of Taekwondo Physical Condition Test Data

7. Data Physical Test Results Running 15 Minutes (Vo2 Max)

Based on the results of physical condition tests on Running 15 Minutes / Vo2 Max the highest results are 43.2 / 2290 meters and the lowest results are 36.9 / 1850 meters with an average of 39.93 / 2062 meters. From 12 people the interval 36.9 - 38.16 there are 4 people or 33.33%, the interval 38.17 - 39.43 there are 0 people or 0%, the interval 39.44 - 40.70 there are 5 people or 41.66 %, intervals of 40.71 - 41.97 there are 0 people or 0%, and intervals 41.98 - 43.24 there are 3 people or 25%. for more details can be seen in table 7 below.

Tabel 7. Frequency Distribution Physical Test Conditions Run 15 minutes / Vo2 Max

No.	Interval Class	Frequency	Relatif (fr)
1	36,9-38,16	4	33,33%
2	38,17-39,43	0	0
3	39,44-40,70	5	41,66%
4	40,71-41,97	0	0
5	41,98-43,24	3	25%
Total		12	100%

Source: Processed Results of Taekwondo Physical Condition Test Data

After a description of the data has been obtained, the next step is to classify the data using a norm table without regard to age, height, and weight factors (Central Indonesian National Sports Committee, 2003). By using this norm table, it can be seen that Putri Taekwondo Athletes at Manunggal Taekwondo Center Pekanbaru have many physical condition categories that are less than enough.

Tabel 8. Physical Conditions Test Results for Female Taekwondo Athletes at Manunggal Taekwondo Center Pekanbaru Riau with Statistics

No.	Interval Class	Fi	Xi	Fi . Xi	Fka	Frekuensi Relatif
1	14-17	1	15,5	15,5	1	8,33%
2	18-21	5	19	97,5	6	41,66%
3	22-25	4	23,5	94	10	33,33%
4	26-29	1	27,5	27,5	11	8,33%
5	30-33	1	31,5	31,5	12	8,33%
		N=12		∑Fi. Xi=266		100%

Sumber Source: Processed Results of Taekwondo Physical Condition Test Data

Based on the table above, the largest data obtained are 30-33 and the smallest 14-17, resulting in an average (mean) of 22,16, middle data (median) 18.5 and data that frequently appear (mode) 20.7. The category of physical condition level of MTC taekwondo athlete of 12 athletes who were the subject of the study was found to have a Perfect Physical condition level of 0 people or 0%, Very Good 0 people or 0%, Good 0 people or 0%, Enough 2 people or 16.67 %, and less 10 people or 83.33%. And no one is classified as good or perfect physical condition. For more details can be seen in the following table:

Tabel 9. Category Level Physical Condition of Putri Taekwondo Athletes MTC (Manunggal Taekwondo Center) Pekanbaru-Riau

No.	Ability Category	Taekwondo	
		Total	Relatif (fr)
1.	Perfect	0	0%
2.	Very well	0	0%
3.	Baik	0	0%
4.	Well	2	16,67%
5.	Less	10	83,33%
Total		12	100%

Sumber : Source: Processed Results of Taekwondo Physical Condition Test Data

As an answer to the research, it can be stated that the level of physical condition of female athlete in taekwondo athletes in MTC Pekanbaru is as much as 2 taekwondo athletes or 16.67% have sufficient physical condition level and 10 taekwondo athletes or 83.33% have less physical condition level.

4. CONCLUSION

Based on the review of the physical condition data above, it can be seen and concluded that the physical condition of the female athlete of Taekwondo MTC (Manunggal Taekwondo Center) Pekanbaru-Riau is in the category of Less.

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