



PHYSICAL FITNESS OF THE POOMSAE TAEKWONDO ATHLETES IN TERMS OF AGILITY, BALANCE AND ENDURANCE

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Article Info

Article History :

Received : February 2021

Revised : February 2021

Accepted : March 2021

Available online : March 2021

Keywords:

agility, balance, endurance ,
taekwondo, physical fitness

Abstract

The purpose of this study was to determine physical fitness training to increase agility, balance, and endurance of taekwondo athletes State University of Jakarta Poomsae number. The sample used in this study of taekwondo athletes Poomsae number of 30 people. The method used in this research is quasi-experimental design research using the design of one group pretest-posttest design. Data analysis techniques used in this study are using descriptive analysis and inferential analysis, descriptive analysis is used to describe the results of this research while inferential analysis using t-test with significant level $\alpha = 0.05$ analysis used with the help of SPSS version 20.0. The results of this study can be concluded that physical fitness exercises used have a significant effect on increasing agility, balance, and endurance in taekwondo athletes State University of Jakarta Poomsae number. In this study only involved physical fitness training to improve some physical components, but for further research, physical activity training methods and psychosocial and social environments will be carried out to improve the physical components of taekwondo athletes, especially in poomsae numbers to support qualified achievement.

INTRODUCTION

Taekwondo is a martial art originating from the predominantly Korean ginseng country using hand and foot techniques to attack and defend (C. A. Bridge et al., 2013; Craig A. Bridge et al., 2014; Pieter, 2009; Schlüter-Brust et al., 2011). Taekwondo is dominant in using legs to defend and attack, so taekwondo is a martial art that dances with. Menurut (Campos et al., 2012; Del Vecchio et al., 2011; Ji, 2016; Monks et al., 2017; Schlüter-Brust et al., 2011) There are three important numbers in taekwondo, namely Taekwondo (Poomsae), the technique of breaking hard objects with kickstand punches (kyukpa), and the fight in taekwondo martial arts is (Kyoruki). Mastery of basic techniques in taekwondo is very important to support the skills in competition.

In this study, researchers only chose one of the numbers in taekwondo namely poomsae number. By (Choi & Joo, 2016; Chung & Johnson, 2019; Kazemi et al., 2016; Shin et al., 2016) Poomsae is a series of defensive and attacking movements that must be trained as if we are fighting against many opponents around us. Poomsae not only involves physical movements solely but involves breathing, soul process, mental process, and all spiritual, moral, techniques that are learned earlier as we begin to learn martial arts.

Poomsae is a form of active meditation in martial arts because it requires concentration and harmony between the mind, body, and spirit of the practitioner to produce the highest self-awareness to control and combine all the things learned above in a series of motions in synergy.

To learn taekwondo techniques consisting of punches, strokes, and kicks there is such a thing as Gibon dongjak/movement so that it forms a Poom

which is the final form of taekwondo technique. According to several research results, among others (Altarriba-Bartes et al., 2014; Estevan et al., 2013; Ji, 2016) as for taekwondo kicks of many types, such as a straight forward kick to the head (ealgol ap chagi), a straight forward kick to the abdomen (Momtong dolly changi), a kick to the back turn the leg body folded and then flicked backward with snap (dwiChagi), Yeop chagi kick or puncture. Taekwondo can be learned by anyone regardless of gender, age, and social status. Taekwondo is a rapidly growing achievement sport around the world.

In sports achievements the need for systematic coaching. It means that the sports coaching system that places the development of the potential and talents of early childhood as the main foundation, further carried out coaching through a systematic, tiered, and sustainable training program to achieve high performance (Bompa & Haff, 2009). To display high performance, it is necessary to systemic exercises to realize good physical fitness. Physical fitness is the body's wildness in adjusting the load of a physical activity received to do daily activities.

One indicator of knowing physical fitness is through tests of balance, agility, and endurance. According to (Antara et al., 2017; Munawarah, 2019; Nurhakim et al., 2013; Pelana, 2016; Rawe et al., 2017; Syaefullah et al., 2017) that balance is the ability to hold the body to react to any changes in body position so that the body remains stable and controlled both statically and dynamically.

Agility is a person's physical ability to change direction quickly direction or body parts without interference with a balance is indicated to maintain static and dynamic balance (Aksoy, 2019; Arabaci et al., 2010; Chaabene et al., 2018; Singh et al., 2015, 2017; Tirtawirya, 2011).

Endurance is the ability and ability to do work or activities without experiencing significant or excessive fatigue to perform further activities (Indrayana, 2012; Kurnia & Anggraini, 2020; Kurniawan & Gusrianty, 2019; Nugraheni et al., 2017; Solissa, 2018).

Thus, to improve the physical condition, the need for systematic exercise and the need to pay attention to aspects of the exercise consisting of various disciplines or scientific fields incorporated in an exercise system is inseparable from science (Jariono et al., 2020; Jariono & Subekti, 2020).

Several factors must be considered, among others, including clear coaching objectives, systematic training programs, appropriate training materials and methods, and evaluations that can measure the success of the coaching process itself (Arief Parena et al., 2017; Effendi, 2016; Irmansyah, 2017; Parena et al., 2017; Ruslan, 2011b, 2011a; Tangkudung James, 2006).

To approach science and technology to evaluate the ability of physical components of Taekwondo athletes more accurately in the future it is necessary to conduct research, As for the study is the physical fitness of the poomsae taekwondo athletes in terms of agility, balance, and endurance.

METHODS

The method used in this research is quasi-experimental design research using a quantitative approach. This research was conducted from July-August 2020. This study aims to analyze the effect of treatment on increased agility, balance, and endurance. As for the design in this research there using one group pretest_posttest design, the design of this research can be seen in the following figure:

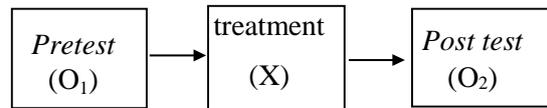


Figure 1. Research Design

In this research there are several steps taken, namely " (1) establish the research subject group; (2) pre-test (O₁); (3) To treat physical fitness models consisting of sit-ups, push-ups, pull-ups, vertical jumps, and multi-stage running; (4) Carry out post-test (O₂); (5) look for pre-test and post-test average scores and be compared between the two; (6) look for the difference between the two averages through the statistic k (t-test) method "to determine whether or not there is a significant influence of physical fitness exercise".

Quasi-experimental research using a single-subject design is done by giving tests to subjects who have not been treated called pretests (O₁). After obtaining the data of students who have preliminary data, it is treated using a circuit learning approach within 8 weeks. Then performed treatment to taekwondo athletes' Poomsae number, then given again a test called (O₂) to measure whether or not the influence of physical fitness training model (X), in the post-test obtained data results from experiments where students' physical fitness ability increased or no change at all.

Participants

This research was carried out at The State University of Jakarta with a sample of 30 taekwondo athletes who participated in taekwondo training poomsae number.

Sampling Procedures

This sampling procedure is purposive sampling. This study requires consideration on the grounds of the characteristics of taekwondo athletes on Poomsae numbers who have participated

in training for 1 year or more. So the researchers took a sample that had already followed the exercise.

Materials and Apparatus

Data collection techniques using practice tests. Practice tests are used for agility tests using shuttle run tests, balance tests using static balance tests, while endurance tests use multi-stage fitness tests (MFT).

Procedures

The procedures in this study were: (1) the first stage the researcher conducted a test and measurement consisting of a balance, agility, and endurance test; and (2) the researcher categorizes the supporting and unsupportive data with the focus in this study. Then the researcher examined the relationship between the data and field notes so that the data or information obtained during the field could be known.

Design or Data Analysis

The data analysis used in this study is descriptive, the prerequisite test includes normality test and homogeneity test, then the hypothesis test is a don't-test. Overall for data analysis using SPSS software version 20.0

RESULT

1. Descriptive analysis

Descriptive analysis of data aims to draw in general on distribution dissemination of "pretest and posttest" agility, balance, and durability. A recap of the results of the descriptive analysis of data can be seen in figure 1.

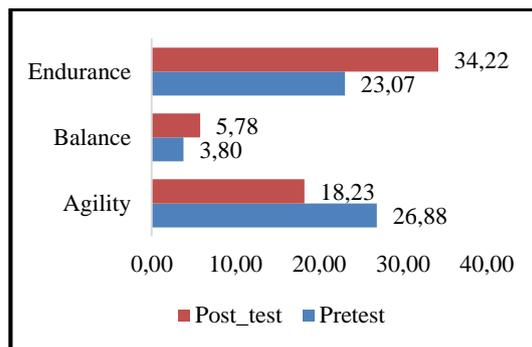


Figure 2. Histogram mean value "pretest dan posttest" agility, balance, and endurance

Based on the descriptive analysis results in figure 1 histogram the difference in average "pretest and posttest" can be concluded that there is an increase in pretest and posttest taekwondo athletes state university of Jakarta Poomsae numbers reviewed from agility, balance, and endurance. This is evidenced from 30 samples obtained pretest and posttest average values of 26.88 and 18.23 differences of 8.65, balances of 3.80 and 578 difference of 1.97, and endurance of 23.07 and 34.22 difference of 11.5. Thus it can be concluded that physical fitness exercises can improve the agility, balance, and endurance of taekwondo athletes at the Poomsae number State University of Jakarta.

2. Prerequisite test

The normality test is used as a prerequisite for the hypothesis test. The normality test using Kolmogorov-Smirnov Z (KS-Z) test can be seen in the following histogram image:

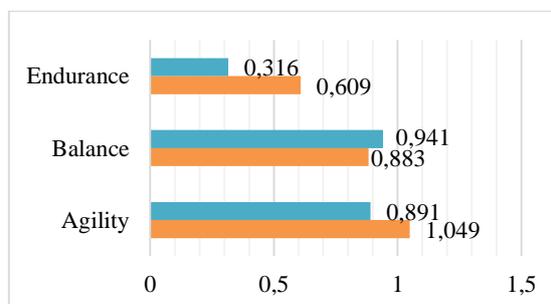


Figure 3. Histogram test normality "pretest and posttest" agility, balance, and endurance

Based on the test results of normality data on histogram image normality test values "pretest and posttest " agility, balance, and endurance Kolmogorov-Smirnov Z (KS-Z) in the entire data group turned out to be greater than the value of $\alpha = 0.05$. Thus it can be concluded that the sample of this study comes from a normally distributed population. After the normality test is carried out, then hypothetical testing is carried out.

3. Hypothesis test

Tabel 1. Results from t_test data "pretest and posttest" agility, balance, and endurance

pretest_ posttest	t_count	Sig	t_table (0,05)
Agility	11.027		
balance	14.290	.000	1.699
Endurance	22.461		

Based on analysis t_test "pretest and posttest" agility, balance, and endurance in table 1 above obtained the value of t_count of 11.027, 14.290, and 22.461 and t_table (29(10);0.05) of 1.699. Based on these results, it can be concluded that the correlation coefficient (t-test) between pretest and posttest increase in agility, significant balance, and endurance or H_0 is rejected and received H_1 . Thus it can be concluded that there is a significant influence of physical fitness on the improvement of agility, balance, and endurance in taekwondo athletes State University of Jakarta poomsae number. This means that the coefficient can be generalized or can apply to the overall population of taekwondo athletes at the

State University of Jakarta where a sample of 30 people is taken.

DISCUSSION

The results showed that from the descriptive analysis of data to research hypothesis testing, physical fitness exercises used had a significant effect on increasing agility, balance, and endurance in taekwondo athletes of Universitas Negeri Jakarta poomsae number. Physical fitness is a supporting element of physical components consisting of strength, speed, agility, coordination, and endurance to carry out daily activities without experiencing significant fatigue and still have physical reserves.

Based on the results of the study, physical fitness exercises can increase agility, balance, and endurance in taekwondo athletes State University of Jakarta poomsae number. These results (Dobbins et al., 2013; Donnelly et al., 2016; Erickson et al., 2014; Rauner et al., 2013) are fitness is one of the important components to improve the physical component of one of them is to keep the body in shape. his research stated that agility, balance, and endurance as some of the physical components to maintain a person's appearance (Ozmen & Aydogmus, 2016; Weiss et al., 2010; Yu et al., 2013) Thus physical fitness exercise is one of the solutions to be applied in training especially to improve the physical components, especially agility, balance, and endurance that is more effective and efficient. This physical fitness exercise is following the characteristics of taekwondo martial arts, especially in Poomsae numbers that require agility, balance, and endurance.

The advantages of method physical fitness exercises in the material presented are in the form of dominant exercises used in taekwondo in which there is unsure endurance, agility, and strength thus

making athletes feel bored with the process of delivering the practice. Physical fitness exercises as process exercises are functional exercises of the body. Lack of exercise is the need for consistent and systematic practice.

CONCLUSION

From the results of the study, it can be concluded that physical fitness exercises used have a significant effect on increasing agility, balance, and endurance in taekwondo athletes State University of Jakarta poomsae number.

ACKNOWLEDGEMENT

Thank you to the faculty of the sports science State University of Jakarta who has facilitated researchers to conduct research.

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