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# The Effect of Basic Techniques Training of Volleyball Towards Students' Physical Fitness

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## ABSTRACT

The purpose of this study is to improve students' physical fitness through basic techniques training of volleyball. This is a quasi-experimental research design involving 30 students. The data were analyzed using descriptive and inferential statistics with t-test. Based on the results of data analysis, it can be concluded that: 1) Basic techniques training of volleyball affect students' physical fitness,  $t_{observed} = 19.00 > t_{table} = 2.04$ . Qalbi Amra<sup>1</sup>, Frizki Amra<sup>2</sup>, 2). There was an improvement of students' physical fitness for about 4.07, the mean of pre-test was 10.93 and the mean of post-test was 15.

**Keywords:** Training, volleyball, students' physical fitness

## 1. INTRODUCTION

Volleyball is one of team sports that everyone likes because it is interesting, fun and inexpensive, so that it can easily be played by everyone. Simply ask some friends, have a ball and net to play it in a small field. This is one of the reasons that volleyball is increasingly popular in the Indonesian community. Volleyball game has some basic techniques that should be mastered by a player. In volleyball game there are some basic techniques that must be mastered. Basic techniques in volleyball game consist of service, passing down, passing over, block, and smash. Mastery in basic techniques is very important in order to play volleyball splendidly. To master these basic techniques, it is required to perform basic technique exercise continuously and seriously in order to master volleyball technique easily.

Basic technique in playing volleyball is an essential tool to improve students' physical fitness in order to perform with excitement, excellence, and efficiency, and this is influenced by basic technique in playing volleyball. Development of basic technique exercise in volleyball for students through sport activity is purposed to improve physical condition and endurance of student so that they can follow learning activities excellently. Student who has good basic techniques in volleyball will sustain their physical fitness, so that it can improve learning activities and performance and able to perform other physical activities and sports activities.

The basic technique of playing volleyball according to Nuril Ahmadi (2007:20) is must be mastered. Techniques in volleyball game consist of service, passing down, passing over, block, and smash.

The basic technique is a process to develop physical activity and proving it in practice as much as possible to complete the task in volleyball game.

Based on observation and interview with several teachers of SMPN 1 Batusangkar, it can be concluded that students from 29 classes in SMPN 1 Batusangkar (from grade VII to grade IX) have poor physical fitness. It can be seen from unexciting students while doing learning activities and many students who feel tired in sport activities such as in volleyball game.

This poor physical fitness of students in SMP N 1 Batusangkar may be influenced by many factors such as nutritional status, school environment, facilities and infrastructure, students' knowledge of physical fitness, rest duration and exercise habit. Besides that, student has habits that are lazy to move, such as mostly students go to school using a motor vehicle and public transportation. Even after arrived at home from school, they are not having physical activity and exercise, except for students who have talents and interests in sports that are popular and have desire to get achievement. It is also can influence basic techniques of playing volleyball.

Physical fitness is the ability of body to execute everyday activities without experiencing significant fatigue and still have reserves of energy to deal with sudden emergencies. "Physical fitness is the ability of body to do work in a long duration without feeling tired before the time". A person who has a good physical fitness has a large reserve of energy and if physical fitness is low then there are a few energy reserves to support activities or emergencies.

Physical fitness is an individual condition of total fitness that gives a person the ability to live a

productive life and can adapt to any appropriate physical stress or burden. Physical fitness is "A person's ability to perform physical tasks that require strength, endurance, and flexibility".

Physical fitness is the ability to carry out daily work diligently and swiftly, without causing significant fatigue, and still has a power to rest and dealing with unexpected condition (Muhajir, 2005). Physical fitness is more than just healthy. Physical fitness is the ability of a body to carry out its daily tasks easily, without excessive fatigue and still having energy to rest and sudden needs.

Sutarman in Gusril (2004) stated that physical fitness is a physical aspect of total fitness which enables someone to live a productive life and adapt to any decent physical test. In other words, physical fitness is a mirror of functioning ability of body system that can improve quality of life in every physical activity. It is clear that when a person does a lot of activities his/her level of physical fitness is better.

If exercise and sport activities are routinely and regularly performed, it can increase body's ability to consume oxygen maximally and give a good impact on physical fitness. Then, it can be concluded that physical fitness is an aspect of physical ability that can support the success of students in performing various activities in everyday life without heavy fatigue. Gusril (2004:14) discovered physical fitness is different and depends on type of work, health, gender, age, degree of accuracy and nutritional status.

Physical fitness exercise is defined as a systematic process of using movements that aimed to improve or maintain quality of body functions that include quality of heart-lung resistance, muscle strength, flexibility, and body composition.

Physical exercise that performed according to the actual proportion will improve level of health and physical fitness, muscles can grow and grow larger as the muscle fibers get bigger and strength will also increase. There are several advantages from doing regular exercise that is to: be able to control emotions, feel fresh, confident, and feel happy, more creative and physical work capacity increases.

Related to this study, it can be drawn a conclusion that by practicing volleyball game, students' physical fitness of is likely to be improved. This can be attributed to the requirement in volleyball game which is physical effort that requires strength, endurance, flexibility, speed and coordination of movement. All of these are components of physical fitness. Someone can improve the ability to perform daily activities without experiencing significant fatigue by exercising such as practicing volleyball game.

The basic technique in volleyball game according to Nuril Ahmadi (2007:20), "Inv volleyball game, there are several basic techniques that must be mastered.

Basic techniques in volleyball games consist of service, bottom passing, passing over, block and smash ". To play volleyball splendidly someone should master these basic techniques. Based on description above, the purpose of this study is to determine the effect of basic training techniques in volleyball toward physical fitness for students in SMP N 1 Batusangkar Tanah Datar.

## 2. METHODOLOGY

This study used quasi experiment method. In this study there was one experimental group that given a treatment deliberately. Design of this study was One Group Pretest-Posttest Design, which was a group given the treatment, but previously the group got pre-test, then at the end of treatment there was a final test (post-test).

Population in this study was students of class VII, VIII, and IX who followed self-development extra-curricular activities of volleyball in SMP N 1 Batusangkar Tanah Datar which amounted to 30 students. According to Suharsimi Arikunto (2002), sample is representation of study population. To determine number of sample used, according to Arikunto (2002), if subject less than 100, all of it used as sample, if number of subject was large, it could be taken between 10% - 15% or 20% - 25% or more, but in this study sample was total sampling because the number of student who participated in self-development volleyball game was relatively few that was 30 students, thus the number of sample in this study was 30 students.

Data collection was conducted by Indonesian Physical Fitness Test (TKJI) test according to Department of Education/Depdikbud (1996) to study sample. Before test, data was collected and students were given an explanation about the implementation of test (attached). TKJI included: a. Running Speed Test 50 m; b. Pull-Up Power Strength Test for 60 Seconds; c. Sit-Up Resistance Test for 60 Seconds; d. Vertical Power Jump Test; e. Heart Capacity, Circulatory and Respiratory Test in 1000 m Run.

Data analysis was done by t test to see the result of volleyball play experiment with pre-test and post-test one group design, but firstly tested its normality and homogeneity. Hypothesis test by t test at level of confidence 95% or  $\alpha = 0.05$  by formula as follows:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{s \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \quad (1)$$

Where:

X1 = average value of pre-test result

X2 = average value of post test result

S = combined standard deviation

**3. RESULTS AND DISCUSSION**

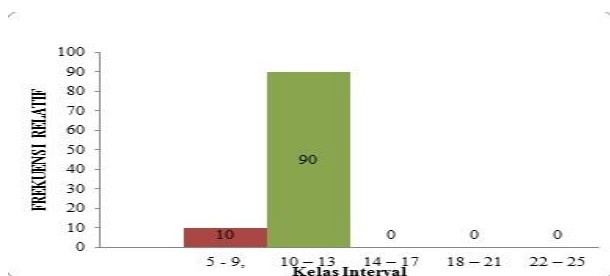
Physical Fitness Pre-Test

Result of data from 30 students in SMP N 1 Batusangkar Tanah Datar showed that no student had level of physical fitness in category of very good, good and medium. Overall students were in category of low and very low, it meant that students did not have good physical fitness level. It can be said that level of physical fitness was very low. Data of student's physical fitness at SMP N 1 Batusangkar Tanah Datar regency before implementation of basic technique training on volleyball game is presented on table below.

**Table 1.** Frequency distribution of pre-test data result in category of student's physical fitness before implementation of basic technique training on volleyball game.

Score	Category	Absolut frequency	Relative frequency
22 – 25	Very good	0	0
18 – 21	Good	0	0
14 – 17	Moderate	0	0
10 – 13	Poor	27	90
5 – 9	Very poor	3	10
Total		30	100

Based on table it can be concluded that, from 30 samples, no student has physical fitness in category of very good, good and moderate. There are 27 (90%) students in category of poor and 3 (10%) students in category of very poor. To explain the result of student's physical fitness at SMP N 1 Batusangkar Tanah Datar regency before implementation of basic technique training on volleyball game, it is presented in graphic below.



**Figure 1.** Pre-test of student's physical fitness before implementation of basic technique training on volleyball game

Based on scoring on variable of student's physical fitness at SMP N 1 Batusangkar Tanah Datar regency before implementation of basic technique training on volleyball game, then it shows that group of students with score above average consists of 10 students (33.33%) and group of students within average score consists of 9 students (30%). Meanwhile, group of students with score below average consists of 11 students (36.67%).

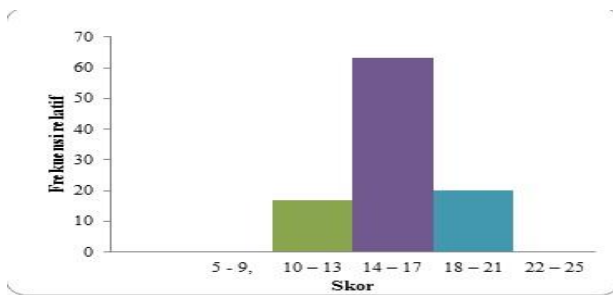
Physical fitness final-test

From physical fitness test that conducted to 30 students after implementation of basic technique training on volleyball game, it is obtained that mean score is 15, standard deviation is 2, highest score is 18, and lowest score is 11. Meanwhile, range of score measurement is 7. Next, category distribution of data result on student's physical fitness at SMP N 1 Batusangkar Tanah Datar regency after implementation of basic technique training on volleyball game is presented on table below.

**Table 2.** Frequency distribution of pre-test data result in category of student's physical fitness after implementation of basic technique training on volleyball game.

Score	Category	Absolut frequency	Relative frequency
22 – 25	Very good	0	0
18 – 21	Good	5	16,67
14 – 17	Moderate	19	63,33
10 – 13	Poor	6	20
5 – 9	Very poor	0	0
Total		30	100

Based on table it can be concluded that, from 30 samples, no student has physical fitness in category of very good. For category of good, there are 5 students (16.67%) and 19 (63.33%) students in category of moderate. Meanwhile, there are 6 (20%) students in category of poor, but no student in category of very poor. To explain the result of student's physical fitness at SMP N 1 Batusangkar Tanah Datar regency after implementation of basic technique training on volleyball game, it is presented in graphic below.



**Figure 2.** Final-test of student's physical fitness after implementation of basic technique training on volleyball game

Based on scoring on variable of student's physical after implementation of basic technique training on volleyball game, then it shows that group of students with score above average consists of 13 students (43.33%) and group of students within average score consists of 4 students (13.33%). Meanwhile, group of students with score below average consists of 13 students (43.33%).

Data result from 30 students at SMP N 1 Batusangkar Tanah Datar regency shows that there is no student has level of physical fitness in category of very good, good and medium. Overall students were in category of low and very low, it meant that students did not have good physical fitness level. It can be said that level of physical fitness was very low. Factors that affecting someone physical fitness include: 1) Health problems, such as health conditions, infectious and chronic diseases; 2) Nutritional problems, such as lack of protein, calories, low nutrition, and inadequate nutrition; 3) Physical exercise problems, such as exercise starting age, weekly exercise frequency, exercise intensity and exercise volume; 4) Heredity problems, such as anthropometry and congenital abnormalities.

In accordance to these factors, it is clear that one of factors that affect physical fitness of students is physical exercise. In this study, physical exercise given to 30 students at SMP N 1 Batu Sangkar Tanah Datar was to provide training technique in volleyball game such as service, passing down, passing over, smash and block, and then applied these basic techniques as a whole. Exercise can be interpreted as a systematic practice that is done repeatedly where training load was increased ahead. This exercise was given in 16 meetings, which expected to affect level of student's physical fitness.

Based on these results, in accordance to hypothesis that was implied, then result showed that "There was an effect of basic exercise techniques in volleyball game toward student's physical fitness in SMP N 1

Batusangkar Tanah Datar, and it was accepted empirically. Furthermore, it showed that there was improvement in student's physical fitness from the average value of pre-test which was 10.93 and average value of test after treatment was given in 16 times of meetings (post test) which were 15. It meant there was an increase of 4.07 points to student's physical fitness.

#### 4. CONCLUSION

The prototype product "Medicine Voiced Ball" can be used as a solution in large ball learning for students with special needs visually impaired. The product should be further investigated by involving manufacturers of ball manufacturers so that the accuracy and specification of bias products is feasible and standard is used.

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