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THE INFLUENCE OF MEDICINE BALL TRAINING ON CHEST PASSES OF BASKET BALL

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Abstract:
This study aims to determine the effect of medicine ball training on the results of basketball chest passes in class 9th students at SMP Negeri 3 Tanjung Bintang. This study is pre-experimental research using the one group pretesttest-posttest design. Sampling was done by random sampling and obtained 28 samples with 12 boys and 16 girls in class 9A. Data collection techniques chest pass test results using the basketball passing test from the AAHPERD Basketball Test. Data analysis used wilcoxon test. The test analysis results obtained p 0.000 < α 0.05 so Ho is rejected and Ha is accepted. It can be concluded that there is an effect of giving medicine ball exercises on the results of basketball chest passes in students. With the right and measurable medicine ball exercise combined with a systematic training program in stages, it will have an influence on the accuracy of the chest pass ability.

Keywords: *basketball, chest pass, medicine ball*

Abstrak:

Penelitian ini bertujuan untuk mengetahui pengaruh latihan medicine ball terhadap hasil chest pass bola basket pada siswa kelas IX di SMP Negeri 3 Tanjung Bintang. Penelitian ini merupakan penelitian pra-eksperimen dengan menggunakan desain one group pretest-posttest design. Pengambilan sampel dilakukan dengan cara random sampling dan diperoleh 28 sampel dengan 12 siswa laki-laki dan 16 siswa perempuan di kelas 9A. Teknik pengumpulan data hasil tes chest pass menggunakan tes passing bola basket dari AAHPERD Basketball Test. Analisis data menggunakan uji wilcoxon. Hasil analisis uji diperoleh p 0.000 < α 0.05 sehingga Ho ditolak dan Ha diterima. Dapat disimpulkan bahwa ada pengaruh pemberian latihan medicine ball terhadap hasil chest pass bola basket pada siswa. Dengan latihan medicine ball yang tepat dan terukur yang dipadukan dengan program latihan yang sistematis secara bertahap, maka akan memberikan pengaruh terhadap ketepatan kemampuan chest pass.

Kata kunci: bola basket, chest pass, medicine ball

INTRODUCTION

Basketball is one of the most popular sports in Indonesia. A basketball game is usually played by two teams of five players on each team. Each team tries to put the ball into the opponent's basket as much as possible (Mashuri, 2017). Basketball is a team game, although sometimes it requires individual skills when playing. Command of basic techniques is a prerequisite that every student must have to play the game well and can determine the quality of the game.

Mastery of basic techniques perfectly, students can apply tactics and strategies well and increase high confidence. Of the several basic basketball techniques available, the chest pass is a passing or feeding technique carried out from the front of

the chest and directed to a teammate. This throw or pass is a throw that is very much done in play. This throw is very useful for short distance passes with calculations for speed and accuracy and the opponent receiving the ball is not tightly guarded.

In improving basketball game techniques, which in this case is the chest pass, physical conditions such as endurance are needed, namely during the game students are required to remain in a stable condition until the end of the game. Another condition is concentration, in playing concentration is needed so that students remain focused on playing. Reaction speed and coordination are also needed in playing so that the team creates good cooperation. Based on this, to get the maximum chest pass ability requires good physical condition. So, to become an outstanding basketball player, it is demonstrated by the elements of physical fitness, including speed, strength, flexibility, endurance, agility, coordination, balance, muscular strength, reaction, and accuracy (Atmoko, 2021).

To get good and quality chest pass results, one of them needs to do medicine ball training, which is a form of pliometric exercise using a ball-like tool to increase arm muscle power and strength. Pliometric exercise is a method for developing explosive power (Harista & Trisnowiyanto, 2016). Aidin et al. (2014) found that medicine ball exercise can increase **chest pass** length in basketball games. Therefore, considering the importance of power or arm muscle strength when playing basketball games to perform dribbling, passing, and shooting techniques, this must be considered.

Based on observations made by researchers, it was found that some students when doing chest passes were still significantly constrained by the deficiencies that appeared, especially in basic techniques when doing chest passes. Some students when doing a chest pass do not reach the intended target due to lack of power. When students do chest passes the left and right hands when throwing the ball are not the same so that the direction of the ball is not directed to the target. Then when doing a chest pass the feet are not in a ready position to hold and throw the ball. In addition, during the chest pass there are still many students who

misplace the position of their hands when holding the ball is not good. The lack of accuracy of students in practicing the chest pass is also due to the absence of Physical Education teachers, so students are not taught about the correct chest pass technique by substitute teachers. Based on these problems, the researcher wants to conduct a study entitled The Effect of Medicine Ball Exercise on Chest Pass Basketball.

METHOD

This research uses a quantitative approach with experimental research methods. Pre-experimental research type with One Group Pre-test-Post Test Design was used. This research was conducted at SMP Negeri 3 Tanjung Bintang starting Monday, September 11, 2023 until Saturday, September 16, 2023. The population in this study were 9th grade students at SMPN 3 Tanjung Bintang as many as 139 students. The sample used was class 9A at SMPN 3 Tanjung Bintang as many as 28 students. The sampling technique used in this study was random sampling technique.

The inclusion criteria in this study were 9th grade students at SMPN 3 Tanjung Bintang who were willing to become respondents and were willing to be given intervention at the time of the study, following the entire series of exercise programs. Exclusion criteria in this study were students who withdrew as respondents, had physical abnormalities that could limit movement, had a history of diseases related to cardiovascular, respiratory, muscle injuries, bone fractures, or acute infections.

The Wilcoxon test is used because it is to see the effect between the independent and dependent variables before and after treatment with more than two categories (very less, less, enough, good, and very good) (Dahlan, 2016). This non-parametric statistic is used to test the comparative hypothesis of two independent samples when the data is ordinal (Sugiyono, 2017).

RESULTS AND DISCUSSION

RESULTS

1. Univariate Analysis

Univariate analysis shows the results of the study presented in the

frequency distribution of chest pass results before and after the intervention in the form of medicine ball training. The results of univariate analysis are presented in the table below:

Table 1. Frequency Distribution of Pretest and Posttest Chest Pass Results

Outcome assessment category	Pretest		Posttest	
	F	%	F	%
Very good	0	0	7	25
Good	4	14,3	10	35,7
Fair	6	21,4	9	32,1
Less	9	32,1	2	7,1
Very less	9	32,1	0	0
	28	**100**	**28**	**100**

Based on the results of the frequency distribution table of the chest pass value in the pretest and posttest, there was an increase in the very good category from 0% to 25% in the good category from 14.3% to 35.7%. While in the sufficient category 21.4% to 32.1%, while in the less and very less category there was an increase, namely in the less category from 32.1% to 7.1% and very less 32.1% to 0%. So it can be concluded that there is an increase in the results of basketball chest passes after being given medicine ball training. To see the increase more clearly, it can be seen in the histogram image of the pretest and posttest results below:

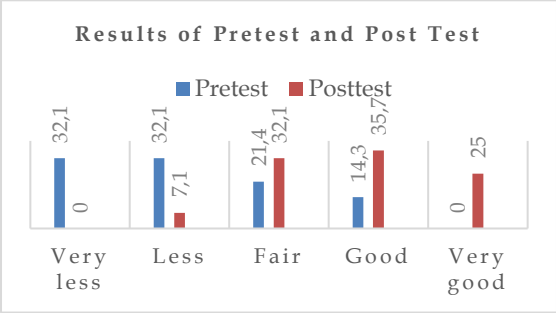

Figure 1. Histogram of Pretest and Posttest Results

2. Bivariate Analysis

Bivariate analysis is used to see the relationship or influence between variables in accordance with the research objectives. The Wilcoxon test was used because it was to see the effect between the independent and dependent variables before (pretest) and after being treated (posttest). The results of the bivariate analysis are

presented in the table below:

Table 2. Wilcoxon Test Results Pretest and Posttes

	Postest-Pretest
Z	$-4{,}651^{b}$
Asymp. Sig. (2-tailed)	0,000

Based on the output table of the Wilcoxon test results in the table above, obtained Z count of -4.651 and sig value = 0.000. This means that the sig value of 0.000 is smaller than 0.05. Thus, Ho is rejected and H1 is accepted. So it can be concluded that there is an effect of giving medicine ball exercises on the results of basketball chest passes. To find out more, it can be seen in the following table:

Table 3. Wilcoxon Signed Ranks Test Results

	N	**Mean Rank**
Negative ranks	0^{a}	0,00
Positive ranks	28^{b}	14,50
Tiles	0^{c}	
Total	28	

Based on the results of the Wilcoxon signed ranks test, the average value of positive rank = 14.50 and negative rank = 0.00. This means that there is an increase in the value of students' chest pass results after being given treatment in the form of medicine ball training. So that the provision of medicine ball exercises has a significant effect on improving the results of basketball chest passes in 9th grade students at SMP Negeri 3 Tanjung Bintang.

To find out how big the difference can be seen from descriptive statistical data. Descriptive statistics show the minimum, maximum, average and standard deviation values of each research data. Here are the results of descriptive statistics:

Table 4. Descriptive Analysis Data Pretest and Posttest

Chest Pass results	**Min**	**Max**	**Mean**	**Standard deviation**
Pretest	12	19	14,7500	2,17094
Post test	16	23	18.3571	1.94773

Based on the results of descriptive analysis, the average value of the student pre test is 14.75 and the average value of the post test is 18.36. This shows that there is an increase in the value of chest pass results after getting medicine ball training. Thus it can be concluded that the provision of medicine ball training has a significant effect on improving the results of the 9th grade chest pass at SMP Negeri 3 Tanjung Bintang.

DISCUSSION

Chest pass is one of the most common basic passing techniques in playing basketball because it can be done quickly and precisely from every position. Chest pass is a pass in basketball games to friends using two hands in front of the chest (Ali, 2018; Junaidi, 2016). Chest pass can generally be done quickly, hard, but not wildly, so that it can be controlled by the friend who will receive it. Chest pass or commonly referred to as chest pass is the most effective type of passing when the player is not guarded by an opponent or enemy.

The chest pass is a pass that requires hand skills in making a pass where the ball is held in front of the chest and then pushed towards a friend or target. This pass is useful for short distances. Passing the ball in this way will produce speed, accuracy, and accuracy. The success of doing a chest pass, when the ball is grasped firmly by both hands, then when making a push from the front of the chest with the help of the arm muscles and continuing forward to release the wrist and the fingers of the hand are needed overall arm muscle strength, thereby creating maximum thrust and glide of the ball far soaring forward and the accuracy of the throw or pass right on target or goal. To get good and quality chest pass results, one of them needs to do medicine ball training.

Rahmat et al. (2020) also mentioned that to get good arm and shoulder muscle explosiveness, namely by giving exercise. One of the exercises that can increase the explosive power of the arm and shoulder muscles is the Medicine ball chest pass exercise. Medicine ball chest pass exercise is an exercise performed by throwing a horizontal ball at chest level using a medicine ball which aims to improve the ability to pass.

This study aims to determine whether or not there is an effect of medicine ball training on the results of basketball chest passes in 9th grade students at SMP Negeri 3 Tanjung Bintang. The research class used by researchers is class 9A. Based on the results of frequency tabulation in univariate analysis, it is found that there is an increase in percentage in the very good category as much as 25%, in the good category from 14.3% to 35.7%, in the sufficient category from 21.4% to 32.1%, while in the less and very less category there is a decrease, namely in the less category from 32.1% to 7.1% and very less 32.1% to 0%. So in this case the results of students' basketball chest passes have increased after being treated with medicine ball training.

The provision of medicine ball training treatment to students is based on problems that arise related to the low accuracy and accuracy in doing chets pass or passing the ball to one team. Before being given treatment to the sample, an initial test (pretest) was first conducted to determine the level of accuracy and accuracy of the students' chest pass ability. Based on the measurement of the chest pass ability test, it turns out that the average ability of the accuracy of the chest pass ability of 9th grade basketball students at SMP Negeri 3 Tanjung Bintang is 14.75 Then given the form of medicine ball training and then the final test (posttest) using the same instrument and assessment method.

From these measurements, the results of descriptive analysis show that there is an increase in the average before treatment (pretest) and after treatment (posttest) which is 3.61 higher, from 14.75 to 18.36. While based on the results of the Wilcoxon signed ranks test, the average value of positive rank = 14.50 and negative rank = 0.00.

This means that there is an increase in the value of students' chest pass results after being given treatment in the form of medicine ball training.

Based on the training program carried out for 6 meetings, the results show that there is an effect of medicine ball training on chest pass ability. This is proven significantly, where after the Wilcoxon test. The calculated results show a significance of 0.000 which is less than 0.05. So Ho is rejected and Ha is accepted. So it can be concluded that there is an effect of giving medicine ball exercises on the results of basketball chest passes in students. With the right and measurable medicine ball exercise combined with a systematic training program in stages, it will have an influence on the accuracy of chest pass ability.

These results are in accordance with the results of a study conducted by Fadillah et al. (2018) entitled *Medicine Ball Exercise on Chest Pass Results in Basketball Games for Junior High School Male Students* obtained data analysis results t count (25.695) > t table (2.045) and sig value. (p) 0.000 <0.05 so it can be concluded that there is a significant effect of giving medicine ball training on chest pass results. Meanwhile, Arif (2014) in his research found that medicine ball training can increase the length of chest passes in basketball games. Therefore, considering the importance of power or strength of the arm muscles when playing basketball, it is necessary to do poliometric training. In other research, it was also stated that the thrust and throw squat exercise with a medicine ball had an effect of 18.32% on the chest pass distance so it was used as a training method to improve student learning achievement (Nuraini et al., 2020).

Harista & Trisnowiyanto (2016) explain that medicine ball is a form of pliometric exercise using a ball-like tool to increase arm muscle power and strength. Pliometric exercise is a method for developing explosive power. Power or explosive power is a combination of maximum speed and maximum strength. The function of medicine ball training is to train muscle strength, muscle endurance, stability, body coordination, proprioception, and plyometric (Mahardika et al., 2014).

Some other benefits of medicine ball training, namely to increase arm muscle explosiveness,

increase arm muscle strength, increase muscle contraction, improve motor coordination (Harista & Trisnowiyanto, 2016). Given that medicine ball training uses energy from anaerobic processes that use the movement of whole body functions to increase arm muscle power and strength, doing a medicine ball training program has the potential to positively affect many health and fitness measures. Savithiri & Kumaresan (2016) also mentioned that medicine ball can be used to increase cardiovascular endurance and improve musculoskeletal health. Because of the many benefits that can be obtained, this will certainly affect the strength or power of students in doing basketball chest passes.

To produce a fast and precise chest pass requires training to strengthen the arm muscles, namely with medicine ball training. Medicine ball training is an exercise that aims to improve the ability of the upper limbs, especially arm muscle power including triceps pectoralis, latissimus deltoid and wrist and forearm. This exercise can be done easily by students who have low arm muscle power abilities. In addition, medicine ball exercises if done systematically and continuously can lengthen the arm muscles and upper body muscles. Thus, medicine ball training has a better influence on improving the ability of arm muscle power.

In this study using medicine ball with a weight of 3 kg and an increase in the average pretest and post test scores of 3.6071 was obtained. However, in Gazali (2021) the results showed that there was a difference in the effect between chest pass medicine ball 1 kg training and chest pass medicine ball 2 kg training on passing accuracy. The 1 kg medicine ball chest pass exercise is higher (better) than the 2 kg medicine ball training method. Based on this, the weight of the ball used can provide differences in the elements of the exercise performed. The heavier the medicine ball used, the greater the effort that needs to be expended in performing the passing movement. This causes the movements made to be less explosive and cannot be with a fast rhythm. The power element is indirectly neglected when throwing and catching the ball with a heavy

enough load. The repetitions made become less because they cause muscle fatigue. If there are too many repetitions, the mastery of the technique will be less perfect. So from this description it is suspected that the selection of medicine ball weight will have a different effect on the accuracy of basketball passing.

The increase in the average chest pass results in the pretest and posttest is due to the provision of a continuous medicine ball training program with an increase in the number of reps and sets carried out gradually so that the students' arm muscle strength increases. This is in line with the theory according to Jantiko (2014) which states that medicine ball training emphasizes more on the number of repetitions performed, so that the additional load on the arm muscles is carried out by practicing the same movement many times. When doing a chest pass, the muscles of the hands need to make a push when passing the ball that's when the muscles contract into maximum strength in a short time. Basically, arm muscle power will determine the results of the chest pass. Therefore, the strength or power of the arm muscles plays a very important role in the chest pass movement.

The limitations in this study are that the medicine ball training program has not been carried out in stages from the easiest to the difficult part which is adjusted to the weaknesses or strengths of each student and this research was only conducted in one class which causes the sample size to be very limited so that the generalization ability is felt to be less than optimal.

CONCLUSION

Based on the results of research and discussion in the previous chapter entitled The Effect of Medicine Ball Training on Chest Pass Basketball in 9th Grade Students of SMP Negeri 3 Tanjung Bintang South Lampung, it can be concluded that medicine ball training has a significant effect on the results of chest pass 9th grade students at SMP Negeri 3 Tanjung Bintang. Therefore, it is necessary to master basic techniques by providing physical exercise that supports a better chest pass such as doing chest passes in pairs. The medicine ball training program can be used as a variation of training to improve chest pass results in basketball

games. For future researchers, they can add other types of interventions as a comparison to see differences in effectiveness.

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