JUARA: Jurnal Olahraga

E-ISSN 2655-1896 ISSN 2443-1117

https://doi.org/10.33222/juara.v8i1.2676

The Effect of Ballhandling Height Frequency Training and Barrier Training and Agility on the Ability to Lay-up Shoot Basketball

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Info Artikel

Article History:

Received 25 October 2022

Approved 18 January 2023

Published 20 January 2023

Keywords:

Ballhandling Exercises, Agility, Lay-Up Shoot Results

Abstract

Purpose The purpose of this study was to determine the effect of ballhandling height frequency and barrier training on the ability to lay-up shoot basketball, to determine the effect of high and low agility on the results of lay-up shoot basketball, the interaction between ballhandling training methods and agility in extracurricular participants at SMK Negeri 1 Bengkulu Utara and North Bengkulu State Vocational School 2. This research method is experimental with a 2x2 design. The research sample was 21 athletes taken by total sampling technique. The instrument for measuring agility uses the zig-zag run test. The device measures lay-up shoot ability using a basketball lay-up shoot test. The data analysis technique was two-way ANOVA at a significant level of α=0.05. The results showed (1) there was a significant effect of high-frequency ballhandling and barrier training on the ability to lay up shoot basketball, (2) there was a significant difference in the results of significant high and low agility exercises on the ability to lay up shoot basketball. (3) There is no interaction between ballhandling and agility in determining the result of a basketball lay-up shoot. Then there is a significant influence between ballhandling exercises, height frequency, training obstacles and agility on the ability to lay up and shoot a basketball in extracurricular participants at SMK Negeri 1 Bengkulu Utara and SMK Negeri 2 Bengkulu Utara.

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INTRODUCTION

The community widely carries out sports; their existence is no longer underestimated but has become part of people's lives (Prakoso & Sugiyanto, 2017). Sports activities in various forms are activities that are very familiar to our daily lives (Trisnowiyanto, 2015). All parties hope that one day athletes will emerge who can bring a good name to the nation and country. With sports, students can increase their ability level in each sport, such as basketball. Sports are a means of creating a sense for students to

develop their hidden talents; for example, at school, a school is a place where there are student interests and skills in their respective fields, such as in sports. Basketballcanform a healthy young generation with unyielding spirit, high enthusiasm and discipline, which will directly have implications for student learning productivity and student achievement (Purnomo, 2022)

The game of basketball is a sport that is fun, competitive, educational, entertaining and healthy, and played by two boys or girls teams of 5 players each (Thamaria &; Unigarro et al., 2005). The basketball game was originally a simple game involving many people moving physically. Hendri Neldi (2019: 50). Playing basketball is enough to do simple movements or basic techniques, such as movements without the ball, running and jumping. While the movement using basketball is dribbling, passing and shooting (Sungai et al., 2017).

Mastery of basic techniques is essential in improving the game of basketball; in general, basic techniques are divided into several techniques*, namely dribbling, passing, shooting, pivots, lay-ups, and rebounding*. Shooting or shooting the ball into the hoop has various variations. Variations in shooting include one-hand shooting, shooting a free throw, lay-up shooting, three-point shooting, jump shooting, and hook shooting. "Shooting is very beneficial for a team because it can be done from various regions and remotely" (Deny Triyanto, Hadi Setyo Subiyono, &; Taufiq Hidayah, 2014). One technique of shooting the ball into a basket or basketball hoop is a shooting technique while hovering, or called a lay-up shoot. (Devi &; Neldi, 2019) Said that lay-up shots in basketball games have advantages because they are shots made closer to the basketball hoop, so they need to be learned and mastered by basketball players (Gumay et al., 2018) states that there are several types of shooting, namely jump shoot, lay-up shoot, power move, one handset shoot, hook shoot, free throw shoot, and three-point shoot (Vic Ambler, 2016) suggests that: The essential skill in basketball is the ability to shoot or shoot the ball into the net of the basket". Lay-up is a shot made by approaching the hoop or basketball basket, which begins with jumping steps (Ramadan & Ningrum, 2019).

This shot can also be started by running while dribbling the ball, and then when approaching the ring, the player jumps (Susang Jaya, 2017; Ramadan, 2018). Lay-up shots must be made frequently because lay-up shots have the highest percentage of creating points. Lay-ups require the agility of steps and jumps, which results in frequent violations. The basic lay-up technique has many variations ranging from close lay-ups to long-distance lay-ups from the ring. Of course, some of these variations have advantages and disadvantages. Of course, it can be known that a close distance to the ring has a greater chance of getting points than a distance away (Kusumasantosa &; Artanty, 2021) Ball handling training is a form of Lathan touching the ball on the palm and controlling and processing the ball that is felt and experienced by the ball's movement under any

circumstances and is carried out variously, ranging from setting the tempo to coordination between the eyes and hands. Ballhandling is the ability to process the ball which is very important in the game of basketball. If the quality of an athlete's ballhandling is good, you can be sure that you will be free to pass, shoot, catch, dribble, or even knock down opponents with their tricks. In other words, ballhandling practice is critical to improving the basic basketball technique, specifically lay-up shooting. A basketball athlete must be able to control the ball both with his right and left hands Prusak (2007) states that ballhandling is a form of ball touch training on the palm and controlling and processing the ball that is felt and lived under any circumstances and can be done variously with tempo/rhythm of motion. This means that ballhandling training must be addressed because this exercise initiates athletes to sharpen their sense of movement and ball. Thus, it is clear that the ability to lay up and shoot is related to ballhandling ability.

The training materials to improve basketball lay-up shoot ability are ballhandling height frequency (high frequency) and barrier training (passing obstacles). Ballhandling height frequency is the practice of repeating the movement of processing the ball in one turn. The frequency of exercise depends on the duration and intensity of the exercise, the longer the duration and intensity, the higher the frequency performed. In general, the frequency of exercise is more, with a more extended exercise program will better influence physical fitness (Sukma, A. T. (2015). According to Donal A. Chu (1992), barrier training (passing obstacles) is the exercise of passing obstacles carried out on goals or obstacles whose height (between 30-90 cm) is carried out on a line with a distance determined by ability.

The agility of the athlete's movements is essential when laying up basketball shoots to avoid obstacles from the opponent's defender. However, agility in movement alone will only be effective if it is supported by good ball possession. A basketball team is considered excellent and challenging if the team can play well. Getting good teamwork requires players who can master parts of various techniques to play the ball in all positions and situations quickly and precisely, meaning not wasting energy and time according to the desired results. (Education &; Kaur, 2016) Agility plays a vital role in physical activity. This is revealed in sports and games involving efficient and rapid changes in body position such as basketball, badminton, volleyball, table tennis and others.

Referring to the argument above, it is clear that the ability to lay up and shoot is related to ballhandling and agility. This means that ballhandling ability and agility are predicted to contribute highly to the ability to lay up and shoot. From observations and interviews with coaches of both schools, the problems found are the frequent loss of the ball when attacking the opponent's area and the difficulty of creating points from the basic lay-up technique, which is basically the technique that is the most significant percentage of the technique to create points. From these data, it can be seen that the two

schools have yet to achieve maximum results. From the explanation above, researchers are interested in researching the effect of ballhandling training, height frequency and barrier training, and agility on basketball lay-up shoot ability. However, until now, researchers have yet to find literature that states how much the above abilities have a strong relationship. In order to find the truth about the relationship between these abilities (ballhandling, agility and lay-up shooting) above, research is needed.

After completing this research, the results were obtained theoretically, namely making scientific contributions in sports, especially basketball. In particular, this research is also expected to contribute to one of Penjas' learning models. Not only in theoretical terms but in practical terms as well. Such as trainers, to compile and develop training programs and training materials that meet students' needs so that children's achievements can be optimal. For PJOK teachers, as a reference in the teaching process or developing fundamental exercises for variations in basketball learning. For athletes or students, the use of learning from various media is essential for training trainees to be more optimal in training and playing.

In addition to benefits, this study also has research objectives. The objectives of this study include the following: We are analyzing the difference in the effect of Ballhandling training, height, frequency and barrier training on the basketball Lay Up Shoot ability of SMK Negeri 1 North Bengkulu and SMK Negeri 2 North Bengkulu and analyzing the effect of high and low agility on the basketball Lay Up Shoot results of SMK Negeri 1 North Bengkulu and SMK Negeri 2 North Bengkulu. Analyze whether there is an interaction between ballhandling training methods and agility in extracurricular participants of SMK Negeri 1 North Bengkulu and SMK Negeri 2 North Bengkulu.

METHODS

This research is a type of quasi-experimental research (Quasi Exexperimental) This research uses the research design of two groups Pre-test and Post-test group design (Ramadan & Juniarti, 2020). The first group: ballhandling, is a simple exercise done directly using the ball; the second group, Agility training, is the ability to change the direction of body position with high speed and determination. The data in this study were compiled in a research design framework with the design of the two groups Pre-test and Post-test group design. This study used two manipulative independent variables, namely ballhandling and agility. In this research, inform the concern (research ethics) that the sample has signed that it is willing to be used as a sample. In this study, the inclusion criteria inform the concern (research ethics) that the sample is willing to be the research subject, and this research fully follows all research from beginning to end. The data in this study were compiled in a village framework in research with the design of the two groups, Pre-test and Post-test group design:

Table 1 Research Design

Ballhandling/ Agility	Frequency Height Method A1	Barrier training method A2
High (B1)	A1B1	A2B1
Low (B2)	A1B2	A2B2

The population in this study is students of SMK Negeri 1 and SMK Negeri 2 North Bengkulu totalling 2.1 people. Because the population is relatively small (<100), all populations are used as research samples, meaning that this study is a population study using non-random sampling techniques that have the characteristics of non-random sampling. Researchers took this technique because the samples given the treatment were divided into two groups with different types of exercises. Primary data sources that could contribute to the study were limited in number.

This study uses several tools to support the smooth running of research, as described below: 1) Stopwatch is a tool used to measure the time needed in activities; other tools used are kun/peg, ball and meter.; 2) Ballhandling height frequency training is a movement performed by athletes in playing the ball using their hands individually, and the ball does not stop in the player's possession. More details can be seen in the appendix of the exercise program; 3) Ballhandling Barrier training is a form of practice carrying the ball by passing obstacles (kun). More details can be seen in the appendix of the exercise program.

Agility training is the ability to change the direction of body position with high speed and determination. More details can be seen in the appendix of the exercise program. Conduct an initial test with a lay-up shoot test, after which the sample will be treated with ballhandling training methods, height frequency and barrier training and agility. Lay-up shoot test by holding the ball, then dribbling the ball yourself to the basketball hoop and then doing a lay-up shoot movement from the right. A valid shot is a shot that is executed with a good lay-up shoot step and results in the ball entering the basket; the lay-up is carried out 10 times. Agility test The result recorded is when the testee takes one zig-zag run, which is the distance from start to finish.

The process of this study was the Ballhandling Exercise height frequency group, Ballhandling Barrier training and high and low agility. Each conducts three weekly meetings, with the first to do a pre-test and the last to do a post-test after treatment. This study was divided into 2 groups to carry out treatment: the 1st group used the Ballhandling height frequency exercise method, and the second experimental group used Ballhandling Barrier training.

The pre-requisite test in this study used normality and homogeneity tests. The normality test is one of the prerequisites for analysis because the use of parametric statistics in research is based on the assumption that the data of each variable forms a normal distribution. Data must be normally distributed in order to be analyzed correctly. The normality test was performed with the IBM Statistics application with the output of a histogram graph showing the normality plot. Interpretation is carried out by observing the data distribution plot. The variable data is usually distributed if the plot is close to the standard line. While plots of data that move away from the normal line are considered data that is not normally distributed.

In addition, normality data can also be tested using the Kolmogorov-Smirnov test of each variable. If the p-value> 0.05 can be concluded that the data is usually distributed; on the other hand, if the p-value is < 0.05, it can be said that the data is not normally distributed.

The homogeneity test, which explains the state of a group, can also be based on the degree of variation in data that occurs in that group. To find out the level of variation of data groups can be done by looking at the data range and standard deviation of the data group. Measurement results using the SPSS application. Furthermore, the homogeneity of decision-making is seen from the sig value. If the sig is higher than 0.05, then the data is considered homogeneous, and vice versa. If viewed in the column above, it can be concluded that the data variants of the pre-test and post-variables are homogeneous.

Technical data analysis was used for hypothesis testing. This research uses using two-track Analysis of Variance (Two Way Anova). According to Arikunto (2006: 42), two-track Analysis of Variance (ANOVA) is a research data analysis technique with a two-factor factorial design. The conclusion of whether $H_{\circ}$ is accepted or rejected is obtained by interpreting the significant value in the test of the between-subject effect table from the results of variance analysis through the SPSS 19.0 for windows program. The criterion used in making conclusions is that if the probability of error $p < 0.05$, then $H_{\circ}$ rejected H_1 is accepted.

FINDINGS AND DISCUSSION

There is an effect of training using the Ballhandling height frequency training method on the ability of basketball Lay Up Shoot. There is an effect of training using the Ballhandling Barrier training method on basketball Lay Up Shoot ability. There is no difference between ballhandling and agility training methods in extracurricular participants of SMK Negeri 1 North Bengkulu and SMK Negeri 2 North Bengkulu.

Findings

The study results "The effect of Ballhandling training, height, frequency and barrier training, and high and low agility on basketball Lay Up Shoot results.

Table 2 Two-track Anova

	Model	Sum Of Square	Df	Mean Square	F	Sig.
1	Regression	14.268	1	14.268	8.246	.010[b]
	Residual	32.875	19	1.730		
	Total	47.143	20			

The results of the TWO-LANE ANOVA test in the "Exercise Type Category" can be seen as F_{count} = 8.246 and significance level 0.010. As for the F table with a significance level of 5% and df numerator 1 and df, denominator 20 obtained the value of F_{table} = 3.369. So because $F_{calculate} \geq F_{table}$ which is 8.246 3.369, and significance level 0.05, which is 0.000 ≥ 0.05, then H ≤≤$_0$ is rejected, and H_1 is accepted so that it can be concluded that there is a significant influence between the effect of ballhandling height frequency training and barrier training and agility on lay-up ability Shoot basketball.

Table 3 Pre-requisite Tests

NO	Name	Sig *p-value*
1	Validity	0,550 > 0,367
2	Reliability	0,94 > 0,70.
3	Normality	0,658 > 0,05
4	Homogeneity	0,242 > 0,05

Before conducting research, several pre-requisite tests must be met to use the instrument for research. There are several test requirements, namely validity tests, to find out whether or not the instrument used, reliability tests are used to find out whether reliable data is used, normality tests are used to determine the normality of data, and finally, pre-requisite homogeneity tests are used to find out whether the data is homogeneous or not.

Discussion

Based on the data above, it can be concluded that the results achieved by the ballhandling height frequency and barrier training groups affect the basketball lay-up shoot ability of SMK Negeri 1 North Bengkulu and SMK Negeri 2 North Bengkulu.

The significance test compares the calculated r-value with the table r. When viewed in the validity test tables of each variable above, showing a pre-test and post-test score of 0.550, all r counts> 0.367. Then it can be concluded that the research instrument is valid and can be used as a means of measurement. From the SPSS output above, it was found that the Cronbach Alpha value for the pre-test score and posters showed several 0.94 above 0.70. Therefore, based on interpretation criteria, it is reliable and can be measured.

In addition, normality data can also be tested using the Kolmogorov-Smirnov test of each variable. If the p-value> 0.05 can be concluded that the data is usually distributed; on the other hand, if the p-value is < 0.05, it can be said that the data is not normally distributed. In the above findings, you can see small dots moving in sync with a diagonal straight line. This shows that the data is usually distributed. The following is a plotting of the results of calculating the normality test of research data with the SPSS application. Based on the test results above, it can be seen that the Asymp Sig value of each data of 0.658 is more significant than 0.05, which can be concluded that the data is usually distributed.

To explain the state of the group, it can also be based on the degree of variation in data that occurs in the group. To find out the level of variation of data groups can be done by looking at the data range and standard deviation of the data group. The measurement results using the SPSS application produce the following table. The Range value is the difference between the minimum and maximum values. A Range value not too far away from each variable indicates the absence of extreme data in the data group. Then, one technique to explain group homogeneity is to measure variance, that is, the sum of squares of all deviations of individual values against the group's mean. Then the root result of variance is the standard deviation (std deviation). In the absence of extreme data, the standard deviation can be sensitive and feasible to measure data distribution. Furthermore, the decision-making of bag homogenization is seen from the sig value. 0.242 is higher than 0.05, then the data is considered homogeneous, and vice versa. If viewed in the column above, it can be concluded that the data variants of the pre-test and post-variables are homogeneous.

The hypothesis states that ballhandling training, height frequency, barrier training, and agility affect basketball lay-up shoot ability in extracurricular participants of SMK Negeri 1 North Bengkulu and SMK Negeri 2 North Bengkulu. In the "Exercise Type Category" can be seen $F_{count} = 8.246$ and significance level 0.010. As for the F table with a significance level of 5% and df numerator one and df denominator 20 obtained, the value of $F_{table} = 3.369$. Karena $F_{calculate} \geq F_{table}$, then H_0 is rejected, and H_1 is accepted so that it can be concluded that there is a significant influence between the effect of ballhandling height frequency and barrier training and agility on basketball lay-up shoot ability.

CONCLUSION

There was a significant difference in results between the effect of ballhandling training, height frequency, barrier training, and agility on basketball layup shooting ability.

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