

# The Contribution of Eye-Hand Coordination to Basketball Lay Up Shoot Skills

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## ABSTRACT

The purpose of this study was to determine the extent of the contribution of hand eye coordination (X) to the skills of lay up shoot in basketball (Y) to extracurricular students in junior high school 9 Pekanbaru. The study was held at junior high school 9 Pekanbaru. The research method used in this study was a quantitative approach with correlation analysis techniques. The population in this study involved 41 people. The sampling technique in this study was the total sampling method in which all population was chosen as sampled. The results of this study are that there is a contribution of hand eye coordination (X) to the skills of lay up shoot in basketball (Y) on the extracurricular students in junior high school 9 Pekanbaru equal to 67,4%.

**Keywords:** *Eye-hand coordination, basketball, lay up shoot skills*

## 1. INTRODUCTION

Basketball is a big ball game that is very interesting to watch with certain characteristics. Attempting to put the ball into the opponent's basket and preventing the opposing team from putting the ball into the basket is orientation and every action in the basketball game. Basketball games have certain values that are universal.

"Basketball is a very popular sports game. The development of basketball in Indonesia is growing from time to time, many basketball events are held regularly. Basketball games are very popular with various groups because they are easy and fun to play (YandikaFefrianRosmi, 2016).

The basic technique of basketball is very important in basketball, "If the basic technique has been well owned by the player, then the player can also play well. To improve the mastery of the technique that is higher it needs to be added in terms of repetition of the exercise, so that it can be an automatic movement "(Margono et al, 2018).

In addition to the basic techniques, that are very important supporting factors are physical conditions, with the physical condition of the sport will not be maximally executed because of mutual need for each other.

Physical condition is one component that cannot be separated from both its enhancers and its maintainers. This means that every effort to improve physical conditions must develop all components in physical conditions. In basketball games it takes components or elements of physical conditions, namely durability, strength, speed, flexibility, agility, explosive power, reaction, coordination.

Basketball games coordination is a component of physical conditions that cannot be ignored, one of which is eye-hand coordination. Coordination is a movement to carry out motor movements quickly and directed which is determined by the process of controlling and regulating movements, as well as the cooperation of the central nervous system. So, in order to be able to carry out motoric tasks quickly and directed in basketball games involve a lot of hands, such as shooting, dribbling, passing the ball, a process of controlling and regulating movements is needed, as well as cooperation in the nervous system of the eyes and hands. In an implementation of movement, the eye as a visual organ that provides information, while the hand performs the task.

Junior High School 9 Pekanbaru is one of the schools that conducts extracurricular training for basketball in a sustainable manner from year to year. The development of basketball at the High School 9 Pekanbaru is also supported by the availability of adequate facilities and infrastructure, such as the availability of a basketball court which is quite good and has complete facilities, then training basketball is practiced three times a week. Junior High School 9 Pekanbaru extracurricular activities have also actively participated in participating competitions between schools in Pekanbaru.

"Basketball extracurricular is very appropriate as an effort to breed and foster student achievement in basketball. Fostering student achievement through basketball extracurricular activities at school must be inseparable from the training factor. The exercises that are applied in basketball extracurricular activities must be able and able to improve the skills or achievements

of students in basketball sports (Nurhidayah, PamujiSukoco, 2015)

Based on observations in the extracurricular and match fields, many students did shoot basketball with a flawless movement, to do lay upshoot not only based on movements that must be stretched but also physical conditions. The results of observations on students, weaknesses that are seen there are still students who do not master the basic lay up shoot technique skills. The researcher looked at the problems of the various matches they participated in, such as doing the initial step of the shoot up and the final step of the lay up shoot. Then, there is also when doing a lay-up shoot students cannot reflect the ball to the board first and also many students in delivering the ball to the ring students often do reflections to the ring simultaneously between the hand delivering and the eye not on the ring target or reflective board because students don't have good eye coordination.

#### a. Lay Up Shoot

Shooting is a basic technique that must be used as a benchmark in executing a high pressure. For this reason, each player must practice continuous shooting skills to create automated skills. The success of a team in the game is always determined by its success in shooting. To be able to succeed in a shot it is necessary to do good and correct technical techniques (Candra, 2017). The shooting drills can be any time during the practice. The shooting drills may be used after a high-intensity drill. Quick release, one timers and getting in to the position to score are keys to score goals (Vargheese, 2016).

"In order for a player to be a good shooter, the player must enjoy shooting practice so that the player will continue to do good shooting exercises without easily getting bored" (Kosasih, 2008). "Shooting a basketball is one of the most challenging skills to master in all of sport. And once this skill has been misleading and practiced incorrectly, it is very difficult to correct. Shooting is the most difficult technique in basketball. It requires precision movement for the greatest accuracy; these activities come from the hand, wrist, lower arm, upper arm, torso, upper leg, lower leg, and even the toes. Muscles must memorize these motion patterns so they can be repeated over and over again (Paye, 2013). From this explanation, it can be understood that shooting is a very important component in basketball. This is because by shooting you can get numbers.

Shooting is the most important skill in basketball ball (Wissel, 2012) ". Basketball games consist of several forms in which skills are lay shoot. One of the most effective shooting techniques applied in basketball and also lay up shoot is a movement consisting of jumping, stepping, jumping and shooting. Attempts to reach the distance as close to the opponent's basketball hoop are characteristic of the skill lay up shoot.

"Lay up shoot is the safest and most effective shot if the player holding the ball is not overshadowed by the opponent. Lay up shoot is one shot in a basketball game, thus creating an appearance of basketball sports (Amber, 2016). The success of the lay up shoot lies in an efficient movement pattern based on motor behavior. Behavior is continued by entering the ball with that position the shot can be done easily.

"Lay up shoot is something that must be learned in basketball. In competitive situations, this type of shot must be used by players with both the right and left hand "(Perbasi, 2006). "Lay-up techniques are one of the most widely used shooting techniques by basketball players and make this technique the easiest of the other techniques. This shot starts from catching the ball while floating, resting on one leg, stepping the other forward, resting on one leg, jumping as high or as close as basketball. Usually this shot is done from the side (left or right) of the basketball and the ball is reflected first onto the ring wall board. This method is the easiest to do, just need to take into account the angle of reflection of the ball and the strength of the hand when releasing the ball "(Khoeron, 2013).

The success in doing lay upshoot still requires the use of techniques and taking the right steps to maximize the results of the shot (Oliver, 2007). Stepping movements can be done from receiving operands or dribbling movements. Stepping twice, passing or firing the ball is a very important element in the lay up shoot movement. The lay up shoot movement must be trained repeatedly to be able to throw the ball about the right point on the backboard so that the ball enters the ring.

The following are the lay up shoot steps using the left hand (left hand lay up shoot) as follows: "Even if you are right handed, there will be times when you will need to approach the basketball on the left side of the court. Therefore, you must be able to execute the left-handed lay-up using the correct footwork. As with every other skill, the only path to success is practice, practice, practice. 1) Begin the approach to basketball on the left side, using your left hand to dribble the ball. 2) Keep your head on and target focused on the target, 3) As you approach the three-second lane, begin to terminate your dribble while still protecting the ball on the left side of your body, 4) Step first onto your left foot. At the same time, move the ball up to the shooting position above the left shoulder, 5) The next step will be with your right foot. 6) Use your two steps to get near to the basketball as possible. Jump off your right foot, as high as you can, up to the basketball to release the ball, 7) Extend the elbow and snap the wrist of your (left) shooting arm and hand to shoot the ball softly off the backboard. Aim for the top corner of the small black square on the left side of the rim" (Burns, 2010).

Coordination is an important movement in learning the elements of skill. In the coordination of biomotoric elements that are very intact and perfect, the

implementation consists of several elements that interact with each other. Coordination is a person's ability to assemble several movements into one effective pattern of movement.

"Coordination is a biomotoric component that is important in integrating various movements. Coordination states the harmonious relationship of various factors that occur in a movement without tension in the right order and performs complex movements smoothly without excessive energy expenditure depending on the coordination that is owned by a player" (DwiHartanto, 2104).

Coordination is a good or aligned movement that creates a complete and accurate movement. Eye-hand coordination is the ability of a person to unite or coordinate between eyes, hands into a comprehensive movement and make moving in harmony, easy, smooth which makes the movement perfect.

"Coordination is a complex motor of necessary skills for high performance" (Bompa, 2015). "Coordination is the ability to carry out movements with varying degrees of difficulty quickly and efficiently and full of accuracy" (Tangkudung, 2012).

"Coordination is the ability of the muscle to control motion properly in order to achieve a special physical task". So, coordination is the ability to do movement or work appropriately and efficiently. Coordination states the relationship between the various factors that occur in a movement. Coordinative ability is a good basis for sensomotor learning skills, the better the level of coordination ability will be faster and more effective movements that are difficult to do "(Sukadiyanto, 2011).

"Skill/ Coordination system and the muscle system with in a movement process we can differentiate between intramuscular and intermuscular coordination" (Frank, 2009). General coordination is coordination as the basis for developing specific coordination. Koordinsi here is more in the form of a general movement and has not used other tools or shaped movements of certain sports obscurity. Special coordination, is motoric coordination that is closely related to certain motion skills. Coordination tends to coordinate the movement of skills in certain sports.

Coordination is the ability to carry out movements or work appropriately and efficiently, coordination expresses the harmonious relationship of various factors that occur in a movement, coordination ability is a good basis for sensomotor learning abilities, the better the level of coordination ability, the faster and more effective it will be movements that can be difficult to do.

"Coordination is the body's ability to carry out various types of movements in one pattern of movement in a systematic and continuous manner or things that express the harmonious relationship of various factors that occur in a movement" (Badriah,

2010). Capabilities are determined by the process of control and regulation of movement. coordination is defined as a harmonious relationship of relationships that influence each other between muscle groups during work, which is indicated by various skill levels. This coordination is very difficult to be separated clearly from agility, so sometimes a coordination test is also aimed at measuring agility.

"Hand eye coordination is the ability of the vision system to coordinate information received through the eye to control, guide and direct the hand in fulfilling the tasks assigned" (AziFaizRidlo, 2015).

A student with good coordination is not only able to perform skills perfectly, but also easy and fast in performing or completing a training assignment. In doing a lay up shoot shot in a basketball game, the coordination of motion needed is a combination of the skill of seeing the ball, stepping to start, jumping, looking at the target (ring) and putting the ball into the ring. Therefore, for students who have a good level of coordination will be able and not only display good skills, but will also quickly complete the training assignments.

"Hand eye coordination is the ability of a person to unite or coordinate between eyes, hands into a comprehensive movement and make moving in harmony, easy, smooth which makes the movement perfect. This is very much needed in basketball games (Abdul Aziz, 2018).

For this reason, hand eye coordination has a very important place in one simple movement and in a complex movement to support the improvement of sports achievements, especially basketball. Increased hand eye coordination capabilities are given to each basketball student, especially for students who will do shoot lay up skills by doing every move needed in the lay up shoot movement.

"If one team has good coordination and no leader coordinates it will cause the team to have difficulty achieving the goals they want to achieve" (Faruq, 2009). With this, coordination is the most important factor used in basketball games. Coordination is not only movement coordination but also coordination between players in one team. So, from these opinions coordination is the skill of two or more organs that move with a particular movement and is very necessary in carrying out of student lay up shoot basketball.

## 2. METHOD

This research method is a correlational method which aims to find out and investigate the extent to

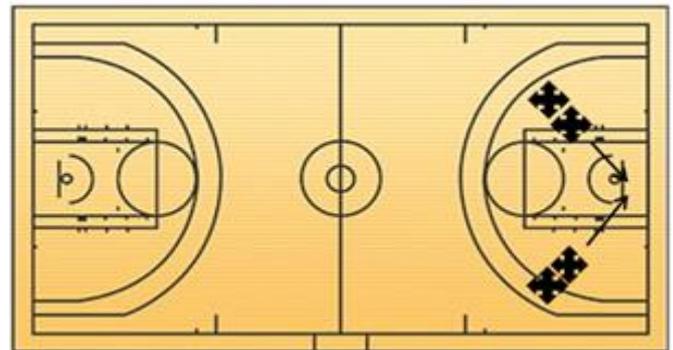
**Table 1.** Instrument Lay Up Shoot Process which the predictor variables contribute to the predicted variables based on the correlation coefficient. Correlational research is a population that aims to

determine how much the contribution of independent variables to the dependent variable and the magnitude of the relationship that occurs. The research is to find out how far the contribution of hand eye coordination (X) to lay up shoot skills in basketball (Y).

Population is the subject of research. The target population (Target Population) in this study was all extracurricular students in the Junior High School 9 Pekanbaru amounting to 41 people. Because the population is only 41 people, the entire population is the subject of research. In other words, the sampling technique in this study uses the Total Sampling technique, in which all populations were sampled in this study.

The research collection technique used was the shoot up skill instrument (process and results). The implementation was that the testee instrument process was the teste standing inside the tree point line area which was marked with a cone and facing the ring. After the command "starts" the test immediately takes a lay-up shoot. Teste was given the opportunity of 2 repetitions. The following is an assessment of the process of skills lay-up shoot in basketball, namely the indicators: 1) initial attitude, (a) foot position, (b) body position, (c) hand position. 2) first step, (a) foot position, (b) body position, (c) hand position. 3) second step, (a) foot position, (b) body position, (c) hand position. 4) Movement to drift towards the ring / take off, (a) foot position, (b) body position, (c) hand position 5) Final movement (Through Follows). (a) hand position, (b) result of lay up shoot, (c) foot position. The score for instrument assessment for this process is 3, 2 and 1.

are the following guidelines for the implementation of the lay upshoot test results as follows: (1) This test aims to measure the results of lay upshoot, (2) The equipment needed is basketball and basketball courts. (3) Implementation Procedure, namely the person trying to stand on the left/ right side of the basketball court in the three-point line then at the time of the testee performs a lay up shoot (not using dribble, after that, do the lay up shoot 5 times) (4) Record of results, namely the calculated score is the result of the ball entering the ring or in the basket.

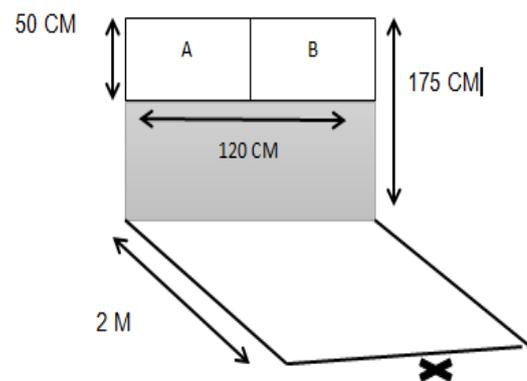


**Figure 1.** Field Test Skill Lay Up Shoot.

The hand eye coordination instrument is the following: (1) The objective is to measure eye and hand coordination, (2) The equipment used is basketball, meter, stop watch and wall, (3) Implementation procedure, namely the testee holds a basketball standing behind the line with his hands above and facing the target area (wall) with a distance of 2 meters. After that the testee position may not cross the boundary line but may move towards the left or right side to reach the ball catch. Next, on the command, testee throws a ball with an overhead pass to the target area (wall) that has been determined with target A, B, for 1 minute. (4) Record of results / scores, namely the number of balls that can be thrown catch (without having to fall to the ground) for 1 minute. Then, if the testee catch ball is out of the target field, it is not counted as the test score.

The instruments resulting from lay-up shoot skills

No	Indicator	Attitude Description
1	Attitude Prefix	a. Foot position b. Body position c. Hand Position
2.	First Step	a. Foot position b. Body position c. Hand Position
3	Second Step	a. Foot position b. Body position c. Hand Position
4	Moves Floating to the Ring (Take Off)	a. Foot position b. Body position c. Hand Position
5	Final Movement (Follows Trought)	a. Hand Position b. Ball Target Results c. Foot position



**Figure 2.** Instruments Hand Eye Coordination.

The quantitative data analysis is by testing the hypothesis using a simple linear regression test, the data obtained is reprocessed using product moment correlation techniques. Adjust to the type of research the author is doing. Before the data is processed, the normality test is done first, which aims to see whether the data obtained from the hand eye coordination test and skills lay-up shoot are normally distributed. After obtaining a normal distribution, the product moment correlation formula is used. the entire process of data analysis using SPSS version 18.

**3. RESULTS AND DISCUSSION**

Based on the results of this study researchers will describe in detail the results of research on each variable. The research was conducted on the same day on extracurricular activities Junior High School 9 Pekanbaru. In accordance with the problems contained in the previous section that has been described, the variables in this study are skills lay up shoot (X) using the skills lay up shoot test (process and results) as independent variables, while hand eye coordination (Y) using the reflection of the hand eye coordination test using the overhead pass throw as the dependent variable. To be clearer about the results of the tests of the two variables, the researchers describe the following:

**Lay Up Shoot Skills (X)**

The results of the assessment process of the process and results of lay up shoot showed that from 41 people the sample could be classified into 7 classes, 14 people scored instruments ranging from 25-29 with a percentage of 34%, 9 people with intervals of 30-34 with a percentage of 22%, 1 person with interval 35 - 39 with a percentage of 2%, 4 people with intervals of 40 - 44 with a percentage of 10%, 4 people with intervals of 45 - 49 with a percentage of 10%, 7 people with intervals of 50 - 54 with a percentage of 17%, 2 people with intervals 55 - 59 with a percentage of 5%.

Table 2. Distribution Lay Up Shoot.

No	Interval Class	Absolute Frequency	Relative Frequency (%)
1	25 - 29	14	34 %
2	30 - 34	9	22 %
3	35 - 39	1	2 %
4	40 - 44	4	10 %
5	45 - 49	4	10 %
6	50 - 54	7	17 %
7	55 - 59	2	5 %
	Total	41	100

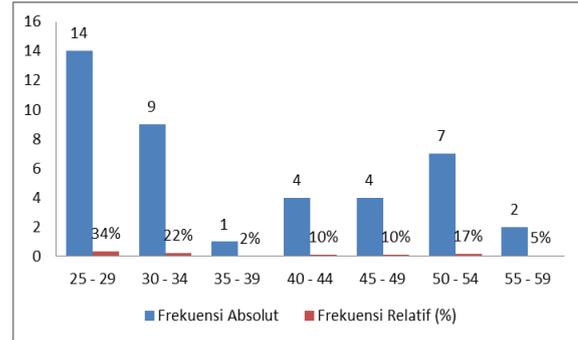


Figure 3. Histogram Lay Up Shoot

**Hand Eye Coordination**

The results of the hand eye coordination research study showed that of 41 people the sample could be classified into 7 classes, 8 people with intervals 4 - 11 with a percentage of 20%, 11 people with intervals 12-19 with a percentage of 27%, 8 people with intervals of 20-27 with percentage of 20%, 5 people with intervals of 28 - 35 with a percentage of 12%, 7 people with intervals 36 - 43 with a percentage of 17%, 1 person with intervals 44 - 51 with a percentage of 2%, 1 person with intervals 52 - 59 with percentage 2 %.

Table 3. Distribution Hand Eye Coordination

No	Interval Class	Absolute Frequency	Relative Frequency (%)
1	4 - 11	8	20%
2	12 - 19	11	27%
3	20 - 27	8	20%
4	28 - 35	5	12%
5	36 - 43	7	17%
6	44 - 51	1	2%
7	52 - 59	1	2%
	Total	41	100

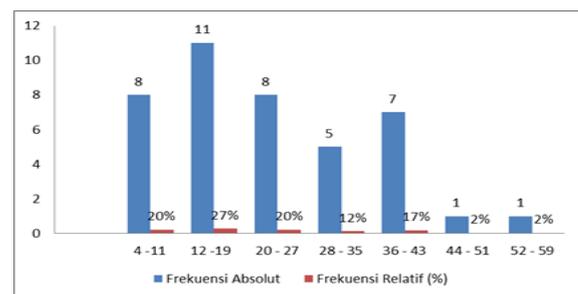


Figure 4. Histogram Eye-hand Coordination

Based on the results of hypothesis testing, the correlation coefficient obtained  $r = 0.82$  which states the relationship between the variables of hand eye coordination and skills lay up shoot. While the contribution of the hand eye coordination variable to the skill lay up shoot contribution was 67.4%. This means that there is a significant contribution between

hand eye coordination (X) on lay up shoot skills basketball (Y).

Based on the results of other similar studies, it is stated that there is a significant relationship of hand eye coordination to skills lay up shoot” (Muhammad Ishak et al, 2018)

#### 4. CONCLUSION AND SUGGESTION

Based on the results of the study, there is a significant contribution between eye-hand coordination on skills of lay up shoot equal to 67.4%. The suggestions in this study are 1) For basketball players, it is recommended that all players need to equip themselves with the knowledge of the importance of developing physical abilities such as hand eye coordination, in order to further enhance their lay upshoot basketball abilities. 2) For coaches and coaches of basketball, it is recommended that in an effort to improve the ability of lay upshoot, it should be noted that the elements of physical ability that can support, such as hand eye coordination.

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