



The Effect of Side-to-Side Dribbling Training on Dribbling Performance and Arm Muscle Strength in Children Aged 14–15 Years at the National Basketball Academy in 2023

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Abstract

Objectives: Dribbling ability and arm muscle strength are important physical components in basketball performance, particularly among adolescent players. Based on initial observations at the National Basketball Academy, children aged 14–15 years still showed limited dribbling ability and arm muscle strength. Therefore, this study aimed to examine the effect of side-to-side dribbling training on dribbling performance and arm muscle strength among players aged 14–15 years.

Materials and Methods: This study employed a pre-experimental design with a one-group pretest–posttest approach. The population consisted of players aged 14–15 years at the National Basketball Academy, and all 20 players were included using total sampling. The research instruments were a basketball dribbling test and a push-up test. Data were analyzed using a normality test and a paired-sample t-test to determine the effect of the training program on the measured variables.

Results: The findings showed that side-to-side dribbling training significantly improved dribbling performance and arm muscle strength. For dribbling performance, the paired-sample t-test showed a t-value of 18.699 with a significance value of 0.000 ($p < 0.05$), indicating a significant improvement between pretest and posttest scores. For arm muscle strength, the paired-sample t-test produced a t-value of -26.486 with a significance value of 0.000 ($p < 0.05$), also indicating a significant improvement after the training intervention.

Conclusions: Side-to-side dribbling training was effective in improving both dribbling performance and arm muscle strength among 14–15-year-old players at the National Basketball Academy. This training method may be considered a practical and beneficial approach for supporting the physical and technical development of young basketball players.

Keywords: Side-To-Side Dribbling; Dribbling Performance; Arm Muscle Strength; Youth Basketball; Training Effects

INTRODUCTION



Sports are one form of effort to improve the quality of Indonesian people, aimed at developing character and personality, high discipline and sportsmanship, and increasing achievements that can foster a sense of national pride. Sports activities cover a wide range of disciplines, including sports, games, water sports, and martial arts. One of the sports games carried out in the educational process is basketball.

Basketball is a sport that is very popular among many groups. From adults, children, teenagers, students and college students, they are fond of this sport. This is indicated by the increasing spread of basketball clubs in various regions, and the frequent holding of inter-regional or regional basketball matches, both general and student. Through this sport, several benefits can be obtained, including good joints, strong muscles, smooth blood circulation, unobstructed breathing and trained thinking to be able to solve problems quickly and accurately (SumiyarsonoDedy, 2002: 2).

One of the most entertaining aspects of basketball is the *dribbling*, varying in direction and speed to get past opponents and then put the ball in the basket. Many points are scored by starting with a good *dribble* and ending with an accurate shot. *Dribbling* essentially involves bouncing the ball with one hand while walking or running. According to Ahmadi Nuril (2007: 17), dribbling is carrying the ball in any direction according to the existing rules. Players are allowed to carry the ball more than one step as long as the ball is bounced to the floor. Dribbling the ball must be done with one hand. *Dribbling* or dribbling the ball can be done by stopping, walking or running. It can be performed with the right or left hand.

Ballhandling is the foundation or *fundamental movement of dribbling*, in other words there is a very close relationship between *ballhandling* and *dribbling*. A basketball player must be able to control the ball with both the right and left hand. According to Prusak (2007: 25), *ballhandling training* is basically a form of ball touch training on the palm of the hand as well as controlling and processing the ball that is felt and experienced towards the movement of the ball in any situation and is done in a variety of ways starting from tempo control to coordination between the eyes and hands which aims to improve *dribbling*.

Based on this, many coaches have neglected or neglected *ballhandling training* as an initial series before teaching or training shooting, passing and dribbling *techniques*. To perfect techniques in basketball, coaches are required to develop formations that train the fundamentals of good basketball, so that training *ballhandling* is the main requirement.



National *Basketball Academy* is the only academy in Selong, East Lombok, the problems that *exist in* the National *Basketball Academy* Based on *observations* in the field, when playing, children aged 14-15 years at the National *Basketball Academy* in dribbling still not good. Looking at the facts on the field, there are still many children aged 14-15 years who have difficulty when *dribbling* , they still look stiff when *dribbling* and most of the *dribbling methods* are still by hitting the ball and their eyes are still focused on the ball. The ball should be bounced and there should be no sound from the contact between the hand and the ball. When dribbling, the eyes *should* be focused on the surrounding situation, in addition to the movement to protect the ball when *dribbling*. also not visible yet. When playing, the game looks very monotonous, there is no variation whatsoever.

Apart from *dribbling* , the students of the National *Basketball Academy* also on average weak in arm muscle strength when playing on the field, in carrying out basic techniques, Strong arm muscle strength and explosive power demonstrate that *dribbling* in basketball requires this element to determine the skill's proficiency. To perform basic techniques, a basketball player must possess strong arm muscle strength and endurance. If a player on a basketball team lacks strong arm muscles, this can be a weakness for the team in achieving maximum performance. The result is a physical adjustment that significantly impacts *dribbling ability* , which is followed by arm muscle strength.

In the game of basketball, there are several basic techniques that players need to master, these basic techniques include *footwork* , *shooting* , *passing* , *dribbling* , *rebounding* , moving with the ball, moving without the ball, and defending (Wissel, 1996). One of the movements or basics needed in the game of basketball is *dribbling* . Basketball players are required to possess and master good basic *dribbling techniques*. *Without them...* Without good basic techniques , it is difficult for an athlete to achieve high achievements. maximum .

One of the programs that can improve *dribbling* and arm muscle strength is the *side to side dribble exercise*. *side to side Dribbling* is a basic movement *dribble* with the movement of dribbling the ball by putting the ball in (moving the ball from the outside to the inside) then taking it out again quickly (Paye 1996:24), the movements of *the side to side dribble exercise* are:

1. The body position must be upright, chest forward and knees slightly bent,
2. The gaze should face forward and the shoulders should be level,



3. The position of the hands should be parallel to the shoulders and the position of both feet shoulder-width apart
4. Get started *dribbling* the ball, move forward while *dribbling* , remember The position of the left and right feet should be shoulder-width apart, bend your knees and lower your body slightly, look forward, don't look at the ball, bounce the ball in front of your feet.
5. While moving forward, bounce the ball across the front of your body to the other hand, remember Don't look at the direction of the ball, keep your gaze forward, to stay alert to your position.
6. Immediately bounce the ball back to the other hand while continuing to move forward, this movement is repeated several times using one hand. field by dribbling *the* basketball without looking down. This training lasts for 6 weeks with 3 meetings each week.

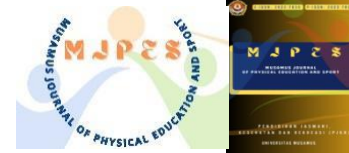
From the opinion above, researchers are interested in trying to combine the *side to side dribble training program* to improve *dribbling*. And arm muscle strength simultaneously. Empirically, the movement from *side to side dribble training* causing changes towards increased *dribbling* and arm muscle strength. This needs to be proven through research so that the program can be used by trainers as an option in training .

Based on the background above, the researcher wants to examine the effect of *side to side dribble training* on increasing *dribbling* and arm muscle strength in children aged 14-15 years at the Selong National *Basketball Academy* .

RESEARCH METHODS

Research design is a plan for how a study will be conducted (Maksum 2012:95). This design is used to obtain answers to formulated research questions. The research design used is a *pre-experimental design*. According to Sugiyono (2011:74), it is called a *pre-experimental design* because there are still external variables that influence the formation of the dependent variable.

The research design used in this study is a quantitative research type with an experimental approach, consisting of two dependent variables (improved *dribbling* and arm muscle strength) and one independent variable, namely (*side to side dribbling training*). Sugiyono (2012, p. 107) explains that "experimental research can be interpreted as a research method used to find the effect of certain treatments on others under controlled conditions". So it can be concluded that the experimental method is a direct experiment to determine the cause and effect. Thus, the author chose the experimental method to conduct the research. The



research objective that the author wants to achieve is to determine the effect of *side to side dribbling training* on improving *dribbling* and arm muscle strength in children aged 14-15 years at the National *Basketball Academy* in 2023.

In order to simplify the research steps, a research flow is needed as a guide so that researchers do not deviate from the established provisions so that the objectives and results obtained are in accordance with expectations.

The research design used was a *pre-experimental design*, meaning the experimental results, which are the dependent variable, are not solely influenced by the independent variable. This can occur because there are no control variables and the sample is not selected randomly. One type of *pre-experimental research* is . In this design , a *pretest is conducted* before the treatment is given. Thus, the results of the treatment can be known more accurately because it can be compared with the conditions before the treatment was given (Sugiyono 2011:74). Therefore, the research design can be described as follows.

Table 1 Research Design

Design	<i>Pretest</i>	<i>Treatment</i>	<i>Posttest</i>
Pre-Experiment	O1 _{AB}	X	O2 _{AB}

Infor
matio
n :

dribbling test

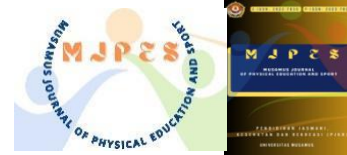
B : Initial *push up* test

X : Providing treatment using *dribbling* and *push up* tests on children aged 14-15 years in National Basketball Academy

dribbling test for 14-15 year olds at the national *basketball academy*

B : Final *push up* test for 14-15 year old children at the national basketball academy

Population is a generalization area consisting of objects/subjects that have certain qualities and characteristics determined by researchers to be studied and then conclusions drawn, (Hulfian lalu, 2014: 29)”. So the population is not only people, but also objects and other natural objects. The population is also not just the number of objects/subjects being studied, but includes all the characteristics possessed by the subject or object. So from the two opinions above, it can be concluded that what is meant by the population in this study is



children aged 14-15 years at the national *basketball academy* who are 14-15 years old with a male gender totaling 20 people.

A sample is a part of the total number of characteristics possessed by the population (Sugiyono, 2012: 118)". If the population is large, and researchers cannot possibly study everything in the population, for example due to limited funds, manpower and time, then researchers can use samples taken from the population. What is learned from the sample, the conclusions will be applicable to the population. For this reason, samples taken from the population must be truly *representative*.

From the explanation above, the sampling technique used in this study is saturated sampling. Saturated sampling is a sampling determination technique when all members of the population are used as samples (Sugiyono, 2012: 124). So the number of samples used is 20 children aged 14-15 years at the National *Basketball Academy* in Selong, East Lombok Regency.

To obtain data, a measuring instrument is required. An instrument is a tool used to measure observed natural or social phenomena (Sugiyono, 2011:102). The instrument used in this study was a basketball dribbling test to improve *dribbling*.

For the data analysis technique in this study, the data normality test will be used using *Kolomogrov-Smirnov* with the help of SPSS 26 with the following interpretation:

1. If the significance value is > 0.05 then the data is declared to be normally distributed.
2. If the significance value is < 0.05 then the data is declared not normally distributed.

Furthermore, to find out the results of this study, a t-test was used with the help of SPSS 26. The test was conducted to determine whether or not there was a difference between *the pre-test* and *post-test* using a *paired sample t-test*, namely testing one sample that received treatment and then comparing the average of the sample before and after treatment with the following interpretation:

1. If the Sig. (2 tailed) value is < 0.05 then H_a is accepted and H_o is rejected.
2. If the Sig. (2 tailed) value > 0.05 then H_o is accepted and H_a is rejected.

RESULTS AND DISCUSSION

The data obtained in the implementation of this research are data regarding the names and number of children aged 14-15 years at the national *basketball academy* in 2023. Data *regarding* the identity of the students who are the subjects of the research and data from the



implementation of the training that is the object of the research as well as data from the dependent variable, namely about the *side to side dribble* training program to improve *dribble* and *push up* for arm muscle strength . Data regarding the identity of the players were obtained on the day before *the pre-test was carried out* using population study techniques.

Next, to find out whether or not there is an effect of the *side to side dribble* training program to improve *dribble* and *push up* for arm muscle strength . Then an initial test (*pre-test*) of the basketball dribbling test (*Dribbling*) was carried out to find out the increase in *dribble* and *push up* test for 30 seconds to find out the results of arm muscle strength, then given treatment (*treatment*) in the form of a training program for 6 weeks (3 meetings a week), after being given treatment, the next step is to do the basketball *dribbling test again*. to find out the increase in *dribbling* and *push up* tests for 30 seconds to find out the results of arm muscle strength, which will be used as *post-test data* on the subject, after getting the data results, the initial test data (*pre-test*) and final test (*post-test*) will be processed with the help of the SPSS 26 application.

Table 3 Results of the Normality Test of Research Data

Tests of Normality							
	Kelompok Latihan Dribbling side to side	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	Df	Sig.
Hasil Latihan Dribbling side to side	Pre-Test Kemampuan Dribbling	.115	20	.200*	.957	20	.487
	Post-Test Kemampuan Dribbling	.129	20	.200*	.969	20	.743
	Pre-Test Kekuatan Otot Lengan	.156	20	.200*	.926	20	.129
	Post-Test Kekuatan Otot Lengan	.149	20	.200*	.945	20	.298

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on the data above, regarding the normality test using *Kolmogorov-Smirnov* which was carried out with the help of SPSS 26, it states that the *pre-test dribbling* test data for children aged 14-15 years at the National Basketball Academy aged 14-15 years has a significance of 0.200 and the *post-test data* has a significance of 0.200 and the *pre-test push up test data* has a significance of 0.200 and the *post-test data* has a significance of 0.200. From the



data, all have a significance count greater than 0.05 which is the tolerance limit of the *Kolmogorov-Smirnov normality test* at a significance level of 5% with the help of SPSS 26, namely during *the dribbling pre-test* with a value of $0.200 > 0.05$, during *the post-test* $0.200 > 0.05$ and during *the push-up pre-test* with a value of $0.200 > 0.05$, during *the post-test* $0.200 > 0.05$. So it can be concluded that the *dribbling* and *push-up* test data in the *pre-test* and *post-test* are normally distributed.

After the data was normally distributed, a *paired sample t-test* was carried out using SPSS 26 which aimed to determine whether there was an effect of *side to side dribble training* on increasing *dribbling* and arm muscle strength, which is presented in the following table.

Table 4 Paired Sample T Test Results

Paired Samples Test								
	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Pre-Test Kemampuan Dribbling - Post-Test Kemampuan Dribbling	6.88300	1.64470	.36777	6.11326	7.65274	18.716	19	.000
Pair 2 Pre-Test Kekuatan Otot Lengan - Post-Test Kekuatan Otot Lengan	-6.700	1.261	.282	-7.290	-6.110	-23.766	19	.000

Based on the output table of the t-test results, the *Sig. (2-tailed)* value of the *dribbling* and *push-up tests* is = **0.000** , which means it is smaller than α 0.05, then it can be concluded that there is a significant or real difference . Thus, **Ho is rejected** and **Ha is accepted** .

DISCUSSION

the independent sample test analysis obtained a value ($0.00 < 0.05$) , this result indicates that there is a significant difference between *the pretest* and *posttest* . Thus the hypothesis *Ha* is accepted and *Ho* is rejected, namely there is an effect of *side to side dribbling training* on increasing *dribbling* and arm muscle strength in children aged 14-15 years at the *National Basketball Academy* . The existence of this difference shows that *side to side training* on increasing *dribbling* and arm muscle strength , after being given treatment for 12 meetings there was an increase. This research is equivalent to research conducted by Muhammad Danu



Prabowo with the title: " Basketball Playing Skill Level of Basketball Extracurricular Participants at SMA Negeri 1 Comal, Pemalang Regency, 2016/2017 Academic Year".

Ball *handling* in basketball is the most fundamental of all basketball skills. This can be achieved by increasing the number of touches on the ball in various situations and activities. Being able to control the ball while checking your surroundings is a crucial skill, as is controlling the ball with your left hand. Controlling the ball isn't limited to just one hand; it involves the entire body. A variety of ball control and handling skills are required because basketball is a highly dynamic and ever-changing sport. Skill changes depend on certain factors, such as the ball's position in relation to the body, the opposing team, and the player's own position on the court.

In a basketball game, before players practice basic basketball techniques, it would be good to practice *ballhandling first* at the start of training to improve their skills , because this training can not only help to get positive thinking in training but can also improve hand speed and finger control.

Ballhandling drills are simple exercises performed directly with the ball. In *ballhandling* drills, each basketball player is emphasized on understanding the movement and handling of the ball, using both the right and left hands. The ball should be in contact with the palm and fingers, which should always be open for easy control and handling. Players must be able to sense when the ball is being bounced or when it is being touched. Furthermore, players must be able to regulate their tempo, whether they should dribble quickly or slowly or *dribble* in place. Furthermore, players are encouraged to be able to move past obstacles that interfere with their movement and their eyes must not be focused on the ball.

ballhandling is defined as the practice of touching the ball with the palm of the hand in the form of controlling and processing the ball as well as training *dribbling speed* and agility when dribbling which is practiced through various games that can support *dribbling success* in the sport of basketball. In this study, the forms of *ballhandling training* are presented in the form of exercises that are not monotonous and include elements of training basic physical biomotor components such as strength, agility, speed, coordination and flexibility. This aims to prevent boredom and also requires each player to remain active and the goals and objectives of the training are achieved optimally .

CONCLUSIONS AND SUGGESTIONS



Based on the results of the data analysis that has been presented, it can be concluded that :

- a. *side to side dribbling* training on improving *dribbling* in children aged 14-15 years in National *Basketball Academy* in 2023.
- b. *side to side dribbling* training on increasing arm muscle strength in children aged 14-15 years in National *Basketball. Academy* in 2023.
- c. *side to side dribbling* training on improving *dribbling* and arm muscle strength in children aged 14-15 years in National *Basketball. Academy* in 2023.

Based on the results of this study, there are several suggestions that can be made, namely:

1. For players who want to pursue the sport of basketball, they must continue to train diligently and seriously, and improve their fitness and physical condition.
2. For coaches, it is better to provide a variety of training programs and to program them well, especially training to improve basic *dribbling skills and* arm muscle strength .
3. It is hoped that other researchers who are interested in conducting this research can expand the scope, variables and problems so that they can enrich scientific knowledge, especially in the game of basketball.

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