

Enhancing Basketball Dribbling Ability through Resistance Band Training

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Abstract

This study aims to examine the application of dribbling training using a resistance band to improve the dribbling ability of extracurricular basketball participants. The research employed an experimental method with a one-group pretest-posttest design and was conducted over a period of 12 weeks. The subjects of this study were 20 participants from the basketball extracurricular program at SMK AL FAJAR. The assessment was measured using the zigzag dribbling test, and the instrument's validity and reliability were tested using SPSS at a significance level of 0.95 or 0.05%. The hypothesis testing included data analysis through the t-test, normality test, and homogeneity test. The t-test resulted in a t-count value of 16.39 with a t-table value of 1.729, indicating that t-count > t-table, thus H_0 is rejected and H_1 is accepted. The normality test produced a maximum value of 0.345 > 0.05, indicating that the data were normally distributed. The homogeneity test yielded a value of 0.931 > 0.05, confirming that the data were homogeneous. The results of the study show that the application of dribbling training using a resistance band significantly improved the participants' dribbling ability, with an average increase in dribbling score of 10.2.

Keywords: Basketball, Dribbling Ability, Resistance Band

1 INTRODUCTION

Basketball is a game played by two teams, each consisting of five players, who try to score points by shooting the ball into the opponent's basket while preventing the opposing team from scoring in their own basket (Muhajir, 2016). Basketball is a sport that involves two teams competing to score as many points as possible by putting the ball into the opponent's ring using specific techniques and strategies (Irawadi, 2019).

To excel in playing basketball, players need to master proper and correct techniques according to the appropriate steps. The first step that must be mastered is dribbling or ball handling (Gani, 2021). Dribbling is a way of moving the ball forward by bouncing it on the floor with one hand or alternately with both hands, either while walking or running (Li et al., 2021). When a basketball player has good dribbling skills, it becomes difficult for opponents to steal the ball from them.

From my personal experience in playing basketball from elementary through vocational school, many players still do not have the correct form when performing dribbling. Common mistakes include slapping the ball or using the palm to dribble, which causes the ball to go out of control and bounce irregularly. In addition to finger strength, arm muscle strength is also essential for effective dribbling. When players have proportional arm muscles, they can control the ball better and dribble with stability and consistency.

Dribbling is the act of repeatedly bouncing the ball on the floor using one hand—either the right or left hand—to avoid defenders or to move closer to the basket (Sucipto, 2020). Good dribbling ability is crucial for basketball players because poor dribbling skills make it easier for opponents to exploit weaknesses and force ball-handling errors. Such mistakes can be detrimental to the team, leading to turnovers or loss of ball possession.

A basketball player with strong dribbling skills can perform movements that create space for themselves or their teammates to score points. Therefore, mastering good dribbling technique is essential for anyone who wants to play basketball effectively, as it ensures proper form and control during play.

Based on this, the researcher aims to apply a dribbling training method that helps players develop proper dribbling technique. In this study, the researcher will use resistance bands as a training aid. A resistance band is an elastic rubber training tool used to provide resistance to muscle movements, helping to improve muscle strength and endurance (Nurhasanah, 2019). Resistance bands function as training aids that apply elastic resistance to muscles during movement, thereby enhancing muscle strength, stability, and coordination (Suryadi, 2022).

2 RESEARCH METODHS

In this study, the researcher employed an experimental research design. Experimental research is a type of research that seeks to identify causal relationships between independent and dependent variables, in which the independent variable is deliberately controlled and manipulated. The research variables used in this study are quantitative variables. According to Sugiyono (2017), quantitative research is a research method based on the philosophy of positivism, which focuses on certainty, actuality, and empirical data. It is used to study specific populations or samples, with data collected using research instruments. The data analysis is statistical or numerical in nature, aimed at testing predetermined hypotheses.

The research design applied in this study is the "One-Group Pretest-Posttest Design." According to Sugiyono (2017), this pre-experimental design uses a single group of samples, which are measured both before and after being given a treatment. The schematic design of the One-Group Pretest-Posttest Design is illustrated as follows:

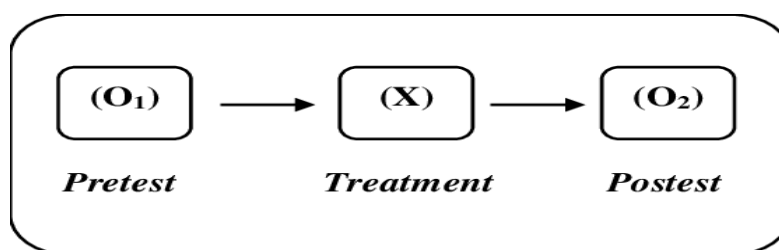


Figure 1. One Group Pretest-Posttest Design

Explanation:

O₁ = Pretest (Before treatment)

X = Treatment

O₂ = Posttest (After treatment)

The data collection technique is a method that researchers can use to gather data. This study employs a pre-experimental design with a one-group pretest-posttest pattern. The data collection technique used in this research involves experimentation and measurement with validated research instruments. The pretest data collection instrument is a test given to students before they receive treatment, aiming to determine the students' initial ability in performing dribbling activities in basketball games. The learning outcomes of dribbling in basketball games are obtained through a treatment process implemented in dribbling learning sessions.

The experiment was conducted with a frequency of 2–3 sessions per week, with a total of 18 (eighteen) meetings. However, the first and last meetings were not included in the treatment process, as they were used to conduct the pretest and posttest. Therefore, the total number of meetings used for this study was 16 sessions, excluding the initial and final tests (Luhur Eko, 2017).

For sampling, the researcher used the total sampling method, which means using the entire population as the research sample. The sample in this study consisted of 20 students who participated in the basketball extracurricular program at SMK AL-FAJAR Jakarta.

The research instrument is essentially a tool used to collect data in the study. The instrument is developed based on the measurement objectives and the underlying theoretical framework. The research instrument is used to measure the value of the studied variables, and it must meet the criteria of validity, reliability, and quality of data collection. Within the research instrument, there is an instrument testing phase conducted before the treatment is applied to the sample. This testing aims to determine the validity and reliability of the developed instrument, to ensure that it is suitable for use in collecting research data. To obtain the required data in this study, the data collection method used was the Johnson Basketball Test, specifically the zigzag dribbling test. This test is designed to measure students' basic basketball dribbling skills.

The data processing technique used in this study employed the SPSS (Statistical Package for the Social Sciences) application, which provides a high level of accuracy for statistical data analysis. SPSS offers many features and is user-friendly, making it easier for researchers to operate. In this study, the researcher conducted several tests, including the t-test, validity test, reliability test, normality test, and homogeneity test.

3 RESULT AND DISCUSSION

To measure the dribbling ability of the basketball extracurricular participants at SMK AL Fajar before being given resistance band training treatment, a zig-zag dribbling pretest was conducted. The results of the pretest on the dribbling ability of the participants can be seen in the following table:

Table 1. Pretest and Posttest

No	Name	Skor		Diff
		Pre-test	Post-test	
1	Adam Farellazio	66	78	12
2	Dimas Widiyanto	84	91	7
3	Daren Mirza	70	79	9
4	Jullyantara	78	86	8
5	Fajar Fardiansyah	73	85	12
6	Putra Pratama	65	72	7
7	Ahmad Prasetyo	91	100	9
8	Izzudin A.Salam	67	79	12
9	Ezar Raditya	78	92	14
10	Haris Aprianto	78	88	10
11	Riven P. Prayudha	78	92	14
12	Ibnu Ar Rasyid	65	78	13
13	Rhapifrizkuloh.P	84	98	14
14	Wendy Wahyu.S	66	73	7

No	Name	Skor		Diff
		Pre-test	Post-test	
15	M. Nur Rafiansyah	67	79	12
16	M. Zidan	67	79	12
17	Adrian Moelana	73	79	6
18	Ridho Kurniawan	79	86	7
19	Muhammad Vikri	81	88	7
20	M. Adnan Ibrahim	72	84	12

Table 2. Descriptive Analysis of Pretest – Posttest Results

Statistik	Pretest	Posttest	Difference
N	20	20	20
Mean	74,1	84,3	10,2
Median	73	84,5	11
Modus	78	79	12
Max	91	100	14
Min	65	72	6
Standart Deviation	7,56	7,71	2,78

The posttest on dribbling ability was conducted after all treatment sessions using the resistance band had been completed. The procedure was identical to the pretest, where each participant was given the opportunity to perform a zig-zag dribble between cones. The comparison of pretest and posttest results can be seen in Table 2. From the table, it can be observed that the posttest scores of all participants showed an improvement. After obtaining the pretest and posttest results for dribbling ability, a normality test was conducted using the Shapiro-Wilk test, as shown below.

Table 3. Normality Test (Shapiro-Wilk)

Normalities	Shapiro-Wilk		
	Statistic	df	Sig.
Pretest	.919	20	.093
Posttest	.949	20	.345

Conclusion:

Pretest: Sig = 0.093 > 0.05 → H_0 accepted

Posttest: Sig = 0.345 > 0.05 → H_0 accepted

This, it can be concluded that the data are normally distributed.

Table 4. Validity Test

		Correlations				
TIME		TIME	CONTROL	TECHNIQUE	PATH	TOTAL
	Pearson	1	.649**	.710**	.744**	.921**
	Correlation					
	Sig. (2-tailed)		.002	.000	.000	.000
	N	20	20	20	20	20

		Correlations				
		TIME	CONTROL	TECHNIQUE	PATH	TOTAL
CONTROL	Pearson Correlation	.649**	1	.527*	.631**	.879**
	Sig. (2-tailed)	.002		.017	.003	.000
	N	20	20	20	20	20
TECHNIQUE	Pearson Correlation	.710**	.527*	1	.484*	.763**
	Sig. (2-tailed)	.000	.017		.031	.000
	N	20	20	20	20	20
PATH	Pearson Correlation	.744**	.631**	.484*	1	.784**
	Sig. (2-tailed)	.000	.003	.031		.000
	N	20	20	20	20	20
TOTAL	Pearson Correlation	.921**	.879**	.763**	.784**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	20	20	20	20	20

If r -calculated $>$ r -table $\rightarrow$ item is valid

If Sig. $<$ 0.05 $\rightarrow$ item is valid

r -table = 0.444

Based on Table 3, since r -calculated $>$ r -table and Sig. $<$ 0.05, it can be concluded that all items are **valid**.

Table 5. Reliability Test	
Reliability Statistics	
Cronbach's Alpha	N of Items
.759	4

$\alpha >$ 0.70 $\rightarrow$ reliable

$\alpha <$ 0.70 $\rightarrow$ less reliable

Based on Table 5, the Cronbach's Alpha value of 4 items is 0.759 ($>$ 0.70), indicating that the instrument is **reliable**.

Table 6. Homogeneity Test			
Test of Homogeneity of Variances			
Levene Statistic	df1	df2	Sig.
.008	1	38	.931

The data were tested using Levene's Test in SPSS.

Result: Sig. = 0.931.

Since 0.931 $>$ 0.05, it can be concluded that the data are homogeneous, meaning the variance in dribbling ability among groups is equal.

Table 7. T-test

t-Test: Paired Two Sample for Means		
	Pre-test	Post-test
Mean	74,1	84,3
Variance	57,14736842	59,4842105
Observations	20	20
Pearson Correlation	0,933761453	
Hypothesized Mean Difference	0	
df	19	
t Stat	-16,39	

Based on the paired sample t-test, the result shows that $t_{\text{calculated}}$ (16.39) > t_{table} (1.729), indicating that H_0 is rejected and H_1 is accepted. This means that there is a significant difference in dribbling ability before and after performing dribbling training using a resistance band among the basketball extracurricular participants at SMK AL Fajar.

4 CONCLUSIONS

Based on the results of data analysis, the t-test produced a t-value of 16.39 with a t-table value of 1.729, which means that $t\text{-value} > t\text{-table}$. Therefore, H_0 is rejected and H_1 is accepted. The normality test resulted in a maximum significance value of 0.345 > 0.05, indicating that the data are normally distributed. The homogeneity test produced a value of 0.931 > 0.05, meaning the data are homogeneous. The research findings show that the implementation of dribbling training using a resistance band significantly improved participants' dribbling ability. The average dribbling score increased by 10.2 points. This indicates that there is a significant difference in dribbling ability before and after performing dribbling exercises using a resistance band among basketball extracurricular participants at SMK AL FAJAR.

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