
The Effect of Drill Training and Reaction Time on Forehand Drive Ability in Table Tennis Game on Students of the Faculty of Sports Science

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Abstract: The purpose of this study was to determine: (1) The effect of drill training between fixed and variable targets on the ability of forehand drive, (2) The difference between high reaction time and low reaction time on the ability of forehand drive, (3) Interaction between drill practice and reaction time on forehand drive ability. The research design used a 2x2 factorial experiment. The population used is 110 students of the sport science faculty. A sample of 40 people was taken using the Randomized group design technique. The instruments used to collect data are: (1) reaction time test using a ruler drop test, (2) forehand drive ability test using a skill test using a skill test from Nurhasan, (4) The exercise program is a guideline that will be used in providing treatment. The data analysis technique used was Analysis of Variance (ANOVA) at a significance level of $= 0.05$. The results of hypothesis testing are proven that: (1) There is a significant difference in drill practice between fixed target training and variable targets on the ability of forehand drive where the calculated F value $= 6.812 > F$ table $= 3.96$, at the significance level $= 0,05$; (2) There is a significant difference between high reaction time and low reaction time on forehand drive ability where the calculated F value $= 33,102 > F$ table $= 3,96$, at the significance level $= 0,05$; (3) There is no interaction between drill practice and reaction time on forehand drive ability where the calculated F value $= 0.000 < F$ table 3.96 , at the significance level $= 0.05$; Research conclusions: 1) There is a significant difference in the effect of fixed target drills and variable target drills on the ability of forehand drive in sports science students. 2) There is a significant difference in the effect of high reaction time and low reaction time on the forehand drive ability of the students of the Faculty of Sports Science. 3) There is no interaction between drill practice and reaction time on forehand drive ability in sports science students. 2) There is a significant difference in the effect of high reaction time and low reaction time on the forehand drive ability of the students of the Faculty of Sports Science. 3) There is no interaction between drill practice and reaction time on forehand drive ability in sports science students. 2) There is a significant difference in the effect of high reaction time and low reaction time on the forehand drive ability of the students of the Faculty of Sports Science. 3) There is no interaction between drill practice and reaction time on forehand drive ability in sports science students.

Keywords: Drill Practice, Reaction Time, Fourhand Drive.

Introduction

Sport is the spearhead of fostering the achievement of every sport. Today there are many sports clubs that foster athletes at an early age in an effort to improve the performance of sports in general. One of the sports that are currently being developed is table tennis.

Activities that lead to achievement development by adjusting to club conditions, where the activity program follows an activity program that periodically organizes National level events. Have eight, including:

1. Regional Sports Week (Popwil) V North Maluku 2009, Men's Team (2nd place)
2. Regional Sports Week (Popwil) V North Maluku 2009, women's team (first place)
3. Regional Sports Week (Popwil) V Ambon 2011, Purti Team (Second Place)
4. Regional Sports Week (Popwil) V Ambon 2011, Women's Singles (2nd Place)
5. Regional Sports Week (Popwil) V Manado 2014, Women's Team (2nd Place)
6. 2014 Semarang National Table Tennis Championships, Men's Team (16 top)
7. Prequalification for the 2015 National Sports Week (Praon) Bandung, Men's Team (ranked 13)
8. Prequalification for the 2015 National Sports Week (Praon) Bandung, Men's Team (ranked 8)

At the end of the event, the coaches also evaluate the results of their mentors, both those who have not, and those who have achieved. It will be a matter of pride and self-respect if the fostered child becomes a champion or becomes a representative at the district level or at a higher level. Introspection for branches that have not performed well, general evaluation, why are their achievements barren? Table tennis coaching is one of the favorite coaching because the number of participants is always large, the facilities and infrastructure support it and the ability of competitive athletes. Starting from here, the table tennis club tries to develop its achievements with an intensive training program and a scientific approach, so as to produce outstanding athletes as a result of the club's coaching. Achievement through table tennis is a real manifestation of quality Indonesian people in their efforts to raise the nation's dignity in international forums. The achievements of table tennis are still uneven and are dominated by athletes from certain regions only. For example, in our area, namely North Sulawesi, in the National Championship and PON, we did not win. This shows that the development of achievement in all regions of North Sulawesi has not been evenly distributed. This has an impact on performance at a higher level. Thus, it needs to be fought. The right steps to be able to realize the expected achievements. For example, in our area, namely North Sulawesi, in the National Championship and PON, we did not win. This shows that the development of achievement in all regions of North Sulawesi has not been evenly distributed. This has an impact on performance at a higher level. Thus, it needs to be fought. The right steps to be able to realize the expected achievements. For example, in our area, namely North Sulawesi, in the National Championship and PON, we did not win. This shows that the development of achievement in all regions of North Sulawesi has not been evenly distributed. This has an impact on performance at a higher level. Thus, it needs to be fought. The right steps to be able to realize the expected achievements.

Mastery of basic techniques is very important for every player. The basic technique of hitting the ball is a technique that is absolutely taught from the start for someone who is starting to learn table tennis, because this greatly affects perfection in the development of further variations of the stroke. The basic techniques of table tennis are: "Grip, stance, stroke and foot work". From the basic techniques mentioned above, one of the most important and reliable basic techniques to get points is the stroke technique. The various stroke techniques in table tennis include: "Push, drive, chop, block, service, spin lob and smash". Among the types of strokes that are important in the game of table tennis is the drive technique which consists of forehand drive and backhand drive. One of the basic techniques that must be mastered by a table tennis player is the forehand drive, because this basic technique is easy to learn and very useful for table tennis players with defensive characteristics, let alone attacking players. Attacking strategies in all branches of the game will be more profitable when compared to defensive strategies. If you look at the ability of students in carrying out exercises, especially when participating in competition activities or carrying out learning

activities, there are still many who have not been able to hit the forehand drive well. This is evident in the game; students rely mostly on defense and can't hit hard forehand drives. To anticipate these weaknesses, it is necessary to develop forehand drive capabilities.

Forehand drive is the most powerful stroke, besides the power used is usually more leverage than the backhand. This can happen because the reach of the arm when making a forehand drive is wider and longer than when doing a backhand shot, which of course will affect how much power the stroke produces.

To be able to do the right forehand drive, every player needs to get the right form of exercise through an exercise program that will be presented to students. Coaches need to understand which factors and exercises support forehand drive strokes. Looking at the students' abilities, there are still some who have not been able to master technically in doing the right drill shots in practice, for example when the coach gives the ball to students there are still many balls that come out or do not hit the table target where there is already a point to hit the marked target. Likewise, to carry out hand drill movements or the position of the bats is not in the right position, therefore in carrying out the drill some have not carried out the right technique. One of the exercises that the trainer needs to develop in supporting the forehand drive is using drill exercises with fixed targets and variable targets to improve the ability of the forehand drive, according to Thorndike (Rahyubi: 2012:72) which states that repetition of this movement is intended for automatic movement. Automatic movements are the result of repeated exercises; this is in accordance with the law of practice. So with lots of drills and repetitions, it can improve the ability of forehand drive strokes.¹ In addition to drill practice, one of the factors that affect the forehand drive is reaction time. Reaction speed is the shortest time needed to give a kinetic answer, after receiving a stimulus (Dangsina Moeloek, 1989:10). From the analysis, it is observed that reaction speed is an element of potential motion that plays a very important role in the game of table tennis. The game of table tennis demands a fast rhythm of play in an effort to welcome and return the ball, so a table tennis player must have a high reaction speed. The sport of table tennis is one of the game sports that are grouped into small ball games. To be able to learn to play table tennis, one must master basic techniques, do strokes, learn to control all body movements and the ball itself, learn to move the body and hit the ball precisely and consistently. For a table tennis athlete, to acquire skills in relation to achievement, we must be active to do an exercise, because according to Peter Simpson that: "Table tennis, like any other sport, requires mental strength and perseverance. We must concentrate and practice diligently for long hours."¹ Peter Sompson (1992:65). To be a player or an athlete is not easy because we must take time and energy to achieve the desired achievement. Mohamad Tamrin (1992:3) says that: "Table tennis is a game where a small ball is hit back and forth across the net until one of the people makes a mistake". in the field of table tennis

There is an assumption that a good forehand drive will determine a lot of value gain, namely a drive made with a forehand, however, in long and short rallies in this modern age, a player is required to focus on what the opponent does after we do the rally. According to Larry Hodges (2007:33) that: "The forehand drive is usually the most powerful shot because the body does not block the stroke unlike the backhand drive".

This can happen because the reach of the arm when making forehand strokes is wider and longer than when doing backhand strokes, which of course will affect how much power the stroke produces. A forehand drive is a stroke made to the player's right. According to Sutarmin, when hitting the forehand drive "when hitting the ball, the palm of the hand holding the bet/racquet is facing forward".⁴ Forehand drive is done by holding the bet like a person shaking hands and the bet is slightly closed. Based on the description above, it can be concluded that the forehand drive is a shot that is done if the ball is on the right side of the body and the palm is facing forward.

- a. Start by standing facing the table, left foot in front, right foot behind (for right-handed players, while left-handed players are the opposite).
- b. The arms are at the sides of the body, the upper arms and the body form an angle of 45°.-
- c. The forearm and upper arm form a 90° angle.
- d. Elbows are pushed forward.
- e. When making a stroke, bet in a closed position.
- f. The head of the bat is facing oblique to the ground with the forearm down. The wrist is not bent.

The position mentioned above is done when the opponent is heading towards the bat. Then the arm is swung forward to the upper left by swiping the back of the ball for an empty ball and the arm rubbing the bottom of the ball for a filled ball. For the ball to travel in a curved motion over the net towards the opponent. The wrist helps to swipe the ball up until the bet stops on the top left side of the head.

Many skill exercises are used by coaches to improve the lower-level skills of each sport. One of the procedures for skill training is drill practice. Drill exercise for Roestiyah (2008: 125) is: "A method that can be referred to as a teaching or training method in which athletes/athletes carry out training activities, in order to have greater dexterity or expertise than what is learned". 4 For Ramayulis (2010: 349) that: "Drill or otherwise known as ready training is intended to gain dexterity or training skills for what is being learned, because only by doing something instantly knowledge can be perfected and ready." 5 For Abdul Majid (2006: 133) if: fully mastered by students Drilling is a good training method to instill certain habits. Drill training is a training method that urges athletes to carry out training activities in order to have greater dexterity/expertise than what is learned.

Reaction time is a person's ability to act as quickly as possible in the face of a certain stimulus generated through the five senses, nerves or other sensory systems (Sudarto, 2010). Regarding the speed of this reaction, Dengnisa Moeloek (1989:10) says, that: "speed is a reaction is the shortest time needed to give a genetic answer, after receiving a stimulus".¹³ Meanwhile, by Sajoto, M (1988:15) it is said that the reaction is "The ability of a person to act immediately in response to stimuli generated through the senses, nerves or other feelings".¹⁴ From the three limitations above, it can be concluded that the reaction speed referred to is the shortest time required to give a kinetic answer after receiving a stimulus through the senses of nerves, , or other feelings.

Drill exercise is a technique that can be interpreted as a way of teaching or training in which students carry out training activities, in order to have dexterity or skills that are higher than what is being learned. The teacher or coach must be able to apply what is appropriate to the technique in the sport. Likewise, fixed target exercises and variable target exercises are widely used in the training process.

It must also be adjusted to the ability of physical conditions such as reaction time. Exercises for students who have high reaction times are more effective using variable target drills. Meanwhile, athletes who have low reaction times are more suitable to use fixed exercises. Thus the reaction time interacts with drill drills, both fixed target drills and variable target drills, each of which provides positive benefits for forehand drive abilities. So as a coach, you must be able to determine what exercises are effective when faced with the varied physical conditions of students. This means that when in the training process the coach finds a student who has a high reaction time, the athlete is given a variable target drill exercise. Students who have low reaction times will be given fixed target drill exercises. Thus, it is assumed that

there is an interaction between fixed target drills and variable target drills and the reaction time to the forehand drive ability.

Research Methods

Population is everything that is to be explained, or predicted or controlled that can be researched. Djaali, (2010:12) suggests that: The population is the total number of units of analysis to be investigated for its characteristics or characteristics. Based on the previous opinion, it can be concluded that the population is the entire observation that is used as the object of research. The sample according to Nasution is a part that represents the entire population. Another opinion was expressed by Djaali, that the notion of the sample is part of the units in the population whose characteristics or characteristics are actually investigated. Observing the opinion above, it can be concluded that the sample is part of the research object that represents the entire population, which has the same or almost the same characteristics, resulting from a reliable sampling technique, so that the sample is truly representative, and the research results can be generalized to the population. In terms of sample size, Ida Bagoes Mantra stated that: To get a representative sample, there are four factors that must be considered in determining the sample size in a study, namely; (1) degree of homogeneity, (2) desired precision in research, (3) analysis plan, (4) depending on the availability of manpower, cost and time. Furthermore, Krejcie dan Morgan (1970) in Ida Bagoes Mantra suggests that: Determining the number of samples that need to be taken for a certain population with the following formula: and the research results can be generalized to the population. In terms of sample size, Ida Bagoes Mantra stated that: To get a representative sample, there are four factors that must be considered in determining the sample size in a study, namely; (1) the degree of homogeneity, (2) the desired precision in the research, (3) the analysis plan, (4) depending on the availability of manpower, cost and time. Furthermore, Krejcie dan Morgan (1970) in Ida Bagoes Mantra suggests that: Determining the number of samples that need to be taken for a certain population with the following formula: there are four factors that must be considered in determining the sample size in a study, namely; (1) the degree of homogeneity, (2) the desired precision in the research, (3) the analysis plan, (4) depending on the availability of manpower, cost and time. Furthermore, Krejcie dan Morgan (1970) in Ida Bagoes Mantra suggests that: Determining the number of samples that need to be taken for a certain population with the following formula: there are four factors that must be considered in determining the sample size in a study, namely; (1) the degree of homogeneity, (2) the desired precision in the research, (3) the analysis plan, (4) depending on the availability of manpower, cost and time. Furthermore, Krejcie dan Morgan (1970) in Ida Bagoes Mantra suggests that: Determining the number of samples that need to be taken for a certain population with the following formula:

$$S = \frac{X^2 NP (1-P)}{d^2 (N-1) + X^2 P (1-P)}$$

In this case:

S = Quantity sample member

N = Number of population members

P = Proportion of population (0.5)

D = Degree of accuracy (0.05)

X² = Table value X²(3.84)

Sampling Technique

From the affordable population with a total of 110 students, 80 students were then taken using a standard table taken from Gempur Santoso. Of the 80 male students taken, a reaction time test was then held to determine the level of reaction time. The reaction time used in this study is the reaction time in this study is the reaction speed of the hands in making movements, after receiving a response through the sense of sight and the shortest time needed to give a kinesthetic answer after receiving stimulation through the senses of nerves or feeling. The reaction time results are then ranked from high to low. To determine the group that represents the high reaction time and low time, the percentage technique used is 27% for the upper limit and 27% for the lower limit.

Experimental sample grouping

Reaction Time (B)	drill drill (A)		Amount
	Fixed Goal (A1)	Goals Change (A2)	
Height (B1)	10	10	20
Low (B2)	10	10	20
Total	20	20	40

2 x 2 . factorial research design

Reaction Time	Height (b1)	Low (b2)
Drill Practice		
Fixed goal (a1)	a1b1	a2b1
Variable goals (a2)	a1b2	a2b2

Information:

A1B1 = Target drill practice group varies at high reaction time

A2B1 = Fixed target drill drill group at high reaction time.

A1B2 = Target drill drill group varies at low reaction time.

A2B2 = Fixed target drill drill group at low reaction time.

The instrument used in this study was a test of hitting skills *forehand drive* in the game of table tennis According to Nurhasan (2001.164) using the "Back Board Test"

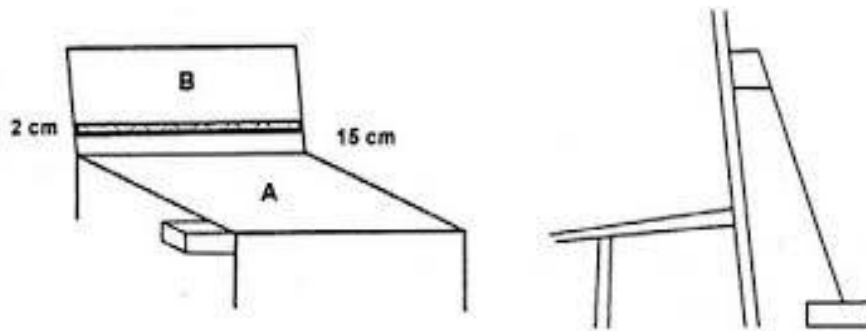


Figure 1. Backboard test field

Source: Nurhasan (2007: 4.10)

Validity and reliability

The validity of the test instrument with a value of 0.615 and the reliability of the test instrument is 0.738 so that it meets the eligibility standard to be used as an instrument for research data collection.

a. Tools and equipment

- ✓ stop watch
- ✓ 5 balls
- ✓ Net
- ✓ Foldable table
- ✓ A cardboard box measuring 10 x 5 x 3 cm that can be affixed with pins to the left side corner behind the table
- ✓ The wall or back of the table is erected by the net perpendicular to the horizontal table
- ✓ 2 cm wide paper tape glued to the tabletop erected perpendicularly, parallel to the horizontal table and 15 cm from the table surface
- ✓ Boring and stationery

Officer

- A time taker tasked with giving "yes" and "stop" signals
- One counts the number of valid bounces for 30 seconds and simultaneously records the result
- At least one helper is in charge of picking up the ball that cannot be controlled.

The data needed in this study is based on the variables included, including reaction time data and forehand drive capability data. The data obtained is processed according to the formula then the instrument to be used is adjusted to the variables to be measured.

The data taken is the reaction time data using the Nelson Hand Reaction Test test instrument, and the test scores of the test instrument for the ability to hit the drive. The Nelson Hand Reaction Test instrument is to determine the reaction speed of the hands in making movements, after receiving a response through the sense of sight and the shortest time needed to give a kinesthetic answer after receiving a stimulus through the senses of nerves or feeling. Testi sits on a chair or bench with her arms relaxed on the table, with her fingers about 7-10 cm outside the side of the table in a ready to "catch" position. The position of the fingers is horizontal. The tester holds the tip of the scale stick and hangs it between the thumb and forefinger. The tester removes the stick and the teste catches it with his thumb and forefinger.

The tester should not see the tester's hand movement when removing the stick. The test is carried out 20 times, the test environment must be completely calm. The time lag from the time of the next repeat is 0.5 –2 seconds. Before starting the test, you can try it first.

Evaluation:

- 1) Numbers read above the tip of the thumb
- 2) The five fastest and latest times were discarded, the other ten times being averaged.

Data analysis techniques in this study will use statistical techniques in accordance with the experimental research design. The data that has been collected through the forehead drive ability test, will be tested for analytical requirements, namely testing the normality of the data with the Kolmogorov-Smirnov test, and testing the homogeneity of variance with the Levene Test. After the data analysis was declared normal and homogeneous, it was continued with parametric analysis with statistical analysis of variance (ANOVA) at a significance level of = 0.05. If there is a significant effect in the ANOVA test, then proceed with the post hock test (Tukey's test) (Kerlinger, 2004) to see which group is the best.

Discussion

In this chapter, the research results will be presented which include: (1) test of variance analysis requirements, (2) hypothesis testing, (3) further test (post hock test), and discussion of research results. Based on the research data collection, it will be presented regarding the recapitulation of research data concerning: (1) analysis requirements test, (2) hypothesis testing, (3) further test (post hock test).

Data Normality Test

The normality test for the symptoms studied used the Kolmogorov-Smirnov test technique with the aim of seeing whether the data from each group were normally distributed or not and the test used SPSS version 25. A summary of the results of the normality test for each group can be seen in the table below. below.

Research Data Normality Test Results
One-Sample Kolmogorov-Smirnov Test

		KLP1	KLP2	KLP3	KLP4
N		10	10	10	10
Normal Parameters, b	mean	220000	19.2000	20.4000	17.6000
	Std. Deviation	1.56347	1.22927	1.07497	1.42984
Most Extreme Differences	Absolute	.161	.236	.245	.168
	Positive	.161	.236	.245	.168
	negative	-.139	-.164	-.155	-.136
Test Statistics		.161	.236	.245	.168
asympt. Sig. (2-tailed)		.200c,d	.123c	.090c	.200c,d

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.
- d. This is a lower bound of the true significance.

Based on the table above shows that the results of data analysis from group 1 is 0.200, group 2 is 0.123, group 3 is 0.090 and 4 is 0.200. From the results of the normality test, it can be seen that all research groups have a probability value (P) greater than = 0.05 ($P > 0.05$), so it can be said that all research groups have data that are normally distributed. Thus, it can be

concluded that all data groups from group 1 to group 4 in this study came from normally distributed populations, so that the data normality requirements were met for further testing purposes.

Variance Homogeneity Test

The population variance homogeneity test will be carried out using SPSS version 25 with Levene's test (Levene Test) on the results of the data from the four research groups. Of the four groups of data must meet the assumption that the variance is homogeneous. The results of the homogeneity test can be seen in the table below.

Result of Homogeneity of Variance of Data
Levene's Test of Equality of Error Variances^{a,b}

		Levene Statistics	df1	df2	Sig.
forehand	Based on Mean	.496	3	36	.688
	Based on Median	.620	3	36	.607
	Based on Median and with adjusted df	.620	3	33,488	.607
	Based on trimmed mean	.527	3	36	.667

The data from the test results show that the probability (P) = 0.667 is greater than the value of $= 0.05$ ($P > 0.05$), so it can be concluded that the data group being tested comes from a population with homogeneous variance.

Based on the results of the calculation of the requirements for the analysis of the normality test and the homogeneity test above, it can be concluded that the required analysis requirements are: required for the analysis of variance is met so that further analysis can be carried out with parametric statistics.

Hypothesis testing

1) There is a significant difference in the effect of variable-target drills and fixed-target drills on forehand drive ability.

The results of the first hypothesis testing can be seen in the table below:

Test Results Differences in Effect of Fixed Target Drills and Variable Targets on Forehand Drive Skills

Tests of Between-Subjects Effects

Dependent Variable: forehand

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	25,600a	1	25,600	6.812	.013
Intercept	15681,600	1	15681,600	4172,975	.000
Latdrill	25,600	1	25,600	6.812	.013
Error	142,800	38	3.758		
Total	1585000	40			
Corrected Total	168,400	39			

a. R Squared = .152 (Adjusted R Squared = .130)

Based on the results of the analysis of variance in table 4.3, it shows that there is a significant difference between fixed target drills and variable target drills on forehand drive ability with the results of the calculation $F_{\text{arithmetic}} = 6,812 > F_{\text{table}} = 3.96$ and the significance value $p = 0.013$, at the significant level = 0.05. From these results, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted, meaning that there is a significant difference in the effect of fixed target drills and variable target drills on forehand drive ability. Thus, it can be concluded that there is a significant difference in the effect of fixed target drills and variable target drills on forehand drive skills.

Furthermore, the Tukey test (attachment ..) shows that the fixed target drill training group (A1) groups 1 and 2 have significantly different forehand drive results compared to the variable target drill training group (A2), namely groups 3 and 4. Except that group 1 has the same results as group 3 and group 2 has the same results as groups 3 and 4. However, from the calculation results the average forehand drive skill of the practice group (A1) is 20.6 higher than with the average forehand drive ability of the exercise group (A2) which is 19.0. These results indicate that there is a significant difference between group (A1) and group (A2).

2) There is a significant difference in the effect of high reaction time and low reaction time on forehand drive ability.

The results of the second hypothesis testing can be seen in the table below:

**Test Results The Difference Between High Reaction Time and Low Reaction Time
Towards Forehand Drive Ability
Tests of Between-Subjects Effects**

Dependent Variable: forehand

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	78,400a	1	78,400	33.102	.000
Intercept	15681,600	1	15681,600	6621.120	.000
reaction time	78,400	1	78,400	33.102	.000
Error	90,000	38	2,368		
Total	1585000	40			
Corrected Total	168,400	39			

a. R Squared = .466 (Adjusted R Squared = .451)

Based on the results of the analysis of variance in table 4.4, the following results were obtained: the calculated F value = 33,102 > from the table F value = 3.96 and the significance value $P = 0.000$, at the significance level = 0.005. From these results, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted, meaning that there is a difference between high reaction time and low reaction time on forehand drive ability. Furthermore, from the results of the Tukey test, it was found that the high reaction time group had a significant difference between the results of the low reaction time group. From the calculation results, the average high reaction time group is 21,200, which is higher than the average low reaction time, which is 18,400. With Thus, it can be concluded that there is a significant difference in the effect between the high reaction time sample group and the low reaction time group on the forehand drive ability.

3) There is an interaction between drill practice and reaction time on forehand drive ability

The results of the third hypothesis testing can be seen in the table below:

Results of Drill Practice Interaction Test and Reaction Time on Forehand Drive Ability

Tests of Between-Subjects Effects					
Dependent Variable: forehand					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	104,000a	3	34,667	19,379	.000
Intercept	15681,600	1	15681,600	8766,112	.000
Latdrill	25,600	1	25,600	14,311	.001
reaction time	78,400	1	78,400	43,826	.000
latdrill * Wakruration	.000	1	.000	.000	1,000
Error	64,400	36	1,789		
Total	1585000	40			
Corrected Total	168,400	39			

a. R Squared = .618 (Adjusted R Squared = .586)

The results of the calculation of the interaction analysis in table 4.5 above show that there is no influence of the interaction factor between drills and reaction time on the forehand drive ability of the sports faculty students who are the subjects in this study with the results of the calculated $F = 0.000 < F_{table} = 4.08$ and a significant value of $p = 1,000$ at a significant level of $\alpha = 0.05$. From these results, the alternative hypothesis (H_a) is rejected and the null hypothesis (H_0) is accepted, meaning that there is no interaction between drill practice and reaction time on forehand drive ability.

Thus, it can be concluded that there is no interaction between drill practice and reaction time on forehand drive ability.

Of the three alternative hypotheses tested, the first and second hypotheses got significant results; only the third hypothesis was not significant.

Discussion of Research Results

1) There is a difference in the effect of fixed target drills and variable target drills on the ability of forehand drive in sports science students.

From data processing and analysis, it is known that drills, both fixed and variable targets, indicate a significant difference in the results of the exercise on the ability of the forehand drive. Based on the results of the difference in the mean drill training, the mean of the fixed target is greater than the mean of the variable target, so this shows that drill training with a fixed target makes a significant contribution to the forehand drive ability. The similarity of the two forms of exercise in the implementation of drill exercises using fixed targets with changing targets, namely training the sequence of motion parts of each element of motion such as ready position, prefix, hitting motion and follow-up motion. These movement skills will be trained repeatedly, will be patterned in the central nervous system as a sensory experience so that it becomes a complete series of forehand drive movements. However, if

you look at the difference between the two forms of exercise, it can be seen from the advantages and disadvantages of the forehand drive ability. Drill practice using fixed targets has a better effect on forehand drive ability than using variable targets. This is because the subject is trained to master the forehand drive movement technique with an emphasis on one target, so that the direction of the forehand drive is more focused on one point, but in a real table tennis game, the direction of the forehand drive is adjusted to the situation and conditions that allow players to hit the ball into the opponent's area in a more favorable position to earn points. So in such circumstances, players if trained by using a target are still not accustomed to changing the direction of the forehand drive. In general, players who practice using targets are still not used to changing the direction of the target, so that training that leads to accuracy and accuracy in placing the ball at one point will fully support accuracy or accuracy. Drill training using variable targets has a less favorable effect on forehand drive ability than using fixed targets because with a change in target, this is less supportive towards accuracy and accuracy of ball placement because the target does not focus on one point, to it is very necessary coordination of movements to lead to one target, must be more thorough than fixed targets. So that this exercise will support the accuracy of players in the real table tennis game.

The actual game of table tennis often uses moving targets because a player will learn two movements at once, namely the footwork and the impact of the actual movement. This is intended so that a player will easily adjust his position in making forehand drive strokes so that the sensory experience carried out in this training can be applied when making forehand drive strokes in the real game. While the lack of drill training with variable targets, the element of accuracy takes precedence over strength.

From the description of the training above, drills using fixed targets are better at supporting accuracy and precision than changing targets.

- 2) There is a difference in the effect of high reaction time and low reaction time on forehand drive ability in male students majoring in sports coaching education.

Based on the results of the research data analysis, the following results were obtained: the calculated F value = 33,102 > from the F table value = 3.96 and the significance value of P = 0.000, at the significance level = 0.005. Furthermore, from the Tukey test, it can be seen that there is a difference in the effect between the high reaction time sample group and the low reaction time sample group on the ability of the forehand drive.

This difference is caused by the fact that in sports that have a dominant speed of movement such as table tennis, this reaction time is very necessary in order to quickly respond to which movement will be carried out. The speed of responding to a movement can only be done if someone has a high reaction time ability in addition to physical ability and skill ability. So someone who has a high reaction time will be faster in responding to a movement than someone who has a low reaction time.

Therefore, according to the description above, a high reaction time is better than a low reaction time to improve the forehand drive ability.

- 3) There is an interaction between drill practice and reaction time on forehand drive ability in male students majoring in sports coaching education.
- 4) From the results of statistical calculations, it is shown that the calculated F value = 0.106 < F table = 4.08 and the significant value of p = 0.747 at the significance level = 0.005. Based on these results, it can be concluded that there is no interaction between drills and reaction time on forehand drive ability. This indicates that drill practice and reaction time are not directly related to forehand drive ability. Because by using drills and any reaction time, the forehand drive ability is not affected.

Conclusion

The results of data analysis and discussion in this study can be concluded as follows:

1. There is a significant difference in the effect of fixed target drills and variable target drills on the ability to hit the fourhand drive in sports science students.
2. There is a difference in the effect of drill training and high reaction time and low reaction time on the ability to hit fourhand drive in sports science students.
3. There is no interaction between drill practice and reaction time on fourhand drive ability in sports science students.

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