

The Effect of Backswing, Forewardswing, Contact, and Follow Through on Forehand Drive in Tennis

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ABSTRACT

The purpose of this research is to determine the effect of backswing, forward swing, contact, and follow through toward forehand drive skill. The sample of this research were purposively selected 31 tennis athletes of UNP. The data for backswing, forward swing, and contact were collected by judge observation. For the forehand drive skill the data was taken by Broer-Miller-Tennis Test. All data were analyzed by simple and multiple regression. Data analysis showed a positive coefficient regression between backswing and forehand drive ($F=99.96$, $p<0.05$), forwardswing and forehand drive ($F=209.92$, $p <0.05$), contact and forehand drive ($F = 127.008$, $p<0.05$) followthrough and forehand drive ($F=214.638$, $p < 0.05$), and, backswing forward swing, contact and follow-through simultaneously with forehand drive ($F=44.64$, $p<0.05$). Based on this research finding, we highly recommend to the UNP's tennis coach to improve basic technique for backswing, forward swing, contact and follow through to include more comprehensive training.

Keywords: *Backswing, forwardswing, contact, forehand drive, tennis*

1. INTRODUCTION

This research was initiated based on a fact that tennis athletes in Padang State University are lack of forehand drive skill. This problem has to be analysed in order to determine the solution to improve the forehand drive skill in the future.

In order to enhance the achievement in tennis, basic technique mastery is necessary. According to Maghetti (1990: 32), the stroke basic technique consists of service, forehand drive, backhand drive, and smash. Generally, in tennis match, the forehand drive is used more frequently compare to any other shot, for example in offensing. It is used to boost the opponent's second service, to push the opponent, or to flatten the shot flow to the net. The forehand drive is a main weapon of offensing because the movement is not too hard to be learned. Hence, beginners in tennis are usually capable of mastering this kind of shot compare to any other shot (Katili, 1997: 30).

Forehand drive as one of the basic technique can be categorized into three kinds, in the term of spinning, which are forehand flat drive, forehand top spin drive, and forehand slice drive (Katili, 1977:39). For the advance and professional level of tennis player, forehand drive is the main weapon of the match. An effective forehand drive is the key to victory because it means that the shot has 50% of the count of shots

compare to the defending shot. If an athlete is lack of forehand drive skill, the opponent will easily attack him and will have a bigger chance to get points for every attack (Brown, 1996:53).

According to Irawadi (2011:14), "Tehnique is the way to do something. Technique stroke is the way to hit the ball on tennis match". There are three supporting techniques in the term of shooting technique: Feet movement technique (shooting preparation phase), Racket holding technique, Racket movement technique (shooting phase).

In executing the forehand drive technique, there are several techniques or phases which support the successfulness of the forehand technique execution. They are back swing, forward swing impact, and follow through. These four phases is predicted to play a vital role in supporting the successfulness of the forehand drive technique in tennis match.

In order to improve the high capability and achievements, especially in the tennis match, a player should mastery four main and important aspect, which are: 1) skills, 2) physical fitness, 3) development of mental, memory, and intelligence, and 4) champion matureness. Among these aspects, the physical drill is the most important factor in determining the athlete's level of achievement. The physical drill in this context refers to: strength, speed, endurance, explosion power,

flexibility, agility, coordination, balance, accuracy, and reaction (Sajoto, 1988: 84).

In order to play tennis well, especially in the term of successfulness in executing the forehand drive, mental stability and skills are necessary to execute the shot technique which support the tennis playing. An appropriate training program which aligned with the final goal is also necessary. The training should be designed while considering the utilization of knowledge which support the achievement in tennis sport science. An empirical study is one of the factor which should be developed in coaching and achievement development of an optimal training because it is expected to help solving any problems related with tennis.

Table 1. Population Number

No	Population	Male	Female
1	42 athletes	33 athletes	9 athletes

Forehand drive is critical because it is used and has to be used as frequent as possible (Yudoprasertion, 1981:61). At least, half of all tennis shots is forehand drive. Forehand drive is a stroke which can make the opponent running all over the side of the field in a long rally. Forehand drive would be a strong shot, pushing and forcing the opponent to back off.

Based on these problems, the writer chosen one of the research related with the problem: "The Effect of Backs Swing, Foreward Swing, Impact, and Follow Through on Forehand Drive in Tennis".

2. METHOD

Table 2. Summary of Normality Test using Lilliefors Test

N	Variable	N	L _o	L _{tab}	Distributio n
1	<i>Backswing</i> (X ₁)	3	0.09	0.15	Normal
		1	5	9	
2	<i>Forewardswin g</i> (X ₂)	3	0.11	0.15	Normal
		1	1	9	
3	<i>Impact</i> (X ₃)	3	0.12	0.15	Normal
		1	8	9	
4	<i>Follow Through</i> (X ₄)	3	0.12	0.15	Normal
		1	3	9	
5	<i>Forehand Drive</i> (Y)	3	0.10	0.15	Normal
		1	2	9	

Type of this research is correlational. According to Umar (1998:15), "Correlational is a research designed to determine the correlational between the independent and dependent". Arikunto (2010:239) explained that "Correlational research is a research which made by the researcher to find out the correlation level between independent and defendant variables, without giving any changing, additional or manipulation toward the data".

According to Ridwan (2007:54), "Population is the object or subject on the one area, and which have a certain criteria connected to the research problems". It

means that population is the object of the research. The population in this research is the tennis athletes of UNP. Based on the information obtained from the coach, the tennis athlete which are registered in UNP are:

Sample is a part of a population observed. Based on the general overview on the population, sampling process is conducted using purposive sample method. This method determine the sample based on the goal. This basis is consistent with the statement of Arikunto (2010:177), "Sample is taken based on certain condition and criteria". Sample in this research consist of 33 male tennis athletes in UNP.

Type of data in this research is primary data. Primary data is a kind of data which obtained directly by the writer using test and measure of backswing data, forward swing data, impact data, follow through datam and forehand drive data in tennis sport.

Instrument used in this research is set of tests consists of expert judgement for variable of back swing, forward swing, impact, and follow through. The judgement format are:

Kirkendal, et all (1980) stated that " *forehand drive skill is taken by Broer-Miller-Tennis Test.*" This test is used to measure skills of tennis player in executing forehand drive.

The purpose of the test is to measure the skill/accuracy of forehand drive Validity of 0.85

Execution technique is that every participant has the chance to shot 14 times

Equipments used are racket, ball, net, tennis court, and test format.

3. RESULTS

Normality test

Normality test for each distributed frequency is conducted using lilliefor test. The result of normality test of backswing (X₁), *forewardswing*, (X₂), *impact* (X₃), *follow through* (X₄), and *Forehand Drive* (Y) are shown in table below.

Based on the summary above, it is concluded that all variable is distributed normally because each variable has L score less than the value of L_{tab} in significance level of $\alpha = 0,05$.

Hypothesis test

After conducting the analysis requirement test, it is concluded that the data of each variable is feasible to undergo the hypothesis test. The hypothesis test is conducted using simple regression formula and double regression. The details are provided in the following explanation.

Hypothesis 1

The first hypothesis proposed in this research are: back swing has an impact on forehand drive skill in

tennis. The calculation result above shows that the regression coefficient of back swing variable and forehand drive variable is positive. This result shows that the regression analysis from F_{est} is 99.96 and F_{tab} at significance level of $\alpha = 0.05$ is 4.18. Hence, $F_{est} > F_{tab}$. This result concludes that the back swing variable (X_1) has a positive and significant result on forehand drive variable (Y).

The next calculation result on the previous table shows that the linearity test of back swing variable and forehand drive variable is positive. This result shows that F_{est} is 0.838 and F_{tab} in significance level of $\alpha = 0.05$ is 2.42. Hence, $F_{est} < F_{tab}$. It concludes that back swing variable (X_1) on forehand drive variable (Y) is a linear regression.

Hypothesis 2

The second hypotheses proposed in this research is that forward swing has an impact on forehand drive in tennis. The calculation result shows that the regression coefficient between forward swing variable and forehand drive variable is positive. It shows that F_{est} is 209.92 and F_{tab} at significance level of $\alpha = 0.05$ is 4.18. Hence, $F_{est} > F_{tab}$. The conclusion is forward swing variable (X_2) has a positive and significant impact on forehand drive variable (Y).

The next calculation result on the table shows that linearity test of forward swing variable and forehand drive variable is positive. It shows that F_{est} is 0.850 and F_{tab} in significance level of $\alpha = 0.05$ is 2.42. Hence, $F_{est} < F_{tab}$. The conclusion is forward swing variable (X_2) and forehand drive variable is a linear regression.

Hypothesis 3

The third hypothesis proposed in this research is forehand drive skills has an impact on tennis. In order to determine the impact, a simple regression analysis is conducted. The calculation result on the table shows that the regression coefficient of impact variable (X_3) and forehand drive variable (Y) is positive. It shows that F_{est} is 127.008 and F_{tab} in significance level of $\alpha = 0.05$ is 4.18. Hence, $F_{est} > F_{tab}$. The conclusion is impact variable (X_3) has a positive and significant impact on forehand drive variable (Y).

The next calculation of the table shows that the linearity test of impact variable and forehand drive variable is positive. It shows that F_{est} is 1.262 and F_{tab} at significance level of $\alpha = 0.05$ is 2.47. Hence, $F_{est} < F_{tab}$. It can be concluded that impact variable (X_3) and forehand drive variable is a linear regression.

Hypotheses 4

The fourth hypothesis proposed in this research is follow through has an impact on forehand drive skill in tennis sport. In order to determining the impact, a simple regression analysis is conducted. The calculation result shows that the regression coefficient between follow through variable (X_4) and forehand drive (Y) is

positive. It shows that F_{est} is 214.638 and F_{tab} in significance level of $\alpha = 0.05$ is 4.18. Hence, $F_{est} > F_{tab}$. It can be concluded that follow through variable (X_4) has a positive and significant impact on forehand drive variable (Y).

The next calculation on the table shows that the linearity test of follow through and forehand drive variable is positive. It shows that F_{est} is 1,176 and F_{tab} at significance level of $\alpha = 0.05$ is 2.42. Hence, $F_{est} < F_{tab}$. The conclusion is follow through variable (X_4) and forehand drive variable (Y) is a linear regression.

Hypothesis 5

The fifth hypotheses proposed in this research is back swing(X_1), forward swing (X_2), impact(X_3), and follow through (X_4) has an impact on forehand drive (Y) of tennis athletes in UNP simultaneously. In order to determine the impact, a double regression analysis is conducted. The summary of correlated coefficient calculation is provided on the table 3.

Table 3 ANOVA Multiple Regression Test. $\hat{Y} = 4,37 + 1,25 X_1 + -0,72 X_2 + -1,08 X_3 + 3,30 X_4$

Variation Source	Jk	D	Rjk	F_{est}	$F_{table=0.05}$
Regression	1434.760	4	358,6901	44,6389	2,74
Residual	569		422	483	
Total	20,9194	2	8,035362		
F value	314	6	745		

Calculation on the table shows that regression coefficient of back swing(X_1), forward swing (X_2), impact(X_3), and follow through (X_4) on forehand drive variable (Y) is positive. It shows that F_{est} is 44.64 and F_{tab} at significance level of $\alpha = 0,05$ is 2.74. Hence, $F_{est} > F_{tab}$. The conclusion is back swing(X_1), forward swing (X_2), impact(X_3), and follow through (X_4) has a positive and significant impact on forehand drive variable (Y).

Estimation of backswing toward forehand drive

In order to forecast the significance of back swing impact on forehand drive in tennis, by using estimation from regression equation is used:

$$\hat{Y} = 6,16 + 2,72x$$

Constant value (a) of 6.16 is interpreted as if the score of back swing variable (X_1) is 0, the score of forehand drive variable (Y) would be 6.16. The regression coefficient (b) of 2.72 is interpreted if the score of back swing variable (X_1) is increased by 1 point, the score of forehand drive variable (Y) would be also increased by 2.72%. The conclusion is the independent variable of back swing has 2.72% impact on dependent variable of forehand drive in tennis for every increasing of 1 score of back swing variable (X_1). Hence, the first hypothesis in this research is accepted empirically.

Estimation of forward swing (X_2) toward forehand drive (Y)

In order to forecast the significance of forward swing impact on forehand drive in tennis, an estimation from regression equation is used: $\hat{Y} = 5,63 + 2,91x$.

Constant value (a) of 5.63 is interpreted as if the score of forward swing variable (X_2) is 0, the score of forehand drive variable (Y) would be 5.63. The regression coefficient (b) of 2.91 is interpreted if the score of forward swing variable (X_2) is increased by 1 point, the score of forehand drive variable (Y) would be also increased by 2.91%. The conclusion is the independent variable of forward swing has 2.91% impact on dependent variable of forehand drive in tennis sport for every increasing of 1 score of forward swing variable (X_2). Hence, the first hypothesis in this research is accepted empirically.

Estimation of impact (X_3) toward forehand drive (Y) In order to forecast the significance of impact (X_3) impact on forehand drive in tennis sport, an estimation from regression equation is used: $\hat{Y} = 8,24 + 2,82x$.

Constant value (a) of 8.24 is interpreted as if the score of impact variable (X_3) is 0, the score of forehand drive variable (Y) would be 8.24. The regression coefficient (b) of 2.82 is interpreted if the score of impact variable (X_3) is increased by 1 point, the score of forehand drive variable (Y) would be also increased by 2.82%. The conclusion is the independent variable of impact has 2.82% impact on dependent variable of forehand drive in tennis sport for every increasing of 1 score of impact variable (X_3). Hence, the first hypothesis in this research is accepted empirically.

Estimation of follow through (X_4) toward forehand drive (Y).

In order to forecast the significance of follow through (X_4) impact on forehand drive in tennis, an estimation from regression equation is used: $\hat{Y} = 5,48 + 2,78x$.

Constant value (a) of 5.48 is interpreted as if the score of follow through variable (X_4) is 0, the score of forehand drive variable (Y) would be 5.48. The regression coefficient (b) of 2.78 is interpreted if the score of follow through variable (X_4) is increased by 1 point, the score of forehand drive variable (Y) would be also increased by 2.78%. The conclusion is the independent variable of impact has 2.78% impact on dependent variable of forehand drive in tennis sport for every increasing of 1 score of follow through variable (X_4). Hence, the first hypothesis in this research is accepted empirically.

Estimation of backswing (X_1), forward swing (X_2), impact (X_3) and follow through (X_4) toward forehand drive (Y) simultaneously

In order to forecast the significance of backswing (X_1), forward swing (X_2), impact (X_3) and follow through (X_4) on forehand drive (Y) simultaneously in tennis, an estimation from regression equation is used:

$$\hat{Y} = 4,37 + 1,25 X_1 + -0,72 X_2 + -1,08 X_3 + 3,30 X_4.$$

Constant coefficient of 4.37 is interpreted as if the score of variable X_1, X_2, X_3, X_4 is 0, the score of forehand drive variable (Y) would be 4.37%. The regression coefficient (b_1) of 1.25 is interpreted if the score of back swing variable (X_1) is increased by 1 point, the score of forehand drive variable (Y) would be also increased by 1.25%. The regression coefficient (b_2) of -0.72 is interpreted if the score of forward swing variable (X_2) is increased by 1 point, the score of forehand drive variable (Y) would be decreased by 0.72%. The regression coefficient (b_3) of -1.08 is interpreted if the score of impact variable (X_3) is increased by 1 point, the score of forehand drive variable (Y) would be decreased by -1.08%. The regression coefficient (b_4) of 3.30 is interpreted if the score of follow through variable (X_4) is increased by 1 point, the score of forehand drive variable (Y) would be also increased by 3.30%.

4. CONCLUSIONS

Based on the research result, the conclusions are: Back swing variable has a significant effect toward forehand drive skills of tennis athletes in UNP. Forward swing variable has a significant effect toward forehand drive skills of tennis athletes in UNP. Impact variable has a significant effect toward forehand drive skills of tennis athletes in UNP. Follow through variable has a significant effect on forehand drive skills of tennis athletes in UNP. Backswing (X_1), forward swing (X_2), impact (X_3) and follow through (X_4) have a significant effect toward forehand drive skill of tennis athlete in UNP (Y) simultaneously.

5. ACKNOWLEDGMENTS

From the deep of the writers' heart, we would like to convey our gratitude to all of the athletes which contributed in the data collecting process. May the result of the research be benefit for all the athletes in improving their forehand drive skill.

REFERENCES

- [1] Arikunto, Suharsimi. (2010). *Research Procedure*. Jakarta: PT Rineka Cipta.
- [2] Brown, Jim. 1996. *Tennis, For The Beginner*. Jakarta : PT. Raja Grapindo Persada
- [3] Fardi, Adnan. (2010). *Advanced Statistic*. Fakultas Ilmu Keolahragaan UNP. Padang
- [4] Fiske, L. 1978. *How to Beat Tennis Players*. California: Wilshire book company
- [5] Irawadi, Hendri. (2011). *Easy Ways on mastery Tennis*. Wineka Media : Malang
- [6] Katili, A.A. 1973. *Tennis sport*. Jakarta: Bumi Restu Offset. 1977, *Olahraga Tennis*. Jakarta : Merpati.

- [7] Kirkendal, Don. Dkk. 1980. *Measurement and Evaluation For Physical Educators*. Dubuque Iowa : Wim. C. Brown Company Publisher.
- [8] L,Esagay, Opa. 1987. *Smart and Flexible Tennis*. Bandung: Penerbit Angkasa
- [9] Magethi, B. 1990. *Tennis Star*. Bandung: Pionir Jaya.
- [10] Murti, Handono. 2002. *Tennis For Achievement and Profession*, Jakarta : Bharata
- [11] Ridwan. 2007. *Learning Easily For Research*. Jakarta.
- [12] Schraff, Robert,1979, *Guiding For Playing Tennis*, Jakarta: Mutiara.
- [13] ~~1981.~~ *Guiding For Playing Tennis, Fast and Easy*. Jakarta: Mutiara
- [14] Umar, Husen (1998). *Method of Research For Making Tesis*. Jakarta : Raju Grafindo Persada.
- [15] *Undang-Undang RI No. 03 Tahun 2005. Peraturan Pemerintah Tentang Sistim Keolahragaan Nasional*. Penerbit Citra Umbara. Bandung.
- [16] Yudoprasetio, B .1981. *Learning Tennis 1st Edition*. Jakarta : Bharata
- [17] ~~1981.~~ *Learning Tennis 2nd edition*. Jakarta : Bharata
- [18]