

The Effect of Drive Training Method and Leg Length on Rally Ability in Rukun Tennis Club Players

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Abstract

The background of this study is that there are still shortcomings, weaknesses, and lack of consistency of the Rukun Tennis Club players, especially in rallying, the average player hitting 0-4 strokes when expanding the rally. This study aims to analyze the drive and leg length training methods of the Rukun Tennis Club players in Kudus and is a quasi-experimental study with a sample of 16 people. The data analysis technique used is the technique of analysis of variance (ANOVA) 2x2 factorial design at $\alpha = 0.05$. The results of the type of exercise variable were obtained $f_{count} > f_{table} = 6.61 > 4.49$, the results of the variable leg length were obtained $f_{count} < f_{table} = 2.60 < 4.49$, the results of the variable type of leg length exercise obtained $f_{count} < f_{table} = 2.57 < 4.49$. The conclusion of this study is that there are differences in the effect of drive ten on the baseline exercise and drive kamikaze exercise on the ability to rally 3 minutes in Rukun Tennis Club players in 2021. There is no difference in the effect of long and short legs on the ability to rally 3 minutes in Rukun Tennis Club players In 2021, there is no interaction between the drive training method and the length of the legs on the 3-minute rally ability in the Rukun Tennis Club players in 2021.

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INTRODUCTION

Tennis is a globally popular sport which is enjoyed by many people, of any age (Zealand, 2013). This is evidenced by the formation of clubs in the regions and in urban areas and the increased number of tennis fans (Sawali & Author, 2018). Along with the times, tennis is played as a high-level and world-class sports competition. However, these developments do not change the fact that this game or sport is very good for increasing achievement and developing the talents of each individual, especially in the field of sports. (Fahritsani, 2009) said that the main goal in the game of tennis is to hit the ball as far as possible (where the ball enters the court), so that the opponent cannot reach the ball or the opponent can return the ball, the ball hits the net or goes out of the court. (Jones & Angela Buxton, 2012) argued that, the goal of the game is to hit the ball in a line so that the opponent cannot reach it, or return it to its own playing area. So, in the ongoing game, hitting or placing the ball in a difficult position into the opponent's playing area, cannot be returned and trying so the ball does not die in its own area. To improve achievement in this sport, it is necessary to apply the correct pattern and training system in addition to hard work and high discipline in practice (Lardner, 2013). Ikhvanus Shava stated that one aspect of achieving achievement in sports is the biological aspect which includes the structure and posture of the body, namely: (1) height and leg length, (2) large size, width and weight, (3) body shape (Shava, 2017). Tennis really requires foot speed, anticipation, determination (determination), ingenuity where the brain must be more alert and the muscle reaction should be fast (Lardner, 2013). If you are proficient in basic shots such as, drives, service, and volley you can rely on them to press your opponent, you can use those strokes as well as possible. However, recently you need to use other strokes to keep the ball in play or to win points, the types of strokes are lob, smash, drop shot, stop volley, half volley, slice and chop shot (Abdul, 2019). Drive strokes are very important strokes, therefore it is possible that these strokes are more dominant used in a match to get points (Setyohardani, 2015).

The Rukun Tennis Club is a place to develop children's talents and interests, especially the tennis branch which is located in Kaliwungu District, Kudus Regency. This activity reaps many benefits in terms of technical, physical, mental and social growth. Members of the Rukun tennis club are children aged 15-18 years, they are trained by Ngatmono five times a week, namely every Tuesday, Wednesday, Friday, Saturday and Sunday. Training is held from 14.00-17.30 WIB, except on Sunday morning exercises at 10.00-16.00 WIB. Although many achievements were achieved in the junior group, in field observations, researchers saw that there were still shortcomings, weaknesses and lack of consistency of the Rukun Tennis Club players, especially in rallying, the average player hitting 0-4 strokes when starting a rally, so lots of balls are go out and get stuck in the net. The size of the leg length of different players affects the speed of the footwork of the players, some are good and some are not too good, so when they are doing a strike, players are often make a shot lately . Several studies have stated that speed and agility are influenced by several factors, which is leg length. Leg length is one aspect that affects all sports. (Carboch, Placha, & Sklenarik, 2018) says that more than 50% of points in men's and women's matches are decided in the first 4 strokes of the rally. Rally is very important in the game of tennis because according to statistics only 25% of the points obtained are caused by hard and targeted strikes from the opponent, so 75% of the points obtained are due to their own mistakes (Lucas, 2008). There are several types of exercises to improve rallying ability in a single game, namely thrown ball drill, 3 ball drill, super drill, strokes for fast ball, ten on the baseline, kamikaze, fixed-direction drive exercise, change-direction drive exercise, rotation method and rallyers and runners.

In a study from Maharani Fatima Gandasari, improves rallying ability for single players by using the rotation and rallyers and runners training methods had the result that there is an effect between groundstroke training using the rotation and rallyers and runners method on the ability to do a 3 minute rally. Meanwhile, a research by Husni Fahritsani using the fixed-direction and changing-direction drive training method, stated that there is a difference in the results between fixed-direction

and changing-direction drive exercises on the ability to do a 3-minute rally. Ten on the baseline and Kamikaze are a form of training for single players in the form of drills that aim to improve rally skills. It because these exercises can develop players' accuracy, agility, speed and coordination. According to (Lucas, 2008) good accuracy is needed in conducting a rally. Meanwhile, coordination is needed in almost all sports that are competed or contested. According to (Nurtajudin, 2015) coordination is the implementation ability to integrate types of movements into more specific forms. The level of good or bad coordination of a person's movements is reflected in his ability, to perform a movement smoothly, precisely, quickly, and efficiently (Anam, 2019).

Based on the observations, the researchers came up with an idea that exercises to improve rallying ability for single players should be given a variety of training methods, so the players ability can increase rapidly in hitting the rally. The variation of the exercise is using the drive training method. The drive exercises which given are the Ten on the Baseline drive exercise and the Kamikaze drive exercise. The purpose of this study to analyze the drive and leg length training methods for Rukun Tennis Club players in Kudus.

METHOD

This study used a quasi-experimental method, it used a factorial design technique which aims to analyze the rally ability program at the Rukun Tennis Club in Kudus Regency. The population in this study is the Rukun Tennis Club players in 2021, totaling 24 people, while the sample in this study amounted to 16 people with an age range of 15-18 years. The sampling technique in this study was using purposive sampling. The sample is obtained by taking a sample of population members. The variables of this study used manipulative independent variables, namely drive ten on the baseline and kamikaze exercises, while the attribute independent variables were long legs and short legs, and the dependent variable was the

ability to rally 3 minutes. This research instrument is a tool or facility used by researchers in collecting data using tests and measurements, namely a test to determine the ability of a 3-minute rally using the "Kemp-Vincent Rally Test" with a validity level of 0.84 and a reliability of 0.86 (Kemp & Vincent, 2013) and the assessment of each subject is calculated for the total stroke for 3 minutes. Test To measure the length of the legs, the researcher used a meter and the assessment of the length of the legs is recorded according to the results (numbers) listed on the measuring instrument in centimeters with an accuracy of 0.1 cm. The data analysis technique used is the technique of analysis of variance (ANOVA) 2x2 factorial design at $\alpha = 0.05$. To meet the assumptions in the ANOVA technique, a normality test was carried out with the Shapiro-Wilk with the help of SPSS 21, the Homogeneity of Variance test (with the leavens test) and hypothesis testing using the General Linear Model (GLM)-Two Way Anova analysis test with the help of the SPSS 16,0 program.

RESULTS AND DISCUSSION

The following are the results of research on the effect of drive training methods and leg length on the rallying ability of Rukun Tennis Club players in 2021. This chapter will describe data descriptions, hypothesis prerequisite tests, and hypothesis testing. The description of the data that will be presented is in the form of leg length data and the results of the rally ability test. This research was conducted at the Rukun Tennis Club with a sample of 16 people and then divided into two groups by looking at the distribution of the drive training method. Each grouping was broken down into a total of 8 people for the ten on the baseline exercise with the categories of long legs and short legs, after that 8 people for the kamikaze exercise with the categories of long legs and short legs.

Differences Effect of Drive Ten On The Baseline Training Method and Kamikaze Drive Exercise on Rally Ability

Table 1. The results of Anova Category Type of Exercise on Rally Ability

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	952.433a	3	317.478	3.929	0.036
Intercept	10282.467	1	10282.47	127.238	0
Exercise Type	533.957	1	533.957	6.607	0.025
Error	969.757	12	80.813		
Total	12204.657	16			
Corrected Total	1922.19	15			

Based on the results of testing the first hypothesis on the type of exercise variable, $F_{count} 6.61 > F_{table} 4.49$, this shows that there is a difference in the effect of drive ten on the baseline

exercise and kamikaze drive exercise on the ability to rally 3 minutes in Rukun Tennis Club players in 2021.

Table 2. Description of Rally Ability Category Type of Exercise

Exercise Type	Mean	Std. Deviation	N
Ten on the baseline	31.1275	11.11860	8
Kamikaze	19.5738	8.64267	8

According to the rally ability description data in terms of the type of exercise category, the drive ten on the baseline exercise has more effect on the rally ability of the Rukun Tennis Club players with the average rally ability in the sample given the drive ten on the baseline exercise method is 31.12 while the average The average rally ability in the sample given the kamikaze drive training method is 19.57. Players who are given the training method Drive ten on the baseline and the kamikaze drive training method have a significant effect on the results of the rally ability of Rukun Tennis Club players and the drive ten on the baseline training method has more influence on the rally ability of Rukun Tennis Club players. In research conducted by (Alim & Nurfadhila, 2021) One of the factors that influence achievement in the field of tennis is the skill in hitting the ball. In this study, the skill in question is the ability to rally. An appropriate training method is needed so that the training objectives can be achieved optimally. There are many studies to improve the ability of rallying in tennis, one of which is a study conducted by (Gandasari, 2011) with the results of statistical calculations obtained by the value of $t_{count} 2.557 > t_{table} 2.365$ shows that there is an effect between groundstroke training using the rotation method and rallyers and runners on the ability to do a 3-minute rally. Meanwhile, (Fahritsani, 2009) research with the results of the $t_{count} > t_{table}$

value of $3.161 > 2.262$ showed that there was a difference in the results between fixed-direction drive exercises and changing directions on the ability to do a 3-minute rally. In this study, the training methods used were drive ten on the baseline and kamikaze exercises. Drive ten on the baseline exercise has a goal, namely hitting the ball correctly and hard after the ball is thrown by the feeder to the side of the field and must lead to the target. The Kamikaze drive exercise has the goal of hitting the ball precisely and hard after the ball is thrown by the feeder to the service line and then to the baseline line. Drive ten on the baseline and kamikaze exercises have a good effect on rallying ability because these exercises train concentration, speed, agility, coordination, hitting accuracy and ball control. To be able to rally properly and correctly requires high concentration, speed, footwork agility, coordination, good ball control and good accuracy. The ten on the baseline drive exercise has more beneficial factors than the kamikaze drive exercise because the stroke is more powerful and the thrust of the shoulder rotation is greater, this is due to the body position that is sideways from the net and for more accurate ball placement, and the standing body position is more stable and does not require a long distance in running so the power that is channeled for the stroke can be directed to the target or baseline. Kamikaze drive practice is less beneficial because

players have to advance to the service area and then retreat to the back of the baseline area and it requires more energy than the ten on the baseline drive practice. The power generated for the stroke is smaller than the ten on the baseline exercise for the same strong stroke, this is because the width of the distance traveled and the rotation of the shoulder forward is less than optimal due to changing places, so when hitting it is less stable in carrying out the stroke. For the placement of punches less accurate because the standing position is less stable so the power generated for the blow is less than optimal. This exercise is also more difficult because players have to hit with different power because the stroke is done in different areas. According to the results of

testing the first research hypothesis, it is evident that there is a significant difference between the drive ten on the baseline exercise and the kamikaze drive exercise on the rallying ability of the Rukun Tennis Club players with the results obtained $F_{count} 6.61 > F_{table} 4.49$ and the drive ten on the training method the baseline has more influence on the rallying ability of the Rukun Tennis Club players with the average rally ability in the sample given the drive ten on the baseline training method is 31.12 while the average rally ability in the sample given the kamikaze drive training method is 19.57.

Differences Effect of Long Legs and Short Legs toward Rally Ability

Table 3. ANOVA Results Leg Length Category Against Rally Ability

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	952.433a	3	317.478	3.929	0.036
Intercept	10282.467	1	10282.47	127.238	0
Leg Length	210.468	1	210.468	2.604	0.133
Error	969.757	12	80.813		
Total	12204.657	16			
Corrected Total	1922.19	15			

Based on the results of testing the second hypothesis on the variable leg length, $F_{count} 2.60 < F_{table} 4.49$, this shows that there is no

difference in the effect of long legs and short legs on the ability to rally 3 minutes in Rukun Tennis Club players in 2021.

Table 4. Description of Rally Ability Category Leg Length

Leg Length	Exercise Type	Mean	Std. Deviation	N
Short	Ten on the baseline	23.8950	8.29057	4
	Kamikaze	19.5525	6.78363	4
	Total	21.7238	7.38694	8
Long	Ten on the baseline	38.3600	8.95710	4
	Kamikaze	19.5950	11.32569	4
	Total	28.9775	13.78277	8

According to the description data of the rally ability in terms of the leg length category, it shows that the average rally ability in the sample with the short limb category is 21.72 while those with the long limb category are 28.97. Everyone has different leg sizes, as well as the players of the Rukun Tennis Club in Kudus. The difference in leg length can affect or contribute more to rallying ability in tennis. Leg length is one aspect that is very influential on all sports. Sometimes long legs have a good influence on a sport and

sometimes have a bad influence on sports (Elmando, Nasuka, & Sulaiman, 2020). In court tennis, leg length affects the performance of players, because speed and agility are influenced by leg length and according to Lardner R tennis is a game that requires foot speed, controlled accuracy, stamina, anticipation, determination, and ingenuity (Lardner, 2013). An athlete who has a high body proportion is usually followed by a long leg size, although this is not the case, long leg size does not always provide an

advantage in the range of steps this is because agility is still needed. Conversely, the athletes who have short legs need more steps before making a shot. This is due to the fact that short limbs require athletes to take more steps and exert more energy than athletes with long legs. Likewise in tennis, which not only requires speed or long steps so that the timing of the stroke can be precise when hitting the ball, but also requires good anticipation of the upcoming ball (Alim & Nurfadhila, 2021). Meanwhile, according to (Abdul, 2019) in order to be able to make a good shot in tennis, a good balance and coordination of strokes is needed. From the description above, it can be concluded that the

reason why leg length does not affect the ability to rally is because to be able to do a good rally, it is not only speed or steps that are needed but players must also have good anticipation of the arrival of the ball, balance and also good coordination. According to the description data of the rally ability in terms of the leg length category, it shows that the average rally ability in the sample with the short limb category is 21.72 while those with the long limb category are 28.97.

Interaction Between Drive Training Method and Leg Length On Rally Ability

Table 5. Results of ANOVA Interaction of Exercise Types and Leg Length on Rally Ability

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	952.433a	3	317.478	3.929	0.036
Intercept	10282.467	1	10282.47	127.238	0
Leg Length* Exercise Type	208.009	1	208.009	2.574	0.135
Error	969.757	12	80.813		
Total	12204.657	16			
Corrected Total	1922.19	15			

The results of testing the third hypothesis on the variables of exercise type and leg length obtained $F_{count} 2.57 < F_{table} 4.49$, this indicates that there is no interaction between the drive training method and leg length on the 3-minute rally ability of Rukun Tennis Club players in 2021. Based on the two types of exercise above, it is clear that a regular and targeted exercise program will continuously result in adjustments to increasing physical conditions. By doing regular and systematic training, it will improve the function of muscles that can work optimally as a supporter in carrying out physical activities. Basically every training process for tennis players must always include and improve all aspects needed by tennis players as a whole, namely physical, technical, tactical and mental aspects (Nugroho, 2015). If the aspects of the technical training method are appropriate and can run well, motivational, tactical and mental aspects are also needed so the athlete's ability can increase rapidly. In the research conducted (Fahritsani, 2009) said that the method or method of training is an

important factor in improving skills. Practicing with a planned method will have better results than without the method. There are several things in an effort to improve rallying ability so there is no interaction between drive training method and leg length on rallying ability in tennis such as correct training patterns, motivation, physical condition, tactics and mentality. So it can be concluded that there is no interaction between the drive training method and the category of leg length in influencing rallying ability.

In this study there are factors that are not controlled by researchers in the research conducted. Some of the perceived limitations in the study were that the researcher used a quasi-experimental type of research because it was not possible for the researcher to control all relevant variables, the researcher did not ratify the code of ethics for the load/dose of exercise based on the expert, the improvement of the exercise provided was in accordance with the sample's ability by using the maximum ability. the sample, researchers are limited and focus on

Rukun Tennis Club players aged 15-18 years, further research is needed whether this method can also be carried out on trained athletes, researchers use samples with different training experience factors and researchers do not use overload loads in providing training programs.

CONCLUSION

The conclusion of this study is that there are differences in the effect of drive ten on the baseline exercise and drive kamikaze exercise on the ability of a 3-minute rally in Rukun Tennis Club players in 2021 and drive ten on the baseline exercise has a better effect than drive kamikaze exercise. There is no difference in the effect of long and short legs on the ability to rally 3 minutes in Rukun Tennis Club players in 2021. There is no interaction between drive training methods and leg length on the ability to rally 3 minutes in Rukun Tennis Club players in 2021.

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