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The Effect of Predictable and Unpredictable Training on the Speed of Footwork in Badminton

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Abstract

Footwork is a movement that regulates the body to position the body in such a way that it makes it easier to perform the movement of hitting the shuttlecock according to its position. The purpose of this technique is so that the shuttlecock can be reached in any area quickly when the opponent attacks. The purpose of this study is to test how much influence predictable and unpredictable training is against the speed of footsteps in badminton games, this study used an experimental method with the pretest-posttest control and experimental group design. The population used was 30 students of UPI Sumedang badminton UKM, the samples taken were 10 students for experimental treatment and 10 students for control treatment using techniques. Based on the results of the data analysis obtained, the average pre-test experiment 65,80 and post-test 85 show an increase in the speed of footwork after being given an exercise using android court footwork. In addition, the increase in speed in badminton UKM Students can be seen from the N-Gain scores in both groups. The N-Gain score in the experimental groups was higher than the control group (56,85 > 31,78) and in the t-test, on the N-Gain value, the score obtained the Sig value. (2-tailed) = 0,001 < α = 0,05. So, it can be concluded that predictable and unpredictable training affects the speed of footwork of badminton UKM students and there is a significant difference in effectiveness in the application of android court footwork exercises with conventional exercise.

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INTRODUCTION

Badminton is one of the most popular sports in Indonesia and has become Indonesia's mainstay prestigious sport. (Maulina, 2018). In addition, this badminton sport can be played easily by everyone from various circles and ages, both children, adults, and parents (Pujianto, 2012). As we already know that in Indonesia there are already many outstanding athletes, especially in this badminton sport. To reach this point, of course, there needs to be a long and thorough preparation, one of the preparations that must be done includes basic techniques (Al Farisi, 2018a). And of course, this coaching is done early, because, without systematic and continuous coaching, sports achievements, in general, will regress. So one of the most decisive factors is the coaching of athletes at the elementary school or elementary school level (Zarwan et al., 2018). In the Elementary School curriculum, there are usually several small ball games such as caste, rounders, and badminton. But unfortunately, badminton is a subject that is slightly less developed than other subjects. (Amat Komari, 2005). So usually this badminton sport is kept in elective lessons where the implementation for this badminton sport is contained in extracurriculars.

Usually in learning as well as extracurricular many basic movements are finally learned. Likewise in badminton. To be able to play badminton well, a player must be able to master several basic badminton techniques, one of which is the basic technique of foot movement. Foot movement in badminton games is often referred to as footwork. According to Herman Subardjah (2000: 27), footwork is movements that regulate the body to place the body position in such a way, making it easier to perform shuttlecock-hitting movements according to its position (Engel, 2014). The purpose of this technique is for the shuttlecock to be reached in any area quickly when the opponent attacks. When the player is in the correct position, the attack can be done perfectly on the opponent by making a deadly blow. Moreover, even players will be able to fight attacks from opponents quickly and correctly if the footwork technique is mastered. (Issn, 2022). Players who can run and change direction faster and precisely when moving without losing body balance have an increased in-game performance.

Footwork includes several directions on the field namely: moving right and left frontcourts, right and left center courts, and right and left backcourts (Chiu et al., 2020). That way, each player certainly has to understand the various directions that may occur when playing, And to be able to do all that, of course, it takes good physical condition. One important physical condition that a badminton player must have is agility. According to Wahjoedi, agility is the body's ability to change direction quickly without any balance disturbance or loss of balance. (Al Farisi, 2018b). Agility is focused on footsteps because footwork is considered very important in badminton games, especially when hitting or chasing balls that fall far from the body. If this is not noticed, it will result in the player losing the opportunity to get numbers or points. (Daryanto & Hidayat, 2015). For a badminton player, the agility factor is certainly very useful when in the game, so players who have a good level of agility will be at an advantage. And to get to the stage of having good agility, of course, it is necessary to go through various forms of training, here are some forms of exercises to increase the agility of foot movements in badminton games, including shuttle runs, shadows, or ladder drills. (Limbong, 2021). Chandrakumar & Ramesh (2015) revealed that ladder drill exercises are

performed by moving the feet quickly into the ladder box, alternating left as well as right, with correct movements that are in the coach's direction. While a Shuttle run is a back-and-forth running exercise that is carried out at one point to another as quickly as possible by covering a certain distance (Fathoni & Rachman, 2020). In this shuttle, the run movement emphasizes helping increase speed and agility by changing the direction and position of the body. (Islamiati et al., 2022) so it is often used as a training method in badminton.

In line with the advancement of science and technology, sports science has undergone tremendous developments, such as the form of exercise using reaction lights that give rise to the speed of recalculation, where the reaction speed is the time used between the emergence of a stimulus and the start of a reaction. The stimulus for reaction speed is in the form of sight, hearing, a combination of the two, and touch (Sukendro and Rasyono, 2016). (Limbong, 2021), And in addition to reaction lights, there is also a form of reaction training that uses an application on Android, to train reactions in the form of vision. Maybe some places still use manual training forms such as taking the ball that has been placed on the edges of the field to be moved to the middle of the field or vice versa (shadow/shuttle run), and other forms of exercise that seem monotonous, thus reducing enthusiasm in training, as well as the training system at the Badminton Student Activity Unit at the UPI Sumedang Campus. So here the researchers are interested in applying the form of agility training which involves reactions in the form of a person's vision, as well as to see which form of exercise between predictable and unpredictable forms of exercise can better affect the speed of student footwork in the Student Activity Unit (UKM) UPI Sumedang Campus.

METHODS

Clarify the above objectives, researchers use quantitative methods and experiments. Trying something and systematically observing what happens under two conditions is a simple idea underlying this study (Fraenkel et al., 2012). By using a pretest-posttest control group design. The population and samples were carried out on the participants of the UPI Student Activity Unit, Sumedang Campus, which amounted to 30 students. As explained by (Ary, 1982) that the population in the study can be people, things, and events. A population can be formulated as "all members of a group of people, events, or objects that have been formulated."

Djaali (2000) states that in general, what is meant by an instrument is a tool that, because it meets academic requirements, can be used as a tool to measure a measuring object or collect data about a variable. (Zhang et al., 2014). With this, researchers use instrument tests. This test uses an application on android Court Footwork and is used to measure the footwork that steps forward right-left, sideways right-left, and back right-left in the badminton game Tohar (Mujami', 2010). Data were analyzed using IBM SPSS 25 application (Statistical Product and Service Solutions). The data is distributed normally and homogeneously so that a T-test can be carried out to determine the effect of predictable and unpredictable training on the speed of footwork in badminton games.

RESULT

In this study data were obtained through pre-test and post-test of the instrument used using the application on the Android Court Footwork, which refers to previous research conducted by (Sepdanius et al., 2020) footwork exercises

for android are considered to have been tested for effectiveness. With this, athletes in the experimental group exercised for 12 meetings with the addition of pre-test and post-test. Referring to the opinion according to Juliantine, Yudiana, and Subarjah (in Wardianto, 2018) that, the frequency of exercise is 3 times a week. While the duration of exercise is at least 4-6 weeks.

Researchers conducted the same pre-test for both groups, Then each group was given a different treatment. After the treatment was given, a post-test with the same test was carried out on both groups. The treatment given to the experimental group was in the form of a shuttle run an exercise with 4 points and involved vision reactions such as a cue by researchers and using the help of an application on android footwork, Meanwhile, the treatment given to the control group is training using the leader drill ladder. To determine the effectiveness of the experimental group given shuttle run training and the control group using the leader drill ladder on the speed of footsteps in badminton games, an N-Gain score test was carried out.

Tables & Figures

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-test Experiment	10	54	74	65.80	5.653
Post-test Experiment	10	82	92	85.80	3.393
Pre test Kontrol	10	54	75	65.70	6.038
Post test Kontrol	10	70	85	76.90	4.383
Valid N (listwise)	10				

Based on table 1, the results of a descriptive analysis of predictable and unpredictable training data on the speed of footsteps in badminton games showed the lowest score of 54 and the highest score of 92. The average results of the experimental group at the time of the pretest were 65.80 and at the time of the post-test, it was 85.80. While the average result of the control group at the time of the pretest was 65.70 to 76.90 at the time of the post-test. This shows that there was an increase in predictable and unpredictable exercise results in the experimental group and there was a significant difference between the experimental group's posttest and the control group's posttest.

Table 2. Descriptive Statistics

Kelas	**Mean**	**Std. Deviasi**
Eksperimen	56,85	14,06
Kontrol	31,78	13,24

It can be seen in table 2, that the results of the descriptive analysis mean N-Gain experimental class score of 56.85 is greater than the control class which averages 31.78. This showed that the use of predictable and unpredictable exercises in the experimental group was more effective compared to conventional exercises in the control group because in the experimental group there was an increase in the speed of footwork in Badminton UKM students.

Table 3. Descriptive Statistics

	Paired Differences					t	df	Sig. (2-tailed)
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			

Pre test Eksperimen - Post test Eksperimen	56,85	14,06	4,44	12,23	37,91	4,103	18	,001

From the results of the T-test analysis in the experimental group that received the android court footwork treatment, a calculated value (4.103) > t-table (1.734) and a sig value (0.001) < 0.05 were obtained, So it can be concluded that there is a difference in the average results of the experimental pretest with the experimental post-test. This shows that predictable training and unpredictable training using android court footwork have a real influence on the speed of footwork in badminton games.

Table 4. Descriptive Statistics

N-Gain Score	**Levene's Test for Equality of Variances**				
	F	Sig.	**t**	**df**	**Sig. (2-tailed)**
Equal Variances Assumed	,126	,727	4,103	18	,001

The results of the T-test analysis in table 4 obtained the Sig. (2-tailed) value of the N-Gain data is 0.001. Because the sig value < α = 0.05, H0 was rejected, so it can be concluded that there is a significant difference in effectiveness in the application of predictable and unpredictable training with conventional training on the speed of footsteps of Badminton UKM Students. Based on the results of research in the experimental group that was treated, showed that the treatment of android court footwork can increase foot speed. This is the opinion (Limbong, 2021) that Stimulus for reaction speed is in the form of sight, hearing, a combination of the two, and touch. Could affect the speed of footsteps significantly.

CONCLUSION

Based on the results of research and discussions that have been presented related to data on the effect of predictable and unpredictable training on the speed of footwork, then it can be concluded that there is a significant difference in effectiveness and UPI Sumedang Badminton UKM students who are given better android court footwork training treatment compared to UPI Sumedang Badminton UKM students with conventional training using leader drill ladders. The T-test on the N-Gain score shows a sig value of 0.001 < α = 0.05 then H0 is rejected. This can also be seen from the average N-Gain test results of the scores of the two groups where the average score in the experimental group was 56.85 greater than the control class which averaged 31.78. It can be seen from the average result of the experimental group at the time of the pretest was 65.80 to 85.80 at the posttest. This suggests that there has been an increase in the group of experiments given android court footwork exercises. It can be proved that at the time of the T-test, the experimental group had a sig value (0.001) smaller than the probability value of 0.05. It is hoped that badminton UKM coaches and students can apply android court footwork exercises regularly so that the speed of footwork that appears in UKM students can be better. Android court footwork exercises can be combined with physical and technical exercises to make UKM Students more accustomed to doing so. Then for the results of this study hopefully, readers will get the information so that it can be a reference to start doing android court footwork-based training because it has many benefits for the speed of UPI Sumedang Badminton UKM Student Steps.

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