



## The Influence of Methods Massed Practice and Distributed Practice Model on The Speed and Accuracy of Service Tennis Courts

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massed practice; distributed practice; speed; accuracy; service

### Abstract

The purpose of this study was to analyze about (1) the effect of the method massed practice against the speed and accuracy of service, (2) the effect of the method of distributed practice against the speed and accuracy of service and (3) the influence of methods of massed practice and distributed practice against the speed and accuracy of service. This type of research used in this research is quantitative with quasi-experimental methods. The research design uses a non-randomized control group pretest posttest design, and data analysis using Manova. The process of data collection is done by testing the speed of service (dartfish) and test accuracy (Hewitt) during the pretest and posttest. The results of the study as follows: (1) there is a significant influence on the methods of massed practice to increase the speed and accuracy of service (2) there is a significant influence on the method of distributed practice to increase the speed and accuracy of service (3) There is no significant difference influence among methods massed practice and distributed to the speed and accuracy of service. Conclusions of this research is a method massed practice and distributed practice equally provide significant results but that gives the influence of better is method distributed practice to speed and accuracy of service.

### How to Cite

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## INTRODUCTION

Tennis is a sport using a small ball and each player uses a racket as a bat. The game is performed on a square-shaped field made of cement and soil with a mixture of fine sand (gravel), it can even be played on the grassfield. According to Arifin et al. (2012) tennis can be done and enjoyed by various age and gender. So this sport is very interesting and easy to learn. Tennis has been well-known widely by society that can be indicated by the growing number of tennis clubs in government or private institutions, universities, schools and others.

Basic technique is an absolute ability that must be mastered by someone to play tennis well. In tennis, there are some basic punch techniques that need to be mastered by players, especially beginners like service, forehand and backhand technique. The same thing is also expressed by Palmizal (2011: 140) that to be able to perform tennis on the basis, the players at least must know the basic techniques like service, ground stroke and volley. In principle, practice is a process of change to a better condition, that is improving of physical quality, functional ability of the body equipment, and psychic quality of the athlete. To achieve a high improvement in sport, it requires a training process, sufficient time and supported by many factors. Maximum result in practice can be achieved if the exercise is based on the principles of practice and in accordance with the correct procedures. A good coach should always pay attention to the intensity of the exercise, so that the athlete has the appropriate dose in the practice.

To achieve a certain skill level of a sport, an athlete must do the movement frequently in practicing. Schmidt (2011: 361) said that the massed practice is running a period of joint exercises such as in terms of exercising with short or no rest. In other words the practice is relatively continuous. The massed practice method according to Lankor (2007: 98) is a method of practicing continuous movements without rest until time runs out. Continuous exercise improves the ability to control movement during exercise and will stimulate the muscle ability required in certain sport to help achieve better performance. Based on the definition of the massed practice method presented by the experts, it has the same understanding, so it can be concluded that, massed practice method is the principle of arranging the turn practice skills that execution is done continuously without rest.

In general, practice with massed practice method has advantage of existence of short term memory. Short term memory is a memory system

that serves to store large amounts of information it receives over a short period of time. After doing serve, the short term sensory storage of athlete records in short term memory. So what has just been done is still conceptualized and stored in memory for a while, and that memory will disappear after a while. Through the practice of massed practice, before the memory is lost, the player or athlete moves again so that the concept of servicing movement is conceptualized into memory with greater force so that it will improve motion control capability during exercise and will create motion automation. But with continuous exercise without interspersed breaks will provide fatigue in the brain and body that will impact on the reception of information as well. Because accepting information when the body is fatigue will not be received well so that later athletes will bring boredom in the exercise.

While the provision of this distributed practice method has several advantages for both trainers and athletes. Rest time is very important in training. Recovery time provides an opportunity for athletes to recover between repetitions of movement. Recovery is done after work with high intensity during exercise, the benefits of recovery are: (1) avoiding over training, (2) giving the athlete's organ an opportunity to adapt in previous training.

It made the researchers assumed that both types of methods would improve the speed and accuracy of tennis services, but distributed practice exercises would greatly improve the speed and accuracy of tennis services when compared with the massed practice method. Because with the practice distributed between training and rest time will provide a better movement of motion that is because there is an opportunity to make movement corrections and provide recovery opportunities on the body so that no over training and boredom in the exercise.

Based on the observations that researchers did at the junior game in Bali, it appeared that the ability of junior athletes aged 12-16 years in doing service was classified as less good. This was seen from the number of points lost because the player could not direct the ball correctly and just entered the ball so the opponent could move forward to attack. According to Brown (2007: 53) an effective service becomes the key to victory, if the weak serve the opponent will attack and have a chance to get the numbers in each attack.

In current phenomenon, the trainer has not understood the use of methods related to active time utilization and appropriate rest periods, so the question arises among trainers or coaches

about how long an exercise should last, whether the exercise should be distributed or compacted, and when the rest period should be given. To answer these questions requires appropriate methods for the utilization of exercise time (active) and rest time so it can improve the efficiency of achieving the expected goals. Therefore the utilization of exercise time (active) and rest time should be well regulated so that the time of practice used for practice does not cause fatigue. There are two methods that take into account the time of exercise (active) and the rest time those are distributed practice and massed practice. In the distributed practice method, the athletes practice movements interspersed with break times while the massed practice method, athletes practice continuous motion without rest until time runs out (Lankor, 2007: 98).

In relation to the above, it is necessary to conduct a study that examines the “Influence of Massed Practice and Distributed Practice Method on Speed and Accuracy of Tennis Service”.

## METHOD

This was a quantitative research type with quasi experiment. The study design was non-randomized control group pretest posttest design (Maksum, 2012: 100).

**Table 1.** Table Experiment Design

Group	Pretest	Treatment	Posttest
E1	T1	X1	T2
E2	T1	X2	T2
K	T1	—	T2

Where:

E1: Experiment group 1

E2: Experiment group 2

K: Control Group

T1: Service speed and accuracy Pretest

T1: Service speed and accuracy Pretest

T1: Service speed and accuracy Pretest

X1: Treatment of massed practice group experiment

X2: Treatment of distributed practice group experiment

T2: Service speed and accuracy Posttest

T2: Service speed and accuracy Posttest

T2: Service speed and accuracy Posttest

## Population and Sample

The population in this study was 54 Singa-

raja junior tennis male athletes aged 12-16 years (54 men).

The sample from the total population must meet the requirements to fulfil the objectives of the study. These requirements are:

1. Athletes aged 12-16 years.
2. Male sex.
3. Have 1-3 years of tennis training experience.
4. Have followed the district level match.
5. Active training.
6. Physically and mentally healthy.

From the population, there are 30 athletes who met the research objectives.

## Research Place and Time

The research was conducted in Bhuana Patra Singaraja tennis court at junior tennis athletes of 12-16 year old age group and conducted at 16.00 until 18.00 ICST.

## Research Instruments

Instruments in this research are speed test by using software dartfist version 4.5.2.0 and precision test using precision test from Hewitt (1996).

## Data Analysis Technique

In accordance with the hypothesis and type of research used in this study, the statistical analysis used was normality data pre-required test and homogeneity, then continued with the t-paired sample test and MANOVA (Multivariate Analysis of Variance) with a significance level of 5%. The above process would be implemented using Statistical Product and Service Solution (SPSS) 16.0 program.

## RESULT AND DISCUSSION

### Normality Test

The calculations results with SPSS 16.0 was conducted to see whether data is normal or not can be seen in Table 2

The table above shows that the acquisition of data from the dependent variable, there is the balance which means that the data is normally distributed. This can be seen from the significant value (p) of each group is greater than 0.05. Therefore it can be concluded that the data is taken from a normally distributed population.

### Homogeneity Test

The result of SPSS 16.0 for the calculation of data homogeneity as in Table 2.

**Table 2.** Normality Result Test

Dependent variable	Shapiro-wilk			Ket	Status
	Group I	Group II	Group III		
	Sig	Sig	Sig		
Speed	0.213	0.216	0.134	P>0.05	Normal
Speed	0.188	0.420	0.200	P>0.05	Normal

**Table 3.** Paired t-test Result of Service Speed and Accuracy

Dependent Variable	Speed		Accuracy	
	Sig	Explanation	Sig	Explanation
Massed practice	.001	Ho is rejected	.000	Ho is rejected
Distributed practice	.008	Ho is rejected	.000	Ho is rejected
Control	.002	Ho is rejected	.000	Ho is rejected

**Table 4.** Variance Homogeneity Test Results

Box's M	3.238
F	.482
df1	6
df2	18168.923
Sig.	.822

The table above shows that data acquisition has a homogeneous variance. It can be seen from the significance value of each data is greater than the level of significance ( $p > 0.05$ ). So it can be concluded that the variance in each group is the same or homogeneous.

**Hypothesis Test**

To answer the proposed hypothesis, the analysis test used in this study was Mean Difference Test by using paired t-test. The value used in the paired t-test was the pretest and posttest values of each group (group I, group II, group III, and control group), with the presentation of the result of paired t-test is as.

The table above shows that the significant value in group I, II, III has a significance level so that the three treatment groups have a significant influence.

**MANOVA Test Result**

Mean difference test between groups simultaneously was done by using MANOVA. From the out put of SPSS for Windows, the result was as.

Based on the table above, there is insignificant results, because the calculation results showed that sig value was  $0.688 > \alpha$  value = 0.05, so Ho was received and Ha was rejected. So it can be concluded that there was no significant difference

from the three groups to the speed and accuracy of service at junior tennis athletes of 12-16 year olds in Singaraja.

**Table 5.** MANOVA Calculation Result

MANOVA		
	Sig.	Explanation
Wilks' Lambda Method	0.688	Not Significant

**RESULT AND DISCUSSION**

**Group I (Massed Practice Method)**

From mean calculation, the posttest average of service speed and accuracy was increasing. After paired-test was done, the significant value was obtained. So it can be said that the massed practice method treatment gave effect to the increase of 12-16 year old male athletes group tennis service speed and accuracy in Singaraja.

**Group II (Distributed Practice Method)**

From mean calculation, the posttest average of service speed and accuracy was increasing. After paired-test was done, the significant value was obtained. So it can be said that the distributed practice method treatment gave effect to the increase of 12-16 year old male athletes group tennis service speed and accuracy in Singaraja.

**Group III ( Control)**

From mean calculation, the posttest average of service speed and accuracy was increasing. After paired-test was done, the significant value was obtained, although they were only given conventional exercise. This happened because of factors outside the research that could affect such as: the existence of other activities similar to the

experimental group, those were factors that support the level of biomotoric and skill, those were speed and accuracy which were useful to increase speed and accuracy of tennis service, so that lead to an increase in pretest and posttest results. For the control group which was not given the massed and distributed practice method, the group also showed improvement of speed and accuracy of tennis service. Researchers only provided conventional training and it was outside of massed practice and distributed practice group programs.

#### **Comparison of Group I, II and III**

Based on the MANOVA's calculations, there was no significant difference in the effect of massed practice method, distributed practice method and control groups on the speed and accuracy of service. If it was seen from the average results of each group there was no far in difference so that this made no significant difference of influence. But when the average delta test results of each group was viewed, a group of distributed practice method was more influential on the speed and accuracy of service. The treatment of distributed practice method could give better result than massed practice method to tennis service speed and accuracy of age group 12-16 year old male athletes in Singaraja. One of the reasons of the distributed practice method was better in improving the service speed and accuracy is because distributed practice method provided enough recovery for athletes so that the athlete could adapt to the training rhythm and had opportunity to recover the body and could make corrections to the movement. While in massed practice method, there was no enough recovery for athletes so that athletes quickly got tired, lack of correction of movement and had boredom during exercise.

## **CONCLUSION**

Based on the results and discussion of research described in the previous chapters, it could be drawn some conclusions as follows: 1. There was a significant influence of massed practice method on service speed; 2. There was a significant effect of the massed practice method on accuracy of service; 3. There was a significant influence of distributed practice method on service speed; 4. There was a significant effect of distributed practice method on service accuracy; 5. There was no significant difference of influence between massed practice and distributed practice method toward service speed and accuracy.

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