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## Effect of endurance based skill training on cardio respiratory endurance forehead and backhand drive of tennis players

**P Jenith and Dr. T Radhakrishnan**

### Abstract

The purpose of the study was to investigate the effect of endurance-based skill training on cardio respiratory endurance, fore hand and back hand drive of tennis players. To achieve this objective of the study, thirty (N=30) tennis players were randomly selected as subjects from Tenniglo Tennis Academy in Coimbatore, Tamil Nadu, India. Their ages ranged from 12 to 14 years. The selected subjects were divided into two equal groups, experimental group and a control group (n=15 each). The experimental group underwent endurance-based skill training for three days per week over a period of twelve weeks. Meanwhile, the control group did not receive any training beyond their routine practice. Fore hand and back hand drive were assessed before and after the twelve-week treatment period. The data collected from the subjects were statistically analysed using the 't' ratio. The results of the study indicated that the cardio respiratory endurance, fore hand and back hand drive of the tennis players improved due to the twelve weeks of endurance-based skill training.

**Keywords:** Endurance-based skill training, tennis, cardio respiratory endurance, fore hand and back hand drive

### Introduction

Tennis is a game in which two individuals or four doubles team members use rackets to hit a ball over a net that stretches the width of the court. The game has evolved from ancient times to the modern version we play and watch today. Tennis has been an integral part of European life for over a thousand years, and it holds significant cultural importance, now being a prominent part of the sports culture in the modern world. Endurance training is the act of exercising to increase endurance. The term endurance training generally refers to training of the aerobic system as opposed to anaerobic. The need for endurance in sports is often predicated as the need of cardiovascular and simple muscular endurance, but the issue of endurance is far more complex. Endurance can be shown that endurance in sport is closely tied to the execution of skill and technique. A well-conditioned athlete can be defined as, the athlete who executes his technique consistently and effectively with the least effort (Michael 2008). Endurance, like strength, is a conditional ability. It is notably decided with the aid of strength liberation processes. The ability of the human physique to keep a certain stage of power production forms the psychological groundwork of endurance. Due to its high importance for health and training, its physiological determinants, which can be exceptionally without difficulty studied without difficulty it is a potential which has been studied with amazing depth by the physiologists.

### Purpose of the study

The purpose of the study was to find out the effect of twelve weeks of endurance-based skill training on cardio respiratory endurance, fore hand and back hand drive of tennis players.

### Hypothesis

It was hypothesized that twelve weeks of endurance-based skill training would lead to remarkable improvements in the cardio respiratory endurance, fore hand and back hand drive

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of tennis players.

**Methodology**

In order to achieve the purpose of the study, thirty tennis players were randomly selected as subjects from Tenniglo Tennis Academy in Coimbatore, Tamil Nadu, India. Their ages ranged from 12 to 14 years. The selected participants were then randomly assigned to two groups: the experimental group, which received endurance-based skill training (n=15), and the control group (n=15). Before the start of the training experiment, all the subjects were tests on selected variables and the readings were recorded as pre-test scores. After pre-test the experimental group participated in an endurance-based skill training program, which was designed to last 60 minutes per session, with three sessions held on alternative days (Monday, Wednesday, and Friday) over a period of

twelve weeks. Every two weeks of training, the intensity of the load was increased by 5%, ranging from 55% to 80% of the workload. The volume of endurance-based skill training was prescribed based on the number of sets and repetitions. On the other hand, the control group did not receive any specialized training and continued with their routine activities. Following the twelve weeks of training, all the subjects were re-tested for cardio respiratory endurance, fore hand & back hand drive and the readings were recorded as post-test scores. The collected pre and post-test scores were analysed using the paired 't' test.

**Analysis and Interpretation of Data**

The collected pre and post test scores of experimental and control groups were analyzed with paired 't' test and the results were presented in the form of tables and figures.

Experimental Group						
Group	Variable		Mean	Std. Deviation	Std. Error Mean	't' ratio
Experimental Group	Cardio Respiratory Endurance	Pre test	1876.20	1.61	0.41	67.51*
		Post test	1882.33	1.54	0.39	
Control Group		Pre test	1876.53	1.64	0.42	1.00
		Post test	1876.46	1.68	0.43	
Experimental Group	Fore Hand Drive	Pre test	20.60	5.48	1.41	7.24*
		Post test	33.73	4.99	1.28	
Control Group		Pre test	20.06	5.67	1.46	0.13
		Post test	20.33	5.39	1.39	
Experimental Group	Back Hand Drive	Pre test	17.66	4.01	1.03	3.85*
		Post test	20.93	3.76	0.97	
Control Group		Pre test	17.53	3.92	1.01	0.43
		Post test	17.46	3.90	1.00	

(Required t-value) 2.14  
\*Significance level 0.05

Table reveals the computation of mean, standard deviation and 't' ratio cardio respiratory endurance, fore hand drive and back hand drive of experimental and control group. The obtained 't' ratio on cardio respiratory endurance, fore hand drive and back hand drive respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained t values were greater than the table value were 67.51\*, 7.24\* and 3.85\*

respectively was found statistically insignificant.

**Findings**

Based on the analysis of the study it was found that twelve weeks of endurance-based skill training produced significant improvement on cardio respiratory endurance (1876.20 < 1882.33), fore hand drive (20.60 < 33.73) and back hand drive (17.66 < 20.93) of Tennis players.

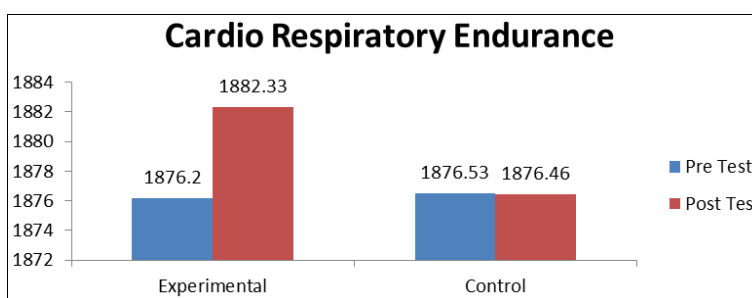


Fig 1: Bar Diagram shows the mean values of pre and post-tests of control and experimental group on cardio respiratory endurance

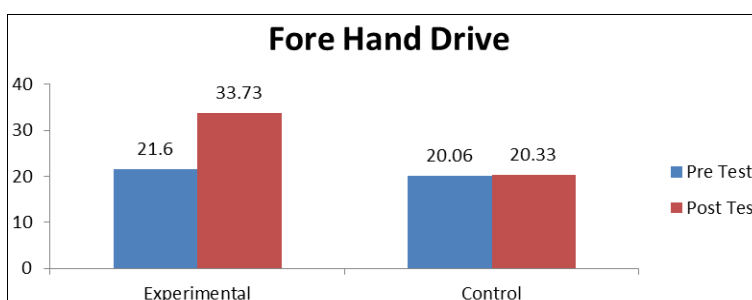
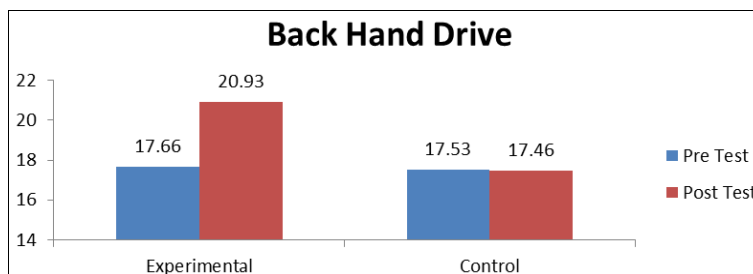


Fig 2: Bar Diagram shows the mean values of pre and post-tests of control and experimental group on fore hand drive



**Fig 3:** Bar Diagram shows the mean values of pre and post-tests of control and experimental group on back hand drive

### Discussion on Findings

The present study experimented with the effect of endurance-based skill training on the cardio respiratory endurance, fore hand and back hand drive of tennis players. The results of this study indicated that endurance-based skill training was more efficient in bringing about desirable changes in the cardio respiratory endurance, fore hand and back hand drive of tennis players. Investigators have extended their interest to consider the commencement of cardio respiratory endurance, fore hand and back hand drive from the approach of skill performance of tennis players in relation to endurance-based skill training.

### Conclusions

Based on the findings of this study, it was concluded that a systematic and scientifically designed twelve-week endurance-based skill training program produced remarkable improvements in the cardio respiratory endurance, fore hand and back hand drive of Tennis players aged twelve to fourteen years. Additionally, it was determined that endurance-based skill training is an appropriate method to develop the cardio respiratory endurance, fore hand and back hand drive of Tennis players.

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