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Analysis of Aerobic Endurance of Different Age Groups of Tennis Players

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ABSTRACT

The purpose of the study was to analyze the aerobic endurance of Tennis players. To achieve the purpose of the study, five hundred men Tennis players who have participated in the district level tennis matches from Tamilnadu, India, during the year 2012-2013, were selected as subjects for this study at random. Subjects were divided into four groups (each group consists of one hundred and twenty five) on the basis of their age. Aerobic Endurance was selected as criterion variable. All the subjects were tested on the selected variables. The collected data were statistically analyzed for significance using analysis of variance (ANOVA). Whenever the 'F' ratio found to be significant, the Scheffe's post hoc test was used to find out the significant difference if any, among the paired means. In all the cases .05 level of significance was used to test the hypothesis. There was a significant difference on Aerobic Endurance among different age groups of Tennis players (16-20 years, 21-25 years, 26-30 years and 31-36 years). The age group 31-36 year tennis players is better in Aerobic Endurance than other age groups of 16-20 years, 21-25 years and 26-30 years.

KEYWORDS: Aerobic Endurance, Tennis

INTRODUCTION

The word "aerobic" is meaning with oxygen to represent idea. Even so the dynamics of the idea are more complicated than implied by the definition. Aerobic can be viewed as an intricate system of bodily supply and demand. That is the body needs energy for any kind of activity and the need is filled by burning off the foods that eat. Oxygen is the spark the fuel needs to burn regardless aerobics is the word in general use. The fact is that ***Cooper (1969)*** codified and organized what fitness means to many people. He is generally credited with being one of the main forces of the current fitness craze. The majority medical opinion is that aerobic programs strengthen heart muscle, increase the efficiency of lungs and offer other wonderful benefits.

Aerobic exercise refers to exercise that involves or improves oxygen consumption by the body. Aerobic means "with oxygen", and refers to the use of oxygen in the body's metabolic or energy-generating process *(**Concise Oxford English Dictionary**)*.

***Bucker*, (1983)** states that aerobic exercise is any physical activity that requires the heart rate to reach at least 60% of the maximal heart rate for an extended period of time. It is the activity that can be sustained for an extended period of time without developing an oxygen deficit.

The major benefits of aerobic exercises are stronger and more efficiently operating heart and lungs, more energy, physical flexibility, conditioned muscles, proper use of fats and effective burning of calories. The increased oxygen flow gained through aerobics re-energies by giving any one more energy and a "reawakening" of his senses. ***(Gina, 2002).***

Endurance means a general ability to do any kind of physical activity that increases your heart rate above 50% of your maximum. On the higher level it can be divided into general endurance and specific endurance.

METHODOLOGY

The purpose of the study was to analyze the aerobic endurance of Tennis players. To achieve the purpose of the study, five hundred men Tennis players who have participated in the district level tennis matches from Tamilnadu, India, during the year 2012-2013, were selected as subjects for this study at random. Subjects were divided into four groups (each group consists of one hundred and twenty five) on the basis of their age. Aerobic Endurance was selected as criterion variable. All the subjects were tested on the selected variables. The collected data were statistically analyzed for significance using analysis of variance (ANOVA). Whenever the 'F' ratio found to be significant, the Scheffe's post hoc test was used to find out the significant difference if any, among the paired means. In all the cases .05 level of significance was used to test the hypothesis.

RESULTS AND DISCUSSION

The analysis of variance on Aerobic Endurance of 16-20 years tennis players, 21-25 years tennis players, 26-30 years tennis players and 31-36 years tennis players have been analyzed and presented in Table I.

TABLE I
ANALYSIS OF VARIANCE ON AEROBIC ENDURANCE OF DIFFERENT AGE GROUPS OF TENNIS PLAYERS

Mean				Sources of Variance	Sum of Square	df	Mean Squares	F-ratio
Group-I 16-20 years Tennis Players	Group- 21-25 years Tennis Players	Group-III 26-30 years Tennis Players	Group-IV 31-36 years Tennis Players					
1930.40	**2147.12**	**2373.04**	**2451.52**	**Between**	**20760065.60**	**3**	**6920021.87**	254.10
				Within	13507899.20	496	27233.67	

(Aerobic Endurance scores in Meters) **(The table value required for significance at .05 level with df 3 and 496 is 2.62).**

From the table I, the mean values on Aerobic Endurance for Group-I(16-20 years tennis players), Group-II(21-25 years tennis players), Group-III(26-30 years tennis players) and Group-IV (31-36 years tennis players) are 1930.40, 2147.12, 2373.04 and 2451.52 respectively. The obtained F-ratio of 254.10 for paired means is less than the table value of 2.62 with df 3 and 496 required for significance at .05 level of confidence.

The results of the study indicate that there is a significant difference among the means of Group-I (16-20 years tennis players), Group-II (21-25 years tennis players), Group-III (26-30 years tennis players) and Group-IV (31-36 years tennis players) on Aerobic Endurance. However, it may be concluded that Group-IV (31-36 years tennis players) is higher than Group-I(16-20 years tennis players), Group-II(21-25 years tennis players) and Group-III(26-30 years tennis players) in Aerobic Endurance.

As the F-ration was found significant in case of aerobic endurance the Scheffe's post-hoc test was applied to test the significance of differences between paired means separately among Tennis players belonging to different age group which is presented in Table-II.

TABLE-II
SIGNIFICANCE DIFFERENCES BETWEEN THE PAIRED MEANS OF AEROBIC ENDURANCE PERFORMANCE AMONG TENNIS PLAYERS BELONGING TO DIFFERENT AGE GROUPS

Means				Mean Difference	Confidence Interval
Group-I 16-20 years Tennis Players	Group-II 21-25 years Tennis Players	Group-III 26-30 years Tennis Players	Group-IV 31-36 years Tennis Players		
1930.40	2147.12	--	--	216.72*	58.45
1930.40	--	2373.04	--	442.64*	58.45
1930.40	--	--	2451.52	521.12*	58.45
--	2147.12	2373.04	--	225.92*	58.45
--	2147.12	--	2451.52	304.40*	58.45
--	--	2373.04	2451.52	78.48*	58.45

**** Significant at.05 level of confidence***

From the above Table II shows that the mean differences on Group-I (16-20 years tennis players) and Group-II (21-25 years tennis players), Group-I (16-20 years tennis players) and Group-III (26-30 years tennis players), Group-I (16-20 years tennis players) and Group-IV (31-36 years tennis players), Group-II (21-25 years tennis players) and Group-III (26-30 years tennis players), Group-II (21-25 years tennis players) and Group-IV (31-36 years tennis players) and Group-III (26-30 years tennis players) and Group-IV (31-36 years tennis players) are 216.72, 442.64, 521.12, 225.92, 304.40 and 78.48 respectively and they are greater than the confidence interval value 58.30, which shows significant differences at 0.05 level of confidence.

The results of the study further have revealed that there is a significant difference in Aerobic Endurance between the means of Group-I (16-20 years tennis players) and Group-II (21-25 years tennis players), Group-I (16-20 years tennis players) and Group-III (26-30 years tennis players), Group-I (16-20 years tennis players) and Group-IV (31-36 years tennis players), Group-II (21-25 years tennis players) and Group-III (26-30 years tennis players), Group-II (21-25 years tennis players) and Group-IV (31-36 years tennis players) and Group-III (26-30 years tennis players) and Group-IV (31-36 years tennis players).

However, the improvement in Aerobic Endurance was significantly higher for Group-IV (31-36 years tennis players) than other age Groups.

The mean values of Group-I(16-20 years tennis players), Group-II(21-25 years tennis players), Group-III(26-30 years tennis players) and Group-IV (31-36 years tennis players) on Aerobic Endurance are graphically represented in the figure I.

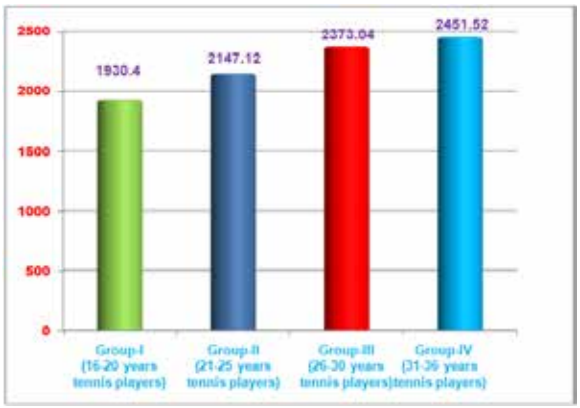

FIGURE-I: MEAN VALUES OF GROUP-I(16-20 YEARS TENNIS PLAYERS), GROUP-II(21-25 YEARS TENNIS PLAYERS), GROUP-III(26-30 YEARS TENNIS PLAYERS) AND GROUP-IV (31-36 YEARS TENNIS PLAYERS) ON AEROBIC ENDURANCE

CONCLUSION

From the results of the study the following conclusions were drawn.

1 There was a significant difference on Aerobic Endurance among different age groups of Tennis players (16-20 years, 21-25 years, 26-30 years and 31-36 years).
2 The age group 31-36 year tennis players is better in Aerobic Endurance than other age groups of 16-20 years, 21-25 years and 26-30 years.

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