

Comparative Analysis of Arm Strength and Cardio Vascular Endurance among University Tennis Badminton and Volleyball Players

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Abstract

The purpose of this study was to comparative analysis of arm strength and cardiovascular endurance among university tennis badminton and volley ball players. It had to tested out on university players divided by three groups tennis, badminton and volleyball each consist of twenty university players. It was hypothesized that there would be significance difference in arm strength and cardiovascular endurance among university tennis badminton and volley ball players. The study was formulated as a random group design METHOD: Data was collected from university tennis, badminton and volleyball players on arm strength and cardio vascular endurance. The subjects were tested to compared arm strength and cardio vascular endurance among the university players. With the help ANOVA was used for statistical analysis the level of significant was fixed at 0.05 level RESULTS: There was significance difference in strength between tennis players and badminton players were as there was no significance in strength between badminton and volleyball players. In cardio vascular endurance there was a significant difference between tennis and badminton, tennis and volley ball players.

Key Words: Arm strength, Carido vascular endurance.

Introduction

Sports have a very important role in modern society. It is important for an individual, a group, a nation and indeed the world. Sports performance is the result and expression of the total personality is usually concerned in four areas namely physical power, social adjustment, Psychological development and physiological efficiency. Different activities make different demands on the organism with respect to circulatory, respiratory, metabolic and neurological and temperature regulating functions.

Statement of Problem

The Purpose of the Study was to make a comparative analysis of arm strength and cardiovascular endurance among university tennis badminton and volleyball players.

Hypothesis

1. It was hypothesized that tennis and volleyball players may have greater strength than badminton
2. It was hypothesized that tennis players may have greater endurance than volleyball and badminton university players.
3. It was hypothesized that there would be significant difference in arm strength and cardiovascular endurance among university tennis, badminton and volleyball players.

Delimitations

1. The study was restricted to 60 university players.
2. Twenty players each from tennis, badminton and volleyball.
3. The age of the subjects selected for this study was 19-23 years as per their school records.
4. The study was confined to the following parameter.
 - i. Arm strength
 - ii. Cardio - respiratory endurance

Limitations

1. The Socio-economic background and the life styles of the players were not considered for this study.
2. The factors like diet and climate were not taken into consideration during the period of investigation but the investigator, however, feels that the conditions were normal.

Significance of the Study

1. This study may help to evaluate and compare the arm strength and cardiovascular endurance of university tennis, badminton and volleyball players.
2. This study may be of great value of tennis, badminton and volleyball player's coaches as well as physical education teachers for adopting scientific programme of training for physical fitness especially in relation to the playing ability of these players.
3. This study may be great value of tennis, badminton and volleyball coaches to select the players and athletes possessing the right talents for various positions in the games and skills.
4. This study may bring to light some of the problem relating to fitness which may be investigated by future research workers.

Methodology

Selection of Subject

The purpose of this study was to make a comparative analysis of strength variable and cardio vascular endurance among university tennis, badminton and volleyball Players in order to achieve the purpose of this study twenty players each from tennis, badminton and volleyball players, who played in the inter-zonal university matches they were selected at randomly. These players had sufficient experience in the game. They were without any physical deformities and medical defects to disqualify them or Handicap them from participating in this study. The subjects were more or less of the same age and thier age group is between 19 to 23 years.

Selection of Variables

The following variables was selected to this study

- Arm Strength
- Cardio vascular endurance

Statistical Analysis

In this study, one way analysis of variance was used to find out the significant Difference among the tennis, badminton and volleyball players if the 'F' ratio was significant, scheffe's post hoc test was used to find out the parried mean significant difference.

Result and Discussions

Showing the analysis of Variance on the means Obtained In Form University Tennis, Badminton and Volleyball Players in Arm Strength.

Table-I
Mean Values of University Tennis Badminton and Volleyball Players
(Scores in Numbers)

	University Players			Source of variance	Sum - of squares	df	Mean squares	'F'
	Tennis	Badminton	Volley Ball					
Means	18	14.85	16.15	between	100.23	2	50.12	
				within	603.10	57	10.58	*4.47

* Table F- ratio at 0.05 level of confidence for 2 and 57 (df) = 3.15

The result presented in table shows that the mean values of university tennis, Badminton and volleyball players were 18.00, 14.85 and 16.15 respectively in arm strength. The statistical analysis proved that the differences were significant at 0.05 level as the obtained F value 4.74 was greater than required F value of 3.15.

Since there was a significant difference among the tennis, badminton and volleyball players Scheffe's post hoc analysis was made through computation of Scheffe's confidence interval, which is presented in next table.

Table - II
Showing Means, Means Difference and the Required Value of Scheffe's
Confidence Interval on Arm Strength
(Scores in Numbers)

University Players			Mean difference	C.I
Tennis	Badminton	Volleyball		
18.00	14.85		3.15	*2.58
18.00		16.15	1.85	*2.58
	14.85	16.15	-1.30	*2.58

Significant at 0.05 level = *2.58

The required Scheffe's Confidence interval value to be significant at 0.05 level was 2.58 and the difference between tennis players and badminton players was significant at 0.05 level. There was no significant difference between tennis players and volleyball Players and badminton players and volleyball players in arm strength.

The obtained mean values in arm strength among tennis, badminton and volleyball Players are presented through bar diagram for better understanding of the results.

Table - III
Showing the Analysis of Variance on the Means Obtained in form University
Tennis, Badminton and Volleyball Players in Cardio Vascular Endurance
(Scores In Meters)

	University Players			Source of variance	sum of squares	df	Mean squares	'F'
	Tennis	Bad minton	Volley ball					
Mea ns	2354.50	1852.50	1984.00	Between	2606823.33	2	¹ 303411.67	*75.32
				Within	986400.00	57	17305.26	

Table F- ratio at 0.05 level of confidence for 2 and 57 (df) = 3.15

The mean value of University Tennis, Badminton and Volleyball players in cardiovascular endurance were 2345.50, 1852.50 and 1984 respectively. The tennis players' cardiovascular endurance was high followed by volleyball players and then badminton players. The mean differences were subjected to statistical Treatment using ANOVA. As show in Table the obtained F value 75.32 was Greater than the required value of 3.15 to be significant at 0.05 level.

Since there was significant difference among the tennis, badminton and Volleyball players Scheffe's post hoc analysis was made through computation of Scheffe's confidence interval, which is presented in Next table.

Table-IV
Showing Means, Means Difference and the Required Value of Schefe's
Confidence Interval in Cardio Vascular Endurance
(Scores in Meters)

University Players			Mean difference	C.I
Tennis	Badminton	Volleyball		
2345.50	1852.50		493.00	104.41
2345.50		1984.00	361.50	104.41
	1852.50	1984.00	-131.50	104.41

Significant at 0.05 level

The required Scheffe's Confidence interval value to be significant at 0.05 level was 104.41 and the difference between tennis players and badminton players; tennis players and volleyball Players and badminton players and volleyball players were significant at 0.05 level. Thus, as for Cardio vascular endurance all the three groups differ one to another. The post hoc result proved that Tennis players were significantly superior in cardiovascular endurance than badminton and volleyball players. Since the difference between badminton and volleyball players was also significantly greater than the required value, it was found that volleyball players were significantly better than badminton players.

The obtained mean values in cardio vascular endurance among tennis, badminton and volleyball Players are presented through bar diagram for better understanding of the results.

Conclusions

Based on the results obtained, the following conclusions were drawn :

1. There was a significant difference in strength between college men tennis players and badminton players.
2. There was no significant difference in strength between college men badminton and volleyball players.
3. There was significant difference in cardiovascular endurance between college men tennis and badminton, tennis and volleyball players.

Recommendations

The findings of this study proved that badminton players lack in arm strength and cardiovascular endurance. Badminton players should improve their arm strength and cardiovascular endurance to improve their arm strength and cardiovascular endurance to improve their playing ability.

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