



## Comparative Analysis of Total Cholesterol Among Sprinters, Jumpers, Throwers and Long Distance Runners of Elite University Athletes of Kerala State

**Dr. V. A. MANICKAM**

Assistant Professor, Department of Physical Education and Health Sciences, Alagappa University, Karaikudi,-630 004, Tamilnadu, India.

**ANEESH RAJAPPAN**

Scholar of Doctoral of Philosophy, Department of Physical Education and Health Sciences, Alagappa University, Karaikudi,-630 004 Tamilnadu, India.

**ABSTRACT**

Aim of the present study was to compare the Total Cholesterol among University sprinters, jumpers, throwers and Long distance runner of Kerala state. To achieve this purpose, one hundred and twenty (N=120) male athletes who had participated in the Inter-University athletic meet during the year 2014-15 were selected randomly from each category of sprinters, jumpers, throwers and Long distance runner thus a total of 120 athletes from all the University in Kerala State. The athletes' age ranged between 18 and 24 years. Total Cholesterol was selected for this study. Total Cholesterol was measured through Blood samples test (Calorimetric Method). The experimental design for the study was static group comparison design. One-way Analysis of variance (ANOVA) was used to find out the difference among the University sprinters, jumpers, throwers and long distance runners on the selected variables. As the obtained F-ratio was significant, the Scheffe's test was used as a post-hoc test to find out the significant difference between each cell. There was a significant difference among sprinters, jumpers, throwers and long distance runner on Total Cholesterol. Further the results showed in Long distance runners have better reduction in Total Cholesterol when compared to sprinters, jumpers and throwers.

**KEYWORDS**

Total Cholesterol, Sprinters, Jumpers, Throwers, Long Distance Runners

**INTRODUCTION**

The human body is an amazing creation. During rest, countless events are occurring simultaneously in perfect co-ordination, allowing complex functions such as seeing, hearing, smelling, tasting, breathing and thinking to continue without conscious effort. The transition from rest to exercise is accompanied by substantial changes in a number of bodily functions, allowing the body to successfully adapt to additional stress. As the body experiences repeated bouts of exercise, such as in a physical conditioning programme, long-term adaptations occur in the body allowing higher performance levels without undue fatigue as well as providing the body with a feeling and or sense of well being.

Bio-chemical factors include neutral fat, known as triglycerides, the phospholipids, cholesterol and a few others of lesser importance. Chemically, the basic lipid moiety of the triglycerides and the phospholipids is fatty acid, which is simply long chain hydrocarbon organic acid (**Guyton, 1991**).

An odourless, tasteless, white fatty, alcohol cholesterol is found in all cell membranes. It is vital to cell survival and growth. Cholesterol is also a key precursor or intermediate compound in the production of numerous biologically important substances collectively called steroids. These include various essential hormones and bile acids, the major excretory product of cholesterol metabolism, which is also important in the digestion and absorption of dietary lipids (**Leon, 1987**).

Cholesterol is defined as a fat like chemical compound in animal tissues.

Cholesterol is white, odorless, tasteless nearly ubiquitous fatty alcohol. It is rich in eggs, meat, butter, shellfish. It is also manufactured in the body primarily in the liver and is essential for life. Cholesterol is widely distributed in all cells of the body. The concentration of cholesterol human plasma is 150 to 250 mg 100 ml of blood.

**METHODOLOGY**

The study was conducted on one hundred and twenty (N=120) male athletes who had participated in the Inter-University athletic meet during the year 2014-15 were selected randomly from each category of sprinters, jumpers, throwers and Long distance runner thus a total of 120 athletes from all the University in Kerala State. The athletes' age ranged between 18 and 24 years. Total Cholesterol was selected for this study. And it was assessed through Blood samples test (Calorimetric Method).

**ANALYSIS OF THE DATA**

The Experimental design for the study was static group comparison design. One-way Analysis of variance (ANOVA) was used to find out the difference among the University sprinters, jumpers, throwers and long distance runners on the selected variables. As the obtained F-ratio was significant, the Scheffe's test was used as a post-hoc test to find out the significant difference between each cell. In all the cases, 0.05 level of significance was used to test the hypotheses.

The Analysis of Variance for the data obtained on Total Cholesterol of sprinters, jumpers, throwers, long distance runners, were analyzed and the results are presented in table -I.

**TABLE-I ANALYSIS OF VARIANCE ON TOTAL CHOLESTEROL OF SPRINTERS, JUMPERS, THROWERS AND LONG DISTANCE RUNNERS**

Mean				Sources of Variance	df	Sum of Squares	Mean Square	Obtained "F"
Sprinters	Jumpers	Throwers	Long Distance Runners					
177.12	185.13	176.36	168.72	SSB	3	8411.12	2803.71	12.91*
				SSW	116	25189.00	217.15	

\*Significant at 0.05 level.

**(Total Cholesterol is in mg/dL)**

**(The table value required for significance at 0.05 level with df 3 and 116 is 2.68)**

Table-I shows that the mean values of sprinters, jumpers, throwers and long distance runners are 177.12, 185.13, 176.36 and 168.72 respectively. The obtained F-ratio value among sprinters, jumpers, throwers and long distance runners is 12.91. The obtained F-ratio value is greater than the table value of 2.68 with df 2 and 116 required for significance at 0.05 level.

Since the value of F-ratio is greater than the table value, it indicates that there is a significant difference among the means of sprinters, jumpers, throwers and long distance runners on Total Cholesterol .

To find out which of the four paired means had a significant difference, the Scheffe's post-hoc test was applied and the results are presented in table-II.

**TABLE-II  
SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE PAIRED MEANS OF SPRINTERS, JUMPERS, THROWERS AND LONG DISTANCE RUNNERS ON TOTAL CHOLESTEROL**

Adjusted Post test Means				Mean Difference	Confidence Interval
Sprinters	Jumpers	Throwers	Long Distance Runners		
177.12	185.13	--	--	8.01*	0.07
177.12	--	176.36	--	0.76*	0.07
177.12	--	--	168.72	8.40*	0.07
--	185.13	176.36	--	8.77*	0.07
--	185.13	--	168.72	16.41*	0.07
--	--	176.36	168.72	7.64*	0.07

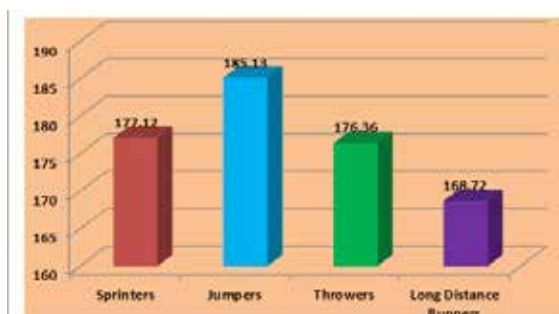
**\*Significant at 0.05 level.**

Table- II shows that the mean difference in Total Cholesterol between sprinters and jumpers, sprinters and throwers, sprinters and long distance runners, jumpers and throwers, jumpers and long distance runners, throwers and long distance runners are 8.01, 0.76, 8.40, 8.77, 16.41 and 7.64 respectively, which are higher than the confidence interval value of 0.07 at 0.05 level of confidence.

The result of the study indicates that there is a significant difference between sprinters and jumpers, sprinters and throwers, sprinters and long distance runners, jumpers and throwers, jumpers and long distance runners, throwers and long distance runners on Total Cholesterol. However, the mean value of long distance runners is found to be better than sprinters, jumpers and throwers on Total Cholesterol.

The mean values of sprinters, jumpers and throwers on Total Cholesterol are graphically represented in the figure-I.

**FIGURE- I : MEAN VALUES OF SPRINTERS, JUMPERS, THROWERS AND LONG DISTANCE RUNNERS ON TOTAL CHOLESTEROL (In mg/dL)**



**CONCLUSION**

From the analysis of the data, the following conclusions were drawn.

There was a significant difference among sprinters, jumpers, throwers and long distance runner on Total Cholesterol.

Further the results of the study showed Long distance runners have better reduction on Total Cholesterol when compared to Sprinters, jumpers and throwers.

**REFERENCES**

1. Guyton, Arthur C(1991), *Textbook of Medical Physiology (8<sup>th</sup> ed)*, New Delhi: Prism Books (Pvt.) Ltd.
2. Leon, Arthur S. (1987), *Diabetes in Exercise Testing and Exercise Prescription for Special Cases*, Philadelphia: Lea and Febiger.