

# A COMPARATIVE STUDY OF PERCENTAGE BODY FAT AND LEAN BODY MASS OF DIFFERENT LEVEL TRIPLE JUMPERS

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**ABSTRACT** - The sports persons are more competitive now-a-days and always aim at the consistency of performance and thus, the gap between winning and losing has eventually narrowed. The sports scientists and coaches study each and every aspect of the players to make them yield maximum performance. In this study, only those triple jumpers were selected, who had participated in national and state level Athletic Meet. The athletes falling under the age between 18 and 25 years were studied. Percentage body fat and lean body mass measurements of all subjects were taken in the morning hours with empty bowl. The lean body mass were found significantly greater in national level triple jumpers comparison of state level triple jumpers whereas state level triple jumpers showed significantly greater values in percentage body fat comparison of national level triple jumpers.

## 1. INTRODUCTION

Since the beginning of the 21st century, multiple theories about science and other disciplines were found. The contemporary scientific world saw an array of discoveries and inventions. The theories are being challenged every day paving way to the new theories either challenging the earlier ones or supporting them and making them more advanced. Research is the systematic process of discovering new facts and verifying old facts, their sequences, inter-relationship, casual explanations and the natural laws which govern them (Young, 1966) Sharma (1990) states that the main two objectives of the research are to make amendments in the existing knowledge and to search for new things in the related field. Thus, research takes us ahead of current limits of knowledge. Research has played an important role in the development of sports. The sports persons are more competitive now-a-days and always aim at the consistency of performance and thus, the gap between winning and losing has eventually narrowed. The sports scientists and coaches study each and every aspect of the players to make them yield maximum performance. The developed countries have invented new means and methods on the basis of research. They have created an authentic system and environment for the sports so as to achieve those targets which seemed almost impossible or difficult in the recent past for the human body and are still making diligent efforts for the betterment. On the basis of physical, emotional and

psychological aspects of the sportspersons, the researchers have collected such a data so as to help in increasing the potential of the player in every sport. The sports performance depends on the complex combination of various factors such as physical, physiological, technical, tactical, psychological and environmental. They supersede each other depending upon the nature of sports. It is often seen that though the athletes are imparted with same training in view of all the above stated factors, the performance level of each athlete vary distinctly with respect to each other. It depends basically on the differences in body structure and body composition of each athlete because the different physical activities and sports demand different and particular type of body, size and proportion.

## 2. OBJECTIVES

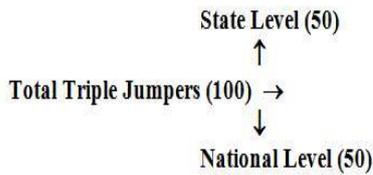
To find out the percentage body fat and lean body mass of State & National Level Triple jumpers.

## 3. SAMPLING PROCEDURE

In this study, only those triple jumpers were selected, who had participated in national and state level Athletic Meet. The athletes falling under the age between 18 and 25 years were studied. The inter college performance of the athletes was conformed from the coaches, on the basis of which some athletes were recorded before the competition also, but later on they were classified as per their competition performance.

## 4. CLASSIFICATION OF SUBJECTS

The study was conducted only on male triple jumpers. The male triple jumpers were divided into two groups on the basis of their performance in competition. The first ten position holders were considered as 'National Level Athletes' whereas those who could not qualify for the finals were considered as 'State Level Athletes'.



**5. DATA COLLECTION**

Percentage body fat and lean body mass measurements of all subjects were taken in the morning hours with empty bowl. The measurements were recorded in centimeters scale up to the nearest millimeters. Posture of the subject was checked every time so that a correct measurement could be taken.

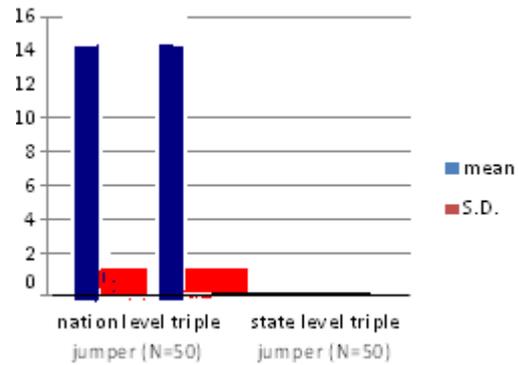
**Table-No. 1**

**Comparison of percentage body fat between Nation level triple jumper and state level triple jumper**

Group	Mean (in cm)	S.D.	t-value
Nation level triple jumper (N=50)	13.84	0.52	1.08
State level triple jumper (N=50)	14.43	1.21	

p<0.05

The percentage body fat of nation level triple jumper and state level triple jumper is shown in table-1 and fig. 1. As shown in the table the state level triple jumper were significantly greater percentage body fat (t=1.08, p<0.05) than the national level triple jumper. There was no significant difference in percentage body fat between nation level triple jumper and state level triple jumper



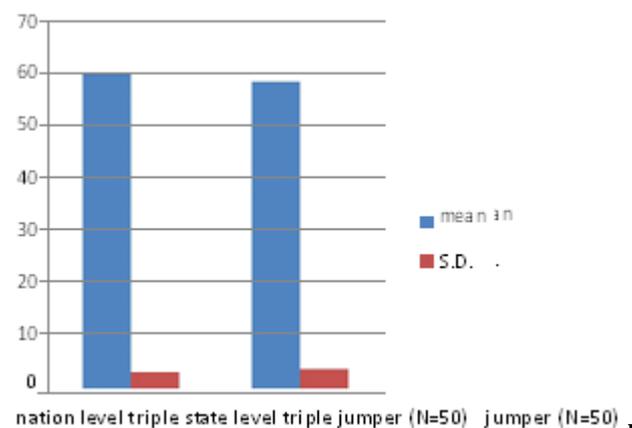
**Figure-1 Comparison of percentage body fat between nation level triple jumper and state level triple jumper**

**Table No-2**

**Comparison of lean body mass between nation level triple jumper and state level triple jumper**

Group	Mean (in cm)	S.D.	t-value
Nation level triple jumper (N=50)	60.24	3.21	2.24
State level triple jumper (N=50)	58.67	3.72	

p<0.05



**Figure-2 Comparison of lean body mass between nation level triple jumper and state level triple jumper**

The lean body mass of nation level triple jumper and state level triple jumper is shown in table-2 and fig. 2. As shown in the table the national level triple jumper were significantly

greater lean body mass ( $t=0.91$ ,  $p<0.05$ ) than the state level triple jumper. There was no significant difference in lean body mass between nation level triple jumper and state level triple jumper.

## 6. CONCLUSION

The lean body mass were found significantly greater in national level triple jumpers comparison of state level triple jumpers whereas state level triple jumpers showed significantly greater values in percentage body fat comparison of national level triple jumpers.

### 6.1 Recommendation-

1. This study can be further extended for the comparative study of field athletes of university and International level athletes.
2. Physical education teachers and coaches can use the results of this study as an aid in screening, identification and selecting triple jumpers.
3. National performance in sports depends upon many factors such as psychological, sociological, physiological, physical fitness etc. These variables should be incorporated in similar studies to know the relationship of these variables with kinanthropometric variables and performance.

## 7. REFERENCES

- [1] Albuquerque, F., Sanchez, F., Prieto, J.M., Lopez, and Santos, M. (2005) Kin-anthropometric assesment of a football team over one season. *Eur .J.Anat*, 9 (1) : 17-22.
- [2] Ali and Sharma, Y.P. (2009) A comparative study of anthropometric variables between medalist and non-medalist football players. *Journal of Health and Fitness*, 1:57-63.
- [3] Bramwell, J.C. and Ellis, R (1931) *Quart. J. Med.*, pp 24-329.cf Sodhi, H.S. *Sports Anthropometry*. Anova Publication, Mohali, Ropar: p 30.
- [4] Bullen, B. A (1971) *Overweight: In Encyclopedia of Sports Science and Medicine*. The Mac. Millian Company, New York
- [5] Carter, J.E.L. (1970) The somatotype of athlete – *Review Human Biology*, 42:535 - 569.
- [6] Doxey, G.E.V. (1987): *Body Composition –Part –I. Scientific Consideration: National Strength and Conditioning Association Journal*. 9 (3): Pp: 12-26
- [7] Prior, B.M., Modlesky, C.M., Evans, E.M., Sloniger, M.A., Saunders, M.J., Lewis, R.D., Cureton, K.H. (2001) Muscularity and the density of the fat-free mass in athletes. *Journal of Applied Physiology* 90:1523-1531.

[8] Riendeau, R.P. (1958) Relationship of body fat to motor fitness test scores. *Res. Quar.*, 29:200.

[9] Sodhi, H.S., Sohata, A.S. and Mathur, D.N. (1991): *Assessment of Body Composition of Elite Indian Sportsmen*, N.I.S. Sci. Jour. 14(2): Pp.15-21.