

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

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#### ABSTRACT

The greater propagation of interest regarding a particular type of physique that provides an athlete with greater performance for particular sports, coming up around middle of twentieth century. The notion of classifying physique into some meaningful system has considerable appeal and has been the stimulus for repeated efforts in this direction. In this study, only those Long jumpers were selected, who had participated in national and state level Athletic Meet The athletes falling under the age between 19 and 24 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 Long jumpers comparison of state level Long jumpers whereas state level Long jumpers showed significantly greater values in percentage body fat comparison of national level Long jumpers.

**KEYWORDS:** Percentage, Body Fat, Lean Body Mass and Long Jumpers.

#### **INTRODUCTION**

The body composition generally refers to the type and amount of tissues which make up the body. The most widely accepted model is the two component scale, lean body mass and fat weight. The lean body mass - consists of skeleton organs and other tissues which are approximately 40 to 50% muscle mass and



Is used to represent the active energy fat. Fat weight on the other hand, is the inactive storage tissue that, while serving as a long term energy pool is considered excess put weight for most activities.Body composition refers mainly to the evaluation of three principle tissue components of body, i.e. muscle, bone and fat. The body composition studies have been conducted very extensively on the athletes. The examination of body fat and skinfolds at selected sites is most important in them.

The science of body composition is an important morpho-physiological characteristic. The proportions of these components are different in males and females. Its relative development is dependent on the environmental influences, sex, socio-economic conditions, occupation, genetics, nutrition and exercise. In sports, body composition is used to describe the percentages of fat, bone and muscle in human bodies. Because muscular tissue takes up less space in our body than fat tissue, our body composition, as well as our weight, determines leanness. Two people at the same height and same body weight may look completely different from each other because they have a different body composition.

### **OBJECTIVES**

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

#### SAMPLING PROCEDURE

In this study, only those Long jumpers were selected, who had participated in national and state level Athletic Meet. The athletes falling under the age between 19 and 24 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.

### **CLASSIFICATION OF SUBJECTS**

The study was conducted only on male Long jumpers. The male Long 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'.



# 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 Long jumper and state level Long jumper

Group	Mean (in cm)	S.D.	t-value
Nation level Long	13.81	0.51	
jumper (N=25)			1.06
State level Long	14.13	1.23	
jumper (N=25)			

p<0.05

The percentage body fat of nation level Long jumper and state level Long jumper is shown in table-1 and fig. 1. As shown in the table the state level Long jumper were significantly greater



percentage body fat (t=1.06, p<0.05) than the national level Long jumper. There was no significant difference in percentage body fat between nation level Long jumper and state level Long jumper.



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

# Table No-2

Comparison of lean body mass between nation level Long jumper and state level Long jumper

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Group	Mean (in cm)	S.D.	t-value
Nation level Long	60.19	3.03	
jumper (N=25)			2.21
State level Long	58.63	3.77	
jumper (N=25)			

p<0.05

The lean body mass of nation level Long jumper and state level Long jumper is shown in table-2 and fig. 2. As shown in the table the national level Long jumper were significantly greater lean body mass (t=2.21, p<0.05) than the state level Long jumper. There was no significant difference in lean body mass between nation level Long jumper and state level Long jumper.





#### CONCLUSION

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

#### 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 Long 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 kinathropometric variables and performance.

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