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## Relationship between body fat and skeletal muscle mass

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### Abstract

Skeletal muscle mass and total body fat both are essential part of an individual's body composition. Body composition includes three important components i.e. fat, muscle and bone, human body should composed of required ratio of these components any fluctuation in which can leads to the disturbance in body composition, now the question is, if any of the component decrease in concentration is the other component replace it to balance the body composition, with this in mind the present study analyzed the relationship between skeletal muscle mass and body fat on 100 purposively selected from different professional courses of Lovely Professional University with age  $22.090 \pm 2.17$  sd. The data was collected using OMRON Body composition monitor with scale Model HBF-362 and the statistical analysis of the data was done using descriptive statistics and PPMCC at 0.01 level of significance. The findings of the study revealed significant negative correlation i.e. an increase in the percent body fat can leads to the decrease in skeletal muscle mass and vice-versa.

**Keywords:** Skeletal Muscle mass, Percent body fat and PPMCC

### Introduction

Human body is composed of three essential components at tissue level which combined to form the whole body. These components are fat, muscle and bone. Skeletal muscle mass and total body fat both are essential part of an individual's body composition. Human body should composed of required ratio of these components any increase or decrease can leads to the disturbance in body composition and has impact on the personality and health status of an individual. For example an athlete body has a ratio of 171 i.e. 1 for fat, 7 for muscle and 1 for bone, endomorphic has the ratio of 711m i.e. 7 for fat, 1 for muscle and one for bone whereas the individual with actinomorphic personality has the ratio of 117 i.e. 1 for fat, 1 for muscle and 7 for bone. The present study is intended to study is any decrease in any of the body composition components be replaced by the another one and progress with the hypothesis that if any of the component decrease in concentration the other will replace it. If this happens than if the amount of skeletal muscle mass decrease can leads to increase in body fat which can have many serious health considerations, if such happens it is important to maintain the ratio.

### Objectives

- To establish relationship between total body fat and Skeletal muscle mass.

### Research Question

- Is there any relationship between body fat and Skeletal muscle mass establish if any?

### Hypothesis

- There should be a strong negative correlation between skeletal muscle mass and percent body fat.

### Delimitations

- The study was delimited to both male and female youth of 18-25 years of age.
- The study was delimited to the 100 youth students from Lovely Professional University.
- The study was delimited to under-graduate and post-graduate students.

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### Material and Methods

Survey method was used to collect the data on 100 samples age 22.090 + 2.17 sd. were purposively selected from Lovely professional University, Punjab, India from among different professional courses (Education, physical education. M Tech, B Tech, EEE, ECE, MCA, BCA, BSC, and MSC) Data on fat percentage was collected using OMRON Body composition monitor with scale Model HBF-362, utmost care was given during data collection data was collected in the early morning to counter any alteration in the findings. Data was statically analyzed using descriptive statistics and PPMCC.

### Results and Discussion

The mean of the data revealed the selected samples were having normal total body fat (sd. 7.48) percentage and having average skeletal muscle mass (sd. 4.014). The data on total body fat percentage is symmetrical and showed range of 29.30 with 7.30 as minimum and 36.60 as maximum fat percentage. The range of the data on skeletal muscle mass is 16.30 (21.90 to 38.20) which was negatively skewed.

### Correlation

Variable	Variable Correlated	r.-value	P-value
TBF	SMM	-.667**	.000

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The correlation table indicating significant negative correlation ( $r = -.667^{**}$ ) between total body fat and skeletal muscle mass at 0.01 level of significance as the p-value .000 is smaller than 0.01.

### Discussion

As it has been hypothesized the findings of the study supported the hypothesis of significant negative correlation between skeletal muscle mass and body fat, hence it is proved an increase in percent of body fat can leads to decrease in amount of skeletal muscle mass vice-versa.

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