

## **A Study of Peak Flow Rate and BMI among Male Physical Education and Non-Physical Education Students**

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### **Abstract**

The main purpose of the study was to compare the peak flow rate and body mass index between male physical education and non-physical education students. To achieve the objective of the study, twenty five (N=25) male physical education students and twenty five (N=25) male non-physical education students were selected randomly as subjects. The age of the subjects ranged between 18 to 25 years. To determine the significant difference between the mean scores of male physical education and non-physical education students on peak flow rate and body mass index (BMI), 't' test was computed with the help of SPSS software. The level of significance was set at 0.05. There were no significant differences obtained on peak flow rate and body mass index (BMI) between male physical education and non-physical education students. The finding reveals that male physical education students have better mean score in peak flow rate and BMI as compare to male non-physical education students.

**KEYWORDS:** Peak Flow Rate, BMI, Physical Education Student

### **INTRODUCTION**

Evolution of human life started with movement. As human beings evolved culturally, emotionally and socially, physical activity also evolved. Domestic work is done with scientific devices in a short span of time with little physical effort. Leisure time which we should use in constructive manner by doing physical activities like running, walking, aerobics etc. has been occupied by T.V., Cable T.V., Video-CD games, computer games etc. Obesity is defined as an excessive accumulation of body fat. This has resulted in the high incidence of obesity, cardiac diseases and diabetes. Diet and physical exercises are the mainstays of treatment for obesity. More than 300 million people are affected by obesity worldwide.

Obesity cause various effects on respiratory function in the form of alteration in the respiratory mechanics, decreased respiratory muscle strength, decrease in pulmonary gas exchange, a lower control of breathing and a limitation in the pulmonary function tests. More importantly, the association of obesity with potentially decreasing life expectancies has become publicized. Demonstration co morbidity with hypertension, diabetes, coronary heart disease, sleep apnea, and several cancers clearly make obesity a concern in underwriting. Obesity can cause respiratory symptoms many people are referred for pulmonary tests (PFTs). It is well known that obesity causes decrease in lung volume, but there has never been a large study showing the correlation between Body Mass Index (BMI) and the various lung volumes. Respiratory function has been studied extensively in relation to BMI.

Obesity is a major health issue all over the world. Obesity impacts on many areas of clinical medicine, including pulmonary medicine, where it is debated if obesity is linked to asthma, or whether the obesity, due to its effect of decreasing lung volumes and increasing airway resistance, cause symptoms that simply mimic asthma. It is

important to understand the relationship between body mass index (BMI) and lung function to properly interpret PFTs.

**METHODOLOGY**

Twenty-five male (N=25) physical education students and twenty-five (N=25) male non-physical education students from Panjab University Campus were selected randomly as the subjects of this study. The age of the subjects were ranging between 18 to 25 years. In consultation with experts and considering tester’s competency and even feasibility criterion in mind, especially of equipments reliability and time factor, the following physiological variables were selected for the study namely: peak flow rate and BMI. The peak flow rate was measured by peak flow meter in L/minute and BMI was calculated by the following formula: BMI = weight in kilograms / (height in meters) <sup>2</sup>. In order to examine the hypothesis of the present study independent sample t-test were employed with the help of SPSS software to compare the mean scores of physical education and non-physical education students. Level of significance was set at .05.

**RESULTS AND DISCUSSION**

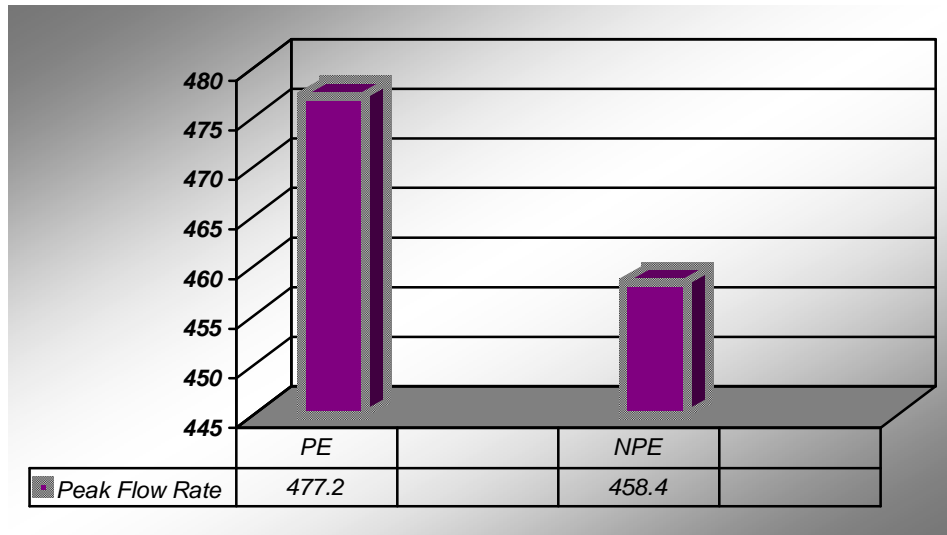
The comparison between physical education and non-physical education students for the selected variables: peak flow rate and body mass index (BMI) were statistically analyzed using ‘t’ test. The data pertaining to the same is presented in Table 1 to 2. The comparison of peak flow rate between physical education and non-physical education male students is presented in table 1.

**Table-1**  
**Comparison of Score on Peak Flow Rate between Physical Education (PE) and Non-Physical Education (NPE) Male Students**

Variable	Group	N	Mean	SD	MD	SED	t-value
Peak Flow Rate	PE	25	477.20	122.93	18.8	29.07	0.647
	NPE	25	458.40	77.60			

*\*Significant at .05 level*  
*t'.05(48) = 2.02*

A perusal of inside of table 1 pertaining to male physical education and non-physical education students on peak flow rate shows that the first group i.e. physical education students had secured the mean and SD values of 477.20 and 122.93 respectively. On the other hand, non-physical education students had secured mean and SD values of 458.40 and 77.60. The t-value was not found to be statistically significant as the value obtained was 0.647 whereas, the tabulated value was 2.02 which 48 degrees of freedom at .05 level of significant. Mean scores of peak flow rate between male physical education and non-physical education students are depicted graphically in figure 1.



**Fig-1: The Graphical Representation of Mean Scores of male Physical Education and Non-Physical Education Students on Peak Flow Rate**

The comparison of body mass index (BMI) between physical education and non-physical education male students is presented in table 2.

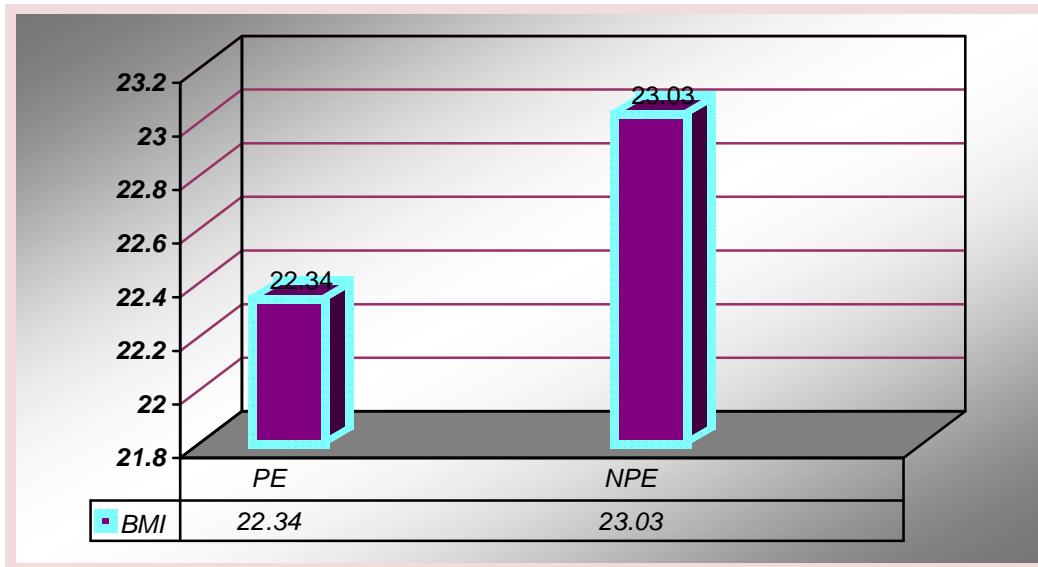
**Table -2**  
**Comparison of Scores on Body Mass Index (BMI) of Male Physical Education (PE) And Non- Physical Education (NPE) Students**

Variable	Group	N	Mean	SD	MD	SED	t-value
BMI	PE	25	22.34	1.86	0.69	0.733	0.94
	NPE	25	23.03	1.16			

*\*Significant at .05 level*

$$t'_{.05}(48) = 2.02$$

A glance at the results depicted in table 2 would show that with regard to male physical education and non-physical education students on the variable body mass index, the physical education group had obtained the mean scores and SD values of 22.34 and 1.86. As compared to their values, non-physical education group had obtained the mean and SD value of 23.03 and 1.16 respectively. The t-value was not found to be statistically significant as the value obtained was 0.94 whereas, the tabulated value was 2.02 which 48 degrees of freedom at .05 level of significant. Mean scores of male physical education and non-physical education on body mass index (BMI) are depicted graphically in figure 2.



**Fig- 2: The Graphical Representation of Mean Scores of male Physical Education and Non-Physical Education Students on Body Mass Index**

Statistical analysis of data revealed that there were no significant differences obtained on peak flow rate and body mass index between male physical education and non-physical education students.

### CONCLUSION

In the light of the findings and limitations of the present study the following conclusions were drawn:

- No significant differences were observed between physical education and non-physical education students.
- Male Physical education students are better mean score in their peak flow rate and body mass index than their counterpart.

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