

## A comparative study of vital capacity of long distance runner and sprinters at CSJM University (Kanpur)

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### Abstract

The aim of the present study is to Compare Vital Capacity of Long Distance Runner and Sprinters at CSJM University (KANPUR). The study was formulated based on the simple random sampling. The samples were collected from the 60 Long Distance Runner and 60 Sprinters each of CSJM University in the age group of 20-25 years at Kanpur and Vital Capacity was measured by wet spirometer. T-test was used. The level of significance was set at 0.05 levels.

**Keywords:** vital capacity, long distance runner and sprinters

### Introduction

In the present time very person wants to become a sportsman, but due to lack of time they cannot do any physical activities and not playing any game, which may affect their physical fitness efficiency. As we know that regular exercise can increase our physical efficiency as well as provide us good and well-shaped physique. Physical exercise is any bodily activity that enhance or maintains physical fitness and overall health and wellness. It is performed for various reasons including strengthening muscles and the cardiovascular system, honing athletic skills, weight loss or maintenance, as well as for the purpose of enjoyment. Frequent and regular physical exercise boosts the immune system and helps prevent the diseases of affluence such as heart disease, cardiovascular disease. Type 2 diabetes and obesity. It also improves mental health, helps prevent depression, helps to promote or maintain positive self-esteem, and can even augment an individual's sex appeal or body image, which is also found to be linked with higher levels of self-esteem. Childhood obesity is a growing global concern and physical exercise may help decrease some of the effects of childhood and adult obesity. Health care providers often call exercise the miracle or wonder drug-eluding to the wide variety of proven benefits that it provides. The beneficial effect of exercise on the cardiovascular system is well documented. There is a direct relation between physical inactivity and cardiovascular mortality and physical inactivity is an independent risk factor for the development of coronary artery disease. There is a dose-response relation between the amount of exerciser performed from approximately 700 to 2000 kcal of energy expenditure per week and all-cause mortality and cardiovascular disease morality in middle aged and elderly populations. The greatest potential for reduced morality is in the sedentary who become moderately active. Most beneficial effects of physical activity on cardiovascular disease mortality can be attained through moderate intensity activity (40% to 60%) of maximal oxygen uptake, depending on age), persons who modify their behaviour after myocardial infarction to include

regular exercise have improved rates of survival. Persons who remain sedentary have the highest risk for all cause and cardiovascular disease mortality. Vital capacity is the maximum amount of air a person can expel from the lungs after a maximum inspiration. It is equal to the aspiratory reserve volume plus the tidal volume plus the expiratory reserve volume.

A person's vital capacity can be measured by a spirometer which can be a wet or regular spirometer. In combination which other physiological measurements, the vital capacity can help make a diagnosis of underlying lung disease. The unit that is used to determine this vital capacity is the millilitres (ml). A normal adult has a vital capacity between 3 and 5 litres.

### Object of the Study

The objective of the study is to compare the vital capacity of Long Distance Runner and Sprinters.

### Hypothesis

There may not be any significant difference between Long Distance Runner and Sprinters in relation to vital capacity of CSJM University.

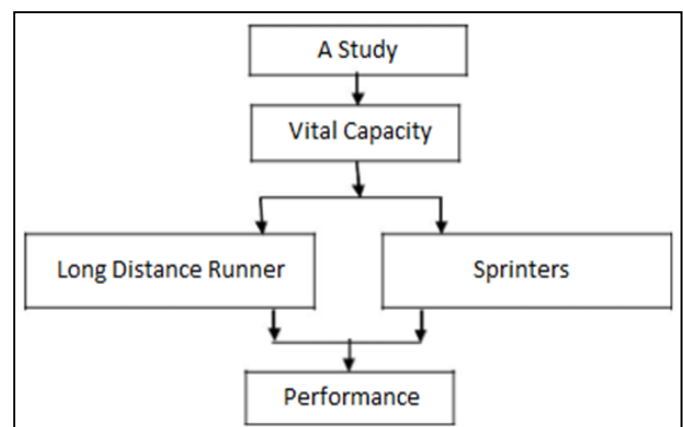


Fig 1

**Sample of the Study**

The study was formulated based on the simple random sampling. The samples were collected from the 60 Long Distance Runner and 60 Sprinters each of CSJM University in the age group of 20-25 years at Hyderabad.

**Table 1:** Showing the Sample of the Study

S. No	Category of Subjects	No. of subjects
1	Long Distance Runner	60
2	Sprinter	60

**Method and Materials**

For the purpose of this study 120 students selected, 60 Long distance runners and 60 Sprinters who are studying in CSJM University were selected randomly the age group is 20 to 25 years.

**Tools used**

To measure the vital capacity, wet spirometer was used and it was measured in litres.

**Collection of data & Statistical Technique**

Data was collected from the students at the morning session. The wet spirometer was given to the students and also instruction was given properly to them by researcher. The three trails was given to the students, the best score was mentioned. To find out the significance difference between the vital capacity of Long Distance Runner and Sprinters independent – T-test was used. The level of significance was set at 0.05 levels.

**Finding and Discussions**

The table shows the significant difference between the Long-Distance Runner and Sprinters in relation to their vital capacity.

**Table 2**

S. No	Group	N	Mean	SD	t-value	p-value
1.	Long distance runner	60	4.24	1.24	5.74	0.04
2.	Sprinters	60	3.12	0.97	4.00	0.02

**The Graph shows the significant difference between the Long-Distance Runner and Sprinters in relation to their vital capacity.**

The table & graph presented the mean, standard deviation, t-value and P- Value of Long distance runners and Sprinters in relation to their vital capacity. The mean value of Long Distance Runner was 4.24, standard deviation was 1.24 and the mean value of Sprinters was 3.12 and standard deviation was 0.97. The obtained t-ratio was 5.74, which was found to be in significant at 0.04 levels.

**Conclusions**

From the above table show clearly indicates that there is significant difference in vital capacity of Long Distance Runner and Sprinters. The finding of the study reveals that the obtained t value of vital capacity is significant as tabulated value at 0.05 level is 2.00 lower than the obtained value.

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