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Comparative study of vital capacity between sportspersons and non-sportspersons

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Abstract

The purpose of the present study was to compare the selected vital capacity between sportspersons and non-sportspersons. Total 60 male subjects (sportspersons: 30 and non-sportspersons: 30) age group of 28 to 30 years, were randomly selected from Punjabi university Patiala. All the subjects, after having been informed about the objectives and protocol of the study, gave their consent and volunteered to participate in this study. The level of significance was set at 0.05. The physiological variable was vital capacity. The findings shows mean score of the vital capacity among Sportspersons and Non-Sportspersons was 5.7793 and 5.2057 respectively. The calculated t-value (3.702) which is more than the tabulated t-value (1.671) at 0.05 level. So, it demonstrates that there is a significant difference between Sportspersons and Non-Sportspersons for their vital capacity. This might be due to the high level of training of payers.

Keywords: Vital capacity, sportspersons, non-sportspersons etc.

Introduction

Vital capacity (VC) is the greatest measure of air a man can oust from the lungs after a most extreme inward breath. It is equivalent to the aggregate of inspiratory hold volume, tidal volume, and expiratory save volume. A man's fundamental limit can be estimated by a wet or standard spirometer. In mix with other physiological estimations, the fundamental limit can help make a finding of basic lung ailment. Besides, the crucial limit is utilized to decide the seriousness of respiratory muscle contribution in neuromuscular sickness, and can control treatment choices in Guillain– Barré disorder and myasthenic emergency. [Hutchinson, J (1846)]

An ordinary grown-up has a crucial limit in the vicinity of 3 and 5 liters. A human's crucial limit relies upon age, sex, tallness, mass, and ethnicity. Lung volumes and lung limits allude to the volume of air related with various periods of the respiratory cycle. Lung volumes are specifically estimated, though lung limits are induced from volumes. [Hutchinson, J (1846)]

This, in turn, increases the amount of energy produced by cellular respiration. Thus, an increase in vital capacity will increase energy production. This is beneficial to the performance of an athlete. During exercise, there is an increased need for oxygen by an athlete's cells and muscles.

Exercises in the form of sports, aerobics or workouts, if performed regularly have a beneficial effect on the various systems of the body. Breathing and exercise have always been closely linked in athletic training and keep fit propaganda and any physical effort is quite obviously dependent on efficient pulmonary ventilation. Proper breathing techniques are essential to an athlete, because it can help him or her become more successful during athletic activity, and increases lung capacity. Increasing lung capacity can help an athlete become more energetic during sports, feel more refreshed after the sport, and it can also help him or her prevent respiratory distress. The lung function tests, like other physiological tests must be of the utmost importance for measuring the fitness of an individual from a physiological point of view Vital capacity is the maximum amount of air a person can expel from the lungs after a maximum inhalation. It is equal to the inspiratory reserve volume plus the tidal volume plus the expiratory reserve volume. It is generally assumed that physically active persons, in sports or at work, have higher vital capacities than physically inactive persons of the same sex, age, height, and weight.

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In a study where the lung function measurements were correlated with sport, age, gender, height, and weight in the various athletes. The lung capacity of swimmers was greater than that of other athletes. Hence, the present study was undertaken with a view to compare the vital capacity among different groups of sportsmen

Material and Method

In present study total sample were comprised of sixty (30 Sportspersons + 30 Non-Sportspersons) subjects. Sixty males were selected from Punjabi University, Patiala (Punjab). Study was conducted on thirty sportspersons and thirty non-sportspersons. Sportspersons were those subjects who participated in at least ‘Interuniversity or senior national’ and non-sportspersons were those subjects who did not participated in any completion level. The age of subjects were ranged between 28-30 years. All subjects were selected by purposive sampling technique.

Selection of Variables

Vital capacity between sportspersons and non-sportspersons.

Methodology

Vital capacity was measured with the help of Spiro-Excel machine. The unit of measurement for BMD is g/cm².

Criterion Measures: A standard test of Spiro-Excel was applied to measure vital capacity.

Purpose: To determine vital capacity of the subjects.

Equipments: Spiro-Excel machine and its set-up, writing material, Chair.

Procedure: The tester gave instructions in advance to the

subject and after that subject was asked to sit on a chair. The spirometer was attached with a standard mouth piece with a cable. The test was conducted in sitting position. The mouth piece was disinfected by an antiseptic solution after use by each subject. The subject was asked to be hyperventilating prior to the test, then after the fullest possible inhalation the subject exhaled into the mouth piece slowly and steadily bonding forward, till all the air with in control was expelled. The exhaled air show the graph on the computer screen. Care will be taken to prevent air from escaping either through the nose or around the edges of the mouth piece and also ensures that a second breath was not taken by the subject during the test. In case of doubt the test can be repeated. Three trials were given. The score will be recorded in 100 ml. units. . All the measurements were with the help of lab technician.

Score: The best out of three trails were recorded as the score of the subjects in litter.

Results

Table 1: The Difference between Vital Capacity between Sportspersons and Non-Sportspersons

Group	N	Mean	SD	t-value
Sportspersons	30	5.7793	0.47169	4.652*
Non-Sportspersons	30	5.2057	0.48348	

*Significant at 0.05 level, Tabulated value at DF 58 = 1.671

Table 2. Shows the Mean and SD values with regard to Sportspersons is 5.7793± 0.47169whereas in the case of Non-Sportspersons is 5.2057±0.48348 respectively. The calculated t-value (3.702) which is more than the tabulated t-value (1.671) at .05 level. So, it demonstrates that there is a significant difference between Sportspersons and Non-Sportspersons for their Vital Capacity.

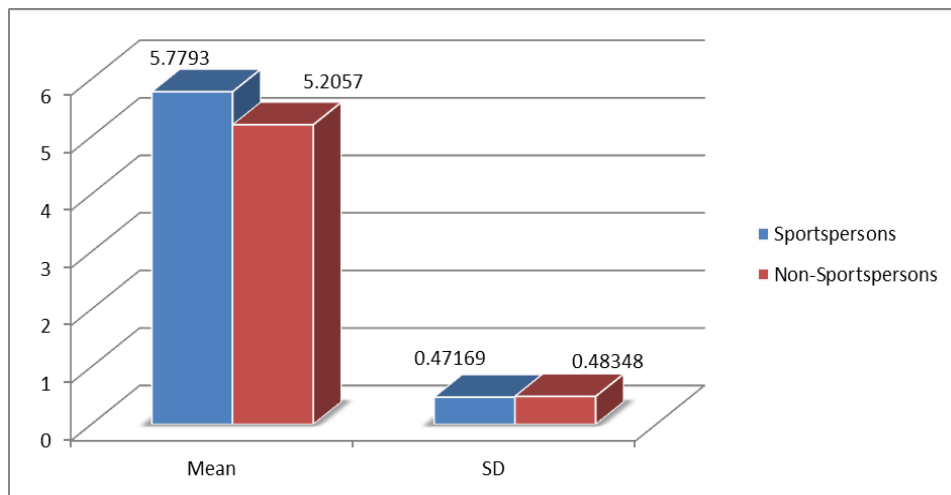


Fig 1: The Difference between Vital Capacity between Sportspersons and Non-Sportspersons

Discussion

The findings shows mean score of the Vital Capacity among Sportspersons and Non-Sportspersons was 5.7793 and 5.2057 respectively. There was significant difference found in Vital Capacity. It may be probably due to the reason that, Sportspersons body functions works more efficiently due to their involvement in various training programs for the preparation of competitions.

The another reason may be that Non-Sportspersons do not participate in rigorous activities that’s why their body

functions do not perform functions more efficiently in comparison to Sportspersons.

Conclusion

After defining the limitations of the present study describe Vital Capacity: Vital Capacity varies significantly between Sportspersons and Non-Sportspersons. The Sportspersons had significantly greater Vital Capacity than Non-Sportspersons. It is suggested that the present study can be conducted on large number of subjects of different states between

Sportsperson and Non-Sportsperson. Similar study can be conducted on Female Sportspersons and Non-Sportspersons.

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