

## Comparative Study of Cardiovascular Fitness Between Rural and Urban Senior Secondary School Boys

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### Abstract

*The main objective of the present study is to compare the cardiovascular fitness of rural and urban senior secondary school boys. 200 students of rural and urban schools of Chandigarh were selected randomly as sample. Cardiovascular Fitness of the students was measured with the help of twelve minutes run and walk test fitness battery by Copper. The obtained data were analyzed with the help of mean, standard deviation and t-test technique. The study conducted on the cardiovascular fitness of rural and urban school boys provided valuable information about the relative health of rural and urban boys as it proved that rural boys are general fit than the urban counterpart. The results revealed that cardio vascular fitness of rural school boys were greater than the urban school boys. Urban group has shown significantly lower score as compared to rural group.*

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### **Introduction:**

Life in the computer age is not less than the blessing of God. Computer age means that the science has changed thorny life into the bed of roses. The use of scientific devices, machineries and computerization are making the man dependent and comfortable. No doubt, the science and technology have modernized the life style of man. Increased standard of living has brought a great comfort to mankind. Along with this developments, the modern man becoming submerged by a world full of contradiction with large number of problems and recurrent crises. There are people who have all material comforts and modern amenities at their command but even than they are worried about health. Thus we find everyone is sick having physical as well as mental problems. Under these circumstances, physical exercises can play a very important role to making the people physically fit to perform best in life and in sports also.

Physical fitness is and will remain integral part of our lives. Life of ancient people was dependent on their physical capacities including power, speed, strength, flexibility,

endurance, running and jumping. In other words we can say that physical as well as mental fitness are essential for every sphere of human life. In the field of physical education and sports, physical fitness is key point or considered as an axis around which all physical education and sports programme revolve .

### **Physical Fitness**

The world's greatest thinkers have stressed upon the importance of physical fitness in living beings to ensure a productive and a meaningful life. The Greek philosopher of Aristotle states. "The body is the temple of the soul and to reach harmony of body, mind and spirit, the body must be physically fit". More specifically, it is "The ability to perform daily tasks vigorously and alertly, with energy left over for enjoying leisure time activities and meeting emergency demands. It is the ability to endure, to bear up, to withstand stress, to carry on in circumstances where an unfit person could not continue, and is a major basis for good health and well-being".

"Physical fitness refers to the organic capacity of the individual to perform the normal

task of daily living without undue tiredness or fatigue having reserve or strength and energy available to meet satisfactorily any emergency demands suddenly placed upon him”.

### Components of Physical Fitness

Exercise scientists have identified nine elements components that comprise the definition of fitness. The following lists each of the nine elements and an example of how they are used:

- **Strength:** is the extent to which muscles can exert force by contracting against resistance (holding or restraining an object).
- **Power:** is the ability to exert maximum muscular contraction instantly in an explosive burst of movements (jumping or sprint starting).
- **Speed:** is the quickness of movement of limb, whether this is the leg of runner or the arm of the shot putter.
- **Agility:** is the ability to perform a series of explosive power movements in rapid succession in opposing directions (Zig-Zag running or cutting movements).
- **Balance:** is the ability to control the body's position, either stationary (e.g. a handstand) or while moving (e.g. gymnastics stunt).
- **Flexibility:** is the ability to achieve an extended range of motion without being impeded by excess tissue, i.e. fat or muscle (Executing a leg split).
- **Muscle Endurance:** is a single muscle's ability to perform sustained work (Rowing or Cycling).
- **Cardiovascular Endurance:** is the heart's ability to deliver blood to working muscles and their ability to use it (Running long distances)
- **Strength Endurance:** is a muscles' ability to perform a maximum contraction time after time (Continuous

explosive rebounding through an entire basketball game).

- **Co-ordination:** is the ability to integrate the above listed components so that effective movements are achieved.
- **Body composition:** is also consisted a component of fitness. It refers to the makeup of the body in terms of lean mass (muscle, bone, vital tissue and organs) and fat mass. An optimal ratio at fat to lean mass is an indication of fitness, and the right types of exercise will help you decrease body fat and increase or maintain muscle mass.

Fitness of man has always been a concern of mankind. Physical fitness from prehistoric items to the present day has been equated with survival and power. The earnest human beings were dependent mainly upon their individual strength, vigour and vitality for survival.

### Cardiovascular Fitness

Cardiovascular fitness is defined as the ability to perform large muscles or whole body activities continuously for a sustained period of time. Cardiovascular fitness is a part of each and every category. The cardiovascular fitness deals with physiological aspects of fitness and is particularly related to the fitness of the heart and respiratory system and its adjustment to stress conditions also. Cardiovascular fitness is defined as the ability to perform large muscle or vital body activities continuously for a sustained period. A number of factors contribute to efficient cardiovascular functioning, including the ability of the heart to pump blood, the ability of the veins and arteries to carry blood, the ability of the lungs to supply the rich oxygen to the muscles to utilize the oxygen and to produce the energy for the movements and activities of body.

**Definitions of the terms**

**Rural:** The villages which come under the village Panchayat, and are out of the jurisdiction of urban authorities were considered as a rural area.

**Urban:** For the present study all the cities which come under the Municipal Corporation, Municipal Committee and notified area committee were considered as urban areas of Chandigarh.

**Cardiovascular Fitness:** It is the ability of the lungs, heart and blood vessels to supply a sufficient amount of oxygen and nutrients to the cells to meet demands of activities over a prolonged period of time.

**Objective**

The main objective of the present study is to compare between the rural and urban male students on cardiovascular fitness.

**Methodology**

It is necessary to adopt a systematic procedure to collect the necessary data which helps to test the hypotheses of the study under investigation. The various steps of the methodology to be followed in the present study are as follows:

**Sample:**

The study was a survey based, where two groups of students were selected one as rural group and second as urban group. As many as 200 male students were selected randomly as the sample for the present study from schools of Chandigarh. The selected sample represent to two groups consisting 100 students each.

**Tool:**

Cardiovascular Fitness was measured with the help of twelve minutes run and walk test by Copper.

**Procedure:**

The examiner marked the first lane of the track with the help of sixteen flags, these flags were used as an indicator which divide track into sixteen parts. The instructions were given to the student about the test before conducting the test. Students were started running group wise for 12 minutes from starting point after hearing the long sound of whistle. The subjects were divided into small batches, in each group consisted of 10 subjects. The subjects can walk 1/8 of the total distance in twelve minute. First whistle was blow after nine minutes and second was blow at eleven minutes thirty seconds. First whilst indicates that three minutes are left and second indicate that thirty second were left in the completion of the duration of the test on final long whistle all the boys have to stand where they were at the time of whistle blows. Ten lap scorers were also appointed to check the lap distance covered by each subject in twelve minutes. After the completion of test examiner consults with lap scorer about their laps. Investigator calculates the laps and the distance covered by each subject with the help of measuring tape.

**Results**

The statistical techniques such as Mean, Standard Deviation and t-test were used in the study. These results are given in the below table 1:

**Table 1:** Difference between the rural and urban male students

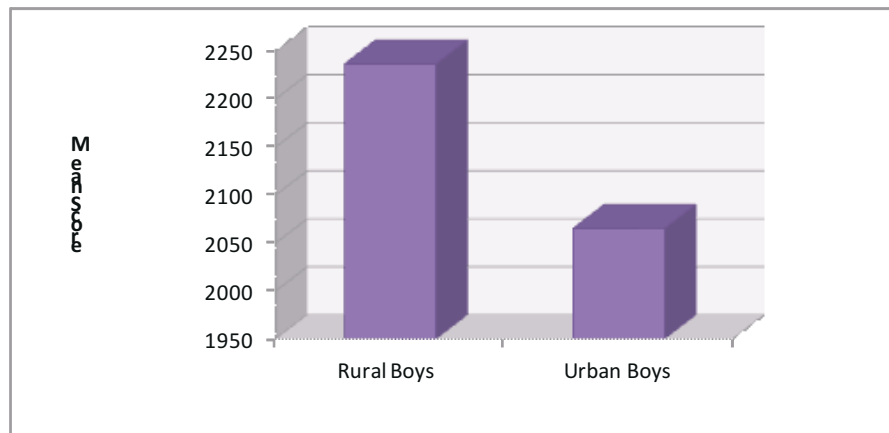
| Groups | N   | Mean    | S.D.   | 't' test |
|--------|-----|---------|--------|----------|
| Rural  | 100 | 2236.30 | 173.64 | 2.5869*  |
| Urban  | 100 | 2074.95 | 256.60 |          |

\* Significant at 0.05 level of confidence = 1.97

The above table indicates that there was a significant differences in the means of cardio vascular fitness between rural boys students (2236.3) and urban school boys students (2064.95) as the calculated 't' value 2.5869 is greater than tabulated 't' value (1.97) at 0.05 level of confidence.

The graphical representation of means of rural school boys and urban school boys on cardiovascular fitness has been shown in:

**Figure 1: Comparison of mean of cardio vascular fitness**



Similarly, the graph also shows that the mean scores of rural boys were higher than the urban boys of school of Chandigarh.

### Discussion

The results of above mentioned table revealed that cardio vascular fitness of rural school boys were greater than the urban school boys because they covered minimum distance in twelve minutes. The reason for these findings may be attributed to the facts as follow:

**Nutritional Fact:** The boys from rural areas used more nutritional and fresh diet comparative boys from urban areas, urban boys eat more preserved, synthesized and junk food, which has less nutritional values than fresh and natural food.

**Daily routine:** In rural areas boys do more physical work in home as well as in farm houses and fields, which require lot of physical fitness and endurance. On the other hand boys from urban areas where use to do lot of mentally and sedentary work in their daily routine. Which require very less physical fitness.

**Hobbies and Interests:** Rural and urban boys have a lot of difference in their hobbies and interests. Urban boys like to do mental activities i.e. playing chess, video games, carom board etc.

in this type of work use of physique and muscle is very less.

On the other hand rural boys were much interested in physical activities like they play Kabaddi, wresting, hockey, kho-kho football in play field, which requires a lot of physical fitness and endurance. As we know that cardio vascular fitness is also a part of physical fitness.

### Conclusion

The study conducted on the cardiovascular fitness of rural and urban school boys provided valuable information about the relative health of rural and urban boys as it proved the widely held notion that rural boys are general fit than the urban counterpart. The study

showed that rural boys have on the average higher endurance levels than urban boys. The difference between the figure for urban and rural subject was significant.

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