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Comparative study of cardiovascular efficiency between sports persons and national cadet corps of government senior secondary school of district Solan, Himachal Pradesh

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Abstract

In the modern era, most of the people in country are engaged in physical activities, as they find it enjoyable. People from all age groups take part in various sports events and programmes. Today, physical education and sports programme have a potential to improve the quality of life for everyone. The purpose of physical education and sports is to enhance lives, through participation in physical activities. The objectives such as cognitive development, physical fitness and well-being, motion skill development are achieved through physical education and sports programme. The modern age has been influenced by the development of science and its application, to make human life more comfortable, but with the danger of deterioration in this physical ability. Realizing this fact, the man has taken up the challenge to use the scientific development for his fitness and well-being also.

For the present investigation the researcher had selected the problem entitled as “comparative study of cardiovascular efficiency between sportspersons and national cadet corps of government senior secondary school of district Solan, Himachal Pradesh”. The present study was confined to 90 sportspersons and 90 national cadet corps students. The study was delimited to 7 variables of cardiovascular efficiency namely; resting pulse rate, after test pulse rate, resting systolic blood pressure, resting diastolic blood pressure, after test systolic blood pressure, after test diastolic blood pressure and physical efficiency. 6000 yard run/walk and Harvard step test was employed. The comparison of cardiovascular efficiency between sportspersons and n. c. c. Students was established by using ‘T’ test. The level of significance was set at 0.05. The researcher has laid down null hypothesis. On basis of computed results the investigator had reached at the conclusions that sportsperson have better cardiovascular efficiency than national cadet corps students.

Keywords: cardiovascular efficiency, pulse rate, blood pressure, physical efficiency

Introduction

The field of sports and physical education with new area of sports medicine has matured and care of the players occupies an important place in the delivery of health care. With fitness and health the concern of all, competitive, and recreational players present their their physicians, trainers, therapists and coaches with an assortment of problems and disorders to diagnose and manage. A team doctor requires good all round knowledge and experience in sports medicine and general medical conditions (A. K. Upall 1980) ^[1]. In the modern age the greater emphasis is being laid at preparing sportsperson physically, physiologically, psychologically and skillfully. This aspect includes effect of exercise –work on blood pressure, pulse rate and the oxygen carrying substance in the body known as haemoglobin.

The maximum stroke volume depends upon body posture and the type of exercise performed. A cyclist who does not use his arms for propulsion may pool a substantial quantity of blood in vein of upper limbs, and in the consequence, he has a 20-30 ml poorer stroke volume than the runner or swimmer. Cureton rightly points that cardiovascular endurance is capacity or efficiency of the circulatory system and respiratory system. Cardiovascular endurance can be achieved by doing exercise daily. Study of cardiovascular efficiency as a physical health component among school children assumes much important because children are the future nation builder. The meaning of cardiovascular is heart and lungs respectively “cardiac” means heart “vascular” means vessels.

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Thus the cardiovascular fitness is the ability of hearts and lungs to perform any type of activity efficiently and for longer duration of time without getting fatigue. Some of investigators have used to ford cardio respiratory and suggested that cardio-respiratory endurance is an important factor of physical fitness to achieve better performance. Regular exercise lowers the resting systolic blood pressure and opens new cholesterols of coronary arteries of the heart. Exercise also helps to lower the level of carboxyheamoglobin of the blood. So exercise helps in relieving stress and strain tension day- do-day drudgeries of life (Barbanti, Valdir Jore, 1983) [2].

Objectives of the study

1. To find and compare the resting pulse rate and after test pulse rate of sportspersons with national cadet corps subjects.
2. To find and compare the resting systolic blood pressure and after test systolic blood pressure of sportspersons with national cadet corps subjects.
3. To find and compare the resting diastolic blood pressure and after test diastolic blood pressure of sportspersons with national cadet corps subjects.
4. To find and compare the physical efficiency of sportspersons with national cadet corps subjects.

Procedure and Methodology

It deals with the research procedure and strategy adopted for the present investigation, which include sampling tools for the data collection and methodology used to procure data from the sportspersons and national cadet corps subjects of Solan district. The selection of subjects, selection of test, reliability of test, collection of data, procedure of administering the test and technique employed for data have been done orderly. The collected data was subjected to statistical techniques for analysis, interpretation and conclusions. (Headley, S.A. Germain, MLJ, 2008) [3].

In the present study, random sampling technique was used to select sportspersons and national cadet corps subjects of Solan district in which 3 schools were randomly selected for the present investigation and 180 subjects were randomly selected. 30 sportspersons and 30 national cadet corps subjects were studied from each school. (Table 1 and 2).

Table 1: School wise sample break-up of sportsperson

S. No.	Name of School	No. of Samples
1	Govt. Senior Secondary School Ramshehar	30
2	Govt. Senior Secondary School Nalagarh	30
3	Govt. Senior Secondary School Patni Mehlog	30

Table 2: School wise sample break-up of national cadet corps subjects

S. No.	Name of School	No. of Samples
1	Govt. Senior Secondary School Ramshehar	30
2	Govt. Senior Secondary School Nalagarh	30
3	Govt. Senior Secondary School Patni Mehlog	30

For collecting the data, the subjects were assembled in the school playfield. The investigator explained the purpose of the present investigation and demonstrated them the 600 yard run/walk and Harvard step test. He satisfied the queries raised by the subjects about the test. The researcher also ensured that the subjects were medically fit for undergoing the test.

Results

On the basis of obtained results the sportspersons have got

better pulse rate both in resting pulse rate as well after test pulse rate.

On the basis of obtained results after test systolic blood pressure of sportspersons is better than NCC students.

On the basis of the obtained results resting diastolic blood pressure of sportspersons is better than NCC students.

On the basis of the obtained result after test diastolic blood pressure is best than NCC students.

On the basis of the obtained results after test physical efficiency of sportsperson is better than NCC students. (Tables 3, 4, 5, 6, 7, 8, 9) (Fig. 1, 2, 3, 4, 5, 6, 7).

Table 3: Comparison of resting pulse rate between sportspersons and national cadet corps subjects in respect of mean and 't' value

Group	N	Mean	S.D.	Mean diff.	St. error diff.	Df	't' value
Sportsperson	90	70.96	2.91	2.28	4.0069	178	5.712
National cadet corps subjects	90	73.25	2.43				

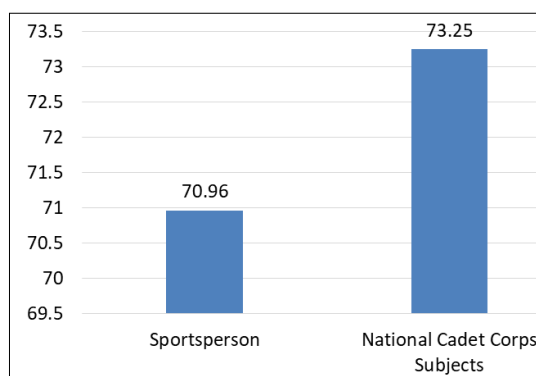


Fig 1: Comparison of resting pulse rate between sportspersons and national cadet corps subjects in respect of mean

Table 4: Comparison of after test pulse rate between sportspersons and national cadet corps subjects in respect of mean and 't' value

Group	N	Mean	S.D.	Mean diff.	St. error diff.	Df	't' value
Sportsperson	90	101.8444	11.093	11.25	1.23	178	9.135
National cadet corps subjects	90	113.1000	3.68				

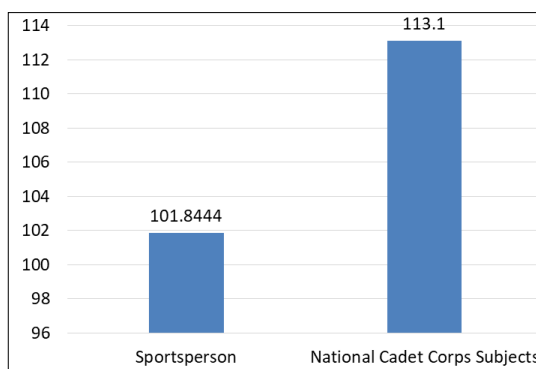


Fig 2: Comparison of after test pulse rate between sportspersons and national cadet corps subjects in respect of mean

Table 5: Comparison of resting systolic blood pressure between sportspersons and national cadet corps subjects in respect of mean and 't' value

Group	N	Mean	S.D.	Mean diff.	St. error diff.	Df	't' value
Sportsperson	90	120.77	6.62	1.13	.79298	178	1.429
National cadet corps subjects	90	121.91	3.57				

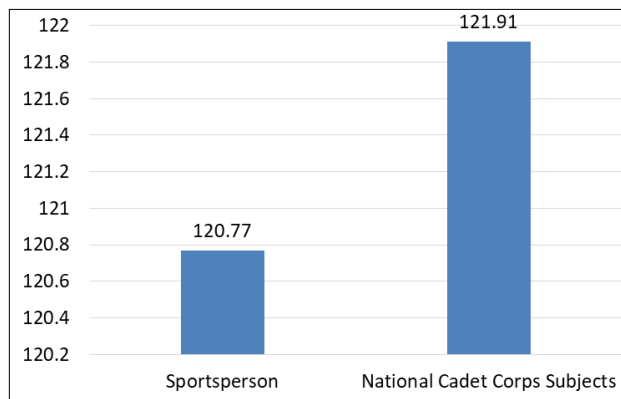


Fig 3: Comparison of resting systolic blood pressure between sportspersons and national cadet corps subjects in respect of mean

Table 6: Comparison of after test systolic blood pressure between sportspersons and national cadet corps subjects in respect of mean and 't' value

Group	N	Mean	S.D.	Mean diff.	St. error diff.	Df	't' value
Sportsperson	90	136.11	8.43	4.75	1.036	178	4.589
National cadet corps subjects	90	140.86	5.052				

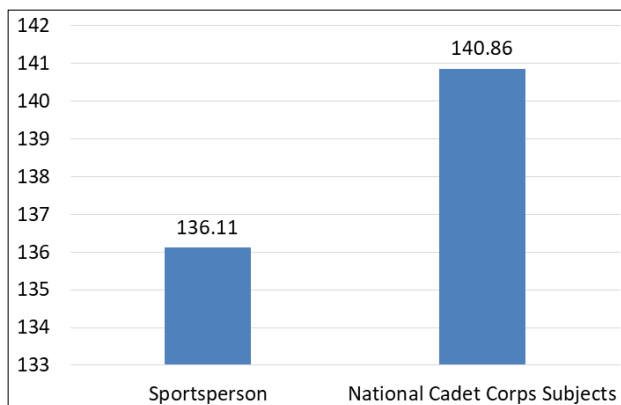


Fig 4: Comparison of after test systolic blood pressure between sportspersons and national cadet corps subjects in respect of mean

Table 7: Comparison of after resting diastolic blood pressure between sportspersons and national cadet corps subjects in respect of mean and 't' value

Group	N	Mean	S.D.	Mean diff.	St. error diff.	Df	't' value
Sportsperson	90	78.77	6.42	3.44	.7889	178	4.366
National cadet corps subjects	90	82.22	3.84				

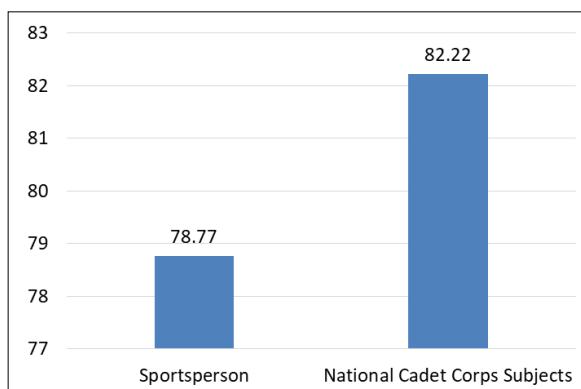


Fig 5: Comparison of after resting diastolic blood pressure between sportspersons and national cadet corps subjects in respect of mean

Table 8: Comparison of after test diastolic blood pressure between sportspersons and national cadet corps subjects in respect of mean and 't' value

Group	N	Mean	S.D.	Mean diff.	St. error diff.	Df	't' value
Sportsperson	90	88.75	6.71	4.86	.831	178	5.856
National cadet corps subjects	90	93.62	4.13				

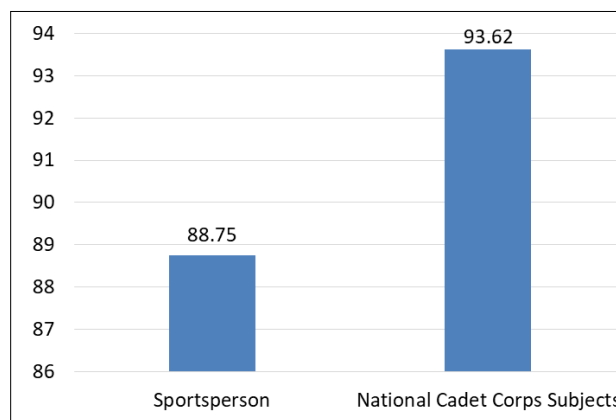


Fig 6: Comparison of after test diastolic blood pressure between sportspersons and national cadet corps subjects in respect of mean

Table 9: Comparison of physical efficiency between sportspersons and national cadet corps subjects in respect of mean and 't' value

Group	N	Mean	S.D.	Mean diff.	St. error diff.	Df	't' value
Sportsperson	90	94.87	5.82	15.51	.6781	178	22.88
National cadet corps subjects	90	79.36	2.73				

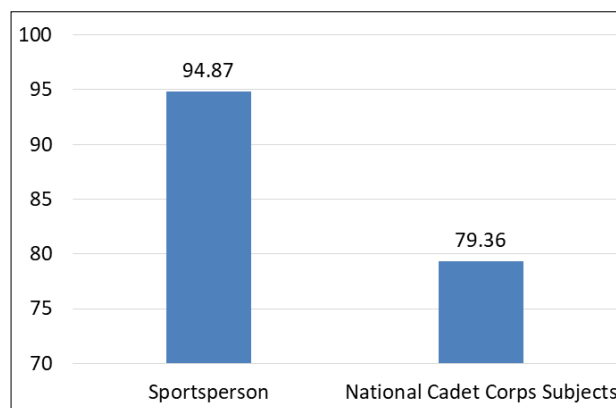


Fig 7: Comparison of physical efficiency between sportspersons and national cadet corps subjects in respect of mean

Future scope

The findings of the present study will help the physical education teachers, coaches, administrators and persons who are associated with the sports activities for selection of various activities or design a training programme for sportspersons. The results of present study will help the Army officials and the persons who are associated with National cadet corps. It will also help them to design the parade load and other training programme for the cadets of National cadet corps.

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