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IRJPES Impact Factor (ISRA: JIF): SJIF: 2.771 & 6.05 6.334, 6.556
Research Unique Number (RUN): 16.09.2022.2034
Website: www.sportjournals.org.in

COMPARATIVE ANALYSIS OF SELECTED PHYSIOLOGICAL VARIABLES BETWEEN RURAL AND URBAN AREA SPORTSPERSON OF SHIMLA DISTRICT IN HIMACHAL PRADESH STATE



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ABSTRACT

The main objective of the study was to compare the selected Physiological variables of rural and urban senior secondary schools sportsperson of Shimla District in Himachal Pradesh State. 240 sportsperson were selected as subjects for the present study i.e: (120 Rural & 120 Urban Schools). All the subjects were in between the age of 14-18 years. The average of the subject’s age was 16 years. Resting pulse rate, resting systolic blood pressure, resting diastolic blood pressure, after test pulse rate, after test systolic blood pressure and after test diastolic blood pressure were selected as Physiological variables. Student ‘t’ test was applied to compute the significance of mean difference of the selected Physiological variables between the two groups i.e. rural and urban senior secondary school sportsperson. For testing the hypothesis the level of significance was set at 0.05 level. The result discerned that there is significant difference in resting pulse rate, resting systolic blood pressure, after test pulse rate, after test diastolic blood pressure of rural and urban sportsperson. In the variables resting diastolic blood pressure and after test systolic blood pressure there exists no significant difference.
Keywords: Physiological, Resting pulse rate, Systolic blood pressure, Diastolic Blood Pressure.

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INTRODUCTION

Physiology is the study of function of the human body. Human physiology describes the various process that go on in the human body in health. It treats of the work done by various parts of the body. The results of the harmonious action of the several organs. Broadly speaking Physiology is the science which treats of functions. By the word functions is meant the special work which and organ has to do. An organism part of the body which does a special work. Thus the eye is the organ of sight the stomach of digestion and the lungs of breathing. Physiology attempt to discover and understand through active experimentation the intricate control systems and regulatory mechanism that permit the body to operate and survive in an often hostile environment. Physiology is the scientific discipline that investigating the processes or function of living things. S. Chand et. al. (2021) aimed to investigate the precise linkage between systolic blood pressure, diastolic blood pressure and Harvard step test (HST). 27 male participants of age group 14-18 years are enrolled for this study having no history of heart diseases. Measurement of SBP and DBP is done according to latest guidelines. All participants are gone through Harvard step test (HST). HST is an important test to measure one’s physical efficiency in different physical activity. Measurements are done using sphygmomanometer at a temperature range of 38-42° and at humidity around 48%. Pulse pressure (PP) is calculated from the difference of SBP and DBP. A maximum increase of

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23% in SBP and a decrease of 34% in DBP is observed post exercise whereas a max. Change of more than 90% is observed in pulse pressure. In conclusion we find that pulse pressure increases significantly post HST.

OBJECTIVE OF THE STUDY

The main objective of the study was to compare the selected Physiological variables of rural and urban senior secondary schools sportsperson of Shimla District in Himachal Pradesh State.

HYPOTHESIS

The researcher hypothesized that there would be no significant difference in selected physiological variables between rural and urban area sportsperson of Shimla district in Himachal Pradesh State.

DESIGN OF THE STUDY

A survey type of research study has been designed to investigate the physiological fitness level of the sportsperson of senior secondary school students belonging to rural and urban areas of Shimla district. The researcher was selected 120 rural and 120 urban sportsperson. The random sampling technique was used for the selection of sample for the present study. The age group of the subjects was ranging from 14 to 16 years.

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STATISTICAL ANALYSIS AND INTERPRETATIONS OF THE DATA

Table No: I

Table showing the ‘t’ value for senior secondary school rural and urban sportsperson of Shimla district with respect to their mean score on resting pulse rate

Variable	Group	N	Mean	S.D.	SEM	Df	M.D.	t
Resting pulse rate	Rural	120	77.23	9.226	.842	238	1.917	2.103*
	Urban	120	75.32	3.815	.348			

*Significant at 0.05 level

Table I reveals that the means value of resting pulse rate of rural sportsperson was 77.23 (S.D.= 9.226) and urban sportsperson was 75.32 (S.D.=3.815). The obtained t-ratio was 2.103. The obtained ‘t’ value is statistically significant at 0.05 level of confidence when compared with ‘t’ table. This indicates that rural and urban areas sportsperson of Shimla district of Himachal Pradesh differ significantly with respect to their mean scores on resting pulse rate.

Hence, the formulated hypothesis that “there would be no significant difference in ‘Resting pulse rate’ of rural and urban area sportsperson from Shimla district of Himachal Pradesh” null hypothesis stand rejected.

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Table No: II

Table showing the ‘t’ value for senior secondary school rural and urban sportsperson of Shimla district with respect to their mean score on Resting systolic blood pressure

Variable	Group	N	Mean	S.D.	SEM	df	M.D.	t
Resting Systolic Blood Pressure	Rural	120	118.82	11.132	1.016	238	3.138	2.622**
	Urban	120	115.63	7.278	.664			

**Significant at 0.01 level

Table-II shows the means of resting systolic blood pressure of rural sportsperson was 118.82 (S.D.= 11.132) and urban sportsperson was 115.63 (S.D.=7.278). The obtained t-ratio was 2.622. The obtained ‘t’ value is statistically significant at 0.01 level of confidence when compared with ‘t’ table. This indicates that rural and urban areas sportsperson of Shimla district of Himachal Pradesh differ significantly with respect to their mean scores on resting systolic blood pressure.

Hence, the formulated hypothesis that “there would be no significant deference in ‘Resting systolic blood pressure’ of rural and urban area sportsperson from Shimla district of Himachal Pradesh” null hypotheses stand rejected.

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Table No: III
Table showing the ‘t’ value for senior secondary school rural and urban sportsperson of Shimla district with respect to their mean score on resting Diastolic blood pressure

Variable	Group	N	Mean	S.D.	SEM	Df	M.D.	t
Resting Diastolic Blood Pressure	Rural	120	78.02	7.178	.655	238	1.450	1.699
	Urban	120	76.57	5.993	.547			

Not significant at 0.05 level

Table-III shows the means of resting diastolic blood pressure of rural sportsperson was 78.02 (S.D.= 7.178) and urban sportsperson was 76.57 (S.D.=5.993). The obtained t-ratio was 1.699. The obtained ‘t’ value is statistically not significant at 0.05 level of confidence when compared with ‘t’ table. This indicates that rural and urban areas sportsperson of Shimla district of Himachal Pradesh do not differ significantly with respect to their mean scores on resting diastolic blood pressure.

Hence, the formulated hypothesis that “there would be no significant deference in ‘Resting diastolic blood pressure’ of rural and urban area sportsperson from Shimla district of Himachal Pradesh” null hypotheses stand accepted.



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Table No: IV

Table showing the ‘t’ value for senior secondary school rural and urban sportsperson of Shimla district with respect to their mean score on after Test pulse rate

Variable	Group	N	Mean	S.D.	SEM	Df	M.D.	t
After Test Pulse Rate	Rural	120	118.36	12.191	1.113	238	3.092	2.409*
	Urban	120	121.45	7.005	.639			

*Significant at 0.05 level

Table-IV shows the means of after test pulse rate of rural sportsperson was 118.36 (S.D.= 12.191) and urban sportsperson was 121.45 (S.D.=7.005). The obtained t-ratio was 2.409. The obtained ‘t’ value is statistically significant at 0.05 level of confidence when compared with t table. This indicates that rural and urban areas sportsperson of Shimla district of Himachal Pradesh differ significantly with respect to their mean scores on after test pulse rate.

Hence, the formulated hypothesis that “there would be no significant deference in ‘after test pulse rate’ of rural and urban area sportsperson from Shimla district of Himachal Pradesh” null hypotheses stand rejected.

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Table No: V

Table showing the ‘t’ value for senior secondary school rural and urban sportsperson of Shimla district with respect to their mean score on after test Systolic blood pressure

Variable	Group	N	Mean	S.D.	SEM	Df	M.D.	t
After Test Systolic Blood Pressure	Rural	120	128.65	8.930	.815	238	.667	.578
	Urban	120	127.98	8.942	.816			

Not significant at 0.05 level

Table-V shows the means of after test systolic blood pressure of rural sportsperson was 128.65 (S.D.= 8.930) and urban sportsperson was 127.98 (S.D.=8.940). The obtained t-ratio was .578. The obtained ‘t’ value is statistically not significant at 0.05 level of confidence when compared with t table. This indicates that rural and urban areas sportsperson of Shimla district of Himachal Pradesh do not differ significantly with respect to their mean scores on after test systolic blood pressure.

Hence, the formulated hypothesis that “there would be no significant deference in ‘after test systolic blood pressure’ of rural and urban area sportsperson from Shimla district of Himachal Pradesh” null hypotheses stand accepted.

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Table No: VI

Table showing the ‘t’ value for senior secondary school rural and urban sportspersons of Shimla district with respect to their mean score on after test diastolic blood pressure

Variable	Group	N	Mean	S.D.	SEM	df	M.D.	t
After Test diastolic Blood Pressure	Rural	120	80.75	6.399	.584	238	2.217	3.269**
	Urban	120	78.53	3.773	.344			

**Significant at 0.01 level

Table-VI shows the means of after test diastolic blood pressure of rural sportsperson was 80.75 (S.D.= 6.399) and urban sportsperson was 78.53 (S.D.=3.773). The obtained t-ratio was 3.269. The obtained ‘t’ value is statistically significant at 0.01 level of confidence when compared with t table. This indicates that rural and urban areas sportsperson of Shimla district of Himachal Pradesh differ significantly with respect to their mean scores on after test diastolic blood pressure.

Hence, the formulated hypothesis that “there would be no significant deference in ‘after test diastolic blood pressure’ of rural and urban area sportsperson from Shimla district of Himachal Pradesh” null hypotheses stand rejected.

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DISCUSSION OF FINDINGS

From the finding it observed that there was significant difference on resting pulse rate, resting systolic blood pressure, after test pulse rate, after test diastolic blood pressure among rural and urban sportspersons. The results in these variables are in favor of rural areas sportspersons. The appearance of this type of result was because of genetic factors, tough way of life and environmental conditions of rural area sportspersons. The urban area is overpopulated as compare to the rural area where small numbers of people live. Over all it may be inferred that the rural area sportsperson have to do more manual work than their counterparts in urban area can do. The rural area sportsperson are adapted to strenuous life. Whereas in the urban area sportsperson are adapted to life of comfort and luxury. There was no significant difference on resting diastolic blood pressure and after test systolic blood pressure.

CONCLUSIONS

After statistical analysis the following conclusions were drawn:-

1. Rural and urban areas sportsperson of Shimla district of Himachal Pradesh differ significantly on the variable of resting pulse rate.
2. Rural and urban areas sportsperson of Shimla district of Himachal Pradesh differ significantly on the variable of resting systolic blood pressure.
3. Rural and urban areas sportsperson of Shimla district of Himachal Pradesh do not

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- differ significantly on the variable of resting diastolic blood pressure.
4. Rural and urban areas sportsperson of Shimla district of Himachal Pradesh differ significantly on the variable of after test pulse rate.
 5. Rural and urban areas sportsperson of Shimla district of Himachal Pradesh do not differ significantly on the variable of after test systolic blood pressure.
 6. Rural and urban areas sportsperson of Shimla district of Himachal Pradesh differ significantly on the variable of after test diastolic blood pressure.

REFERENCES

1. DharmeshParmar Nikita Modh (2015). Study of Physical Fitness Index Using Modified Harvard Step Test in Relation with Gender in Physiotherapy Students. International Journal of Science and Research (IJSR) ISSN (Online): 2319-7064 Index Copernicus Value (2013): 6.14 | Impact Factor (2013): 4.438 Volume 4 Issue 7, July 2015
2. HyoTaek Lee, HyoLyunRoh, Yoon Sang Kim (2016).Cardiorespiratory endurance evaluation using heart rate analysis during ski simulator exercise and the Harvard step test in elementary school students Journal of Physical Therapy Science 28(2):641-645 DOI:10.1589/jpts.28.641
3. Joseph, C.N; Porta, C; Casucci, G. (2005).Slow Breathing Improves Arterial Bar reflex Sensitivity and Decreases Blood Pressure in Essential Hypertension.

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Research Unique Number (RUN): 16.09.2022.2034

Website: www.sportjournals.org.in

46(4):714-8.

4. Narayan R Khurde, Aniruddha Narayan Jibhkate, Vishnu D Udhan, Sushama N Khurde (2021).A gender based comparative cross sectional study of physical fitness index using Harvard's step test in the medical students of western India. Nation journal of physiology, pharmacy and pharmacology.
5. Rajesh Jeniton, kandasamyavichandran, Mario vaz (2015).Original Article Aerobic Fitness, Heart Rate Recovery and Heart Rate Recovery Time in Indian School Children October 2015 Indian Journal of Physiology and Pharmacology 59(594):407-413.
6. Chand, M. Verma and A. K. Manocha (2021)."Effect of Harvard Step Test on blood pressure of sportspersons," 2021 6th International Conference on Signal Processing, Computing and Control (ISPCC), 2021, pp. 497-500, doi: 10.1109/ISPCC53510.2021.9609335.
7. [https://www.hopkinsmedicine.org/health/conditions-and-diseases/vital-signs-body-temperature-pulse-rate-respiration-rate-blood-pressure#:~:text=The%](https://www.hopkinsmedicine.org/health/conditions-and-diseases/vital-signs-body-temperature-pulse-rate-respiration-rate-blood-pressure#:~:text=The%20)
8. <https://www.cancer.gov/publications/dictionaries/cancer-terms/def/blood-pressure>