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# Difference of hemoglobin level of physical education students of Kashmir and other state

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**Abstract**
The present study was undertaken with a view to see the comparison level on hemoglobin percentage of Kashmir and other state students. For the present study twenty (20) male subjects (10 from Kashmir and 10 from other state) of M.P.Ed students were selected randomly from Dr. Babasaheb Nadurkar College of Physical Education, Yavatmal Their age ranges varied from 22 to 28 years. All the subjects belong to different socio-economic conditions. After the selection of the subjects researcher administered the pretest to measure the hemoglobin percentage of Kashmir and other state physical education students. All the variables were tested and measured through standard procedure with the help of expert and under the direct supervision of the experimenter. After the 45 days researcher again administered hemoglobin test both the groups and data were collected through standard procedures with the help of doctors and direct supervision of the experimenter. To see any significant differences 't' test was used for statistical analysis. The results of the present study concluded that there is very little difference in Hb level, which may be due to the environmental effect as both the groups are residing in the same area with same food from long time.

**Keywords:** Physical activity, hemoglobin level, environmental effect

## Introduction
Blood is a bodily fluid in animals that delivers necessary substances such as nutrients and oxygen to the cells and transports metabolic waste products away from those same cells. In vertebrates, it is composed of blood cells suspended in blood plasma. Plasma, which constitutes 55% of blood fluid, is mostly water (92% by volume) [1] and contains dissipated proteins, glucose, mineral ions, hormones, carbon dioxide (plasma being the main medium for excretory product transportation), and blood cells themselves. Albumin is the main protein in plasma, and it functions to regulate the colloidal osmotic pressure of blood. The blood cells are mainly red blood cells (also called RBCs or erythrocytes) and white blood cells, including leukocytes and platelets. The most abundant cells in vertebrate blood are red blood cells. These contain hemoglobin, an iron-containing protein, which facilitates transportation of oxygen by reversibly binding to this respiratory gas and greatly increasing its solubility in blood. In contrast, carbon dioxide is almost entirely transported extracellular dissolved in plasma as bicarbonate ion.
Vertebrate blood is bright red when its hemoglobin is oxygenated. Some animals, such as crustaceans and mollusks, use hemocyanin to carry oxygen, instead of hemoglobin. Insects and some mollusks use a fluid called hem lymph instead of blood, the difference being that hem lymph is not contained in a closed circulatory system. In most insects, this "blood" does not contain oxygen-carrying molecules such as hemoglobin because their bodies are small enough for their tracheal system to suffice for supplying oxygen.
The increase of hemoglobin concentration can be estimated by evaluating the volume of red cells and hemoglobin counts. The functioning of the human body is very complex and it involves mechanical laws as well as psychological principles. How effectively and efficiently the body performs depend mostly upon its mechanical aspects as they are directly related to performance of activities, indirectly of course, the mental outlook is behind all its functioning. Human body is a single structure but it is made up of billions of smaller structures of whole major kinds; such as cells, Tissues, Organs and systems.

Systems are most complex of the component units of the human body. A system is a organization of varying numbers and kinds of organs that together they can perform complex functions for the body. The main system in the human body is the circulatory system which carries oxygen in various parts of the body through the circulation of blood. Various training programme increase the oxygen carrying capacity of lungs of individuals. The increase of oxygen carrying capacity is accepted due to the increase of concentration of hemoglobin level in the RBC of blood. The present study were designed to find out the hemoglobin level difference between the two selected groups.

**Methodology**

The researcher selected the subjects from M.P.Ed course of Dr. Babasaheb Nandurkar College of Physical Education, Yavatmal (Maharashtra). For the present study 20 (twenty) male subjects (10 from Kashmir and 10 from other state) selected randomly from M.P.Ed course. Their age ranged from 22 to 28 years. For the present study the researcher wanted to measures hemoglobin level of the selected subjects with the help of Sahli's Hemoglobinometer and it will be measure in gm/dl.

After the selection of the subjects the researcher carryout the hemoglobin test to measure the hemoglobin percentage before and after the training programme of 45 days. Hemoglobin percentage were tested and measured through standard procedure with the help of expert (Doctor) and under the direct supervision of the experimenter.

**Results**

To compare the hemoglobin percentage between the Kashmir and other state physical education students the researcher collected data through administration of hemoglobin test. The collected data were analyzed by employed 't' test statistical technique.

All the data pertaining to the present study were examined by employed 't' test to find out whether any significance difference between the Kashmir and other state physical education students on hemoglobin percentage. The following terms were used for all the subsequent tables for elaborations.

K.S – Kashmir student, O.S.S - Other state students, N – Number of subjects in group, M – Mean score, MD – Mean difference, SD – Standard deviation of test score, 't' – 't' value, $H_o$ – Null hypothesis, df – degree of freedom, 't' follows t distribution with $(N_1+N_2-2)$ in .05 level of significance.

**Table 1:** Mean differences of hemoglobin percentage between the pre-test of Kashmir and other state students (gm/dl)

| Sr. No. | Group | Test | N | Mean | SD | MD | 't' value |
|---|---|---|---|---|---|---|---|
| 1 | Kashmir | Pre test | 10 | 15.44 | 0.42 | 0.42 | 1.90* |
| | other state | Pre test | 10 | 15.02 | 0.45 | | |

*Significance at .05 level, Tabulated 't'value of df (18) = 2.10

The above table-1 revealed that the mean of Kashmir and other state students on hemoglobin are 15.44 and 15.02 and their calculated 't' value is 1.90 which was smaller than that of tabulated value 2.10 (18 df.) at 0.05 level of confidence. Hence, this table indicated that there was no significant difference found between the Kashmir and other state students of hemoglobin percentage. It was also indicated that the students of Kashmir have more hemoglobin percentage than the other state physical education students. Hence, the null hypothesis is accepted.

The mean values of Kashmir and other state students on hemoglobin percentage have been graphically presented in the Fig-I.

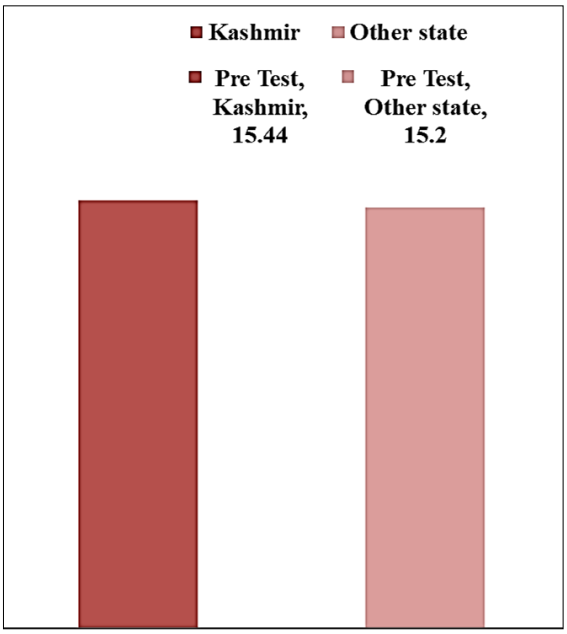


**Fig 1:** Comparison of mean differences of pre-test between the Kashmir and other state students on hemoglobin percentage

**Discussion**

On the basis of the results and findings it was concluded that there was very little significance differences found between the pre-test of Kashmir and other state students on hemoglobin percentage. It is indicated that there hemoglobin level were almost same before training. It may be because all the groups are residing in the same area from long time. However there are some previous studies showing the significant difference of Hb levels in Kashmir and other state physical education students. The reason may be due to different culture and the difference in the environment.

The present study clearly indicated that the physical education student from different environments is having very little difference in Hb level when residing in the same environment for long time. The present study also indicates that the level of Hb is directly attached with the surrounding environment.

**Conclusion**

The present study concluded that the difference in the Hb level of physical education student from different environment may be significantly equal when they are residing in the same area with same food for long time.

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