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A Study of Comparative Effect Of Training Programme On Hemoglobin& RBC

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Abstract

The present study examines the significance of training on Hemoglobin and RBC among the players of Long distance runner and cricketers. For the purpose of the study a total number of 30 male subjects (Long distance runner n =15 and cricketers n = 15) age group 18 to 25 years who participated at district level were randomly selected. The blood samples were collected during the coaching camps ofcricket and athletics held at RMP PG College and Sports ground. The collected samples were analyzed by the experts at the standard laboratory in Sitapur. The data thus obtained were treated using't' test to explore the differences of criterion variables between experimental groups.

Keywords: Hemoglobin, RBC.

Introduction

Hemoglobin also spelled hemoglobin and abbreviated (Hb or Hgb) is the non-containing oxygen-transport metalloproteinase in the red blood cells at the vertebrates (with the exceptional the fish family) as well as the tissues of some invertebrates. Hemoglobin in the blood carries oxygen from the respiratory organs (Lungs or gills to the rest of the body (i.e. the tissues) where it releases the oxygen to burn nutrients to provide energy to power the functions of the organisms, and collect the resultant carbon dioxide to bring it back to the respiratory organs to be dispensed from the organism.

In Mammals the protein make up about 97% of the red blood cells dry content, and around 35% of the total content (including water). Hemoglobin has an oxygen binding capacity of 1.34 mLO_2per gram of hemoglobin, which increase the total blood oxygen capacity seventy-fold compared to dissolved oxygen in blood. The Mammalian hemoglobin molecule can bind (carry) upto four oxygen molecules. Hemoglobin is involved in the transports of other gases; it carries some of the body's respiratorycarbondioxide (about 10% at the total) as carbaminoes hemoglobin, in which CO_2 is bound to the globin protein. The molecule also carries the important regulatory molecule nitric oxide bound to a goblin protein thiol group, releasing it at the same time as oxygen.

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The oxygen carrying protein hemoglobin was discovered by Hunefeld in 1840. In 1851 Ottolunke published a series of articles in which he described growing hemoglobin crystals by successively diluting red blood cells with a solvent such as pure water, alcohol or either Felx Hoppe-Seyler, evaporation the solvent from the resulting protein solution. Hemoglobin's reversible oxygen was described.

REVIEW OF LITERATRE

Van K. et al. (2010), done a research on "Measures of Heart Rate Variability in Women following a Meditation Technique". The study contains the following. Certain time domain, frequency domain and a nonlinear measure of heart rate variability are studied in women following a meditative practice called cyclic meditation. The nonlinear measure studied is the sampling entropy. We show that there is an increase in the sampling entropy in the meditative group as compared to the control group. The time domain measure called PNNX is shown to be useful in distinguishing between the meditative state and a normal resting state.

Bernardi L. et al. (2007), done a research on "Reduced Hypoxic Ventilatory Response with Preserved Blood Oxygenation in Yoga trainees and Himalayan Buddhist Monks at Altitude: Evidence of a Different Adaptive Strategy". The study contains the following. Yoga induces long-term changes in respiratory function and control. We tested whether it represents a successful strategy for high-altitude adaptation. We compared ventilatory, cardiovascular and hematological parameters in: 12 Caucasian yoga trainees.

Chen I.S.M. et al. (2008) done a research on "Silvertoga Exercises Improved Physical Fitn4ss of Transitional Frail Elders". The study contains the following Background: Promoting the health of transitional frail elders (e.g., through therapeutic based yoga exercises) is essential to reduce healthcare expenditures caused by chronic health problems. Objective: The purpose of this study was to determine the efficacy of 24 weeks of the senior-tailored silver yoga (SY) exercise program for transitional frail elders. Methods : A convenience sample of 59 elders in assisted living facilities were assigned randomly to the SY group (n = 38) or to the control group (n= 31) on the basis of the facilities were they resided, and 55 of them completed this quasi-experimental pretest and posttest study. Intervention was conducted three times per week, 70 minutes per session, for 24 weeks. Physicalfitness (body composition, cardiovascular-respiratory functions, body flexibility,

muscle power and endurance, balance, and agility) were examined at baseline, at 12 weeks, and at the end of the 24th week of the study.

Chen T.L. et al. (2009), done a research on "The Effect of Yoga Exercise Intervention on Health Related Physical Fitness in School-Age Asthmatic Children". The study contains the following. The purpose of this study was to investigate the effect of yoga exercise on the health-related physical fitness of school-age children with asthma.

Objective of the study

- To study the Hemoglobin among the athletics and cricketers.
- To study the RBC among theathletes and cricketers.

Hypothesis

- There is significance difference between athletes and cricketers in respect to Hemoglobin.
- There is significance difference between athletes and cricketers in respect to RBC.

Materials and Methodology

For this study total number of 30 male subjects (15 long distance runner and 15 cricketers) age group between 18 to 25 years who participated at district level were randomly selected. The blood samples were collectedduring the coaching camp at RMP PG College, Sitapur. The collected samples were analyzed by the expert at the standard laboratory in Sitapur. The data thus obtained were treated using't' test to find the differences of criterion variables between experimental groups.

RESULT AND DISCUSSION

Table 1: Comparative analysis of Hemoglobin between Long distance runners and cricketers.

Group	N	Mean Value	S.D.	t-value
Long-distance runners	15	14.62	1.09	2.46*
Cricketers	15	12.71	0.94	

*Significant at 0.05 level

(Tabled 't' test = 2.04)

(Obtained 't'value = 2.46*)

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It is observed from the above table that the 't' value (t = 2.46, < 0.05) has been found to be significant at 0.05 level of confidence which clearly shows a significant difference on hemoglobin between long-distance runners and cricketers. Whereas, long-distance runners obtained a greater mean value (mv = 14.62) for hemoglobin as compared to cricketers (mv = 12.71) which clearly advocate that long-distance runners are better than their counterpart cricketers on hemoglobin content which greatly contribute to endurance performance. Thus the Hypothesis (H_1) accepted.

Figure 1: Comparative analysis of Hemoglobin between Long-distance runners and cricketers.

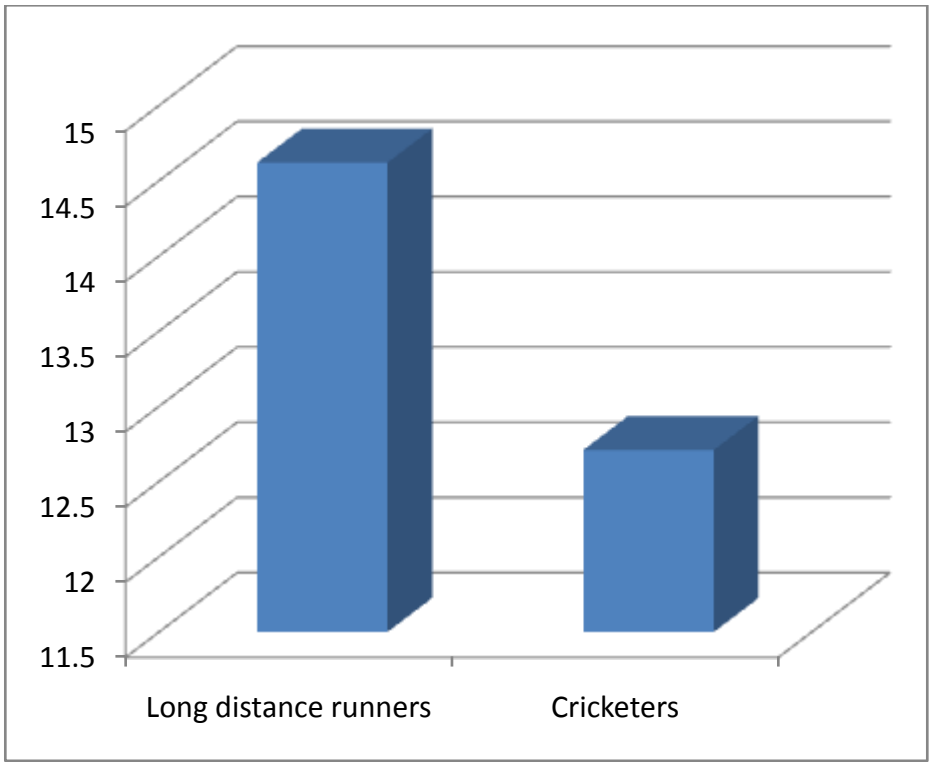

Table 2: Comparative analysis of RBC between Long-distance runners and cricketers.

Group	N	Mean Value	S.D.	t-value
Long-distance runners	15	4.90	0.58	2.61*
Cricketers	15	4.12	0.16	

*Significant at 0.05 level
(Tabled 't' test = 2.04)
(Obtained 't' value = 2.61*)

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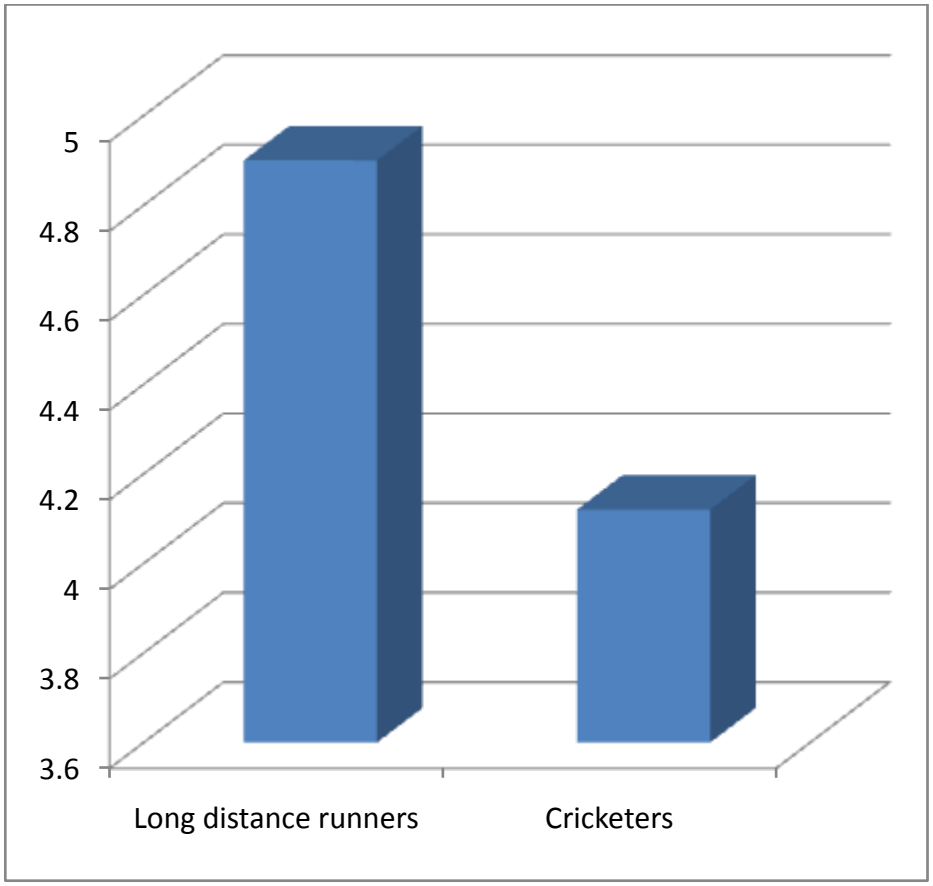
It may be observed from the above table that there existed a significant difference between the RBC of long-distance runners and cricketers (t = 2.61). When considered mean values, it has been found that long-distance runners scored slightly higher (mv = 4.90) as against cricketers (mv = 4.12). In respect to the result the hypothesis No. (H_2) is accepted.

Figure 2: Comparative Analysis of RBC between Long-distance runners and cricketers.



DISCUSSION AND CONCLUSION

The scores of hemoglobin of long-distance runners and cricketers have been shown in table 1 whereas; the results of the RBC's have been presented in table 1 whereas; the results of the RBCs have been presented in Table 2. It has been depicted from the above tables that long-distance runners and cricketers significantly differed to both the variables. The mean values given in the tables suggest that long-distance runners have higher level of hemoglobin and better RBC count when compared to cricket players. It might be due to the nature of activity of two groups. Long distance running is considered as an aerobic type activity which requires greater amount of Hemoglobin and RBC's for the prolonged activity whereas; the

cricket game depends upon both anaerobic as well as aerobic capacity of the players. It may be because of the reason that the long-distance runners and cricketers had their training at different intensity and duration.

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