



# COMPARATIVE STUDY OF HEMOGLOBIN PERCENTAGE AND PHYSICAL FITNESS OF FOOTBALL, HANDBALL AND BASKETBALL PLAYERS.

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## **Abstract:**

Purpose of the study was to compare hemoglobin percentage and physical fitness component of basketball handball and soccer players. 45 players were selected by using simple random sampling method i.e. Fifteen from each game was selected as sample of study. AAPER youth physical fitness test was used for data collection and collected data was analyzed by applying one way analysis of variance ANNOVA and post Hoc test for further analysis. Results of the study shown significant results.

**Key words: Hemoglobin, Physical Fitness, Basketball, Soccer, Handball.**

## **Introduction:**

In the field of physical education one of the objective of testing and measuring is to place a proper person in to a proper activity and thus to avoid misfit as far as possible. For all sort of activity Physical fitness is very essential. It is repeated to the ability to meet the demands of the environment specifically to preserves to with stand stress to resist fatigue and to possess the energy for and abundant life. Physical fitness is an aspect of total fitness total fitness is viewed as the capacity to function in every way at one's best A new concept of fitness is included that involves that the mental social as well as physical aspect thus when total fitness is used in its modern concept\_it includes the emotional social and mental as well as the physics component and all components play a significant role all living a full and happy life.

**Noach Allen** has studies the 84 varsity football players of pacific college and clark college. The players were rated by coaches and given 34 tested by body size, muscular strength, endurance, motor ability, mental and psychological traits. The resulting factor and test with highest loading on each were : body bulk and birth measures plus Mesomorphy and **Ectomorohy** : relative muscular endurance power, push ups, pull – ups, velocity, passing, standing height, ectomorphy and agility to run football, intelligence, mathematic, aptitude grade, point average and coaches rating, gross arm shoulder muscular endurance, Roger's arm strength, leg lift, back lift, strength index and lift grip and balance stroke stand.

## **Purpose of the study :**

Purpose of the study is to compare the selected physical fitness components and haemoglobin percentage of viz, football, handball and basketball players.

## **Significance of the study :**

- 1) The study will suggest which group is better one in case of physical fitness and haemoglobin content out of three viz. football, handball and basketball players.
- 2) By the result of the study the students will become able to aware about there health problems arised due to the efficiency of haemoglobin.
- 3) By the result of this study will also health authorities of the society to be aware about the students diet.

## **Hypothesis :**

It is hypothesized that there will be significant difference in physical fitness and haemoglobin.

***Delimitation :***

The study will delimited to the following areas.

- 1) The study will delimit a B.P.E. and B.Ped. students only.
- 2) The study will delimit to 45 male subjects, 15 each of the three games viz, football, handball and basketball.
- 3) The subjects is selected by random sampling method.
- 4) The age group of selected subjects will be ranging from 18 – 25 years only.
- 5) Haemoglobin test was conducted in sports science research lab of H.V.S.K.M. physical education college Ytl.

***Limitation :***

- 1) Environmental factor.
- 2) Whether the subject do smoking or not minded.
- 3) Knowledge of the subject about the importance of the physical fitness will also be out of control of the researcher.
- 4) The dietary habits of the subject will unknown.
- 5) Interest of the subject towards the conductance of testes will be beyond the control of the researche.

***Tool to be used for data collection :***

- 1) Hemoglobin – hemometer.
- 2) Physical fitness.

***Source of Data :***

The data will be collected from college level players of football, handball and basketball games from the Yeotmal District.

***Selecting of Subjects :***

The researcher will select 15 subject from football game specialization, 15 subjects from handball and 15 from basketball game.

***Method of Sampling :***

The subject will be selected by using simple random sampling method.

**Methodology*****Selection of Test :***

The AAPHERS youth fitness test will be choosed to find out the physical fitness level of the selected subjects. The test items are as under.

- 1) Pull – ups 2) Sit ups 3) Shuttle runs 4) Standing broad Jump
- 5) fifty yard dash run 6) 600 yard run / walk.

***Administration of the Tests :***

The test will be administrated on the selected subjects at the track and ground of selected institute by the researcher himself with help of trained assistant to Measure the haemoglobin test also with the help of haemometer in the laboratory of said institution.

**Collection of data :**

The collection of data will be collected in the Ytl. Dist. and the laboratory of H.V.S.K.M. physical college Ytl.

**Table No.**

**Table Showing the one way analysis of variance for Pull – ups test for three games viz. Basketball , Handball and soccer players.**

Source of Variance	SS	Df	Ms	'F' cal.	'F' tab	Remarks
Between the groups	54.44	2	27.22	5.11*	3.23	significant
Within the groups	223.66	43	5.32			

\* = significant

2, 43 df. at 0.05 level of significance.

The above table revealed that obtained value of 'F' 5.11 is more than that table value of 'F' i.e. 3.23. which is found significant at 0.05 level of significance. Which means that significant difference was found in pull – ups test of three games viz. Basketball Handball and soccer players.

**Table No. II**

**Post Hoc's test of pull – ups**

**Table Showing the comparison in Pull – ups test for two games viz. Basketball and Handball players.**

Source of Variables	M	SD	SEm	't' cal.	't' tab	Remarks
Basketball	19.66	1.14	0.29	1.75@	2.00	insignificant
Handball	18.66	1.11	0.28			

@ = insignificant. 43 df. at 0.05 level of insignificance.

The above table revealed that obtained value of 't' 1.75 is less than that table value of 't' i.e. 2.00 which is found insignificant at 0.05 level of significance. Which means that insignificant difference was found in pull – ups test of two games viz. Basketball and Handball players.

It can also be revealed that the mean value of pull-ups in case of basketball players was higher than that of handball players. which shown better arms strength than handball players.

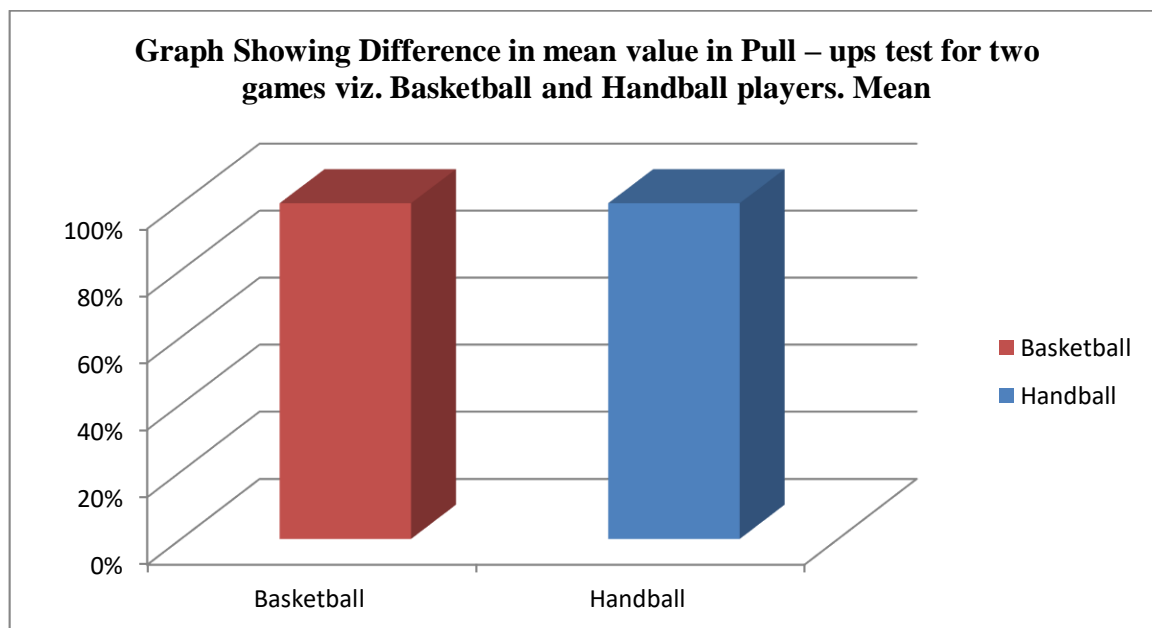


Table No. III

Table Showing the comparison in Pull – ups test for two games viz. Basketball and soccer players.

Source of Variables	M	SD	SEm	't' cal.	't' tab	Remarks
Basketball	19.66	1.14	0.29	4.75*	2.00	significant
Soccer	17.00	1.06	0.27			

\* = significant. 43 df. at 0.05 level of significance.

The above table revealed that obtained value of 't' 4.75 is greater than that table value of 't' i.e. 2.00 which is found significant at 0.05 level of significance. Which means that significant difference was found in pull – ups test of two games viz. Basketball and Soccer players.

It can also be revealed that the mean value of pull-ups in case of basketball players was higher than that of soccer players. which shown better arms strength than soccer players.

Table No. IV

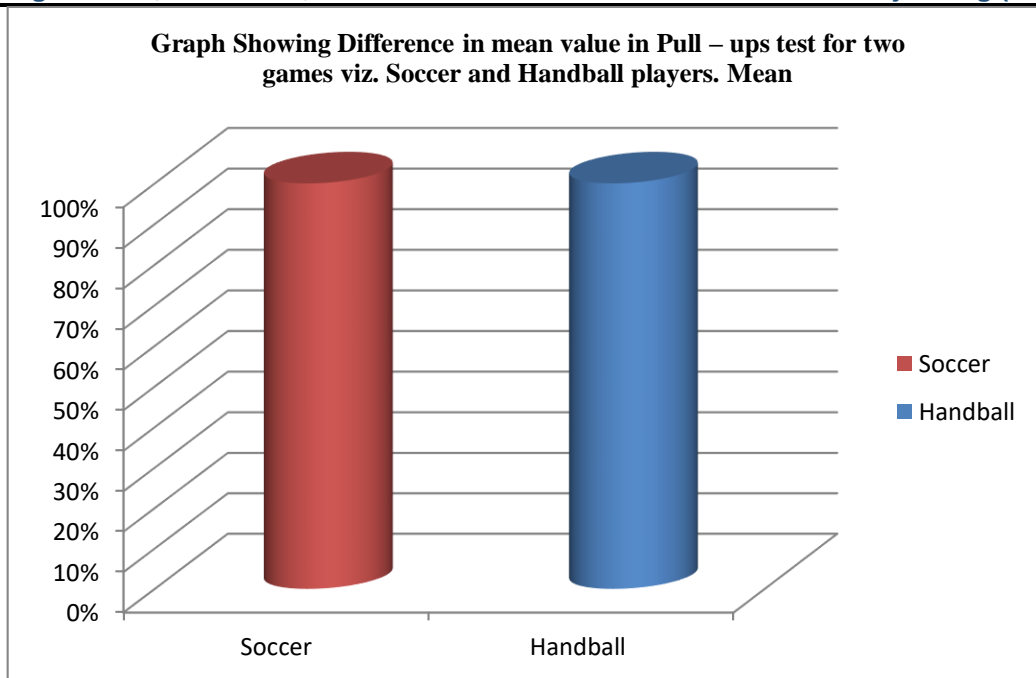
Table Showing the comparison in Pull – ups test for two games viz. soccer and Handball players.

Source of Variables	M	SD	SEm	't' cal.	't' tab	Remarks
Soccer	17.00	1.06	0.27	3.01*	2.00	significant
Handball	18.66	1.11	0.28			

\* = significant. 43 df. at 0.05 level of significance.

The above table revealed that obtained value of 't' 3.01 is greater than that table value of 't' i.e. 2.00 which is found significant at 0.05 level of significance. Which means that significant difference was found in pull – ups test of two games viz. Handball and Soccer players.

It can also be revealed that the mean value of pull-ups in case of soccer players was less than that of Handball players. which shown less arms strength than Handball players.



**Table No. V**

**Table Showing the one way analysis of variance for sit – ups test for three games viz. Basketball, Handball and soccer players.**

Source of Variance	SS	df	Ms	'F' cal.	'F' tab	Remarks
Between the groups	16.04	2	8.02	0.97@	3.23	insignificant
Within the groups	344.8	42	8.20			

@ = insignificant 2, 43 df. at 0.05 level of significance.

The above table revealed that obtained value of 'F' 0.97 is less than that table value of 'F' i.e. 3.23. which is found insignificant at 0.05 level of significance. Which means that insignificant difference was found in sit – ups test of three games viz. Basketball Handball and soccer players.

**Table No. VI**

**Table Showing the one way analysis of variance for shuttle run test for three games viz. Basketball, Handball and soccer players.**

Source of Variance	SS	df	Ms	'F' cal.	'F' tab	Remarks
Between the groups	0.55	2	0.275	0.49@	3.23	insignificant
Within the groups	23.64	42	0.56			

@ = insignificant 2, 43 df. at 0.05 level of significance.

The above table revealed that obtained value of 'F' 0.49 is less than that table value of 'F' i.e. 3.23. which is found insignificant at 0.05 level of significance. Which means that insignificant difference was found in shuttle run test of three games viz. Basketball Handball and soccer players.

Table No. VII

**Table Showing the one way analysis of variance for standing broad jump test for three games viz. Basketball, Handball and soccer players.**

Source of Variance	SS	df	Ms	'F' cal.	'F' tab	Remarks
Between the groups	1991	2	995.5	2.43 <sup>@</sup>	3.23	insignificant
Within the groups	17197.7	42	409.46			

@ = insignificant 2, 43 df. at 0.05 level of significance.

The above table revealed that obtained value of 'F' 2.43 is less than that table value of 'F' i.e. 3.23. which is found insignificant at 0.05 level of significance. Which means that insignificant difference was found in standing broad Jump test of three games viz. Basketball Handball and soccer players.

Table No. VIII

**Table Showing the one way analysis of variance for 50 yard dash run test for three games viz. Basketball, Handball and soccer players.**

Source of Variance	SS	df	Ms	'F' cal.	'F' tab	Remarks
Between the groups	0.48	2	0.24	0.42 <sup>@</sup>	3.23	insignificant
Within the groups	23.9	42	0.56			

@ = insignificant 2, 43 df. at 0.05 level of significance.

The above table revealed that obtained value of 'F' 0.42 is less than that table value of 'F' i.e. 3.23. which is found insignificant at 0.05 level of significance. Which means that insignificant difference was found in 50 yard dash run test of three games viz. Basketball Handball and soccer players.

Table No. IX

**Table Showing the one way analysis of variance for 600 yard run/ walk test for three games viz. Basketball, Handball and soccer players.**

Source of Variance	SS	df	Ms	'F' cal.	'F' tab	Remarks
Between the groups	0.0019	2	0.00098	1.44 <sup>@</sup>	3.23	insignificant
Within the groups	0.2856	42	0.00068			

@ = insignificant 2, 43 df. at 0.05 level of significance.

The above table revealed that obtained value of 'F' 1.44 is less than that table value of 'F' i.e. 3.23. which is found insignificant at 0.05 level of significance. Which means that insignificant difference was found in 600 yard run / walk test of three games viz. Basketball Handball and soccer players.

Table No. X

**Table VII Showing the one way analysis of variance for Hemoglobin test for three games viz. Basketball , Handball and soccer players.**

Source of Variance	SS	df	Ms	'F' cal.	'F' tab	Remarks
Between the groups	16.04	2	8.02	0.92 <sup>@</sup>	3.23	insignificant
Within the groups	344.8	42	8.20			

@ = insignificant 2, 43 df. at 0.05 level of significance.

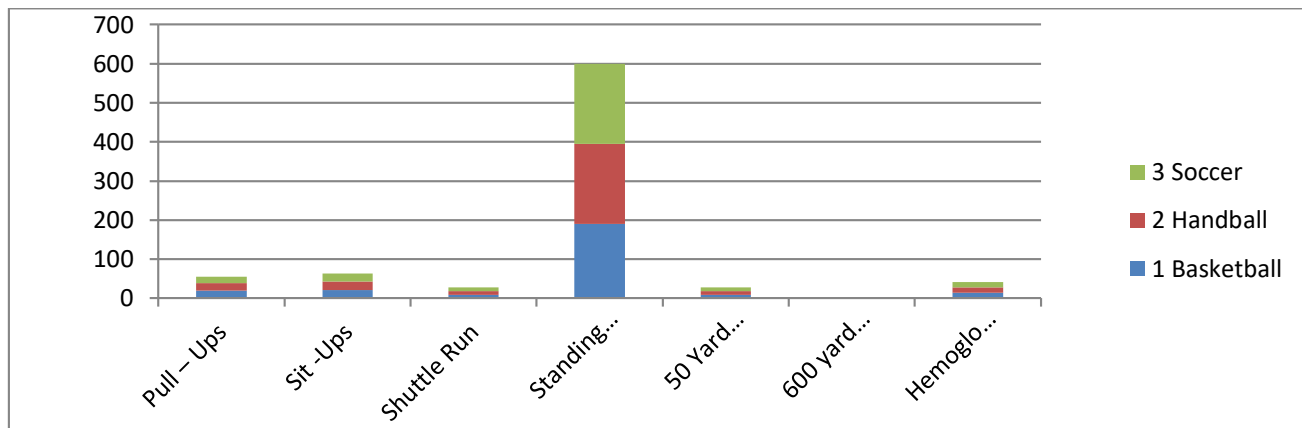
The above table revealed that obtained value of 'F' 0.92 is less than that table value of 'F' i.e. 3.23. which is found insignificant at 0.05 level of significance. Which means that insignificant difference was found in Hemoglobin test of three games viz. Basketball Handball and soccer players.

Table No. XI

Table showing the mean value of three game players in different test item of AAPHER youth fitness Test and Hemoglobin Test

Sr. No.	Variables	Pull – Ups	Sit -Ups	Shuttle Run	Standing Broad Jump	50 Yard dash run	600 yard run/ walk	Hemoglobin
1	Basketball	19.66	20.46	9.28	190.39	9.12	1.17	14.06
2	Handball	18.66	21.86	9.11	204.62	9.04	1.16	14.2
3	Soccer	17.00	20.80	9.38	204.39	9.29	1.17	13.66

Graph Showing Difference in Mean Value of different Subjects in AAPHER Youth Fitness Test



#### Discussion on findings :

The finding of this study shows that there is almost less significant difference among the three groups viz. basketball, Handball and soccer players.

The findings show significant difference in pull-ups test of respective three groups. The basketball and handball has more arm strength than soccer players ,basketball players shown highest among the three groups due to nature of activity ,as shown in table

The findings revealed that there is no significant difference in sit-ups test among the three groups as it obtained 'F' value is less than required 'F' at 0.05 level of confidence 3.23 as shown in table II.

There is no significant difference shown in three groups in shuttle run as the obtained ' F' value is less than required 'F' at 0.05 level of confidence of 3.23 as shown in table III.

The findings also revealed that there is no significant difference in broad jump test among the three groups as it obtained 'F' value is less than required 'F' at 0.05 level of confidence 3.23 as shown in table IV.

The findings also revealed that there is no significant difference in 50 yard dash run and 600 yard run/ walk among three groups as it obtained 'F' value is less than required 'F' at 0.05 level of confidence 3.23 as shown in table V and VI.

There is no significant difference shown in three groups in hemoglobin as the obtained 'F' value is less than required 'F' at 0.05 level of confidence of 3.23 as shown in table VII.

#### Testing Hypothesis :

In the present study it was hypothesized that there would be significant difference in hemoglobin percentage and physical fitness among basketball handball and soccer players. In overall comparison there was no significant difference found in hemoglobin percentage and the hypothesis was rejected but in physical fitness one item was found significant i.e. pull-ups test so that the hypothesis was not fully accepted.

**Conclusion :**

On the base of findings and with in the limitations of present study following conclusion were drawn :

1. It was seen in table I that there was significant difference in arm strength (pull-ups test) among the three groups. As 'F' value to be significant at 0.05 level with 2 and 43 degree of freedom was 3.23 where as tabulated 'F' was found to be 5.11. Analysis show that basketball players have more shoulder strength than soccer players were as there is no significant difference between basketball players and handball players, may be it is due to nature of activity.
2. It is also seen that table II there is no significant difference in sit-ups test because as tabulated 'F' calculation 0.97 is less than required value at 0.05 level i.e. 3.23.it may be all three games needs abdominal strength for better performance.
3. Table III show that there is insignificant difference in shuttle run test, as tabulated 'F' calculation 0.49 is less than required value at 0.05 level i.e. 3.23. it may be all three games need agility for better performance.
4. It also revealed by the table III that there is no significant difference in standing broad Jump test as tabulated 'F' calculation 2.43 is less than required value at 0.05 levels i.e. 3.23. It is because all three respective games need explosive leg power for better performance.
5. It is also revealed by table V and VI that there is insignificant difference in 50 yard dash run and 600 yard run / walk, as tabulated 'F' calculation 0.42 and 1.44 is less than required value at 0.05 level i.e. 3.23. It may be because all three games need speed and endurances for better performance.
6. Table VI and VII shows that there is no significant difference found in hemoglobin percentage in respective three games players, as tabulated 'F' calculation 0.92 is less than required value at 0.05 level, i.e. 3.23.

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