



“COMPARISON OF SOMATOTYPES VARIABLES OF FOOTBALL AND HANDBALL UNIVERSITY PLAYERS”

MukeshRani* **Dr.Usha Rani****

**Ph.D Scholar, Department of Physical Education, Kurukshetra University, Kurukshetra.*

***Prof.Of Physical Education, Department of Physical Education, Kurukshetra University, Kurukshetra .*

Abstract

The purpose of this study was to compare the somatotype variables between football and handball players of K.U.K. University. The subject was selected 75 from each level i.e., state, inter college, national and inter-university level. The selected subjects were tested ectomorph, endomorph, and mesomorph. By taking measurement of height, weight, subcutaneous fat (triceps, sub scapula, super spinal, medial calf skinfold), bone diameter (humeruscondylar, femur bicondylar), muscle girth (bicepsgirth, calf girth). The collected measurement uses the equation to come out somatotype component. The collected data are analyzed used the "t" test to find out no significant difference in the ectomorphy and endomorphy component of handball and football players however the mesomorphy component has a significant difference in handball and football players. The ectomorph of handball players means higher than football players. But the "t"testp-value is lower than the required tabulated value. That it is clear there is no significant difference. The endomorphy component of football players means higher than handball players. But the "t"test-value is lower than the required tabulated value. It is clear there is no significant difference. The mesomorphy have significantly different. The handball player higher significant than football players.

Introduction

“Sports by their very nature are enjoyable, challenging, all absorbing and require a certain amount of skill and physical conditions by (Englewood Cliffs, N.J:1956)”. In the order of human values conquest in the field of sports holds a unique place. It is success, victory, triumph, and domination of some over others teammates and friends because the sport is comradeship and friendship. The sublimity of competition lies in the loser's acclaim for the winner, which along with the friendly handshake acknowledges both defeat and triumph by(German Rieckehoff, August 1977).

Football and handball have become a very popular game in the world. Almost all the nations play these games both for enjoyment and competition. Modern football and handball are very fast by its nature, and it demands a high level of special fitness. The spectators and the players enjoy the game of football and handball with a great amount of merriment. It is a game of constant action and requires continuous adaptation to the changing situations by the team as well as by the individual players. (Although it is a team game, there is a simple room for players to display their brilliance through individual performance with the ball. As well as through team play involving technical and tactical knowledge). It is a game that sends people from all over the world to makes friends. Creates national and international heroes too, as like Pele the great of Brazil, Diego Mara Dona of Argentina,Zico of Brazil, Platina of France and the like.

Somatotypes are the name given to the system of classifying physique introduced by William Sheldon and his associates and described in a book published in 1940 and an atlas of men's physique published in 1954. various modifications of the system have been proposed. The somatotype classifications consider shape and size.

Somatotypes are body types or physical classifications of the human body. The term somatotype has been used to describe the type of physique. The endomorph,mesomorph, and ectomorph are used to describe the type of body of a somatotype. The endomorphy of the somatotype is based upon three skinfolds (triceps, sub scapula, and suprailiac); the second component of mesomorphy is estimated from the calf girth, bicep girth, humerus width, femur width, and height; the third component of ectomorphy is determined by $Ht/3/ w\%$. Physical educators manifest an interest in " somatotyping" as means to relating body types to success in various sports.



The somatotype of men and women athletes are gauged and related to the various sports in which they excel (Mathews and Fox, 1956). The method commonly used for somatotyping is the Sheldon technique (1954). A more objective assessment of body build has been developed by Heath and Carter (1976), using height, weight and various skinfold and girth measurements to determine somatotypes for the three components mesomorphic, endomorphic and ectomorphic.

Tanner (1964) derives the names of the three components from the three original embryonic layers of a human cell. A brief description of the three components follows: As the most manifest external characteristic of an endomorph is the layer of fat, which indicates a predominance of the absorptive functions, it is named after the endoderm. Similarly, the dominant characteristic of the mesomorph is the presence of massive muscles and large bones, their structures being derived from the mesoderm. A relationship between the large surface area and sensory organs of the ectomorphs and the ectoderm layer is also indicated.

S .P. Singh, L .S. Sandhu, P. Malhotra and Abha Qhariwal (1987) stated that knowledge of somatotypes is valuable to quantify the overall morphological confirmation of the human body, where several characteristics can be summarized in the form of the rating of fitness, muscularity, and linearity. Its application has found its due place in the study of sport. This is evident from some recent studies (Singh,1973; Singh and Sidhu, 1975; Sodhi, 1976; Sodhi, 1980;Singh and Sidhu, 1982; Verma, et al., 1982; Sodhi and Sidhu, The essential events which differentiate between infancy, childhood, and adulthood are the processes of growth and development, which are the manifestations of life. Their rate and quality indirectly reflect the general health of an individual. The health of an individual is gauged through a study of somatotype variables and body components. Many hereditary and environmental factors are also responsible for influencing the health of an individual. The socio-economic status of an individual also contributes to a great extent to his growth and development (Tanner, 1967; Lall, 1972;Kaul, 1975; Kaur, 1985).

Role of Physique in Sports Studies on the physique of athletes have gained greater importance since the publication of the "The Physique of the Olympic Athletes" by J.M. Tanner (1964), a work based on the athletes at the Rome Olympics. Some aspects of the Physique of athletes have also been reported from time to time.

Methodology

(1) Sample: The investigator took 300 female football and handball players of intercollege, state level, interuniversity and national level. For the subject of the study. All the subjects belonged to Kurukshetra University and had played football and handball in intercollege and state championship as residents. They belonged to K.U.K. and their affiliated colleges and has also taken handball and football players who played in the open championship of district and state and inter college and inter-university. The research scholar collected the list of players from the university sports directorate (who conducted intercollege competitions) and principals of colleges and team coaches of football and handball players.

Total Student-300			
Football Players		Handball Players	
150		150	
Inter College/State Level	Inter-University/National Level	Inter College/State Level	Inter-University/National Level
75	75	75	75



Selection of variables

The following variables were selected:

2.1- Somatotype:-

1. Endomorphy
2. Mesomorphy
3. Ectomorphy
4. The following anthropometric measurements were taken to identify these somatotype varieties:
5. Height
6. Weight
7. Subcutaneous fat
8. Triceps
9. Subscapular
10. Supraspinal
11. Medial calf skinfold
12. Bone diameters
13. Humerusbicondylar
14. Femur bicondylar
15. Muscle girths
16. Biceps (arm girth)
17. Calf girth

Tools used: The selection of tools was governed by a consideration of their availability, suitability to the sample, reliability, and validity. Keeping in view these considerations, the following tests were used for data

Collection:The Heath-Carter Anthropometric Somatotype Method (Mathews, 1990) was used to measure somatotype. After the collection of data for study following technic wereused to find out somatotype to applied Heath and carter (1990) method to determine the somatotype of subjects.

Endomorphy = $- 0.7182 + 0.1451 (X) - 0.00068 (X^2) + 0.0000014 (X^3)$

Where X = (sum of triceps, subscapular and supraspinal skinfolds) multiplied by (170.18/height in cm). This is called height-corrected endomorphy and is the preferred method for calculating endomorphy.

Mesomorphy: $-0.858 \times \text{humerus breadth} + 0.601 \times \text{femur breadth} + 0.188 \times \text{corrected arm girth} + 0.161 \times \text{corrected calf girth} - \text{height} \times 0.131 + 4.5$.

Ectomorphy: -Three different equations are used to calculate ectomorphy according to the height-weight ratio: If HWR is greater than or equal to 40.75 then $\text{ectomorphy} = 0.732 \text{ HWR} - 28.58$

If HWR is less than 40.75 but greater than 38.25 then $\text{ectomorphy} = 0.463 \text{ HWR} - 17.63$

If HWR is equal to or less than 38.25 then $\text{ectomorphy} = 0.15$

Statistical Techniques Used: The data so collected was given statistical treatment according to the needs of the investigation for a discussion and to elicit results. The data were analyzed first to determine the nature of the distribution of scores for Football and Handball Player and for the total sample in terms used descriptive statistics, such as, mean, and standard deviation and the "t" test was used mainly for testing the hypotheses. Significant differences on all somatotype

Results and discussions

The purpose of this study was to find out the significant difference between football and handball players on selected criterion variables such as somatotype components. The collected data on selected criterion variables were statistically analyzed by using the 't' ratio to find out the significant difference between football players



and handball players. In all the cases, the 0.05 level of confidence was fixed to test the significance, which was considered as appropriate.

Table-1: Represented "T"-Test For Somatotype Variables
Table For "T" Test of Actomorphy

Ectomorphy	Handball	Football
Mean	3.345	3.333
Standard Deviation	1.139	1.828
t-Test	0.94	

Significant at 0.05 tabulated value 1.97

The above table depicted that there was no significant difference between the football and handball players for ectomorphy. From this table, it was clear that the t-test p-value 0.94 is lower than the required tabulated value i.e. 1.97 at 0.05 level. From this table it also clear that f-ratio is lower than significant value i.e. 1.97 which means it rejects the null hypothesis.

Figure-1

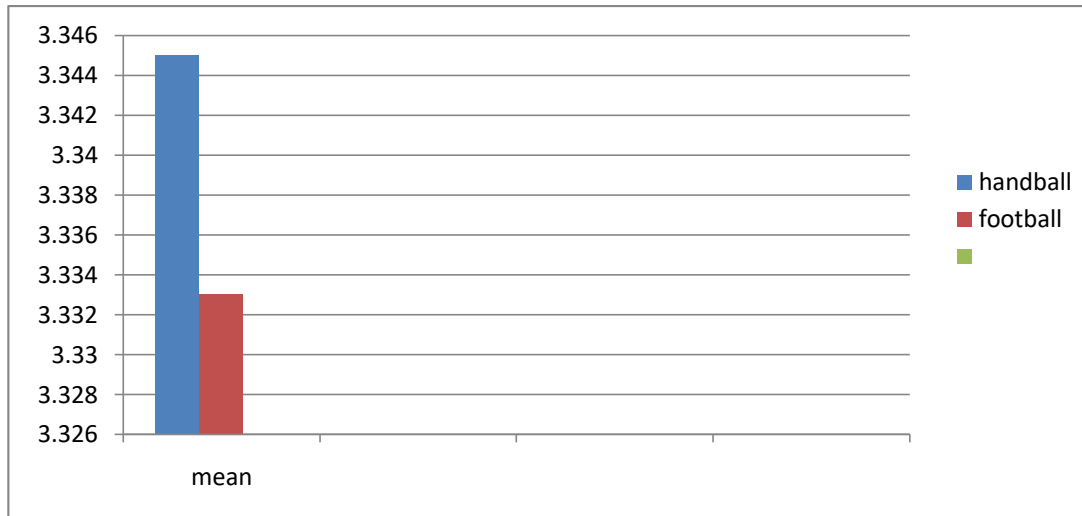


Figure-1. mean of Ectomorphy in the Somatotype of Handball and Football Players.

Table-2: Represented "T"-Test For Somatotype Variables
Table For "T" Test of Endomorphy

Endomorphy	Handball	Football
Mean	2.805	2.994
Standard Deviation	0.9486	0.8803
t-Test	0.075	

Significant at 0.05 tabulated value 1.97

The above table depicted that there was no significant difference between the football and handball players of endomorphy. From this table, it was clear that the t-test p-value 0.075 is lower than the required tabulated value i.e. 1.97 at 0.05 level. From this table it also clear that p-value is lower than significant value i.e. 1.97 which means it rejects the null hypothesis.



Figure-.2

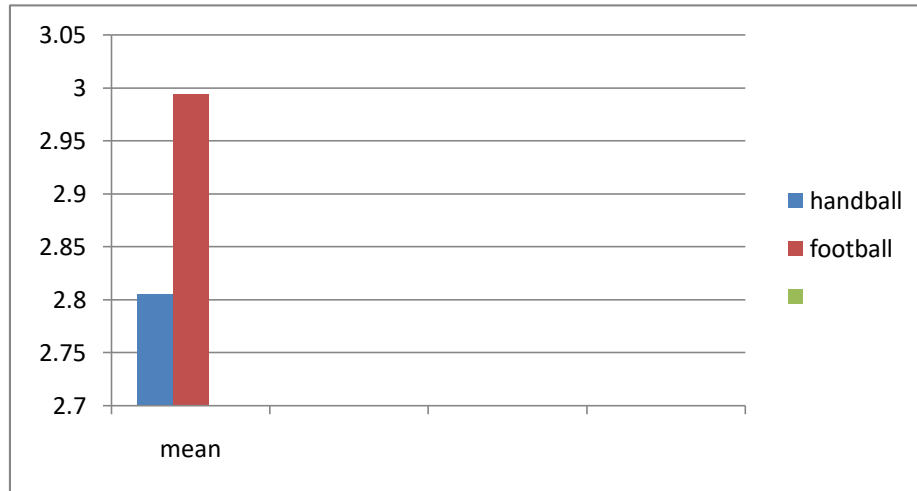


Figure-.2mean of Endomorphy in the Somatotype of Handball and Football Players.

Table-3: Represented"-Test for Somatotype Variables
Table for "T" Test of Mesomorphy

Mesomorphy	Handball	Football
Mean	2.467	1.665
Standard Deviation	1.237	1.395
t-Test	2.77	

Significant at 0.05 tabulated value 1.97

The above table depicted that there was a significant difference between football and handball players of mesomorphy. From this table, it was clear that the t-test value 2.77 is higher than the required tabulated value i.e. 1.97 at 0.05 level. From this table it also clear that t-test is higher than significant value i.e. 0.05 which means it accept the null hypothesis. It's also implied that the alternative hypothesis is correct and data is significant.

Figure-.3

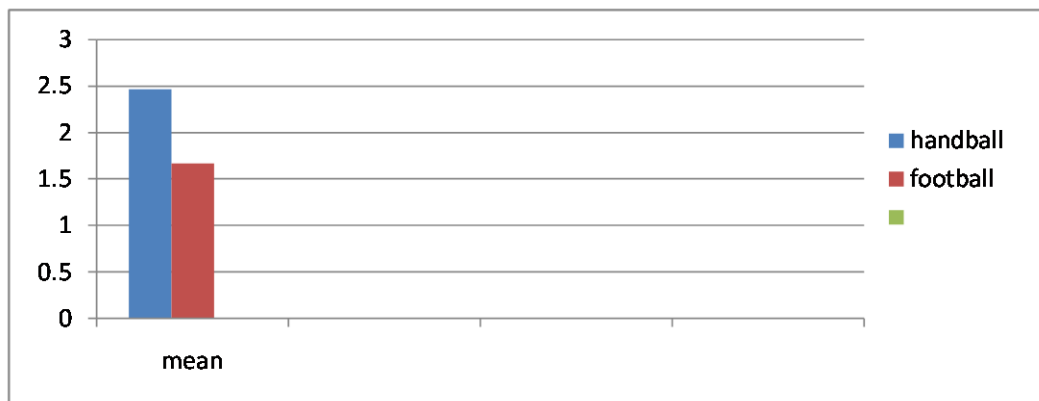


Figure-3mean of Mesomorphy In the Somatotype of Handball and Football Players.



Conclusion

After analysis of data and results obtained it is concluded that there is no significant difference in the ectomorphy and endomorphy of football and handball players. But mesomorphy has a significant difference in between football and Handball players and it shows that handball players are taller and lean than football players. Football players have more fat than handball players. And the handball player is muscular than a football player.

References

1. Norton K, Olds T (2001) Morphological evolution of athletes over the 20th Century. Sports Medicine.
2. Guild RE, Mascagni L (2001) Somatotype, role and performance in elite Volleyball players. J Sports Med Phys Fitness.
3. Rienzi E, Drust B, Reilly T, Carter JE, Martin A (2000) Investigation of Anthropometric and work rate profile of elite South American international Soccer players. J Sports Med Phy Fit.
4. Carter JEL (1984) Somatotype of Olympic athletes.
5. Bell W, Rhodes G (1975) The Morphological characteristics of the association Football player. Brit. J Sports Med.
6. Kansal DK, Gupta N, Gupta AK (1986) A study of in-transport differences in The physique of Indian University football players...
7. Durnin JVJA, Womerseley J (1974) the body fat assessed from total body Density, estimation from skinfold thickness measurements on 481 men and Women age from 16-72 years. Brit J Nutr.