

Review of Research

International Online Multidisciplinary Journal

ISSN 2249-894X

Impact Factor : 3.1402 (UIF)

Volume - 5 | Issue -5 | Feb - 2016

Ror



COMPARISON OF SOMATOTYPE AMONG DIFFERENT SPORTS GROUP



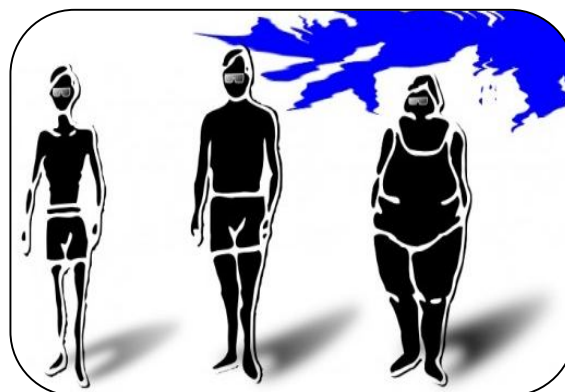
Dr. Pankaj Singh Chandel

Associate Professor ,

V.S.S.D Collage, Department of Physical Education, Nawabganj,
Kanpur, U.P.

ABSTRACT

The purpose of this investigation was to compare the somatotype characteristic of different sports group of male students of Kanpur district. The study was delimited to the assessment of somatotype component by Heath Carter Anthropometric Somatotype Method. The Anthropometric variable used were Height, Weight, Skinfold measurement at triceps, sub-scapular, supraliac and calf regions or biepicondylar diameter of Humerus, Femur and girth of Biceps and Calf. The instrument which were used in the study are like wall scale, weighing machine, skinfold caliper, modified sliding caliper, steel tape etc. and one-way analysis of variance (ANOVA) was used at 0.05 level of significance for comparison of somatotype among selected sports groups. According to the findings of the study different sports group of Kanpur district were found more dominating in Endomorphy component than mesomorphy and ectomorphy component.



KEYWORDS : Somatotype, Endomorphy, Mesomorphy, Ectomorphy.

INTRODUCTION

In order to attain a high standard of proficiency and success in sports, the sportsmen is influenced by one important factor which determines his performance. It is physical characteristics. These characteristics of athletes/sportsmen can be studied by taking the body measurements of different parts. This measurement is called as erphometric measurement. It is on the basis of this measurement somatotype classification is made. A somatotype is a description of present morphological conformation. It is expressed in a rating, consisting of three sequential numbers, always recorded in the same order. Each number represents evaluation of one of the three primary components of physique which describe individual variations in human morphology and composition. Endomorphy or the first component refers to relative fatness and leanness of the physique, mesomorphy or the second component refers to musculo-skeletal development relative to height and ectomorphy or the third component refers to the relative linearity of the physique. There has been much interest in noting the personality associated with certain type of body. A perusal of the literature would seem to indicate that somatotype on one hand, and health and fitness on the

other are inter related and interact to serve as important factors in determining the health and fitness needs as well as the interests and abilities of individuals and may be of use for classification purposes.

The effectiveness of many physical performances is related to various basic traits, found in boys and girls including their maturation, body size and physique type. Many of these traits are related to heredity, such as body weight was hereditary implications but may also be effected by environmental influences the nature and amount of exercise, nutritional aspects and health aspects. (Clarke 1967)

The purpose of the study was to assess the comparison of somatotype among selected sports group. The study was delimited to to 50 students of different games i.e. Basketball, Football, Cricket, Volleyball and Track & Field player of Kanpur district with age ranged from 17-21 years and further delimited to the assessment of somatotype components by Heath Carter Anthropometric Somatotype Method.

On the basis of literature, expert opinion and scholar’s own understanding it was hypothesized that there would be significant difference on somatotype among various sports group.

METHODOLOGY

The subjects for the study were 50 male students of Kanpur district with age ranged from 17-22 years. Keeping in mind the feasibility of time and cost, the Heath Carter method of somatotype was selected to find out physical characteristics of Kanpur district male students. The data was collected from the subjects of selected games on all the somatotype variables i.e. height, weight, muscle girth and body fat. The components for the measurement of the types of somatotype are given in table 1.

Table 1
Components for Somatotypes

Height	Wall Scale	Centimeter
Weight	Weighing Scale	Kilogram
Triceps		
Suprailiac	Skin Fold Caliper	Millimeter
Calf		
Humerus:		
	Modified Sliding Caliper	Millimeter
Femur:		
Biceps	Flexible Steel Tape	Centimeter
Calf		

The Heath Carter Anthropometric-Somatotype instruction and procedure was adopted and carefully implemented under the guidance of expert. To analyses the data for comparison of somatotype among selected sports groups one-way analysis of variance (ANOVA) was used at 0.05 level of significance.

FINDING

TABLE 2
MEAN OF SOMATOTYPE CHARACTERISTICS AMONG VARIOUS SPORTS GROUP

1	Endomorphy	3.2	3.4	4.05	2.55	3.8
2	Mesomorphy	2.9	3.35	4.1	3.3	2.8
3	Ectomorphy	3.4	3.35	2.4	3.1	3.45

It is evident from Table – 2 that Kanpur district of Track & Field dominate more in Ectomorphy (3.4) than mesomorphy (2.9) and endomorphy (3.2). The Basketball students have similar endomorphy (3.4), mesomorphy (3.35) and ectomorphy (3.35) component. In case of Volleyball and Football mesomorphy (4.1, 3.3) component is much more dominating than endomorphy (4.05, 2.55) and ectomorphy (2.4, 3.1). The Cricket students of Kanpur district dominate more in Endomorphy (3.8) component than other two.

TABLE 3
ANALYSIS OF VARIANCE OF SOMATOTYPE CHARACTERISTIC AMONG VARIOUS SPORTS GROUP

Endomorphy	Between Group	13.450	4	3.363	
	With Groups	44.550	45	0.990	3.396*
	Total	58.000	49		
Mesomorphy	Between Group	2.320	4	0.580	
	With Groups	55.525	45	1.234	0.470
	Total	57.845	49		
Ectomorphy	Between Group	7.570	4	1.893	
	With Groups	97.950	45	2.177	0.869
	Total	105.520	49		

*Significant at 0.05 level

It is evident from Table – 3 that F- value for Endomorphy component is 3.396 which is significant at 0.05 level with df (4,45). This indicates that mean scores of endomorphy component differs significantly among various sports group i.e. Track & Field, Basketball, Volleyball, Football and Cricket. Thus the hypothesis that there is significant difference in relation to Somatotype (Endomorphy) among various sports group is accepted. It may, therefore, be concluded that mean scores of Endomorphy component of Volleyball and Cricket are higher than other game students and volleyball students have greater endomorphy component. Hence, the LSD post Hoc comparison of Endomorphy component among various sports group is presented in Table – 4. It is also evident from the above Table -3 that F-value which is 0.47 and 0.869 for mesomorphy and Ectomorphy component respectively is not significant at 0.05 level with df = (4,45). It shows that the mean scores of mesomorphy and ectomorphy characteristic do not differ significantly. Hence, the hypothesis stated earlier that there is significant difference in relation to somatotype (mesomorphy and ectomorphy) is rejected. Hence, it may be concluded that the various sports group Kanpur district have more or less similar mesomorphy and Ectomorphy characteristics.

TABLE 4
LSD POST-HOC TEST COMPARISON OF MEANS AMONG VARIOUS SPORTS

1	4.05	3.80				0.35	0.741
2	4.05		3.20			0.95*	
3	4.05			3.40		0.55	
4	4.05				2.55	1.5*	
		3.80	3.20			0.6	
		3.80		3.40		0.4	
		3.80			2.55	1.25*	
			3.20	3.40		-0.2	
			3.20		2.55	0.55	
				3.40	2.55	0.95*	

* Significant $CD_{0.5} = 0.741$

From Table – 4 it is evident that there was mean difference in Volleyball, Track & Field, Volleyball-Football, Cricket-Football and Basketball-Football. To be significant at 0.5 level that value required is 2.58 or more whereas the calculated value are – 0.95, 1.5, 1.25 and 0.95. Hence, the calculated value F is greater than tabulated value F. So, it was evident that Endomorphy component is higher than mesomorphy and ectomorphy component.

CONCLUSION

Based on the statistical analysis of the data it is clearly revealed that F-value 3.396 for Endomorphy component is significant at 0.05 level with $df = (4,45)$. This statistical significance in relation to endomorphy may be attributed to the fact that the Volleyball and Cricket players nature of activity and task requirement are totally different from other games and that is why they pose higher Endomorphy characteristics. However, F-value for Mesomorphy and Ectomorphy are not significant at 0.05 level with $df = (4,45)$. This may be attributed to the fact that all subjects were player of Kanpur district and are undergoing same course content as fast as their physical activity is concern. Apart from one hour match practice they are involved in multifarious games and sports. Since they are not engaged in much of advanced level training and coaching of specialized Physical Education and Sports Activity their somatotype characteristic of various sports group have partial significance. Based on the statistical finding it may be said that the hypothesis stated earlier that there was significant relation among various sports group in relation to somatotype. Based on statistical finding it was observed that this is partially accepted in case of Endomorphy component and rejected in case of Mesomorphy & Ectomorphy component.

BIBLIOGRAPHY

- Barbara H.Heath and J.E. Lindsay Carter “A modified Somatotype Method”, American Journal of Physical Anthropology 27(1968) by Karpovich and Sining, Physiology of Muscular Activity
- Bell W., “Distribution of Skinfold and difference in body proportion of young adult rugby players” Sports Medicine and Physical Fitness, 13:2 (June 1965).
- Bevens Marilyn T, “A comparison of somatotype in female gymnasts and distance runners” Completed Research in Health, Physical Education and Recreation Vol 19 (1978).
- H.Harrison Clarke, Application of Measurement to Health and Physical Education (Englewood Cliffs: N.J.Prentice Hall, 1967)
- Health and Carter, American Journal of Physical Anthropology cited by Donald K, Mathews, Measurement in Physical Education 5th ed, (Philadelphia: W.B. Saunders Company, 1978)
- Heath and Carter, American Journal of Physical Anthropology
- Lindsay E.Carter, Somatotype of Montreal Olympic Athletes Physical Structure of Plympic Athletes, Part 1

W.H.Sheldon, S.S.Stevens and W.B.Tuckes, The varieties of Human Physique (New York: Harper and Brothers, 1940) cited by Karpovich and Sining, Physiology of Muscular Activity