

**Impact  
Factor  
4.574**

**ISSN 2349-638x**

**Refereed And Indexed Journal**

**AAYUSHI  
INTERNATIONAL  
INTERDISCIPLINARY  
RESEARCH JOURNAL  
(AIIRJ)**

**Monthly Journal**

**VOL-V**

**ISSUE-VI**

**June**

**2018**

**Address**

• Vikram Nagar, Boudhi Chouk, Latur.  
• Tq. Latur, Dis. Latur 413512 (MS.)  
• (+91) 9922455749, (+91) 8999250451

**Email**

• aiirjpramod@gmail.com  
• aayushijournal@gmail.com

**Website**

• www.aiirjournal.com

**CHIEF EDITOR – PRAMOD PRAKASHRAO TANDALE**

## **A Comparative Study of Somatotypes of University Level Basketball, Volleyball and Handball Players**

**Dr. Vijay B. Datarkar**

Jyotiba College of Physical Education,  
Hingna Road, Nagpur

### **1.0 Introduction**

Being involved in sports activities benefits a person in many ways, however, today, achieving only physical fitness is not the ultimate goal. Rather, sportspersons are focusing on their performance in their respective sporting field. Sports performance can be referred to as carrying out of specific physical routines or procedures by one who is trained or skilled in physical activity. Often, performance is influenced by a combination of physiological, psychological, and socio-cultural factors.

The importance of sports and games is being increasingly recognized in India, from both the educational and social points of view. More and more funds are being allocated for encouraging sports in schools, colleges and universities; in fact, sports have become an essential part of the curricula. Previously, only a few students, who were interested in games like hockey, football, cricket or tennis, were allowed special facilities. But now regular programmes are drawn up in all schools and colleges to convince as many students as possible, regardless of special aptitudes, to participate in games, and not merely watch matches occasionally to cheer up their favourite teams or attend the prize distribution functions at the end of a sports season.

Success as a sports person many a times comes from a combination of their ability and body build. The three components of body build are type, size and composition. A system, developed by W.H. Sheldon (1940), uses the terms ectomorph, endomorph, or mesomorph to describe the body build of an individual. Beashel and Taylor (1997) identify three extremes of body types, which are a) ectomorph (A predominantly ectomorphic individual is long, slender and thin, and therefore power and strength sports are perhaps not suitable as their slight build leaves them susceptible to injuries), b) endomorph (An endomorphic individual typically has short arms and legs and a large amount of mass on their frame. Their mass hampers their ability to compete in sports requiring high levels of agility or speed and perform sustained weight bearing aerobic activities such as running) and c) mesomorph (A mesomorphic individual excels in strength, agility, and speed. Their medium structure and height, along with their tendency to gain muscle and strength easily makes them a strong candidate for a top athlete in any sport).

The body structure of a sportsperson plays a very big role in the development and performance of the sportsperson and it is necessary to assess its role in the overall performance of the players (in this study focusing on the Basketball, Volleyball and Handball players). Hence, in view of the above, this study was carried out to examine the body structures of basketball, volleyball and handball players.

### **2.0 Methodology**

#### **2.1 Selection of Subject**

The subjects were selected from Nagpur and Wardha Districts. A total of 300 (100 each players of basketball, Volleyball and handball games) players were selected for data collection. The age of players varied between 18 and 25 years.

**2.2 Research Design**

The three group design was adopted for comparative assessment of the body structure of basketball, volleyball and handball players

**2.3 Collection of Data**

The data were collected for each variable. The tests used were explained to the subjects prior to their administration. A reliable and valid method as described by Sheldon was used to assess the body structure of the basketball, volleyball and handball players.

**2.4 Determination of Somatotypes of Basketball, Volleyball and Handball Players**

The somatotype characteristics were measured with the help of Heath Carter Somatotype Rating Form. In accordance with internationally accepted standards following ten body measurements were taken (Martin and Saller, 1957; Tanner et al., 1969; Heath and Carter, 1967). Anthropometric Somatotyping was done incorporating the above ten anthropometric measurements using Heath and Carter’s method (Carter, 1980; Heath and Carter, 1967). A somatotype was expressed in a three digit sequential numerals, representing endomorphy, mesomorphy and ectomorphy respectively. In order to obtain three somatotype components, the following measurements were recorded, which are Height, Weight, Skinfolds (Triceps, Sub scapular, Surprailiac and Calf), Bone Width (Humerus and Femur), Girths (Upper Arm and Calf). All the procedures were followed as per standard instructions.

**2.5 Statistical Analysis of Data and Significance Level**

Analysis of data was done with the help of suitable statistical tests. The descriptive statistics, such as median, mode, frequency, percentage, etc. were determined from the collected data. The comparative assessment was done using Chi-Square test. The significance level was chosen to be 0.05 (or equivalently, 5%). The statistical analysis of data was carried out using SPSS 18.0 software.

**3.0 Somatotyping of the University Level Players**

**3.1 Somatotyping of the University Level Basketball Players**

**Table 1: Comparative Assessment of Somatotypes of the University level Basketball Players**

Somatotype	Median Score	No. of players	Percentage
Ectomorphs	634	22	22
Mesomorphs	261	66	66
Endomorphs	357	12	12
Total		<b>100</b>	<b>100</b>

Above Table 1 presents results regarding the assessment of somatotype of the University level basketball players. The results indicated that ectomorph of the basketball players is 22%, while mesomorph is 66%. However, the endomorph of the basketball players is 2.7%.

**3.2 Somatotyping of the University Level Volleyball Players**

**Table 2: Comparative Assessment of Somatotypes of the University level Volleyball Players**

Somatotype	Median Score	No. of players	Percentage
Ectomorphs	643	59	59
Mesomorphs	362	32	32
Endomorphs	347	9	9
Total		<b>100</b>	<b>100</b>

Above Table 2 presents results regarding the assessment of somatotype of the University level volleyball players. The results indicated that ectomorph of the volleyball players is 59%, while mesomorph is 32%. However, the endomorph of the volleyball players is 9%.

### 3.3 Somatotyping of the University Level Handball Players

**Table 3: Comparative Assessment of Somatotypes of the University level Handball Players**

Somatotype	Median Score	No. of players	Percentage
<b>Ectomorphs</b>	532	36	36
<b>Mesomorphs</b>	353	54	54
<b>Endomorphs</b>	327	10	10
Total		<b>100</b>	<b>100</b>

Above Table 3 presents results regarding the assessment of somatotype of the University level handball players. The results indicated that ectomorph of the handball players is 36%, while mesomorph is 54%. However, the endomorph of the handball players is 10%.

### 4.0 Conclusions (Somatotyping of the Basketball, Volleyball and Handball Players)

- **Basketball Players:** The comparative assessment of the somatotypes of the basketball, players showed that mesomorph of the basketball players appeared to have better than other somatotypes.
- **Volleyball Players:** The comparative assessment of the somatotypes of the volleyball, players showed that ectomorph of the volleyball players appeared to have better than other somatotypes.
- **Handball Players:** The comparative assessment of the somatotypes of the handball, players showed that mesomorph of the handball players appeared to have better than other somatotypes.

### 5.0 Bibliography

1. Ajeesh, P. T & Pradeep, C.S.(2013). Personality Characteristics Of Men And Women Volleyball Players, *International Journal Of Social Science & Interdisciplinary Research*, IJSSIR, 2(5), pp. 79-85.
2. Bayiosm I. A., Bergeles, N. K., Apostolidis, N.G., Noutsos, K.S and Koskolou, M.D. (2006). Anthropometric, body composition and somatotype differences of Greek elite female basketball, volleyball and handball players, *J Sports Med Phys Fitness*, 46 (2), pp. 271-80.
3. Beashel, P. and Taylor, J. (1997). Fitness for Health and performance. In: Beashel, P and Taylor, J, *The World of Sport Examined*. Croatia: Thomas Nelson and Sons, p. 59.
4. Carter, J.E., Ackland, T. R., Kerr, D.A and Stapff, A. B.(2005). Somatotype and size of elite female basketball players, *J Sports Sci*, 23 (10), pp. 1057-63.
5. Duncan, M.J., Woodfield, L and al-Nakeeb, Y.(2006). Anthropometric and physiological characteristics of junior elite volleyball players, *British Journal of Sports Medicine*, 40(7).
6. Gaurav, V., Sandeep., Kumar, R., Singh, M and Bhanot, P.(2015). Anthropometric Measurements of Volleyball Players at Different Level of Competition, *International Journal of Multidisciplinary and Current Research*, 3, pp. 999-1002.
7. Koley, S and Singh, J.(2010). Anthropometric and Physiological Characteristics on Indian Inter-University Basketball Players, *Journal of Physical Education & Sport / Citius Altius Fortius*, 28(3), pp. 70-76.
8. Koley, S., Singh, J and Kaur, S. (2011). A Study of Arm Anthropometric Profile In Indian Inter-University Basketball Players, *Serbian Journal of Sports Sciences*, 5(1), pp. 35-40.

9. Lora, M.D., Corrales, B.S and Páez, L.C.(2008). Assessment of somatotype in young volleyball players: Validity as criteria to select young sports talents, 10(3), <http://dx.doi.org/10.5007/1980-0037.2008v10n3p255>.
10. Muratovic, A., Vujovic, D and Hadzic, R.(2014). Comparative Study of Anthropometric Measurement and Body Composition between Elite Handball and Basketball Players, *Monten. J. Sports Sci. Med.*, 3(2), pp.19–22.
11. Raschka, C. , Wolthausen, C., Anzeiger, A.(2007). Comparison of somatotype differences of soccer and handball players based on the methods of German and Anglo-American schools of constitutional biology, 65(3), pp. 303-316.
12. Sheldon, W.H. and Stevens, S.S. and Tucker, W.B. (c.1940) *The varieties of human physique*. Oxford, England: Harper
13. Zapolska, J., Witczak, K., Mańczuk, A and Ostrowska, L. (2014). Assessment of Nutrition, Supplementation And Body Composition Parameters on The Example of Professional Volleyball Players, *Rocz Panstw Zakl Hig*, 65(3), pp. 235-242 .

