



SOMATOTYPE CHARACTERISTICS OF COLLEGIATE SPORTS HOSTEL BALL GAME PLAYERS IN KERALA

Dr. Shafeeq V A

Assistant Professor, Department of Physical Education, K.K.T.M Government College, Pullut, Calicut University, Kerala

Abstract:

Objective: *The present study was carried out for evaluating the somatotype characteristics of collegiate sports hostel ball game players in Kerala. Methods:* Total of 76 ball game players (16 volleyball, 23 basketball, 19 football and 18 handball players) were chosen for the study. Anthropometric measurements included subscapular, suprailiac, abdomen and calf skinfolds, biceps and calf circumferences and humerus and femur breadths. Health and Carter method was followed for the calculation of the somatotype of the subjects. **Results:** *The volleyball players were the tallest (185.4cm) and heaviest (72.7) among all. The somatotype of volleyball players was balanced ectomorphs (2.9-3.4-4.5), basketball players' mesomorph ectomorphs (3.2-4.1-4.2), football players balanced mesomorphs (2.9-4.5-2.9) and handball players mesomorph endomorphs (3.5-3.9-2.8).*

Key words: Somatotype

INTRODUCTION:

Specific physique or morphological features play a major role, arguably critical role in competition success. The size, shape and proportions of athletes are important considerations in player performance and better the performance more critical the relationship (Torola et al., 1987). Proper evaluation of these parameters reflects the quantification of the body's major structural components, which are required in different proportions for various games to achieve excellence (Amit Bandyopadhyay, 2007).

Somatotype is a convenient shorthand descriptor of overall physique in terms of body shape and composition independent of body size. It combines an appraisal of the three components - endomorphy or relative adiposity, mesomorphy or relative musculo-skeletal robustness and ectomorphy or relative linearity-into three number rating. Because of its uniqueness, somatotyping has been used to study many aspects of exercise, sports sciences and human biology, which may be important in identifying talented young athletes for particular sports (Carter & Heath 1984).

Studies on somatotype of athletes, elite athletes and Olympic athletes have generally shown that strength dependent athletes tended to be basically mesomorphic while distance dependant athletes were found to be more ectomorphic with limited amount of mesomorphic muscularity.

Various studies on high level national and international competitions supported and amplified the fact that most successful athletes have physical structures best suited to those particular sports. Carter hypothesized that somatotype is an important selective factor for success in sports and that there are clear somatotypic differences between some sports and similarities between others (Carter J.E.L. 1984). The information about the anthropometric profiles of the athletes may contribute to understanding the suitability of players for that particular sport. Therefore, the present study was an attempt to analyse somatotype characteristics of collegiate sports hostel male ball game players in Kerala state.

Methods:

For the purpose of the study 16 volleyball, 23 basketball, 19 football and 18 male handball players were randomly selected from various sports hostels in Kerala. The subjects have been practicing regularly and have participated in either district, state or national championships. Slim guide caliper was used to collect skinfold. The skinfold value was taken as the average of 3 skinfold measurements separated by at least 1 minute to avoid tissue compression. (Norton K et al., 2000). Skinfold thickness was measured at five anatomical sites – chest, sub-scapular, supra-iliac, abdomen and calf. Bi-condilar widths of femur and humerus and circumferences of biceps and calf were also measured. The method of Heath and Carter, which is based on the Sheldon's somatotype classification, was applied to determine the somatotype characteristics of the subjects (Heath B and Carter J, 1967).

Statistical Analysis:

Basic statistical descriptive parameters such as mean and standard deviation was calculated for the analysis of the data.

Results:

Table 1: Various physical parameters and anthropometric characteristics of the subjects.

	Volleyball	Basketball	Handball	Football
Age (yrs)	19.0	20.3	18.5	18.8
Height (cm)	185.4	181.2	168.6	172.2
Weight (kg)	72.7	70.3	69.4	62.6
Biceps Girth (cm)	30.3	30.7	29.3	28.2
Calf Girth (cm)	35.3	36.2	34.0	34.0
Humerus Breadth (cm)	7.09	7.05	6.62	7.74
Femur Breadth (cm)	10.2	10.0	9.63	9.59
Sub-scapular Skinfold (mm)	9.78	10.9	12.9	10.3
Supra-iliac Skinfold (mm)	9.20	10.7	12.5	9.04
Abdominal Skinfold (mm)	9.67	10.8	11.6	11.0
Calf Skinfold (mm)	7.50	8.79	7.19	8.10

Table 1 represents various physical parameters of the subjects. It can be observed that volleyball players are tallest and heaviest among all categories while handball players are the shortest. Basketball players are having highest values of biceps and calf circumference.

Table 2: Somatotype values of the subjects.

	Volleyball	Basketball	Handball	Football
Endomorphy	2.95	3.2	3.5	2.9
Mesomorphy	3.4	4.1	3.9	4.5
Ectomorphy	4.5	4.2	2.8	2.9

Somatotype values of the subjects was presented in table 2. It reveals that the volleyball players fall into the somatotype category of balanced ectomorphs with a score of 2.9-3.4-4.5 where as basketball players are mesomorph ectomorph (3.2-4.1-4.2), handball players mesomorph endomorphs (3.5-3.9-2.8) and football players are balanced mesomorphs (2.9-4.5-2.9).

Among all groups mesomorphic component is highest among football players indicating that the predominance of strength variable in that particular game. Highest value of endomorphy is present in handball players revealing presence of fat in their body where as volleyball players are ectomorphic in nature with lean body structure.

Discussions:

The junior elite volleyball players of the UK exhibited more ectomorphic and less mesomorphic scores among setters than centers. Their mean somatotype scores for setters and centers were 2.6–1.9–5.3 and 2.2–3.9–3.6, respectively (Duncan et al. 2006). In another study Indonesian volleyball players were charted as meso-ectomorph somatotype, with a somatotype score of 2.4–3.5–3.7 (Neni et al., 2006). Raschka C, Wolthausen C(2006) found that the German and Anglo-American handball players (age: 24 +/- 4.1yrs, height: 189.1 +/- 7.9 cm,) were placed in the mesomorph ectomorph type which contradicts the present study. On the otherhand, a study conducted on football players in Bengal, India, resulted a somatotype score (3-5.9-2.9) which is almost similar to the findings of the present study (Amit Bandyopadhyay, 2007).

Conclusion:

The results of this study confirm the fact that those sportspersons involved in strength related events are highly mesomorphic in nature. In the present study except in volleyball players mesomorphic component is higher than the other two components. Also it can be noted that considering the nature of the game the higher stature among volleyball and basketball players indicates their suitability for the game.

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