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A Study Of Somatotyping Of Collegiate Level Players Of Vidarbha

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Abstract: ***It is widely reported that somatotyping is helpful in sports in which the body shape could influence the sports performance. Moreover, all types of games are very important as they keep us vigorous, healthy and fit. Though many factors affect the performance of the sportsperson, the notable amongst them are the environmental conditions, nutritional set up, body types, topography, heredity, living style, etc. in view of this it is important that the knowledge of growth and development characteristics of the college going students be understood. In view of this present investigation is carried out to determine the somatotype of college going students. The research is conducted by following standard procedures. The area of research work is Nagpur Division of Vidarbha. The samples constitutes that players participating in inter college tournaments of Volleyball, Handball, Basketball and Kabaddi games. The total sample size for this study is 600. The somatotype characteristics were measured with the help of Heath Carter Somatotype Rating Form. Based on the study results, it is concluded that there is significant (P<0.05) difference in the Somatotypes of Volleyball, Handball, Basketball and Kabaddi players of Vidarbha.***

Keywords: Somatotyping, Sports Performance, Body Types, Volleyball, Handball, Basketball and Kabaddi

I. INTRODUCTION

Every kind of sport and game is extremely vital for us as they keep us vigorous, healthy and fit. Also they present us a change from the normal daily life and are valuable form of enjoyment and physical activity. Besides, the physical activity helps the new generation in their character building, and also provides endurance and fitness. Sports and games are the usual means of mental and physical development and they train us how to handle the difficult situation, specially the complex ones. Sports make a sense of cooperation and team spirit and help the performer in developing mental and physical strength by shaping our body and making it healthy and energetic.

Playing augments inequality of mind and mental strength. Sport instructs us to handle malfunction with self-esteem, while enjoying success to the maximum. Also, it guides people to handle crisis where stress can pull them downward. All positive character for a healthy mind and a healthy body can be gained from sports. Sports guide us to be totally conscientious all the time. It also provides us the ability to make split second choice, when we are essential to do so. Playing games really improves our brain action; never letting the concentration by also making us understand things in detail. The information, thus, achieved is not restricted to the land or the court and can be used in making spilt-second decisions in hazardous situations posed by life.

A. FACTORS AFFECTING PHYSICAL FITNESS

The environmental conditions, nutritional set up, topography, heredity, living style, etc. may influence individual's physical fitness. Food habits certainly act upon individual's fitness. Moreover, the changes in body proportions will have a great influence on how skills will be performed. For example, changes in the relative size of the head in childhood affects the balance of the body during movement and the relative shortness of the legs in the very young limits running ability. They are better suited for running but the rapid growth may make them appear to be clumsy and to have difficulty in coordination.

B. STRUCTURE OF THE BODY

The alteration in size and quantity are the easily observed symbols of development. They are the consequence within the body of changes to the skeleton. The frame of a child is typically cartilage, which is softer than bone and can curve. The procedure by which cartilage becomes bone begins very untimely in life in particular growth areas in the bones. These particular growth areas are called growth plates.

C. BODY TYPES AND SOMATOTYPING

Refinement of somatotyping is attributable to Sheldon and his associates who, after extensive investigation, recognize three primary components of body build that serve as first order criteria for differentiating among individuals. The primary components recognized by Sheldon are endomorphic, reflecting a dominance of soft roundness of body with mass concentration in the center, mesomorphy, characterized by a preponderance of muscle, bone and connective tissue, giving the appearance of a rectangular and rugged body, and ectomorphy, reflecting a dominance of linearity and gragility.

D. SOMATOTYPE CATEGORIES

Somatotypes with alike associations between the components are grouped into three main categories named to replicate their relationships. These categories are:

- ✓ Endomorph: endomorphy is leading, mesomorphy and ectomorphy is further than one-half unit lower.
- ✓ Mesomorph: mesomorphy is central; endomorphy and ectomorphy are more than one-half unit lower.
- ✓ Ectomorph: Ectomorphies is leading, endomorphy and mesomorphy are more than one-half unit lower.

a. ENDOMORPH

A mainly endomorphic person typically has short arms and legs and a large quantity of mass on their outline. This hinders their capability to fight in sports needing high levels of agility or speed. Sports of pure strength, like power lifting, are ideal for an endomorph. Their size benefits sports such as rugby providing it can be moved powerfully. They frequently have great lung capability which can make them suitable to sports like rowing. Their extra weight can make it hard to perform constant weight bearing aerobic behavior such as running. They can gain weight easily and loose condition quickly if training is ceased.

b. MESOMORPH

A mainly mesomorphic person shines in strength, agility, and speed. Their average structure and height, along with their tendency to gain muscle and strength easily makes them a well-built candidate for a top athlete in any sport. They respond well to cardiovascular and resistance training due to their adaptability and responsive physiology. They can sustain low body fat levels and find it easy to loose and gain weight.

c. ECTOMORPH

A predominantly ectomorphic individual is long, slender and thin, and therefore power and strength sports are possibly not appropriate as their slight build leaves them vulnerable to injuries. While they can easily get lean and hard, their lack of musculature harshly restricts their probability in sports requiring mass. Typically, Ectomorphs control endurance sports and gymnastics. Their smaller body surface area augments their appropriateness for endurance activities as they are improved at managing their body temperature.

All athletes are made up of the three severe body types so we are all part endomorph, part mesomorph and part ectomorph. The somatotype can reveal a lot about a person's capacity to succeed in athletic competition. Body-type is at the very center of evaluating athletic capability. A somatotype is important because it is like a blueprint. Physical fitness is a comprehensive phenomenon, which can be precisely defined or identified with reference to a pertinent group or aspect, rather than in general terms. The knowledge of growth and development of characteristics of the college going students is very much essential for the curriculum construction as well as delineation of the sports development policies. In view of the above, this research activity is carried out to determine somatotypes of college going students (boys).

II. RESEARCH METHODOLOGY

A. STUDY AREA

The area of research work was Nagpur Division of Vidarbha. The samples were selected from each District of the study area i.e. Nagpur, Wardha, Bhandara, Gondia, Chandrapur and Gadchiroli districts of Vidarbha Region.

B. RESEARCH DEIGN AND UNIVERSE OF THE STUDY

In the present research work "Descriptive" research design was used by the researcher. All the volleyball, handball, basketball and Kabaddi players of study area were considered as a universe of study.

C. SAMPLE SELECTION AND SAMPLE SIZE

Players participating in inter college tournaments of Volleyball, Handball, Basketball and Kabaddi games organized by Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur and Gondwana University during the session 2015-2016 were considered as samples for this study. 100 college students were selected from each District of the study area i.e. Nagpur, Wardha, Bhandara, Gondia, Chandrapur and Gadchiroli of Vidarbha Region making the sample size of 600.

D. SOMATOTYPE CHARACTERISTICS

The somatotype characteristics were measured with the help of Heath Carter Somatotype Rating Form. In accordance

with internationally accepted standards anthropometric Somatotyping were prepared integrating the ten anthropometric measurements using Heath and Carter's method (Carter, 1980; Heath and Carter, 1967). A somatotype was articulated in a three digit chronological numeral, representing endomorphy, mesomorphy and ectomorphy respectively. In order to obtain three somatotype components, the measurements were recorded for variables such as height, weight, skinfolds (triceps, sub scapular, surprailiac and calf), Bone Width (Humerus and Femur), Girths (upper arm and calf). The standard procedure was used for measuring each of the variable.

E. STATISTICAL TECHNIQUES

To determine and compare the somatotype status of college students of Vidarbha region in relation to their sports performance SPSS 18.0 software were used. Descriptive as well as inferential statistics were determined. The significance level was set at 0.05.

III. ANALYSIS OF DATA AND RESULTS OF THE STUDY

In this chapter, the results obtained after critical analysis of the data was presented. The data analysis was carried out using appropriate statistical tests and the results were presented using suitable Tables and charts.

A. SOMATOTYPES OF VOLLEYBALL PLAYERS

Somatotype	Median Score	No. of players	Percentage
Ectomorphs	643	124	82.7
Mesomorphs	362	22	14.7
Endomorphs	347	4	2.7
Total		**150**	**100**

Table 1: Somatotype of the collegiate level volleyball players of Vidarbha region

Above Table 1 presents results regarding the assessment of somatotype of the collegiate level volleyball players of Vidarbha region participating in different games. The results indicated that ectomorph of the volleyball players is 82.7%, while mesomorph is 14.7%. However, the endomorph of the volleyball players is 2.7%. Form the study results it is concluded that most of the volleyball players are Ectomorphs.

B. SOMATOTYPES OF HANDBALL PLAYERS

Somatotype	Median Score	No. of players	Percentage
Ectomorphs	532	38	25.3
Mesomorphs	353	102	68.0
Endomorphs	327	10	6.7
Total		**150**	**100**

Table 2: Somatotype assessment of the collegiate level handball players of Vidarbha region

Above Table 2 presents results regarding the assessment of somatotype of the collegiate level handball players of Vidarbha region participating in different tournaments. The results indicated that most of the handball players i.e. 68% are mesomorph, while ectomorph are 25.3%. However, the endomorph of the handball players is 6.7%. based on the study results it is concluded that a significantly high number of handball players are Mesomorphs.

C. SOMATOTYPES OF BASKETBALL PLAYERS

Somatotype	Median Score	No. of players	Percentage
Ectomorphs	634	42	28.0
Mesomorphs	261	80	53.3
Endomorphs	357	28	18.7
Total		**150**	**100**

Table 3: Somatotype assessment of the collegiate level basketball players of Vidarbha region

Above Table 3 presents results regarding the assessment of somatotype of the collegiate level basketball players of Vidarbha region participating in different games. The results indicated that mesomorph from the basketball players are 53.3%, while ectomorphs are 28%. However, the endomorph of the basketball players is 18.7%. on the basis of the study results, it is concluded that most of the basketball players are Mesomorphs.

D. SOMATOTYPES OF KABADDI PLAYERS

Somatotype	Median Score	No. of players	Percentage
Ectomorphs	532	50	33.3
Mesomorphs	353	82	54.7
Endomorphs	327	18	12.0
Total		**150**	**100**

Table 4: Somatotype assessment of the collegiate level Kabaddi players of Vidarbha region

Above Table 4 presents results regarding the assessment of somatotype of the collegiate level kabaddi players of Vidarbha region participating in different games. The results indicated that most of the Kabaddi players i.e. 54.7% are mesomorphs, while ectomorph are 33.3% and the 12% Kabaddi players are endomorphs. From the study results it is concluded that most of the Kabaddi players have mesotrophic somatotype.

IV. CONCLUSIONS

As man develops from birth to maturity, some of the observable changes in his body are those of his physical characteristics - his height, weight, shape and proportions. The patterns of growth of these characteristics result from the interaction of both inborn (genetic) and environmental aspects, which are accountable for the performance of a sportsman. The physical type and body composition including size, shape and shape play a important role on the performance of a player. The performance of a sportsman in any game is also dependent on his suppleness, skill, training and motivation and on various other factor of physiological and bio-chemical nature. Age, sex and

physical growth have also been noticed to influence a person's capacity for physical activity.

Thus Anthropometrical characteristics play a very vital role in all games and sports whether it is team or individual game, ideal body segments as per the demand of the particular event is necessary for higher achievement in that particular sport. In view of anthropometrical variations playing a significant role with performance of an athlete. Based on these aspects, as well as the study results, it is concluded that there is significant ($P<0.05$) difference in the Somatotypes of Volleyball, Handball, Basketball and Kabaddi players of Vidarbha.

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