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A CO-RELATIONAL STUDY OF SOMATOTYPING, PHYSICAL FITNESS AND SKILLS OF BASEBALL PLAYERS OF VIDARBHA

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ABSTRACT

Today physical education sports and games have become a part of curriculum in the school, college and Universities. Every human being has a fundamental right to asses to physical activities and sports, which are essential for the whole, some development of his personality. The freedom to develop physical intellectual and moral power, through physical education and sport must be guaranteed both within the educational system and in other aspect of social life.

KEY WORD: *physical education sports and games , physical activities and sports.*

1.0 INTRODUCTION

Physical fitness is one of the potential characteristics of every human being. Physically fit citizens are a major asset for a strong nation, and hence, physical fitness of the youth should be a national and general concern. Like all the sporting activities, baseball also requires the players to be physically fit and need to possess a certain set of skills and body type to excel. In addition to the high level of skill required to play baseball, to be a successful player needs good speed, power and agility. The experts feel that in the sport of baseball, the most important physical attribute according is **balance and coordination**. Players also require a high level of **motivation and self confidence**, and equally and importantly need a high level of **skill**.In view of the above, this research activity is carried out to determine physical fitness and somatotypes of school going students (boys) and was further studied to establish relationship with their performance in baseball tournaments.

2.0 RESEARCH METHODOLOGY

2.1 Sample Technique and Size

Players participating in inter school baseball tournaments were considered as samples for this study. 100 baseball players were selected from each District of the study area i.e. Nagpur, Wardha and Chandrapur districts of Vidarbha Region making the sample size of 300. The distribution of samples was as follows. Researcher selected 3 districts, 10 schools from each district and 10 baseball players from each school, so total no of baseball players were 300.

2.2 Criterion Measures

Muscular strength was measured by sit ups, maximum number of repetitions were recorded as scores of the test.Muscular power will be measured by standing broad jump and horizontal distance recorded in centimeters.Speed was measured by 50 yard dash and time was recorded in $1/10^{th}$ of second.Endurance was measured by 600 meters run/walk test, the time was recorded in seconds.Agility was measured by shuttle run and the time was recorded in $1/10^{th}$ of second.The

somatotype characteristics were measured with the help of Health Carter Somatotype Rating Form.The sports performance of the high school boys was assessed using a structured questionnaire.In this study, the sports performance of the school going students was assessed by using a structured questionnaire.

2.3 Statistical Techniques and Significance Level

To determine the relationship between physical fitness skills and somatotype status of school level baseball students of Vidarbha region. SPSS 18.0 software was used. Descriptive as well as inferential statistics was determined. The data characteristics such as mean, standard deviation, range, frequency, percentage, etc. were determined. A Pearson's product moment correlation was computed between the two measures. The significance level was chosen to be 0.05 (or equivalently, 5%).

3.0 RESULTS AND DISCUSSION

3.1 Relationship between Somatotypes and sports performance

Table 1:Relationship between Somatotypes and sports performance of baseball players

Somatotypes	**Correlation coefficient (r^2)** Sports performance
Endomorphs	-0.523**
Mesomorphs	0.624**
Ectomorphs	0.348*

* : Significant at p 0.05 level

** : Significant at p 0.01 level

Above **Table 1** presents results regarding the relationships between Somatotypes and sports performance of baseball players.

- *Endomorphs*: The data showed that there is significant negative relationship between Endomorph and Sports Performance (r^2= -0.523, p<0.01) of the baseball players.
- *Mesomorphs*: The data showed that there is significant positive relationship between Mesomorph and Sports Performance (r^2= 0.624, p<0.01) of the baseball players.
- *Ectomorphs*: The data showed that there is significant positive relationship between Ectomorph and Sports Performance (r^2= 0.348, p<0.05) of the baseball players.

3.2 Relationship between physical fitness and sports performance

Table 2:Relationship between Somatotypes and sports performance of baseball players

Somatotypes	**Sports performance Correlation coefficient (r^2)**
Muscular Strength	0.508**
Muscular Endurance	0.241
Speed	0.690**
Agility	0.721**
Cardio respiratory Endurance	0.428*

* : Significant at p 0.05 level

** : Significant at p 0.01 level

Above **Table 2**presents results regarding the relationships between Somatotypes and sports performance of baseball players.

- *Muscular Strength*: The data showed that there is significant positive relationship between Muscular Strength and Sports Performance (r^2= 0.508, p<0.01) of the baseball players.

- *Muscular Endurance*: The data showed that there is significant positive relationship between Muscular Endurance and Sports Performance (r^2= 0.241, p=Not significant) of the baseball players.
- *Speed*: The data showed that there is significant positive relationship between Speed and Sports Performance (r^2= 0.690, p<0.01) of the baseball players.
- *Agility*: The data showed that there is significant positive relationship between Agility and Sports Performance (r^2= 0.721, p<0.01) of the baseball players.
- *Cardio respiratory Endurance*: The data showed that there is significant positive relationship between Cardio respiratory Endurance and Sports Performance (r^2= 0.428, p<0.05) of the baseball players.

3.3 Relationship between Somatotypes and physical fitness

Table 3:Relationship between Somatotypes and Physical Fitness of baseball players

Somatotypes	Physical Fitness Correlation coefficient (r^2)				
	Muscular Strength	Muscular Endurance	Speed	Agility	Cardio respiratory Endurance
Endomorphs	0.557**	0.207	0.103	0.134	0.201
Mesomorphs	0.603**	0.495**	0.594**	0.539**	0.493*
Ectomorphs	0.301	0.621**	0.697**	0.754*	0.588**

* : Significant at p 0.05 level

** : Significant at p 0.01 level

Above **Table 3**presents results regarding the relationships between Somatotypes and Physical Fitness of baseball players.

- ***Endomorph and Muscular Strength*:** The data showed that there is significant positive relationship between Endomorph and Muscular Strength (r^2= 0.557, p<0.01) of the baseball players.
- ***Endomorph and Muscular Endurance*:** The data showed that there is significant positive relationship between Endomorph and Muscular Endurance (r^2= 0.207, p=Not Significant) of the baseball players.
- ***Endomorph and Speed*:** The data showed that there is significant positive relationship between Endomorph and Muscular Endurance (r^2= 0.207, p=Not Significant) of the baseball players.
- ***Endomorph and Agility*:** The data showed that there is significant positive relationship between Endomorph and Agility (r^2= 0.134, p=Not Significant) of the baseball players.
- ***Endomorph and Cardio respiratory Endurance*:** The data showed that there is significant positive relationship between Endomorph and Cardio respiratory Endurance (r^2= 0.201, p=Not Significant) of the baseball players.
- ***Mesomorph and Muscular Strength*:** The data showed that there is significant positive relationship between Mesomorph and Muscular Strength (r^2= 0.603, p<0.01) of the baseball players.
- ***Mesomorph and Muscular Endurance*:** The data showed that there is significant positive relationship between Mesomorph and Muscular Endurance (r^2= 0.495, p<0.01) of the baseball players.
- ***Mesomorph and Speed*:** The data showed that there is significant positive relationship between Mesomorph and Speed (r^2= 0.594, p<0.01) of the baseball players.
- ***Mesomorph and Agility*:** The data showed that there is significant positive relationship between Mesomorph and Agility (r^2= 0.539, p<0.01) of the baseball players.
- ***Mesomorph and Cardio respiratory Endurance*:** The data showed that there is significant positive relationship between Mesomorph and Cardio respiratory Endurance (r^2= 0.493, p<0.05) of the baseball players.
- ***Ectomorph and Muscular Strength*:** The data showed that there is significant positive relationship between Ectomorph and Muscular Strength (r^2= 0.301, p=Not Significant) of the baseball players.

- ***Ectomorph and Muscular Endurance*:** The data showed that there is significant positive relationship between Ectomorph and Muscular Endurance (r^2= 0.621, p<0.01) of the baseball players.
- ***Ectomorph and Speed*:** The data showed that there is significant positive relationship between Ectomorph and Speed (r^2= 0.697, p<0.01) of the baseball players.
- ***Ectomorph and Agility*:** The data showed that there is significant positive relationship between Ectomorph and Agility (r^2= 0.754, p<0.05) of the baseball players.
- ***Ectomorph and Cardio respiratory Endurance*:** The data showed that there is significant positive relationship between Ectomorph and Cardio respiratory Endurance (r^2= 0.588, p<0.01) of the baseball players.

4.0 CONCLUSIONS

4.1 Relationship between Somatotypes and sports performance

In view of the study results it is concluded that there is significant negative relationship between Endomorph and Sports Performance, while a positive relationship between Mesomorph as well as Ectomorphs and Sports Performance.

4.2 Relationship between physical fitness and sports performance

- In view of the study results it is concluded that there is significant significant positive relationship between Muscular Strength, Speed, Agility and Cario-respiratory endurance with the Sports Performanceof baseball players.However, the relationship between Muscular Endurance and Sports Performancewas not statistically significant.

4.3 Relationship between Somatotypes and physical fitness

- Form the data it is concluded that there is significant positive relationship between Endomorph and Muscular Strength, while the Mesomorph showed positive relationship with Muscular Strength, Muscular Endurance, Speed, Agility and Cardio respiratory Endurance. Moreover, the Ectomorph showed positive relationship with Muscular Endurance, Speed, Agility and Cardio respiratory Endurance.

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