



A Comparison Study of Morphological and Physiological Profile of Tribal Football Players of West Bengal.

KEYWORDS

Weight, LBM, VO2 Max, Body mass, Body fat etc.

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ABSTRACT Anthropometric measurements were central concerns of the first phase of the scientific era of the measurement, which began in 1860's. Current interest in anthropometric measurement focuses on their areas, growth measures, body type and body composition. The use of such measures includes classification, prediction of growth patterns and prediction of success in motor activities as well as assessment of obesity. The purpose of the study is to compare the morphological and physiological profile of tribal football players of west Bengal. 30 football players were selected randomly from the ST hostel of Seva Bharati Mahavidyalaya and Kapgari School. Fifteen subjects were selected from ST hostel Seva Bharati Vidyatan and Fifteen Subject were selected from ST hostel of Seva Bharati Mahavidyalaya; Kapgari, Paschim Medinipur. Selected Morphological and Physiological variables were measured. Descriptive statistic and 't' test was used to find out the result of the study. Results showed significantly higher body mass, height, and LBM in the Players of Seva Bharati Mahavidyalaya when compare to ST hostel player of Vidyatan. It was observed that during adolescence (under 19 yrs) VO2 Max elevate significantly and then declined further in senior age groups players i.e. in SBM players. A decrease in body fat percentage was noted among the Vidyatan players as compared to SBM players.

Introduction:

It is well known fact that there are no two bodies exactly alike in physical characteristics. In addition to a long history of research studies that have attempted to classify body types. Presently referred to as somatotype, there has been interest in noting the personality associated with certain body types.

In the last few decades sports have tremendous popularity all over the globe. The popularity of sports is still increasing at a fast pace and this happy trend is likely to continue in the future also. When one look at the history of modern Olympic Games is seems that the number of sports for which competitions are held at Olympic Games has increased steadily. In addition to Olympic Sports indigenous sports have also become popular in each country. Several new sports like sky-diving, skating, motor racing have also come into existence and are quite popular with the masses.

Soccer is unarguable they the world's most popular sport. The common aspect of the game is the necessity of teamwork to complement individual skills. In order to adapt to the technical evolution within the game and player have to meet the physical demand of the game. Further, growth and development phase of life has impact on training and performance (Reilly, 2005). During Aerobic exercise the demand of oxygen increases at the working muscles, so an optimum level of hemoglobin is required to perform at the highest level with high intensity (Suhr et. al., 2009). Regular monitoring of health related variables of soccer players can provide valuable information about their health, metabolic and cardiovascular status.

OBJECTIVE OF THE STUDY:

To purpose of the study is to compare the morphological and physiological profile of tribal football players of west Bengal.

METHODOLOGY:

To achieve the purpose of the study thirty male football players were selected randomly from the ST hostel of Seva Bharati Vidyatan and Seva Bharati Mahavidyalaya. Fifteen subjects were selected from ST hostel Seva Bharati Vidyatan and Fifteen Subject were selected from ST hostel of Seva Bharati Mahavidyalaya; Kapgari, Paschim Medinipur. Selected Morphological and Physiological variables were measured. The subjects were informed about the possible complications of the study and gave their consent.

VARIABLES:

Morphological Variables: Weight, Height, body fat percentage & Lean body Mass.

Physiological Variables: Heart rate & VO2 Max.

CRITERION MEASURES:

Body weight was measured with the accurately calibrated electronic scale (Seca Alpha 770.UK) to the nearest 0.1 kg.

Height was measured with Stadiometer recorded to the nearest 0.5 cm.

Body Fat Percentage was measured by using standard procedure (Jonson & Nelson, 1996).

Lean Body Mass was calculated by subtracting fat mass from total body weight.

Treadmill (Jaeger, LE 500, Germany) tests were performed to determine the cardiovascular status of the players during maximal exercise. The maximal oxygen consumption (VO2Max) was measured by following standard methodology (Astrand & Rodhal, 1986). The subject was asked to run on the treadmill at a speed of 6Km/h for 2 min. thereafter, the workload was increased by 2Km/h for 2min. until volitional exhaustion.

STATISTICS ANALYSIS:

All the values of Morphological and Physiological variables

wee expressed in mean and standard deviation. To find out the significant difference in selected variables't' test is used. Level of significance was set at 0.05.

RESULTS:

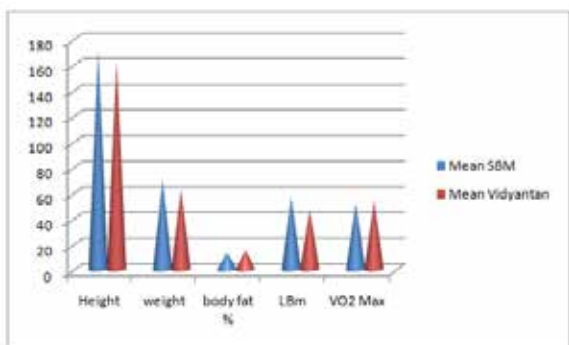
Data on selected morphological and physiological variables were presented in tabular forms.

TABLE -1 indicates the height, weight, body fat % and Lean body mass.

Variables	Mahavidyalaya Mean, SD	Vidyatan Mean, SD	Mean Difference	Standard error diff.	t- Ratio
Height	171.98 ± 3.8	162.86± 4.3	0.912	02.45	3.74*
Weight	70.31 ± 3.8	62.44± 4.5	07.87	03.04	2.59*
Body Fat %	13.20 ± 1.8	15.24 ± 2.4	2.04	01.12	01.82
LBM (Kg)	57.11 ± 1.9	47.20± 3.8	9.91	02.87	03.94*
VO2 Max.	52.32±2.15	53.86± 2.24	1.54	01.13	01.5

Table 1 revealed that there is a significant reduction (p<0.05) in present body fat was observed lower age category to higher age category players. The lower body fat percent was noted in the Seva Bharati Mahavidyalaya players when compare Vidyatan players. However, significant increase (P<0.05) in body weight, Lean body mass and height was reported from Seva Bharati Mahavidyalaya players when compare Vidyatan players. No significant change in body mass, Lean body mass and height was reported between Seva Bharati Mahavidyalaya players and Vidyatan players. In the present study showed insignificant difference in VO2 Max when compared to Vidyatan players.

Graphical representation of mean of Seva Bharati Mahavidyalaya and Seva Bharati Vidyatan.



DISCUSSION:

Body size has significant impact on soccer teams (Mc Ardle et al., 2006); Reilly, 2005). The tall players are required as goal keepers, defenders and forward positions players. However a standard height should be maintained for mid-field players. Body mass is a considerable factor in soccer since body contact is essential in this game (Mc Ardle et al., 2006). In this study significantly higher height and body weight was observed in SBM players to the Vidyatan (School) players. This age group wise increase in height and body weight of the players is due to development effects, (Mc Ardle et al., 2006). Cross section studies showed that junior and senior players had significant difference in

height and body weight (Mc Ardle et al., 2006).The increase in the body weight in all categories is due to the increase in bone mass and muscle mass (Mc Ardle et al., 2006). Similar observation by another research group has reported increase in height and body mass with advancement of age of the players (Dourado et al., 2007).

The percentage of body fat plays an important role for the assessment of physical fitness of the soccer players (Carling & Orhant, 2010; Reilly, 2005). Generally, the amount of fat in an adult male in his mid- twenties is about 16.5% of body weight (Mc Ardle et al., 2006). A lean body is desirable for sports like soccer (Carling & Orhant, 2010). A low-body fat may improve athletic performance by improving the strength to- weight ratio (Carling & Orhant, 2020; Reilly, 2005). Excess body fat adds to the load without contributing to the body's force- producing capacity. In the present study a decrease in body fat was noted from junior player to the senior players. The low body fat vales in the senior players might be because of exposure to higher amount of aerobic endurance training for a long time as compare to school player's i.e., junior players. The observations of the study are supported by several studies, where decrease in body fat was noted with the advancement of age of the players (Reilly, 2005). On the other hand, LBM significant increase from lower division players to higher division players: supporting the statement that athletes lose their body fat with the maturation process. Therefore, it can be stated that higher body fat ma limit performance of the athlete (Mc Ardle et al., 2006).

The maximal oxygen uptake (VO2 Max) is the best overall measure of aerobic power (Reilly, 2005). Aerobic capacity certainly plays an important role in soccer and has a major influence on technical performance and tactical choices (Reilly, 2005; Wong del & Wong, 2009) VO2 Max. values of soccer players exhibit variation in different age categories, and it has been seen that during adolescence aerobic capacity elevates and declines in the senior age group players. A significant higher relative VO2max values was noted in school players as compare to college players. This lower mean relative VO2 max values in the senior players might be due to their higher body weight(Mc Ardle et al., 2006). The observations of the present study is supported by the finding of many researchers, where VO2 max of the junior players showed similar values with those of the seniors (Reilly, 2005). Usually, the decline in VO2 max can be accounted by a reduction in maximum heart rate, maximal stroke volume and maximal Vo2 difference (Mc Ardle, 2006).

CONCLUSIONS:

On the basic of the finding it was seen that a significant difference was found in the height, weight and lean body mass and insignificant difference was found in fat % and aerobic capacity of the players. Age wise changes were reflected on various parameters like body fat, aerobic capacity, strength etc profile of the soccer players.

The unique profile of age related changes should be taken into consideration while administrating training to the players.

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