

Dominance of Aerobic Capacity and Vo₂ Max among Bhutanese National Club Footballers in Relation to Their Playing Position.

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Abstract

Playing football requires huge amount of anthropometric and physiological attributes in addition to proficiency, understanding and intellect (Wade, 1979; Sheldon et al., 1954). The aim of the present study is to describe the VO₂ Max of Bhutanese National Club Footballers and to examine their relationship of VO₂ Max among different playing positions of the players. The sample frame comprised of 108 (6 teams of 18 players each) players from six top Football Clubs (FC) namely Yeedzin FC, Thimphu City FC, Drukpol FC, Ugyen Academy FC, Phuntsholing FC and Dzongrig FC taking part in the Coca Cola Football League; highest level of football tournament in Bhutan. Aerobic Fitness test through Multi Stage Fitness Test/ Beep Test by Leger (1988), VO₂ max test (Jackson and Pollock with Siri Equation) were held. A trial version of Software, SPSS (Ver.16) was utilized to do the analysis of the measured data. Mean, standard deviation and one-way ANOVA was utilized to see whether any significant difference is there among footballers according to their playing positions. Results displayed a significant difference was identified in the VO₂ max of Bhutanese national club footballers in relation to their playing position.

I. INTRODUCTION

Football is a game that is played as a team and it is obvious that team games are those sports in which body dimension, form, body composition and status of fitness, each have a significant role to provide distinctive benefit for particular playing positions specifically at the maximum level of performance of highly specific degree of player specialization (Bale, 1986). Particular role related to a position have a different requirement within each area exclusive related to body functioning attributes (Reilly et al., 1990). These are visible in the fitness of bodily and related to body functioning of the Football players (Reeves et al., 1999).

Several similar studies in the past have been aimed on the link between anthropometric profiles of sportspersons and their standard positional roles (Rienzi, Drust, Reilly, Carter, and Martin, 2000) These studies have concluded that goalkeepers have more height than players

who play in centre position (Reilly et.al, 2000), such as both opponent and offense centre player. Some of the researches particularly on positions of players in play field are focused on anthropometric profiles of players in Australia (Young et al., 2005) Gaelic football (Mcintyre and Hall, 2005) players of rugby (Duthie, Pyne, and Hooper, 2003) and footballers of America (Mcgee and Burkett, 2003).

The maximum limit of the body's ability to ingest oxygen is indicated by the maximal oxygen consumption (VO₂ max). This is the most extreme pace at which oxygen can be discharged from the oxidative procedure solely (Bouchard et al., 1994). This is why? It is a fundamental estimation in the investigation of footballers. VO₂ max is the most noteworthy pace at which a person can devour oxygen while doing exercise, restricts the ability to perform vigorous exercise and in this way, fills in as the most mainstream list of aerobic wellness (Armstrong and Weisman, 1994).

II. SIGNIFICANCE OF THE STUDY

It is also because the study is a maiden voyage in the history of sports in Bhutan; this study hopes to elucidate contentious areas in a body of knowledge by providing new conceptual insights into strategic plans of player development in Bhutan. The study would specifically enable the Bhutan Football Federation (BFF) in creating a broad baseline data to be used for any relevant research in the near future pertaining to the scientific variables adopted in the current study. This study would help to establish scientific and pragmatic roles within talent detection, identification and development program because of the datum that best footballers need to become accustomed to the body fitness expectations of sport, which are different. Sports persons should not include a phenomenal limit inside any of the territories of physical execution however should hold a sensibly significant level inside all regions.

III. OBJECTIVE OF THE STUDY

- To check the dominance in aerobic fitness among Bhutanese national club footballers in relation to their playing position.
- To study and compare the VO₂ max among Bhutanese national club footballers in relation to their playing position.

IV. HYPOTHESIS

- A significant difference would be identified in the aerobic fitness of Bhutanese national club footballers in relation to their playing position.
- A significant difference would be identified in the VO₂ max of Bhutanese national club footballers in relation to their playing position.

V. DELIMITATIONS OF THE STUDY

- a) The study was delimited to the players verified and registered legally with the BFF in the Bhutanese ‘A’ Division Club in the Coca Cola League during the 2013 season.
- b) The study was delimited by gender; only male players were considered for the study.
- c) The study was delimited by nationality; only Bhutanese national players were considered for the study.

VI. REVIEW OF RELATED LITERATURE

Dey (2010) investigated on 150 men footballers of India from various national level clubs of India. These sportspersons were also further grouped in accordance with the particular playing position. Bodily and body functioning profiling of football players including stature, how much they weigh, BF%, stretchability, readiness, unstable strength, and VO2 max were determined by proper procedure. This came in to notice that the mean estimations of age, tallness, weight and %BF were essentially unique among footballers of various national clubs. Among the motor capacity and body functioning characteristics just stretchability, dexterity and VO2 max were significantly different among the footballers of these national clubs of India. This is apparent that the mean estimations of tallness, weight, vertical bounce and VO2 max of the players from these clubs were seen as mediocre compared to those of European, American and Australian players of football.

VII. DESIGN OF THE STUDY

The descriptive method was adopted for carrying out the current research work The sample frame comprised of 108 (6 teams of 18 players each) players from six top Football Clubs (FC) namely Yeedzin FC, Thimphu City FC, Drukpol FC, Ugyen Academy FC, Phuntsholing FC and Dzongrig FC taking part in the Coca Cola Football League; highest level of football tournament in Bhutan. They were grouped in accordance with their positional area of playing in play field. Before undergoing the test, all the players were informed about the testing procedures, including possible risks involved, and be given informed written consent in accordance with the specific resolution of BFF bylaws

IX. DATA ANALYSIS AND RESULTS

Software, SPSS (Ver.16) was utilized to make analysis of measured data. Mean, standard deviation and one-way ANOVA was performed to see whether any significant differences exist among footballers according to their playing positions.

Table .1 Level of significant difference in aerobic fitness among Bhutanese national club footballers in relation to their playing position.

Aerobic Endurance Status

	Sum of Squares	Df	Mean Square	F	Si g.
Between Groups	4.675	3	1.558	1.566	.202

Within Groups	103.510	104	.995		
Total	108.185	107			

VO2 Max. Status

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.942	3	4.314	4.058	.009
Within Groups	110.576	104	1.063		
Total	123.519	107			

Table.1 signifies the findings in respect to the level of significant difference in aerobic endurance status among Bhutanese national club footballers in relation to their playing position. Statistical judgment revealed the following figures when statistical analysis was done through application of one-way ANOVA ($F(3,104) = 1.566, p = .202$). It has been observed that the significance level is $.202 (p = .202)$, which is

above 0.05. It can hence be concluded that no significant difference in the aerobic endurance status is evident among Bhutanese national club footballers in relation to their playing position. The hypothesis of the study on regard to aerobic endurance was mentioned that there would be a significant difference existent in relation to playing position. However, as per the results it was concluded that an insignificant relationship existed thereby rejecting the hypothesis.

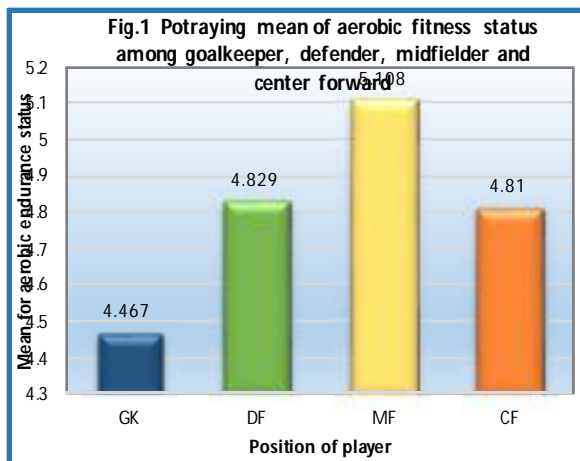
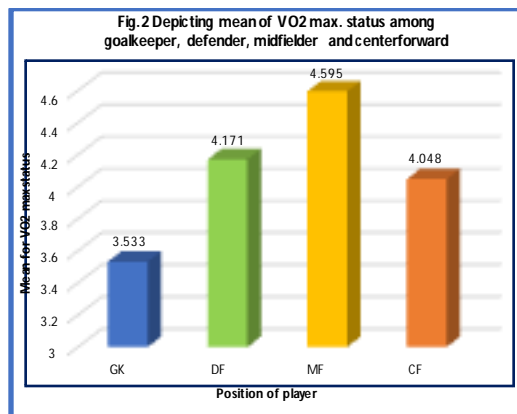


Table 2. Level of significant difference in VO₂ max among Bhutanese national club footballers in relation to their playing position.

Table.2 interprets the level of significance in the VO₂ max. status of Bhutanese national club footballers in relation to their playing position. Statistical confirmation through the table shows significant difference when the level of significance was determined by one-way ANOVA ($F(3,104) = .4058, p = .009$). It has been observed that the significance level is $.619 (p = .009)$, which is below 0.05 implying that statistically, there is presence of significant difference in the VO₂ max. status among Bhutanese national club footballers in relation to their playing position. It was hypothesized that a significant difference in the VO₂ max. status of Bhutanese national

club footballers in relation to their playing position would be evident. The results also confirmed a significant difference accepting the hypothesis.



X. Discussion and Conclusions

Two variables namely aerobic endurance and VO₂ max. both computed through MSRT were selected under the physiological capacity. Statistical judgment on regard to aerobic endurance status among Bhutanese national club footballers in relation to their playing position revealed the following figures when statistical analysis was done through application of one-way ANOVA ($F(3,104) = 1.566, p = .202$). It was observed that the significance level was .202 ($p = .202$), which stood above 0.05. It was thus concluded that no significant difference in the aerobic endurance status was evident among Bhutanese national club footballers in relation to their playing position. The hypothesis of the study on regard to aerobic endurance was mentioned that there would be a significant difference existent in relation to playing position. The results of the research work is in contrast with Marinković and Pavlović (2013) which found in the aerobic capacity of players in a relation to their playing position of Basketball players. However, as per the interpretation on regard to the level of significance in the VO₂ max. status of these players confirmed scores through one-way ANOVA at ($F(3,104) = .4058, p = .009$). It was observed that the significance level at .619 ($p = .009$), which was below 0.05 implied that statistically, there existed significant difference in the VO₂ max. status among Bhutanese national club footballers in relation to their playing position. The hypothesis which mentioned that a significant difference in the VO₂ max. status of Bhutanese national club footballers in relation to their playing position would be evident. The outcomes also confirmed a significant difference accepting the hypothesis. Results are in line with the results of Silmani et. al., (2019) which also shown the difference of VO₂ Max with playing positions, Results are also same with Adnan et.al (2011) which also showed significant difference between VO₂ Max and positional roles of soccer players,. Hypothesis stated for aerobic endurance stood rejected, whereas VO₂ max. status, hypothesis stood accepted making it the only variable in the study to which the hypothesis stood accepted.

RECOMMENDATIONS

Even though the present study is on the basis less sample of volunteers, the results

propose that unlike the international counterparts where talent identification, training and spotting of positional allocation of players is done based on the anthropometric, motor and physiological parameters, Bhutanese players do not have specific criteria and norms in getting designated to different positional roles in the game of football. The reasons may be due to lack of enough literature and understanding on regard to talent identification, positional allocation of players but there still remains a scope for a study to be carried out in future in order to understand the reasons for such a cause pertinent in Bhutanese managers, coaches and players. There are many elements that influence towards a successful career in professional as well in an amateur soccer. first and foremost in the sports skills intellectual abilities to take a proper decision during match. In view of diverse anthropometric, motor and body functioning features in the best clubs, it is impossible to separate individual requisites for achievement with huge self-reliance. it can also be assumed that the insignificance in most of the variables tested in the footballers of present study might probably have been caused due to hereditary or genetic predispositions. On the basis of results it can be recommended that while doing talent identification of players the demands of the game should be considered and particularly the positions of play and players aerobic capacity and VO2 max should also be considered. In training they should be trained with keeping this thing in mind that what level of VO2 max and aerobic capacity is required for particular playing area or position of the player. Based on the results of the research the further recommendations have been outlined;

- ✓ A similar study in comparison to Asian counterparts could be conducted to assess the differences in the selected parameters in relation to the playing position.
- ✓ A yearly comparative study could be delineated on national club footballers to assess the progress and concurrent changes.
- ✓ Technological enhancements could be adopted in future research in the related field of research to enhance the reliability of similar studies.
- ✓ Similar studies considering the demographic and genetic factors could be carried out to see if the results in this study was influenced by the genetic and demographic dispositions.

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