



THE AEROBIC CAPACITY AND BODY COMPOSITION PROFILE OF ALL INDIA INTER UNIVERSITY SOCCER PLAYERS

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Abstract

Soccer has become a very popular game in the world. Almost all the nations play the soccer game both for enjoyment and competition. Modern soccer is very fast by its nature. Modern soccer is a vigorous, fast game requiring accelerating sprint, rough tackling, power in kicking and endurance to sustain skillful play for ninety minutes. The purpose of the study is to determine the aerobic capacity and body composition profile of all India university soccer players. Sixty male all India soccer players were selected randomly as subjects for this study. The criterion measure chosen to test the aerobic capacity and body composition. For testing aerobic capacity the Cooper's 12 min. run/walk test administered. Body composition, fat percentage was estimated from four selected sites biceps, triceps, sub-scapular and supra-iliac. The collected data were statistically analyzed by using mean, standard deviation and product moment correlation. From the result of the study, it was found that there was a insignificant relationship between the fat percentage and aerobic capacity.

Keywords: Soccer, aerobic capacity, body composition and Endurance.

Introduction

Soccer is a vigorous, fast game requiring accelerating sprint, rough tackling, power in

kicking and endurance to sustain skillful play for 90 minutes. It has been claimed that a high level of general fitness with motor abilities like strength, endurance, speed of movement, jumping ability, agility, flexibility, and cardio-vascular endurance etc. Are the essential qualities required to be developed by the footballers to play this international game? Usually there are two kind of endurance, muscular and cardio-respiratory. Cardio-respiratory endurance is characterized by moderate contraction of large muscle groups for relatively long periods of time during which maximal adjustment of the cardio-respiratory system are necessary as in sustained, running, swimming, climbing, bicycling and the like Cardio-vascular endurance is one of the major physical fitness components required for the game of football. Maximum aerobic power (VO_2 max) is recognised as an index of cardio-vascular function and is widely accepted as being important to the success in endurance sports/events.

Generally, the higher the VO_2 max, the higher the anaerobic threshold and the faster an athlete can go in endurance competitions without fatigue. Improvements can be made with as little as 15 to 20 minutes of exercise 3 times a week. Body composition is exactly what the name states: what our bodies are composed of. Now, it could be said that in a general sense we are



all made up of the same parts. It is true that everybody contains muscle, bone, organs, tissue, and fat. Stored fat is that extra layer of fat that is found under the skin in places such as the stomach and rear end. Lean mass is essentially everything else found in a body, including bones, muscles, tissues, and organs. It will come as no surprise that a healthy body has less stored fat and more lean mass.

Procedure

60 Male All India Inter University Soccer players were selected randomly for this study from MG Kashi Varanasi, Lakshmbai National Institute of Physical Education, Gwalior and Vidyasagar University,

Criterion measures

For testing the aerobic capacity the coopers 10 mins run/walk test was administered.

Statistical technique

To determine the aerobic capacity and body composition profile of all India inter university soccer players the mean and standard deviations were evaluated for all the variables and the product moment correlation was computed by the help of IBM SPSS 20.

Analysis of Data

To determine the relationship between aerobic capacity and each of the body composition variables (percentage of fat, lean body mass percentage, and body density), product moment method of computing correlation was employed. The mean and the standard deviation of composition variables are given in table 1, and the correlation between aerobic capacity and body composition is given in table 2.

TABLE 1
MEAN AND STANDARD DEVIATION IN AEROBIC CAPACITY AND BODY COMPOSITION VARIABLES

S.N	Variables	Lowest	Highest	Mean	SD
1	Body Density(kg)	1.0940	1.0990	1.10	.0014
2	Percentage of Body Fat	7	19.50	15.29	2.46
3	Lean Body mass(percentage)	80.50	93.00	84.71	2.46
4	Aerobic capacity	2000	2900	2326.25	198.39

*significant at 0.05 level of significance

The study of aerobic capacity and body composition profile of the male all India inter university soccer player reveals that their body weight ranged from (51 to 66 kg) with the average of 59.25 kg and fat percentage ranging from 7 to 19.5 with the average of 15.29 and lean body mass percentage ranging from (80.50 to 93.00) with an average of 84.7125 and the body density ranging from (1.0940 to 1.0990) with an average of 1.10.

TABLE 2
RELATIONSHIP OF AEROBIC CAPACITY AND BODY COMPOSITION

S. No	Variables	Coefficient Correlation of
1	Aerobic capacity and fat percentage	-.362*
2	Aerobic capacity and lean body mass	.362*
3	Aerobic capacity and body density	.183

*significant at 0.05 level of significance

The above table reveals that the coefficient of correlation between aerobic capacity and lean body mass is found to be significant at 0.05 level of significance of correlation(.362) is more than the tabulated value

It also revealed that coefficient of correlation (-.362) between the aerobic capacity and fat percentage negatively significant at 0.05 level of significance. Further it inferred that the coefficient of correlation (.183) between the aerobic capacity and body density is not significant at 0.05 level of significance.



Discussion and findings

An insight negative relationship between aerobic capacity and fat percentage, may be due to the fact that excess of fat act as a dead weight which an individual has to carry for executing various movements, this additional weight possess extra demands on the system of the body where by an individual gets exhausted soon, the aerobic capacity due to the fact that fat does not provide energy to the working muscle during activity, therefore there is negative correlation its fat percentage and aerobic capacity. The reason for significant relationship between aerobic capacity and lean body mass may be because lean body mass mainly comprises of muscles which help the individual to perform better in distance running. As the individual has more of muscle and less of fat tissue the significant relationship between aerobic capacity and lean body mass seems logical, lean body mass(percentage) as a whole basically contribute to carry an aerobic functions thus helps in the aerobic type of activity. The aerobic capacity is insignificantly related to the body density which may be because of greater amount of fat in body (mean=15.2875) which may place additional demands on human organism. It may also be because of larger surface area which may put extra frictional process there by leading the individual to undergo extra amount of work, which can be done more efficiently when this extra amount of fat is absent.

Conclusion

With the limitation of the present study, the following conclusion may be drawn. Lean body mass (percentage) was found to be significantly related to the aerobic capacity. There was negative significant relationship

between the fat percentage and the aerobic capacity. Body density was also found to be insignificantly related to the aerobic capacity.

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