

Relationship of Selected Physical Variables with Soccer Performance of Women Soccer Players

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Abstract

The purpose of the study was to investigate the relationship of selected physical variables with soccer performance of women soccer players. The selected physical variables for the study were cardio respiratory endurance, muscular strength endurance, speed, and agility. The performance score of the players were awarded by 3 experts. All the one subjects were randomly selected from the all India Inter University tournament. Descriptive statistics and correlation was used to analyses the data. The analyses of data revealed that speed 0.740*, cardio respiratory endurance 0.903* and muscular strength endurance 0.912* were significantly related to the soccer performance at 0.05 level of statistical significance but the agility was not found significantly related. The study revealed how important the physical variables for the soccer performance are.

KEYWORDS: Soccer, Cardio Respiratory Endurance, Muscular Strength Endurance.

1. Introduction

By nature human being is competitive and aspires for excellence in every given field. Sports are not exception. Not only individual but nations also want to show their supremacy in the field of sports.

Today more and more people of all ages are discovering the joys and benefits of playing sports. Soccer is no exception. It is a sports enjoyed throughout the world by all ages and all cultures.

Soccer is known and loved throughout the world, from the child on the street corner to the professional athlete playing in a World Cup Final. Soccer stirs the heart and minds of us all, perhaps more than any other sport.

Women have been playing "football" for as long as the game has existed. Evidence shows that an ancient version of the game (Tsu Chu) was played by women during the Han Dynasty (25–220 CE). Two female figures are depicted in Han Dynasty (25–220 CE), playing Tsu Chu (Wikipidea, 2006). There are, however, a number of opinions about the accuracy of dates, the earliest estimates at 5000 BC (Wikipidea, 2006).

The first women's match recorded by the Scottish Football Association took place in 1892 in Glasgow. In England, the first recorded game of football between women took place in 1895.

Women's football first became popular on a large scale during World War I. when employment of women in heavy industry spurred the growth of the game via company teams, much as it had done for men fifty years earlier. The most successful team of the era was Dick, Kerr's Ladies of Preston, England. Dick, Kerr's Ladies played in the first women's international matches in 1920

Despite being more popular than some men's football events (one match saw a 53,000 strong crowd), women's football in England and Scotland suffered a blow in 1921. The Football Association, in England, banned women from playing the game on Association members' pitches, on the grounds that the game (as played by women) was distasteful. A similar decree was made by Scottish football authorities. Some speculated that these decisions may have been driven by envy of the large crowds that women's matches attracted (Wikipedia, 2006). The ban led to the formation of the English Ladies Football Association.

At the beginning of the 21st Century women's football, like men's football, has become professionalized and is growing in both popularity and participation. From the first known professional team in 1984 to the hundreds of thousands of tickets sold for the 1999 Women's World Cup, (Wikipedia, 2006) support of women's professional football (soccer) has increased around the globe. It is now the third most popular sport in the world.

In most part of the world women have started playing and exhibiting good skill and standard, women taking part in intricate or complex nature of sports have shown remarkable quality to adapt them. Though in some events biological deficiencies or body composition, range of movement around a joint, hormonal deficiency, muscle power etc. restrict them to perform less than men, but considering all these aspects women performers are not very much behind their male counterpart in various events.

The performance of soccer depends upon many parameters. The skill and physical conditions play major role but other characteristics such as physiological, psychological, physical and sociological game experience etc. are also vital. Indian women soccer is in infancy now; it has to go long way to catch the world standard and in order to catch the world standard there should be proper planning and implementation of the program. The implemented program should be evaluated from time to time so that the best result can be attained error or draw backs to be overcome. To move in the above direction there should be continuous research on women players in every aspect.

Therefore in this study the scholar has thought to be worthwhile to establish relationship among various physical traits with soccer performance of inter-varsity level female soccer players which may prove to be an important study in the concerned field.

1.1 Objective of the Study

The investigator conducted this study with an objective to find out the relationship of various physical variables with the soccer performance of female soccer players with an aim that the outcome of the study would help the trainers and coaches would train their players properly and also the selectors can get a guideline.

1.2 Hypothesis

It was hypothesized that there might be significant relationship of selected Physical variables with soccer performance of women soccer players.

2. Methodology

The women football/soccer has started picking its pace in India but still it has to put a lot of effort to come into the international picture. The Indian football federation has started the team in international championships and friendly matches for their exposure.

The present study would provide the coaches and trainers some scientific approach for the selection and training of the players.

2.1 Subjects

The study was conducted on one hundred and fifty female soccer players selected from All India Inter varsity soccer championship. The scholar picked the subjects from the top 16 teams of the tournaments and as because the data could not be collected in only one tournament that is why the scholar collected the data from the consecutive two years but the scholar avoided those subjects on whom the data was collected in the previous year. The age of the subjects ranged from 17 to 25 years.

2.2 Procedure

The study was taken to focus the relationship of selected physical variables with soccer performance of Indian women soccer players therefore, based on literary evidence and scholar's own understanding the variables selected were Cardio - respiratory endurance, muscular strength endurance, speed, agility. Before the collection of the data the subjects were informed about the procedure and the purpose of the study so that they took part in the test with full of motivation. The performance of the 150 Indian women soccer players was assessed with the help of scores attain by them given by the selected 3 (three) experts during All India Inter-Varsity football tournament. To assess the performance 3 (three) experts who were previously professional football players and later became coaches was asked to give scores out of 50 marks to the players during their respective matches. The experts was asked to give scores under 5 (five) headings which was marked equally. Headings under which the performance was assessed are —

- i) Skill and Technique ability.
- ii) Tactical ability.
- iii) Fitness.
- iv) Positional awareness and game temperament.
- v) Overall performance.

Like this all the players' performance was assessed under 5 (five) categories. For scoring average of all the 3 (three) scorers was taken into consideration.

3. Results

All the physical variables were measured with the help standard tests and the methods followed to administer the tests were also followed as per the requirement for the particular test. The results found after analyzing the data have been presented in the following tables.

Table – 1
RELATIONSHIP OF SOCCER PERFORMANCE TO SPEED

Variable Correlated	Co- efficient Correlation
Soccer Performance and Speed (50m dash)	0.740*

* Significant at 0.05 level, $r_{0.05df(148)} = 0.195$

The results obtained from the analysis of data in table 1 reveal that the attribution variable i.e. speed performance ($r = 0.740$) was significantly related with the soccer performance at 0.05 level of significance, since the obtained value of co-efficient correlation is greater than the Tabulated value $r_{0.05df(148)} = 0.195$

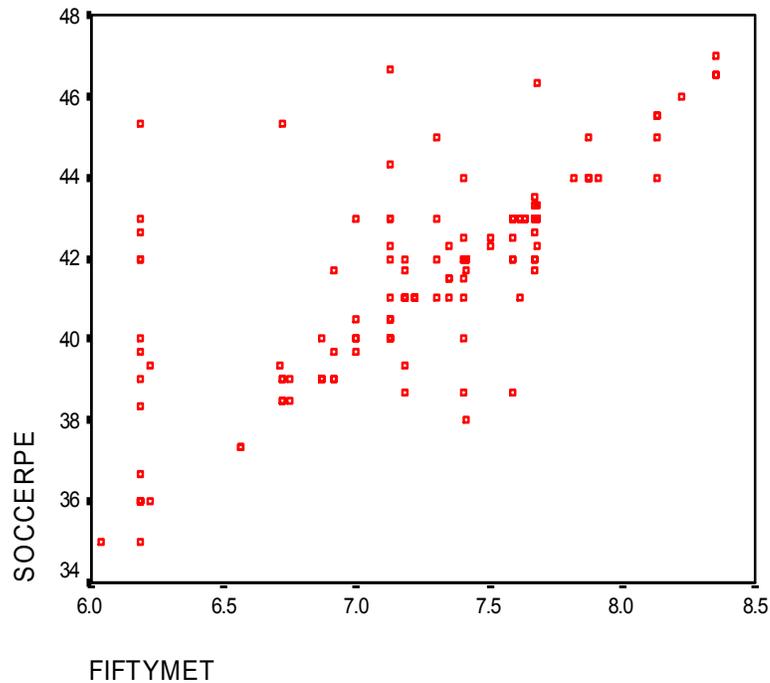


Figure 1: Relationship of Speed to Soccer Performance

Table – 2
RELATIONSHIP OF SOCCER PERFORMANCE TO SHUTTLE RUN (AGILITY)

Variable Correlated	Co- efficient Correlation
Soccer Performance and Shuttle Run 10×10 mtrs	0.116

* Significant at 0.05 level
 $r_{0.05df(148)} = 0.195$

The results obtained from the analysis of data in table 2 reveal that the attribution variable i.e. shuttle run performance ($r = 0.116$) was not significantly related with the soccer performance at 0.05 level of significance, since the obtained value of co-efficient correlation was less than the Tabulated value $r_{0.05df(148)} = 0.195$

Table – 3
RELATIONSHIP OF SOCCER PERFORMANCE TO CARDIO RESPIRATORY ENDURANCE

Variable Correlated	Co- efficient Correlation
Soccer Performance and Cardio-respiratory Endurance 9 mint. Run/Walk test	0.903*

* Significant at 0.05 level
 $r_{0.05df(148)} = 0.195$

The results obtained from the analysis of data in table 3 reveal that the attribution variable i.e. cardio respiratory endurance performance ($r = 0.903$) was significantly related with the soccer performance at 0.05 level of significance, since the obtained value of co-efficient correlation was greater less than the Tabulated value $r_{0.05df(148)} = 0.195$

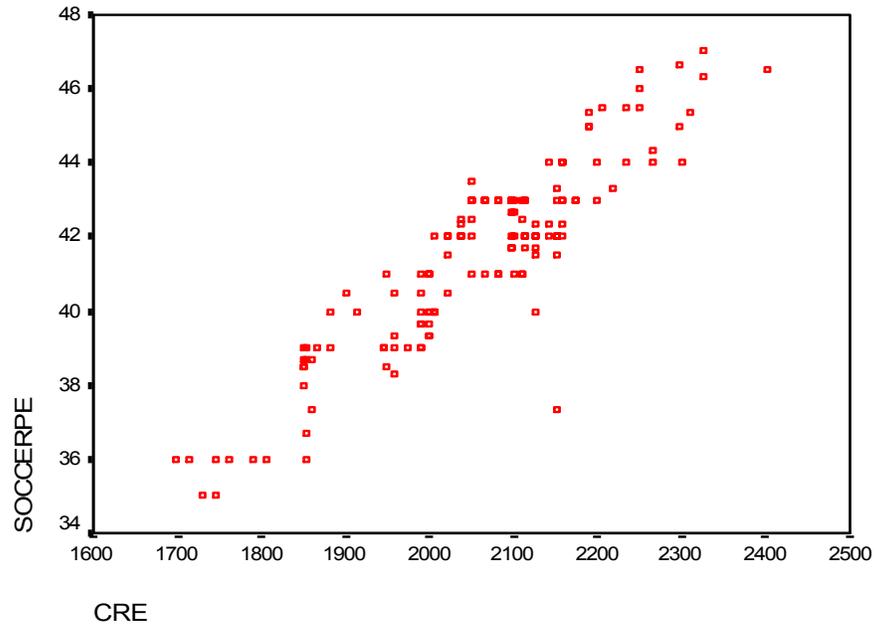


Figure 2: Relationship of Cardio Respiratory to Soccer Performance

Table – 4
RELATIONSHIP OF SOCCER PERFORMANCE TO MUSCULAR STRENGTH ENDURANCE

Variable Correlated	Co- efficient Correlation
Soccer Performance and Strength Endurance Bent Knee Sit-Up for 1 mint.	0.912*

* Significant at 0.05 level
 $r_{0.05df(148)} = 0.195$

The results obtained from the analysis of data in table 4 reveal that the attribution variable i.e. strength endurance performance ($r = 0.912$) was significantly related with the soccer performance at 0.05 level of significance, since the obtained value of coefficient correlation was greater than the Tabulated value $r_{0.05df(148)} = 0.195$

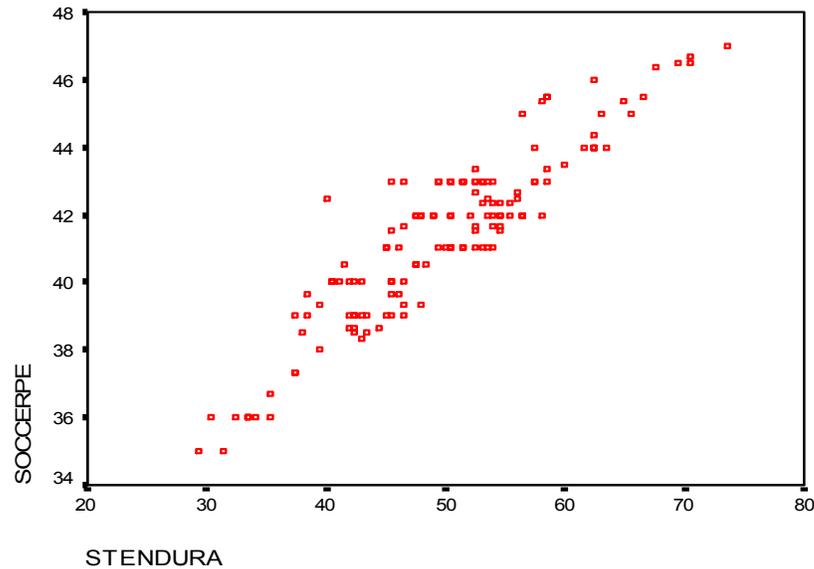


Figure 3: Relationship of Strength Endurance to Soccer Performance

**Table -5
Descriptive Statistics**

	Units	Mean	S.D
SOCCER PERFORMANCE	Average score of three judges	41.45	2.523
SPEED	Sec	7.22	.547
SHUTTLE RUN	Sec	10.80	.705
CARDIO RESPIRATORY ENDURANCE	Meters	2055.55	134.751
STRENGTH ENDURANCE	Max. sit ups in one minutes	50.02	8.773

Third and fourth column of Table-5 clearly indicates the mean and standard deviations of players Soccer Performance - average score of three judges 41.45 ± 2.523 , Speed $7.22 \pm .547$ Sec., Shuttle Run $10.80 \pm .705$ Sec., Cardio Respiratory Endurance 2055.55 ± 134.751 Meters and Strength Endurance (Max. sit ups in one minutes) 50.02 ± 8.773 .

4. Discussion and Conclusion

Women's soccer is in its infancy as a sport and research into its physiological demands and the physical characteristics of players is somewhat limited. There is now an increasing demand for scientific investigation of the female game and of the players, match analysis and role variations requiring particular attention (Brewer 1993).

From the findings it was revealed that female soccer performance was having positive relationship with the physical variable speed, cardio respiratory endurance, strength endurance, resting pulse rate and self concept.

The above mentioned variable which has shown a positive impact on female soccer performance was probably because it is the basic pre-requisite for giving best performance in soccer.

Physical variables like speed, cardio respiratory endurance, strength endurance are important factors which plays a vital role in soccer performance. Due to the nature of the game, speed is important for the quick movement with the ball.

There is general agreement among observers of the sport that over the past few decades it has become in some way 'faster' and is played at a higher 'intensity'. The modern 'total soccer' concept requires that players become more flexible in their capabilities, for instance full backs must have the abilities of wingers also, able not only to defend, but to make powerful long runs, to dribble effectively and to cross accurately (Douglas, 1993).

The existing literature in the field of soccer shows that endurance, speed, , maximum leg strength, upper body strength, leg power, muscular endurance, flexibility, coordination and reaction time are important pre-requisites for efficient soccer performance (Cassell, 1979, Bandyopadhyay, 1982, Uppal,1986) but excess body fat proves to be a hindrance.

Agility has shown no significant impact on performance of soccer. Due to the body physique the agility of the female soccer players might have proved no significant relation but the literature shows that agility is one of the important factors for soccer performance in order to stop the back or to change direction. Thus it requires a depth study to ascertain the relation of agility with soccer performance with special attention to female soccer players.

Discussion of Hypothesis

It was hypothesized that there might be significant relationship of selected Physical variables with soccer performance of women soccer players. Hypothesis was accepted in case of speed, cardio respiratory endurance and strength endurance but not accepted in the case of agility.

Research Highlights

- The data was collected on the all India University level players.
- The data was collected on one hundred and fifty players.
- For physical parameters were considered for this study- Speed, Shuttle run, Cardio Respiratory endurance and Muscular Strength endurance.

- Speed, cardio respiratory endurance and muscular strength endurance were found significantly related to the performance.

Limitation

The limitations for the study were the nutritional or the food habits, life style and other factors like the pre match training, match schedule, and unwillingness to perform at optimum level.

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