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## Relationship of flexibility, reaction time and sprinting speed with the performance of soccer players

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### Abstract

The researcher in this study wanted to find out the relationship between flexibility, reaction time and sprinting speed with the performance of soccer players. Twenty male subject whose mean age was twenty-two years was selected for study. For performance of soccer player's three experts were present. The study revealed significant correlation between flexibility, reaction time and sprinting speed with the performance of soccer players.

**Keywords:** Correlation, flexibility, reaction time, sprinting speed, performance

### Introduction

The world of game and sports is ever expanding with intensity and of competition and enhancing scientific studies of human movements. Sports are dynamic in nature and progressive. It is not confined to "What has been" but its Target is to fix new target.

In last few decades' sport have gained tremendous popularity all over the globe which is still increasing at a faster pace. Competition has become important aspect of sports. Each country wants to prove its superiority through sports at international level. For this they are waking their most efforts to sea high in national and in national and international competitions.

Sports performance is indeed an aspect of complex human performance, which has served dimensions. Hence, several disciplines of sport sciences are required to work in a coordinated manner to explain the nature of sports performance in the; last few decades several discipline of sports science have been established e.g. sports medicine, sports physiology, sports training, sports biomechanics, sports psychology, sports pedagogy, sports nutrition and so on. These sports sciences work as an integrated whole to give superb sports performance.

### Method

The subjects for this study were selected from among the men soccer match practice group of Lakshmbai National Institute of Physical Education of Gwalior. Advantage of choosing this subjects was that all the subject was residing in the hostel, the subjects was readily available. Twenty male student from the soccer match practice group of LNIPE, Gwalior were selected for this study. The subjects were from different states and union territories of India. The age of the subjects was taken from the Institute health records and the average age was 22 years.

At the beginning the investigator had gathered all the subjects at the playground within the Institute premises and explained the purpose of the present investigation and were demonstrated the various test activities to them so that the subjects could from a mental picture of the various test they were going to attempt question on the part of the subjects were allowed and their doubts and apprehensions were removed.

### Flexibility

- Trunk flexion forward- measured by slicing wood calliper or measuring stick to the nearest centimetre.
- Side splitting measured by flexometer or measuring stick to the nearest centimetre.

**Reaction time:** Time taken by the subjects on reaction to visual stimulus was recorded in second with the help of a Nelson reaction timer.

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**Speed:** Time taken by the subjects to run a distance of 50 yards was recorded to the nearest 1/10<sup>th</sup> of a second with the help of a stop watch which was properly calibrated and synchronized.

Procedure for administrating the test

**Trunk flexion forward**

**Purpose:** To measure the flexibility of trunk flexion forward.

**Equipment:** Sliding wood calliper or measuring stick.

**Description:** The subjects sat on flat surface, legs 18 inch apart and the hands are interlocked behind the neck. The forehead bent slowly for downward as far as possible. The knees are kept straight by an assistant.

**Scoring:** the distance was measured in inches or centimetre from the forehead to the surface.

The best from three trails was recorded for the test and subjects were remained in position at least two seconds when test was taken.

**Side splits test**

**Purpose:** to assess the extension in spreading the legs apart. The subjects lowered the crotch as close to the floor as possible.

**Equipment:** Flexomeasure care with yard stick and ruler guided instated. Ensuring that A-B or the case nearest are zero and of the yard stick.

**Description**

1. From a stand extended the legs apart from side to side and lower the crotch as near to the floor as possible make it a slow steady motion without pouncing.
2. As subjects lowers himself an assistant should be positioned behind the subject with the zero end of the yard stick on the floor.
3. When subject reaches his lowest point the cases were raised upward until the ruler guide rests under his crotch. The reaching 0.010 the nearest quarter of an inch was taken is case window at the lower.

**Scoring:** the best of three trials was recorded as the performance score.

**Additional pointers**

1. The knee must be locked at the moment.
2. The performer's hand may touch the floor for balance during the test.
3. The performance hip must not shift post the vertical during the measurement.

**Reaction time**

**Purpose:** To measure the speed of reaction in response to visual stimulus.

Facilities and equipment used: Human performance laboratory of L.N.I.P.E, Gwalior and electronic reaction tower supplied by Anand Agencies, Pune was used.

**Assistant:** One helper

**Procedure:** The collection of the data for reaction timer was set as required and detachable screen was fixed which divided the apparatus into 2 side, one subject side (S's) and the other experimenter's side (E's). There as four fixed pressed board in a line under the ground. The subject stood on the middle of two pressed board on S's side and experimenter stood on the E's side. The measurement of reaction time started first when

the experimenter rang the bell, which gave a signal for subjects to ready and stand properly for taking movement of the leg. The experiment pressed the key for (yellow/red) light stimulus. When the subjects lifted his leg of quickly and keep it to his side pressed board. The reaction time was read and recorded from it screen, as soon as the chronoscope is stroked.

**Speed**

**Purpose:** to measure the total response in short sprints.

**Equipment used:** Clapper and stop watch.

**Procedure:** 50-yard dash was used to test the speed of each subject. The subjects were allowed to warm up on their own before the actual performance. Two subjects ran at a time. Both of them took position behind the starting line. To conduct the race, the starter gave the command "on your mark" "set" and then clapped the clapper. Time keepers started their stop watches when they heard the sound of the clapper and stopped the watches when the subjects crossed the finishing line.

**Score:** the time was recorded to the nearest 1/10<sup>th</sup> of a second.

**Results and findings**

The product moment correlation was used for the analysis of the study.

**Table 1:** Coefficient of reliability of test retest scores in flexibility, reaction time and sprinting speed

Test items	'r'
Flexibility	.924
Reaction time	.892
Sprinting speed	.920

In order to investigate and test the significance of difference, if any, Pearson product method was computed. The results pertaining to 'r' method for trunk flexibility, side spilt reaction time and sprinting speed with due performance of soccer plays are given in table 2 respectively.

**Table 2:** Coefficient of correlation of independent variables to dependent variable (soccer-performance) of soccer players

Test items	'r'
Flexibility	.51
Reaction time	-.46
Sprinting speed	-.47

From table 2 it is observed that soccer performance has significant correlation with the flexibility, reaction time and sprinting speed.

It is observed from the statistical analysis that the coefficient of correlation of soccer performance with the flexibility, reaction time and sprinting speed were 0.51, -0.46 and -0.47 respectively at 0.5 level of confidence.

It is well known fact that soccer is a skill full and fast soccer game required high coordination ability, where players has to sprint and react very fast. That is the reason this study shows the significance relationship of flexibility, reaction time and sprinting speed with the playing performance.

It is very well known that the soccer is a game in which a player while playing has to strength his leg as well as level his trunk in order to defend and attack. As well as react very fast

as a where it is required. So, various type of flexibility reaction time and sprinting speed is required. That is the reaction this study shown the significant relationship of flexibility, reaction time and sprinting speed with the performance of soccer players.

### **Conclusions**

On the basis of the findings of the study, the following conclusions were drawn.

1. Various type of flexibility was the most important variable in predicting the performance of soccer players.
2. This study also reveals that reaction time is one of the important variable for developing performance of soccer players.
3. Speed contributes much in developing performance of soccer players.

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