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## Relationship between speed of kicking leg and instep kick of male soccer players

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### Abstract

**Objectives of the study:** The purpose of the present study was to study relationship between Speed of kicking leg (During Instep kick) and Instep kick of male Soccer players. It should be helpful in preparing some training Programs to develop the Instep kicking performance of Soccer players and to help the coaches to understand how the speed of kicking leg effect on Instep kicking performance and vice versa.

**Methodology:** For the present study the sample consisted of 8 male University level soccer players were purposively selected from Banaras Hindu University. The age of the subjects ranged between 18 to 25 years. 'Speed of kicking' measured by Silicon coach pro7 in Km/h and 'Instep kick performance' measured by open goal shooting by subjects and maximum ball travel in air measure as highest performance of the subjects. For the analysis of data correlation (Pearson Correlation) was used. The level of significance was set at 0.05 levels.

**Results:** Result of the study revealed that there was Insignificant relationship existed between Speed of kicking leg (During Instep kick) and Instep kick performance of male Soccer players.

**Conclusion:** By the help of study it is concluded that there is insignificant relationship was found between Speed of kicking leg (During Instep kick) and Instep kick performance of male Soccer players. And it is also concluded maximum Speed of kicking leg was achieved before the ball Impact. The distance covered by ball during Instep kick in soccer depends on the speed of kicking leg during Instep kick performance.

**Keywords:** Speed, Instep kick, relationship, Insignificant

### Introduction

It goes without saying that, soccer is the most popular sport in this planet. More than 200 countries have taken up the beautiful game over the years and its fan following is widespread. Events such as the World Cup elevate human emotions and curiosities in a manner that almost defies logic. Approaching and analyzing Soccer phenomena in an objective manner pose no mean challenge to both professionals in Soccer business and to sports science Researchers. Reilly (1993) [5].

In today's modern game, the players are better than ever. Every player is becoming more technically skilled, faster, stronger, quicker, smarter and more mental tough. Every player is becoming "well rounded. The best players are the best because they have worked to improve all areas of their game. They are good defenders as well as good attackers. They are physically fit and technically skilled. Players understand the game better than ever before, they are smarter. They are good communicators, motivators, and leaders. The best players work to develop all aspects of their game and leave nothing behind. If you're serious about becoming a better Soccer player and playing at the highest level you can achieve, then you need to do the same. Commit to developing all areas of your game. Work to remove your weaknesses and develop your strengths even more. Commit and work to become a more complete Soccer player. There are four areas of Soccer player development. When combined together they create the "Complete" Soccer player:

1. Technical 2. Physical 3. Tactical 4. Mental. (www.the-Soccer-essentials.com).

Biomechanics is the study of forces and their effects on living systems, whereas exercise and sports biomechanics is the study of forces and their effects on humans in exercise and sports. Biomechanics may be a useful tool for physical educators, coaches, exercise scientists, athletic trainers, physical therapists, and others involved in human movement. Application of

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Biomechanics may lead to performance improvement of the reduction and rehabilitation of injury through improved technics, equipment, or training. (McGinnis, Peter M., 2005)<sup>[4]</sup>. The internal and external forces acting on a human body determine how the parts of that body move during the performance of a motor skill. They determine, in short, what is commonly referred to as the performer’s technique. Uppal, A.K., (2009)<sup>[6]</sup>.

**Objectives of the Study**

To study relationship between Speed of kicking leg (During Instep kick) and Instep kick of male Soccer players. It should be helpful in preparing some training Programs to develop the Instep kicking performance of Soccer players and to help the coaches to understand how the speed of kicking leg effect on Instep kicking performance and vice versa.

**Methodology**

**Selection of Subjects**

For the present study the sample consisted of 8 male University level soccer players were purposively selected from Banaras Hindu University. The age of the subjects ranged between 18 to 25 years.

**Selection of Variable**

Speed of kicking leg and Instep kick performance of all the selected players was selected as a dependent variable.

**Selection of Test**

To find out the relationship in between dependent variables (Speed of kicking leg) and (Instep kick performance) the research scholar selected the following test.

1. Instep kicking performance was measured by open goal

shooting by subjects and maximum ball travel in air measure as highest performance of the subjects.

2. “Speed of kicking leg” was measured by Silicon coach pro7 at the time of Instep kick performance in Km/h.

**Procedure of Data Collection**

The test was administered on those subjects who are regular student of Banaras Hindu University, Varanasi. During morning conditioning in the session 2016-2017 data was collected. All the subjects have participated in university level championships conducted by AIU. A thorough warm up should be given. There was three trials provided to each subjects for Instep kick performance, and maximum distance cover by ball in air measure as highest performance of the subjects. ‘Speed of kicking leg’ was measured by Silicon coach pro7 at the time of Instep kick performance in Km/h.

**Statistical Technique**

The Statistical analysis of data pertaining to the study were collected on 8 male soccer players. To compute the Mean and Standard Deviation of Speed of kicking leg & Instep kick performance descriptive statistics was employed and to find out the correlation (Pearson Correlation) test was used. The level of significance to check the relationship obtained by correlation (Pearson Correlation) was set .05 level. All statistical functions were performed with the SPSS (v.20) software.

**Findings and results**

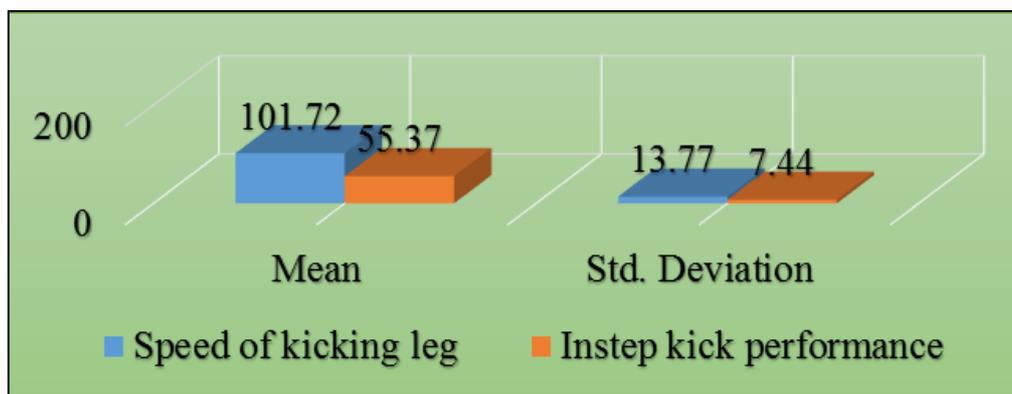
Result were made on the basis of the findings of the present study. The researcher reached at the results of this empirical investigation which is presented by the respective table-1, and 2 figure-1, 2 and 3.

**Table 1:** Descriptive Statistics of Relationship between Speed of Kicking Leg and Instep Kick of Male Soccer Players.

Variables	N	Range	Mean		Std. Deviation	Skewness		Kurtosis	
			Statistic	Std. Error		Statistic	Std. Error	Statistic	Std. Error
Speed of Kicking Leg	8	41.70	101.72	4.87	13.77	1.37	.752	1.81	1.48
Instep Kick performance	8	22.00	55.37	2.63	7.44	-.333	.752	-.693	1.48

It is evident from table – 1 that, mean and standard deviation scores of Speed of kicking leg and Instep kicking Performance of male Soccer players in Soccer have been

found as follow: Speed of the subjects 101.72 (±13.77) and Instep kicking Performance of the subjects 55.37 (±2.63) respectively.



**Fig 1:** Graphical Representation of Mean and S.D. Score of Speed of Kicking Leg and Instep Kick of Male Soccer Players.

**Table 2:** Correlation between Speed of kicking Leg & Instep kick of Male Soccer Players.

		Speed of kicking leg	Instep kick Performance
Speed of kicking leg (km/h)	Pearson Correlation	1	0.428
	Sig. (2-tailed)		0.290
	Sum of Squares and Cross-products	1327.04	307.23
	Covariance	189.58	43.89

	N	8	8
Instep kick Performance (meter)	Pearson Correlation	0.428	1
	Sig. (2-tailed)	0.290	
	Sum of Squares and Cross-products	307.23	387.87
	Covariance	43.89	55.41
	N	8	8

\*significant at 0.05 level

Coefficient of correlation required to be significant at 6 degree of freedom = (.707)

Table -2 reveals that in case of Speed of kicking leg (km/h) obtained value of 'r' (.428) is lower than tabulated value of (.707) therefore it shows insignificant relationship found in

relation to Instep kick of male Soccer players. It is also reveals from the table that, Instep kick Performance (meter) obtained value of 'r' (.428) is lower than tabulated value of (.707) therefore it shows insignificant relationship found in relation to Instep kick of male Soccer players.

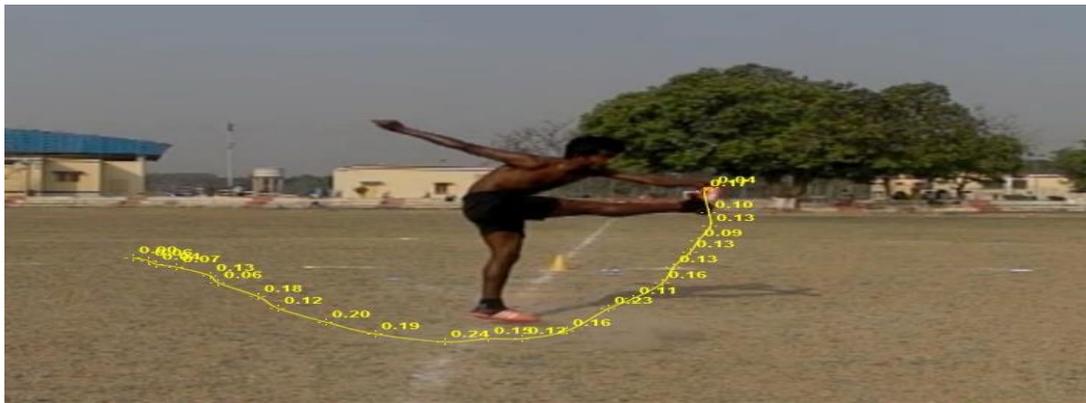


Fig 2: Instep kick pictures according to frame before kicking until kicking was done.

The figure 2 shows the distance made by kicking leg during Instep kicking performance of the subjects for each frame. These distance includes Instep kicking pictures according to frame before kicking until after kicking was done. This mean,

for every 0.02 to 0.05 seconds, this is the best performance of subjects according to maximum ball travel in air among all three trails provided to the researcher.

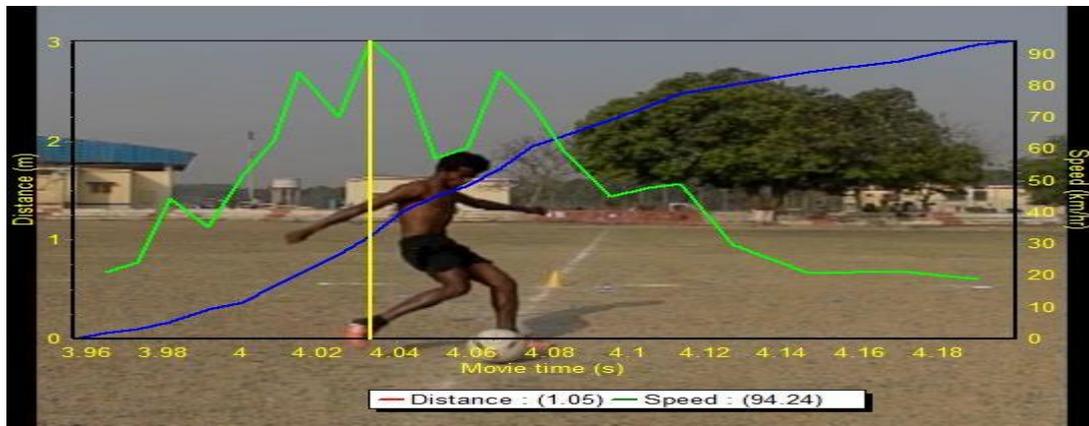


Fig 3: Speed of kicking leg according to frame before kicking until kicking was done.

The figure 3 shows the mechanism (Instep kick) of collision between the speed of kicking leg and the speed of kicking leg according to frame before kicking until after kicking was done. Which was analyzed by using software Silicon Coach Pro7. It is also indicated that, the analysis results of relationship between Speed of kicking leg and Instep kicking Performance in each frame of Instep kick. It shows, that maximum Speed of kicking leg was achieved before the ball Impact. The distance covered by ball during Instep kick in soccer depends on the speed of kicking leg during Instep kick performance.

**Discussion of the study**

As per the purpose of the study was to relationship between Speed of kicking leg (During Instep kick) and Instep kick of

male Soccer players. One more and last objective of the study was helpful in preparing some training Programs to develop the Instep kicking performance of Soccer players and to help the coaches to understand how the speed of kicking leg effect on Instep kicking performance and vice versa.

Through this study, we found that there was insignificant relationship found between the Speed of kicking leg (During Instep kick) and Instep kick of male Soccer players. In this study, the subject delivered the instep kick by using the right leg in all three trails provided by researcher. Which was recorded by high speed camera and analyzed by using software Silicon Coach Pro7. The figure 2 shows that, distance made by kicking leg of the subjects for each frame during Instep kicking performance. Which is includes Instep kicking pictures according to frame before kicking until after

kicking was done. The figure 3 shows that, mechanism (Instep kick) of collision between the speed of kicking leg and the speed of kicking leg according to frame before kicking until after kicking was done. It shows, that maximum Speed of kicking leg was achieved before the ball Impact. The distance covered by ball during Instep kick in soccer depends on the speed of kicking leg during Instep kick performance. It may be because of similarity between the age, height, weight and equal level of playing and is it may be also true that, there were not any specific training program for individual players in India. All above factors are playing important role in making a successful and highest performance of instep kick. These results are in agreement with A. R. Ismail and etc. (2010) <sup>[1]</sup> who stated that the biomechanics analysis and optimization of instep kicking: a case study to Malaysian footballer and found about to similar result in his study and concluded that, Success of an instep footballer kick depend on various factors including the distance of the kick from the goal, the type of kick used, the air resistance and the technique of the main kick which is best described using biomechanical analysis.

### Conclusions

Based on the results of the study the following conclusions were drawn:-

1. There was insignificant relationship found between the Speed of kicking leg (During Instep kick) and Instep kick of male Soccer players.
2. It is also concluded maximum Speed of kicking leg was achieved before the ball Impact. The distance covered by ball during Instep kick in soccer depends on the speed of kicking leg during Instep kick performance.

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