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A STUDY ON KINEMATIC ANALYSIS OF VOLLEY KICK OF GOALKEEPERS IN SOCCER

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ABSTRACT:

A study was conducted by the researcher to analyze the volley kick of goalkeepers in soccer. A total of 5 male right footed goalkeepers who were 17-25 years of age were selected for the study. The variables selected for the study were hip joint, knee joint, ankle joint, height of center of gravity at the time of execution and kicking distance. The study showed no significant relationship between any variable with the distance covered by the goalkeepers' kick.

KEY WORDS: *Volley kick, Goalkeepers, Soccer, relationship.*

INTRODUCTION

Volley kick is one of the mostly used techniques in soccer by the goalkeepers. The goalkeepers have an advantage over the other players inside the penalty area. The ball can be handled by the goalkeeper inside the penalty area when kicked by the opponent. When the goalkeeper holds the ball the best way to release the ball to the teammate is either by throwing or kicking. Throwing is a technique where accuracy of pass is more in comparison to kicking but the distance of the throw is limited as there are restrictions of the human body. Therefore, a greater distance can be achieved by a volley kick by the goalkeeper. The study was conducted to find out the relationship between the kinematic variables and the distance covered by the ball during volley kick.

METHOD

The data was collected from five male right footed goalkeepers. The range of their age was 17 to 25 years. Each goalkeepers were allowed to perform three volley kicks from a specified marked area for reference and the distance between the center of marked area and the spot of the first bounce was measured. The video was recorded using a high speed camera. The video was recorded for each and every trials. The volley kick with the longest distance covered by each subject was selected for the study and the video of the particular volley kick was separated from the other. There were total of five videos of each subject. The video was analyzed using Kinovea software version 0.8.26.

The variables selected for the study were hip angle, knee angle, ankle angle and center of gravity at the moment of contact of execution. The human model in Kinovea was used to find out the center of gravity. And angles were drawn in the selected joints using Kinovea software. The angles were calculated in degrees and center of gravity in meters.

Fig.-1: Height of Centre of gravity at time of execution (moment contact).

Fig.-2: Angle of right hip, Angle of right knee & Angle of right angle at time of execution (moment contact).

The statistical technique used for the study was Pearson correlation coefficient at 0.05 level of significance.

RESULTS AND FINDINGS OF THE STUDY

The data collected from the subjects were analyzed using the IBM-SPSS version 20 software. Pearson correlation coefficient was used and the level of significance was set at 0.05. The findings of the study are as follows:

Table no. 1
Descriptive Statistics

	Mean	S. D.	N
Performance in meter	55.6300	3.71241	5
Hip Angle during contact	149.0000	8.71780	5
Knee Angle during contact	163.2000	23.28519	5
Ankle Angle during contact	144.2000	11.77710	5
Center of gravity during contact	.9020	.03768	5

It can be seen that the mean value for centre of gravity of the subjects is .9020 meter with standard deviation .03768 meters. Hip angle is 149±8.71780 and the knee angle is 163.2± 23.28519. In case of ankle angle mean value is 144.2±11.7771 (degree).

It is seen that the average performance of subjects' is 55.63 meter whereas standard deviation is 3.71241meter.

The table no. 2 shows the correlation coefficient of performance with other variables along with their p-value and sample size.

Table no: 2
Correlations Coefficient

		Hip Angle during contact	Knee Angle during contact	Ankle Angle during contact	Center of gravity during contact
Performance in meter	Pearson Correlation	-.499	-.326	.068	-.773
	Sig. (2-tailed)	.392	.593	.914	.126
	N	5	5	5	5

From the table it can be seen that for none of the variables, the correlation coefficient was significant because for all the variables the p-value is greater than 0.05 which was considered as the level of significance.

DISCUSSION OF FINDINGS

In the present study none of the variable was found to be significantly correlated with the performance. One of the reasons for insignificant result may be due to the small sample size included in the present study. The subjects selected for the study were amateur which could be the reason for insignificant correlation. The other reason could be that the performance is also based on many other factors which should have been included as variables like speed of leg swing, strength, which could have lead for a significant relationship between the variables.

It is also justifiable that having only good techniques may not always enable a player to perform better. Many other factors like speed, strength, environmental conditions are also more necessary.

Similarstudy was conducted byLevy (1991) and OrloffHeidiet (2008) and the results also support the findings of the present study.

CONCLUSIONS

Based on the analysis and within the limitations of the present study, the following conclusions can be drawn.

- The angular kinematic variables like right knee angle, right hip angle and right ankle angle has shown insignificant relation with the performance of volley kick by goalkeeper in soccer.
- The height of center of gravity at the time of moment contact execution has also shown insignificant relation with the performance of volley kick by goalkeeper in soccer.

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