

A Comparison Study of Lofted Kick Among the Elite and Beginner Players in soccer

Dr. Yendrembam Nepoleon¹, Dr. Deepender², Sunil Thakur³ and Dr.Kiran⁴

¹Assistant Professor, Department of Physical Education, Lovely Professional University, Punjab, India

²Assistant Professor, Department of Physical Education, Lovely Professional University, Punjab, India

³Assistant Professor, Department of Physical Education, Lovely Professional University, Punjab, India

⁴Assistant Professor, Department of Physical Education, Lovely Professional University, Punjab, India

Corresponding Author: Yendrembam Nepoleon

Abstract

Soccer is a team sport in which players kick a ball to score a goal in various degrees. Soccer is a dynamic sport in which several crucial abilities, such as kicking with the lower limb and heading, must be mastered. In this study it is focus to lofted kick skill. The purpose of the study was to find out the kinematic analysis of lofted kick between the 5 subject of college players in advanced and beginner of age ranging from 17-25 years. The Go pro camera was used to video graph the moments. And the stick figures were prepared by using KINOVEA software and various kinematic variables were obtained at the moment of execution. The independent t test was used as statistical calculation. The study found that the hip joint angle and knee joint angle ($p < 0.05$) are less than 0.05

Keywords: kinovea, Go pro, beginner, advance, independent t test

Introduction

A lofted pass in soccer is a long, powerful kick that sends the football high up in the air far above the heads of defensive players to a fellow player. The lofted pass, also known as a lofted kick or lofted drive, is a versatile skill that can be used for forward attack, clearing defences, corner kicks, goal kicks and free kicks. Some of the earliest adaptations for abilities generated from the instep drive are found in the lofted kick techniques (Intermediate passing – the lofted drive, 2022).The study focuses on the important technique while kicking the

lofted kick. The most crucial component of a soccer player's game is his or her kicking technique. The quality of the games will improve with proper kicking technique. The study was focus on the advance and beginner of soccer players (Ismail, Mansor, Ali, & Jaafar, 2010). The players are permitted to kick using their right leg. Researchers' coverage has expanded to incorporate the whole kick, from how a player approaches the ball to the conclusion of the flight, which determines the success of the kick. This focus has encompassed the features of entire technique and the effects of the upper torso, supporting leg, and pelvic on the kicking motion, foot-ball strike and the consequences of footwear and soccer balls, ball release features, and the associated flight of the ball (Lees, Asai, Andersen, Nunome, & Sterzing, 2010).

Sports Biomechanics is involved with the forces that operate on a human body and the effects that these forces have. Physical education instructors and sports group coaches, whether they realise it or not, are also concerned with forces and affects. Their ability to train the basic methods of a game or physical action is heavily reliant on their understanding of the effects they are seeking to convey and the forces that cause these effects. As a result, it looks natural that physical educators, mentors, and competitors should seek to biomechanics for a logical rationale for the assessment of game techniques. Linear kinematics in sports biomechanics studies linear motion without considering the origin of the motion. Angular kinematics in Sports Biomechanics is concerned with rotational or angular motion, but it does not investigate the origin of angular motion.

The study's goal was to determine the kinematic effect of a lofted kick in advanced and novice soccer players. The study also looked at the correlation of kinematic characteristics in lofted kicks to establish which kinematic variable was most important in improving performance.

Materials and Methods:

This study covered the subject selection, variable selection, criteria measurements, data collection, filming methodology, film analysis and statistical approach used for analysis.

For the aim of the study, five male football players of all India inter-university level as advanced and five male non-football players (who have lately participated in football activity) as beginners aged 17-25 years were chosen as subjects. The advanced group is

believed to have a high degree of technique. The goal of the study was to compare the kinematic variables between advanced and novice students.

Three trials were provided to the performer and all performances were monitored and documented by qualified officials (in meters). At the time of ball execution, measure the angle in the nearest degree at the designated joint.

Results:

Independent t-test was used to compare linear kinematic and angular kinematic variables, namely angle at ankle joint (right), angle at knee joint (right), in lofted kick.

Table-1

Group Statistics of Levene's test					
Type of group	Subject	N	Mean	Standard Deviation	Standard Error Mean
Hip joint angle	Advance	5	205.00	3.39	1.52
	Beginner	5	161.60	2.70	1.21
Knee joint angle	Advance	5	73.00	3.67	1.64
	Beginner	5	102.80	1.30	.58
Ankle joint angle	Advance	5	91.60	1.52	.68
	Beginner	5	92.00	1.22	.55
Centre of gravity	Advance	5	74.43	4.87	2.18
	Beginner	5	74.07	4.03	1.80

Table-1 displays the mean and standard deviation values for all variables. These values might be used for further investigation in the project. Table-1 shows the mean, standard deviation, and standard error of the mean values for knee joint angle, hip joint angle, ankle joint angle, and CG in advanced and novice footballers. The mean flexibility of the advance is greater than that of the beginner. However, whether there is significant difference or not in advance and beginner have to be tested by using independent t-test for related groups.

Further, actual output shows the independent t-test are shown in Table-2 this table shows the independent-test along with their p- values.

Table-2
Independent Samples Test

Levene's Test	t-test for Equality of Means			
	T	df	Sig. (2tailed)	Mean Difference
Hip joint angle	22.382	8	.000	43.400
Knee joint angle	-17.091	8	.000	-29.800
Ankle joint angle	-.459	8	.659	-.400
CG	.125	8	.903	.354

Above table-2 reveals the kinematic variables like hip angle (.000), knee angle (.000) and ankle angle (.659) and linear kinematic centre of gravity (.903). t-test was used as a statistical technique in table-2; only the two variables are found to be significant difference between the advance and beginner because obtained value p-value is less than the 0.05.

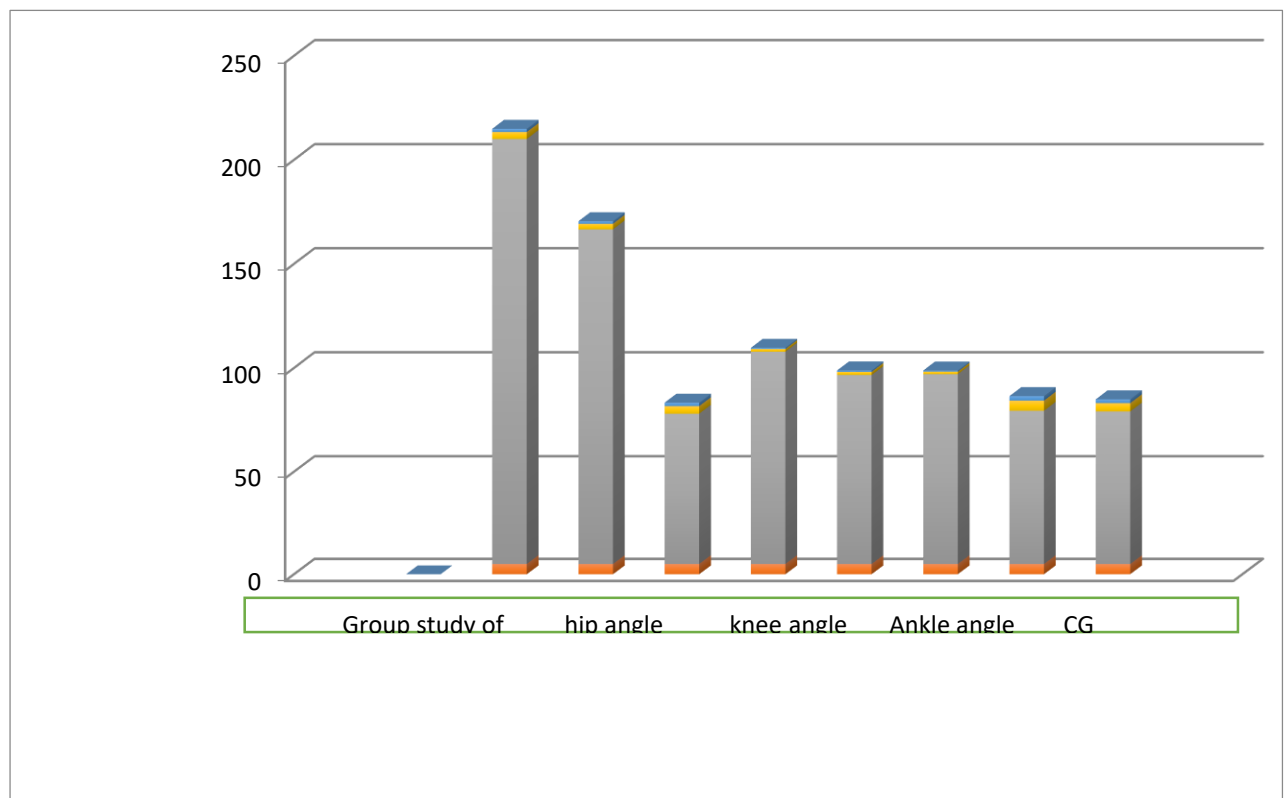


Fig.: Mean of the kinematic variable at moment at the time of execution of lofted kick.

Conclusion:

The kinematic knee angle variables revealed significant difference between advance and beginner in right knee angle at 0.05 level of significant during the execution of lofted kick in football. These Significant differences between advance and beginner may due to the lack of technique patterns adopted by the beginner during execution time further legs moment of right knee joint of beginner players are not properly flex, the lack of release of back kick moment of leg during the time of execution of the skill (lofted kick).

The study also reveals that the advance players have lesser angle in right knee angle in compared to beginner players. The lesser in right knee angle in advance players is due to

larger swing in their back kick during the time of execution than beginner which enhancement the greater radius of rotation of leg in advance players that results in the greater linear force when we compared to that of the beginner. This may lead to the good performance of advance players than that of beginner in lofted kick in football.

The variables right ankle angle joint revealed insignificant differences between advance and beginner at 0.05 level of significant during moment of execution in lofted kick may due to proper improvement basic concept of kicking technique related to other skill in football and also the proper placing of the foot while during the execution and it may be due to the physical fitness of the beginner players.

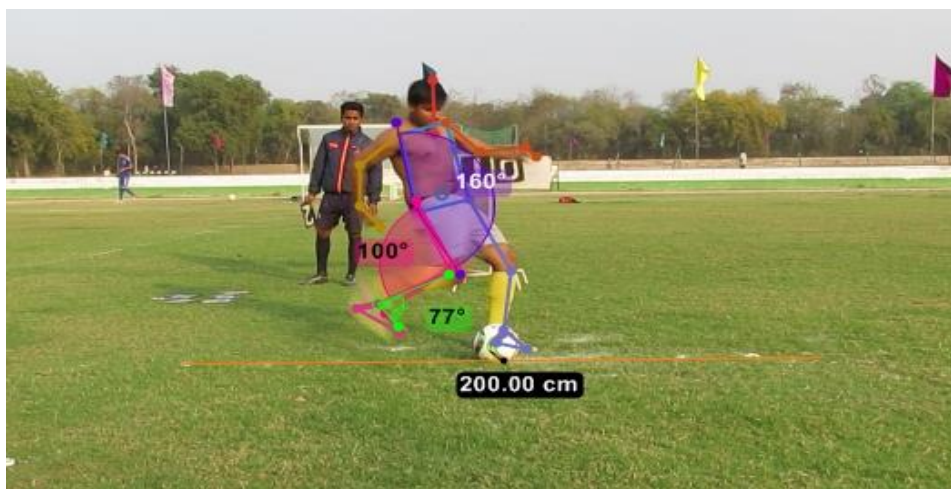


Fig.: Angle of right knee & Angle of right ankle at time of moment of execution for beginner player.

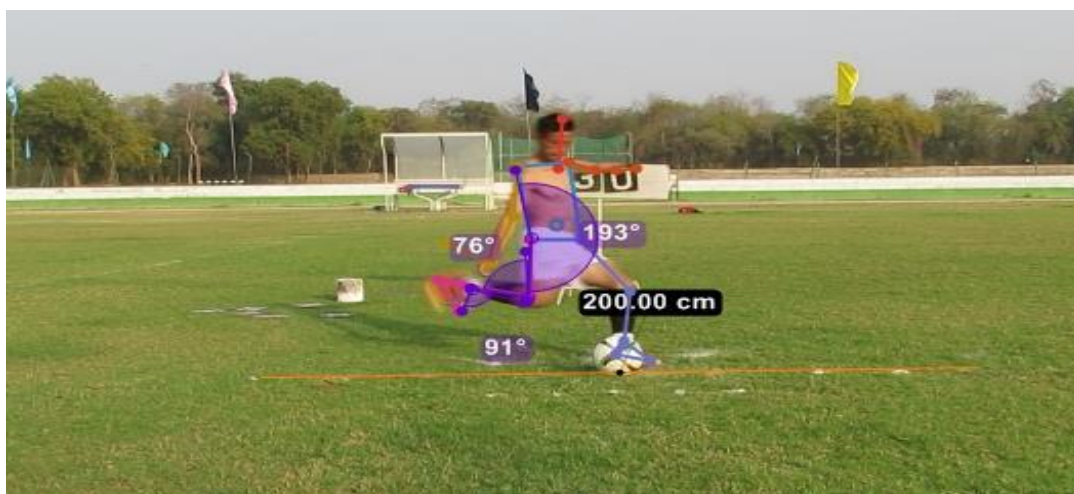


Fig.: Angle of right knee & Angle of right ankle at time of moment of execution for advance player

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