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# Technical performance of Ethiopian male soccer national team

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## ABSTRACT

*The purpose of this study is to explore 2015-2016 technical performance of Ethiopian male soccer national team in reference to African best national team (Algeria) based on the FIFA world national team rank. In this study cross-sectional research design was employed to explore the technical performance of national team. Video of Ten matches played by a Ethiopian (five-match) and Algeria (five- match) for African cup qualification and CECAFA tournaments were sampled from available match footage. Technical performance variables analysis included: Tackle, clearance Interception passes, pass accuracy, crosses, cross accur acy, corner, shot, shot accuracy and goal and players were categorized into three as defence, midfield, and striker based on their position. To this end data were statistically analysed by descriptive statistics, one sample t test and one-way ANOVA and significant is set at  $p < 0.05$ . The result of this research shows that Ethiopian national team technical performance is significantly behind the Algeria national team on passes, pass accuracy, crosses, cross accuracy, corner, shot, shot accuracy and goal whereas in clearance and Interception inversely Ethiopia is better. Except for crosses in all other technical performances, there is a significant difference among playing position. The finding of this study showed the technical performance of Ethiopian national team is significantly behind African best national team and also on most technical performances there is significant difference among playing position. Therefore, coaches can use this information for establishing technical performance profile of the national team and in designing the training program.*

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## 1. INTRODUCTION

Soccer is one of the collective sports games (CSG) with more participants and supporters all over the world (1). To succeed in soccer, players need the optimal combination of physical, technical, tactical quality, and mental motivation (3,5,8). So, performance in soccer has been described as the interaction between these four factors. Previous studies conduct in elite players bear witness as position specific requirements are varied (9,4,10).

Physical performance of soccer players is one of the decisive factors which incorporates all discrete movements such as total distance coved and distance covered with high intensity sprinting (3). Whereas Tactical performance have a vital role in augmenting the understanding successful game patterns in soccer, since successful pattern helps to determine who played well and what and/or were the players' strengths and weaknesses, how the game was won or lost (3,14).

Actually, no hesitation on the importance of technical performance for success. Technical performance in soccer is classified into three categories as goal related indicator which consists shooting and penalty kick, Offensive-related indicators which include passes, crosses and corners and Defensive-related indicators which includes, tackles, interceptions, clearances, duels and aerial duels. However, a number of factors influence this performance such as match

condition (player passion, quality of opponent team, competition level, match tactic, environmental condition, match place) (16,22) and Player character (player performance, gender and fatigue).

Analysis of technical performance enable the coach to diagnosis the game objectively and decreases the subjective judgements. This enables coaching staff and sports scientists to determine the demands placed on players during competition and apply data to training, testing protocols and the understand position-specific requirement for each respective team (4).

However, most research has simply quantified the soccer performances of players in a single tournament and a direct comparison of performance between the different league and national team has rarely been done (9). Obviously, the competitive and professional results of the Ethiopian soccer are significantly behind the modern flows of top-level soccer, especially the one demonstrated by the national team. It can be presumed that the product of such results is quality. But such kind analyses is quantify performance and helps us to identify the strength and weakness of performances.

## 2. STATEMENT OF THE PROBLEM

In the most competition like in business, result of soccer are often the best indicator of a team's performance but insufficient for a coach to assess team performance. Actually, coaches take an action to improve their team performance from

game-to-game, however, coach's observation and memory alone are not reliable enough to obtain accurate and objective information from competitions. Because during match the coach is a recipient of a great amount of information. As a results, they might not be able to evaluate objectively and exploit all the technical elements that may come along (11). Its accepted as the performance of Ethiopian soccer is behind the African and world best teams but this is not still technically quantified. So, this research was conduct fill this gap and with the innate intention to figure out Ethiopian national team soccer player's technical performance ability.

### **3. OBJECTIVE**

To determine the technical performance status of Ethiopian male national soccer team

To verify technical performance variation, exist among players based on their playing position.

To examine the differences in technical performance between Ethiopian national team and African successful national teams (Algeria).

### **4. LIMITATION**

The choice of some camera positions and angles also makes some forms of player identification difficult. As all matches were recorded from terrestrial television, some data cannot be collected due to its absence from the showing of action replays and other inappropriate footage.

## **5. MATERIAL AND METHODS**

### **Match sample**

Ten matches played by a Ethiopian (five-matches) and Algeria (five- matches) male national team played during the 2015 and 2016 for African cup qualification and Council for East and Central Africa Football Associations (CECAFA) tournaments were sampled from available match footage. The match sample was balanced with respect to match location and quality of the opposition for-example three matches were played away against for each team, whereas two of them were home match. These matches included three wins, one draws, and six losses, with 26 goals scored. However, the numbers of players were varied across the study due to changes in team selections and substitutions, which were made during the matches and inconsistency of team squad.

### **6. RESEARCH DESIGN**

The type of research design employed depends on the nature of the research itself (7). Having the above assumption in mind, among different designs cross- sectional research design was employed. Besides this, the technical performance of Ethiopian male soccer national team was compared with best African national team, based on FIFA rank. Since the research emphasize on technical performance high stress was paid for technical elements. In doing so excluding goal kipper playing team member was categorized into three groups based on

playing positions Defensive- (DF), Midfielder (MD) and striker (SK).



Figure 1. Research frame work

## 7. PROCEDURES

Video analysis of soccer is technically reliable to develop analysis tool because provides most of the requested information (8). Having this in mind the

Table 1. Technical performance variable based

on their categorises		
Defensive- related performance	Offensive- related performance	Goal- related performance
Tackles	Pass/ accuracy	Shoot/ accuracy
Interceptions	Crosses/ accuracy	Goal
Clearances	Corners.	

However, due to the nature of the soccer play and specificities of individual competition systems, the overtimes that resulted from tie result in the elimination phase was excluded from this research.

## 8. DATA GATHERING

Five match video of Ethiopia, and Algeria national team was recorded from *insport, Tv* and *EBC* television. The eight technical performances were collect using the Nacsport basics match analysis software. This method requires individual players to be filmed during match play and later have their activities manually coded during a video replay and finally

Notational analysis (21). But the quality and dimension of the camera have a limitation on the quality of data.

Selected video of five games played by each national team on 2015 and 16 were analysed in three technical performances categories of soccer by using Nac sport analysis software. Eight technical performance elements were selected based on the literature (17,13)

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## 9. STATISTICAL ANALYSIS

Descriptive statistics and one sample t-test method were used to determine the mean and standard deviation (SD) of the two national team performance. However, inter positional performance difference of players was tested by one one way ANOVA. In commenting on the analysis results, significance was rated through  $p < .05$  level. Statistical analysis software SPSS version 18 was used to analyze the process.

## 10. RESULT

The innate intention of this study is to investigate 2015-2016 technical performance of Ethiopian male soccer national team in reference to African best national team (Algeria) based on the FIFA national team rank. Ethiopian national team technical performance based on their categories “Defensive- related” “Offence- related” and “Goal related” is indicated on table one.

Table 2. Technical performance of Ethiopian national team

	Mean	Std	t	lower	Upper
Tackle	10	4.62	4.340	12.8271	47.9729
Interception	31.4	14.15	4.803	4.2883	14.9117
Clearance	10.6	4.2	5.018	279.11	428.0874
Passes	354.6	59.99	13.180	2.5054	15.0946
Corners	4.2	2.16	3.301	.5081	5.8919
Shoots	11.8	6.41	3.762	2.8301	18.7699
Goal	1.4	1.51	.590	-1.4831	2.2831

The result is presented in  $M \pm SD$  in each performance categories, the national team executes an average of  $10 \pm 4.62$  tackle,  $31.4 \pm 14.5$  ball interception and  $10.6 \pm 4.2$  clearance per game. In the offensive related performance  $354.6 \pm 59.99$  passes were executed but the Pass accuracy is only 71%,  $9.8 \pm 5.06$  Crosses were executed however the cross accuracy is 22.6% and  $4.2 \pm 2.16$  corner shoot opportunity were

created by the Ethiopian national team. In goal related performance  $11.8 \pm 6.41$  Shoots were performed however it has 38.62% of accuracy and an average of  $1.4 \pm 1.5$  goals were scored by the national team.

One-way ANOVA result indicates as there is a significant difference of technical performance among players based on their playing position (defence, midfield and striker).

Table 3. Technical performance on playing positions

		Sum of square	df	Mean Square	F	Sig.
Tackles	Between Group	64.933	2	32.467	7.162	0.009
	Within Group	54.4	12	4.12		
Interception	Between Group	356.133	2	178.0	4.072	0.045
	Within Group	524.8	12	43.43		
Clearance	Between Group	166.933	2	83.467	16.583	0.000
	Within Group	60.4	12	5.03		

There was a significant difference on defensiverelated technical performance “tackle, Interception and clearance” among playing positions at  $P < 0.05$  for all three groups in all variables ( $(f,12,2) = 7.16, 4.07, 16.5, P < 0.05$ ) respectively for tackle, Interception and clearance.

Table 4. Technical performance on playing position

		Sum of square	df	Mean Square	F	Sig.
Passes	Between Group	45166.93	2	22583.4	35.102	0.00
	Within Group	7720.4	12	643.3		
Crosses	Between Group	4.13	2	2.067	0.437	0.65
	Within Group	56.8	12	4.73		
Shoot	Between Group	86.9	2	43.46	4.42	0.03
	Within Group	118	12	9.833		
Goal		4.13	2	2.067	3.26	0.074
		7.6	12	0.633		

There was significant difference on offensive related and goal related technical performance except for crosses  $P > 0.05$  “Passes, Shoot and Goal” among playing positions at  $P < 0.05$  for all three groups ( $(f,12,2) = 35.1, 4.42, 3.26, P < 0.05$ ) respectively for Passes, Shoot and Goal. Whereas for crosses ( $(f,12,2) = 0.437, P < 0.05$ )

Obviously Ethiopian soccer is behind the world; thus, this study project is comparing with the African best national team based on the FIFA national team rank.

**Table 5.** Technical performance difference between Ethiopia and Algeria National team

		Tackle	Interception	Clearance	Pass	Cross	Corner	Shoot	Goal
Ethiopia	M	10	31.4	10.6	354.6	9.8	4.2	11.8	1.4
	Std	4.6	14.15	4.2	59.99	5.06	2.16	6.41	1.51
	MD	-0.2	12.6	5.2	-150.4	-16.2	-3.2	-5.8	-2.4
Algeria	M	9.8	18.8	5.4	505.0	26.0	7.4	17.6	3.8
	Std	4.26	10.6	3.4	188.6	10.07	3.5	5.1	2.77
	MD	0.2	-12.6	5.2	-150	16.2	3.2	5.8	2.4

M, mean Std, Standard Deviation, MD, mean difference  
less mean score

Mean score of technical performance revealed as there is clear performance element variation among Ethiopian and Algerian national team. On Defensive- related performance in Interception and Clearance Ethiopian national team Execute greater with MD +12.6 and +5.2 respectively whereas Algeria scores great in Tackle +0.2. However, in all other cases (offensive and goal-related performances), Algeria score greater with MD +150, +16.2, +3.2, +5.8, +2.4 on Pass, Cross, Corner Shoot and goal respectively.

## 11. DISCUSSION

In this study computerized video analysis of soccer, performance was employed to explore Ethiopian national team technical performance on 2015-16 year with reference to African best national team (Algeria) based on FIFA rank. Because Game- related statistics allows discriminate weakness and strength of team (17)

The Ethiopian national team performs an average of 10 ,31.4 and 10.6 respectively for tackle, interception and clearance, which is comparably greater than Algerian national team in interception and clearance. However, the great amount of clearance is not a sign of success soccer game pattern rather the inverse one (12).

On the other hand, the greater amount of tackle performed by Ethiopian national team bear witness as the team follow game strategies which are forceful or resemble combat. Inoffensive related performance-passes (pass accuracy), crosses (crosses accuracy), and corners Ethiopian national team perform respectively 354.6(71%),9.8(22.6%) and 4.2 which is fewer than Algerians.

The offensive related performance has a decisive influence on determining team success (10). For example, Mike H., and Ian F. (18) secured in their study they conduct on FIFA 1990 world cup, as longer passing sequences produced more goals per possession on success full team. Furthermore, their study enlightens more amount and a longer

passing sequence is not only but it's one element of success in soccer. Relative to Kylie G. (15) and his friends finding the number of pass performed by Ethiopian national team is less in number and accuracy which adverse negatively influence the goal scoring and winning. Whereas in goal-related performance the national team perform behind Algeria in both shoot and goal with the mean difference of -5.8 and -2.8 respectively. This study is in line with the study conducted by (12) on Technical performance and match-to- match variation of Spanish First Division Professional Football League. The results their study showed that top three teams achieved more assists, shots on target, ball touches, passes, through balls, successful dribbles and higher pass accuracy, but fewer clearances than those from Bottom three teams.

In this study, significant technical performance variation was observed among Ethiopian national team based on playing positions on all variables( $P < 0.05$ ). However, this trend could explain due to the varying number of subjects on the positions analysed, positional characteristics work rate difference in positional roles and the varying patterns of play used (20). This result is similar to the findings reported by Mohsen J.,(19)that the Midfield and defensive had significantly higher number of passes than forwards. Also, the players performed about 0.8 shots per competition, forwards and midfield had significantly higher number of shots than

## 1 REFERENCE

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defensive and striker showed significantly lower ball interception and higher ball losses than other positions.

## 12. CONCLUSION

The Ethiopian national team performs less on offensive and goal-related technical performance including pass accuracy and cross accuracy than African best national team(Algeria). On the other hand, the finding indicated as Ethiopian national team performance on a number of crosses, pass, pass accuracy, shoot, shoot accuracy and goal scored per game is lower than Spanish League and Italian Serie A leagues team performance. Additionally, the results of the present study show the technical demands national team according to playing position indicate, that there are significant differences in technical characteristics of positional roles.

## 13. RECOMMENDATION

The national team position specific technical performance profiles establishment can be expected from coaching staffs since the profile serves as a reference for training, pre-match preparations, post- match evaluations, talent identification, development and player selection.

Coaches can use this information for individualization of training according to playing positions in order to increase the specificity and also for training optimization used before training procedure and during competitions.

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