

Injury risk in male football players with special reference to the playing position

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Abstract

The purpose of this study was to investigate injury risk in male football players with special reference to the playing position Ethiopia of premiere league football players. A prospective cohort study design was employed during the competitive season. The data collection instruments for this study were; FIFA Medical Assessment and Research Centre (F-MARC's) form. The data was analysed descriptively and ANOVA with post hoc tests were run to confirm where the differences occurred. The association of injury with playing position was analysed using Pearson product moment correlation. The defensive and midfield players have almost equal injury distribution followed by strikers in training. While, in match the injury rate was almost equal in all outfield players. Goalkeepers suffered with the lower number of injuries both in training and match. The significant differences exist among playing positions in Injured Body Part and Injury Rate/Type. The defensive players have different injury pattern in Injury Rate/Type as of outfield players, as well as the goalkeepers have different injury pattern in injured body parts and Injury Rate/Type as the playing position. The playing position of football players have a relationship between injured body parts and Injury Rate/Type. It can showed that the playing position have the role of injury.

Keywords: football, injury, players and playing position

Introduction

A specific relationship between injury and player position has been referred as the greater the activity and covered distance during matches, the higher the risk of injury (due to increased acceleration/deceleration activity) (Bahr and Holme, 2003 and Árnason, *et al.*, 2004) ^[6, 4]. Different positional roles implicate different playing characteristics. Defenders tend to “tackle hard”, strikers are intended to strike the ball into goal, and wingers are known for their running (Azubuike & Okojie, 2009) ^[5]. According to the positional role defenders (34.3%) and attackers (31.4%) registered higher than other players (e.g.: goalkeepers (GK), 9.8%). The back defense line players accounts 36% and center field players we call them midfield players account 35% of injuries most frequently than the forward players or strikers (Price, *et al.*, 2004) ^[14]. Higher incidence of lower extremity injuries are sustained by defenders followed by midfielders, attackers and GK. Midfielders and attackers seem to be at higher risk of thigh muscle injuries (Cloke, *et al.*, 2012 and Deehan, *et al.*, 2007) ^[8-9]. Injury risks pattern of goalkeepers do not shadow as field players like striker, midfield and defense players and an increased age (Price, *et al.*, 2004) ^[14]. Goal keepers (who perform less running, more ball reaching, and more collisions with goalposts) show a higher rate of upper extremity, trunk and head injuries than the rest (Kristenson, *et al.*, 2013) ^[12]. Therefore, there is a need to investigate injury risk in male football players with special reference to the playing position Ethiopia of premiere league football players.

Materials and Methods

A descriptive epidemiological study of cohort design, with a timeframe of prospective study was employed to investigate the role of playing position on injury during premiere league of Ethiopia. Four hundred and sixty nine male football

players from 16 teams of Ethiopian premier league was participated using censuses method. The players were well informed about the aim and the design of the study prior to the study; they engaged a verbal informed consent for participation. The data collection instruments for this study were; F-MARC's forms were used in this study to record information (Fuller, *et al.*, 2006) ^[10]. The explanation of variables is separated in three, according with the form they are in player's baseline information form, match and training exposure form and injury report form. Data was analyzed in descriptive statistics of frequency and percentage. ANOVA was used to examine the differences of injury incidence between playing positions. Moreover, post hoc tests were run to confirm where the differences occurred between playing position groups. Pearson product moment correlation was also used to identify the association of injury with playing positions. The significance level was set at $p < 0.05$. The statistical analysis was done by SPSS version 23 software.

Result and Discussion

The players playing positions were classified in four categories of Striker, Midfielder, Defences and Goalkeeper. Table 1 showed that the role of injured players and injury distribution in training and match. In training the highest rates of injury was seen in outfield players of defences (55; 34.4%) and midfielders (54; 33.7%), followed by strikers (35; 21.9%).

The finding of the current study indicated that defensive and midfield players have almost equal injury distribution followed by strikers in training. While, in match the injury rate was almost equal in all outfield players of defences (33; 33%), midfielders (58; 30.4%) and strikers (57; 29.8%). Goalkeepers suffered with the lower number of injuries both in training (16; 10%) and match (13; 6.8%). Altogether,

defensive players have greater rate of injury (118; 33.6%), followed by midfield (112; 31.9%) and strikers (92; 26.2%). Slightly, the current finding was supported with the study reported a greater risk in forwards and central defenders (Mallo and Dellal, 2012) [13]. Whereas, in contrast with the current finding, studies reported a greater risk in strikers (Andersen, *et al.*, 2003; Arliani, *et al.*, 2018; Carling, *et al.*, 2010) [1, 3, 7], another study reported a greater risk in midfielders (Deehan, *et al.*, 2007) [9]. One of the more consistent trends that we found is the possible occurrence of lower injury distribution in goalkeepers compared to outfield players in both training and match. In line with the current finding, another study reported a significant lower risk in goalkeepers (Aoki, *et al.*, 2012) [2]. Additionally, studies reported goalkeepers to be at the lowest injury risk (Andersen, *et al.*, 2003; Arliani, *et al.*, 2018) [1,3].

Table 1: Playing position / Role of injured players

	Training		Match		Total	
	N	%	N	%	N	%
Striker	35	21.9	57	29.8	92	26.2
Midfielder	54	33.7	58	30.4	112	31.9
Defense	55	34.4	63	33	118	33.6
Goalkeeper	16	10	13	6.8	29	8.3
Total	160	100	191	100	351	100

Injury Variance in Associated Risk Factors (Age, BMI and Playing Position)

Table 2 presented that the Injury Analysis of Variance between Playing Position. The playing positions of the players have four categories (Striker, Mid Fielder, Defence and Goalkeeper). The obtained ‘F’ ratio for groups is 18.44, which is greater than the table value of 2.63 with df 3 and 347 required for significance at 0.05 level of confidence. The result indicates that, a significant differences exist among playing positions in Injured Body Part with a p – value 0.000. Moreover, the obtained ‘F’ ratio for groups is 5.08, which is greater than the table value of 2.63 with df 3 and 347 required for significance at 0.05 level of confidence. The result of the study indicates that Injury Rate/Type differs significantly among playing positions with a p – value 0.002. The previous studies also indicated that, the greater the activity and covered distance during matches, the higher the risk of a musculoskeletal injury (due to increased acceleration / deceleration activity) (Bahr and Holme, 2003; Arnason, *et al.*, 2004) [6, 4].

Table 2: Injury Analysis of Variance between Playing Positions

ANOVA of Playing Positions		Sum of Sq.	df	Mean Sq.	F	Sig.
Injured Body Part	Between Groups	1970.24	3	656.75	18.44	0.000
	Within Groups	12358.06	347	35.61		
	Total	14328.31	350			
Injury Rate/Type	Between Groups	125.96	3	41.99	5.08	0.002
	Within Groups	2869.71	347	8.27		
	Total	2995.66	350			

Table 3 showed that the post hoc test between playing positions. The significance differences between playing positions were observed in Injured Body Part, and Injury Rate/Type.

In Injured Body Part the significance differences were observed between the playing positions of Striker and Goal Keeper with the mean difference of 8.690, between Mid

Fielder and Goal Keeper with the mean difference of 8.746, between Defence and Goal Keeper with the mean difference of 8.690. Statistically significance differences were observed in all playing positions was at p-value of 0.000.

In Injury Rate/Type the significance differences were observed between the playing positions of Striker and Defence with the mean difference of 1.008 at p-value of 0.012 and between Mid Fielder and Defence with the mean difference of 1.431 at p-value of 0.000. This can show that defensive players have a different injury pattern in Injury Rate/Type as of outfield players, as well as the goalkeepers have a different injury pattern in injured body parts and Injury Rate/Type as the playing position.

In general, the finding of the current study has showed that playing position has different injury pattern. The result of this study was supported with previous studies, those indicated that, the greater the activity and covered distance during matches, the higher the risk of a musculoskeletal injury (due to increased acceleration / deceleration activity) (Bahr and Holme, 2003; Arnason, *et al.*, 2004) [6, 4]. Different positional roles implicate different playing characteristics generally, defenders tend to “tackle hard”, attackers are intended to strike the ball into goal, and wingers are known for their running (Azubuikwe and Okojie, 2009) [5].

Table 3: Post Hoc Test of Injury between Playing Positions

Post Hoc Test between Playing Position					
Dependent Variable	(I) Playing Position	(J) Playing Position	Mean Diffe. (I-J)	Std. Error	Sig.
Injured Body Part	Striker	Mid Fielder	-0.056	0.840	0.947
		Defence	0.350	0.830	0.674
		Goal Keeper	8.690*	1.271	0.000
	Mid Fielder	Defence	0.406	0.787	0.607
		Goal Keeper	8.746*	1.243	0.000
		Defence	8.341*	1.237	0.000
Injury Rate/Type	Striker	Mid Fielder	-0.424	0.405	0.296
		Defence	1.008*	0.400	0.012
		Goal Keeper	0.487	0.612	0.427
	Mid Fielder	Defence	1.431*	0.379	0.000
		Goal Keeper	0.910	0.599	0.130
		Defence	-0.521	0.596	0.383

*. The mean difference is significant at the 0.05 level.

The Relationship of Injury with Playing Position

As indicated in table 4 injured body part has a significance inverse correlation with playing position (r = - 0.228, r2 = 0.052, P < 0.000) at P < 0.01 and also an inverse significance correlation was observed between types of injury and playing position (r = - 0.132, r2 = 0.017, P < 0.013) at P < 0.05. The result supported with the study indicated a specific relationship between injury and player position has been referred (Giza and Micheli, 2005) [11].

Table 4: Relationship of Injuries with playing positions

Playing Position (PP)	Pearson Correlation	Injured Body Part	Injury Rate/Type
			-0.228**
	Sig.	0.000	0.013

** . Correlation is significant at the 0.01 and * . 0.05 level.

Conclusion

According to the aforementioned findings of this study, the following conclusion were made: The defensive and

midfield players have almost equal injury distribution followed by strikers in training. While, in match the injury rate was almost equal in all outfield players. Goalkeepers suffered with the lower number of injuries both in training and match. The significant differences exist among playing positions in Injured Body Part and Injury Rate/Type. The defensive players have different injury pattern in Injury Rate/Type as of outfield players, as well as the goalkeepers have different injury pattern in injured body parts and Injury Rate/Type as the playing position. The playing position of football players have a relationship between injured body parts and Injury Rate/Type. It can showed that the playing position have the role of injury.

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Conflict of interest

The authors declare that have no conflict of interest.

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