

# Scout Analysis of Soccer: New Look on the Brazilian Championship

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**Abstract** The aim of this study is to analyze the average performances of the teams that participated in the Brazilian Soccer Championship using the Scout Method, trying to correlate the patterns with and the final rankings. In order to achieve the results, 380 matches of the Brazilian Soccer Championship, season 2012, were analyzed. The findings of this study show that the highest proportion of goals are scored in the second half. G1 obtained more home and away wins and less home and away defeats, in comparison to the others three groups. In addition, G1 presented more scored goals and less wrong passes than the other groups. The findings showed positive correlations between the total points with victories, goals and goals difference. In addition, negative correlations could be found between the total points and losses with goals against. The results from this study raise the relevance of using technical variables to understand the final ranking in a soccer championship.

**Keywords** Sports, Scout, Soccer, National soccer teams

## 1. Introduction

Soccer has changed. The alterations on rules, strategies and training are notable. This way towards the modernity results in increasing competition among players, few spaces for the organization and coordination of moves. One of the main factors for this new scenario is the technology, in others words, the multiple types of analysis in soccer [1-3].

The Scout Method (SM) is used in many different sports, such as handball, baseball, tennis, and basketball [4-7]. Soccer is no different [8-10]. This type of match analysis is viewed as a vital process that enables coaches to collect information which can be used to provide feedback on performance [11]. Therefore, SM is an analysis tool that provides information about the strengths and weaknesses of the athletes and their teams [12]. The SM quantifies the actions in a field game, as fouls, wrong and right passes, goals, among others. Moreover, the SM can analyze the wins, losses, draws, possession, and tactical issues [2, 13-15]. Quantitative analysis is increasingly being used in team sports to better understand performance in these stylized delineated and complex social systems [10]. According to Anderson and Sally [14], the use of this type of technology provides a new form of analysis for those interested in soccer, using objectives proves.

Studies in this field of research aim to verify the influence of different variables in soccer elite, such as anthropometric variables, body composition, heart rate and others [3, 16-19]. However, even these variables are important. There is a lack of studies that uses SM to analyze the importance of technical issues and their relation with the final position in elite championships [20-22]. Thus, many questions remain about the impact of this technical variables. In addition, the specialized literature contains researches trying to understand different variables in different soccer leagues and championships [13, 23-26], but about the Brazilian league, there are few studies, despite its importance [27-29].

Our premise is that, performing an analysis of the basic components of the soccer game, as goals scored, tackling's, fouls, and wrong passes, the results could explain, in a simple's form, the wins, losses, draws and the final positions of the elite soccer teams. Consequently, the objective of this study is to analyze the average performance of the teams participated in the Brazilian Soccer Championship using SM and to try correlate the patterns with the final rankings.

## 2. Material and Methods

### 2.1. Population and Sample

In order to achieve the results, 380 matches of the Brazilian Soccer Championship, season 2012, were analyzed. The championship had 20 teams, playing two times against each other. The championship started in May and ended in

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Published online at <http://journal.sapub.org/sports>

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December. The study was conducted in accordance with the Helsinki Protocol. Because the object of study is freely available in newspapers, magazines, television and internet websites, the Statement of Consent is not required.

## 2.2. Instruments and Procedures

As it is an exploratory study, the Scout Method was used to analyze the matches of the Brazilian Soccer Championship. The SM is a system that provides a way to analyze many details of the soccer match [11, 14]. So it was decided to apply the SM to a particular table, in which were noticed all the items of interest [13, 15]. The same was done previously with the literature [20, 24, 30].

The data were collected applying the SM to each match, adding 380 in a total. During the analysis, two blinded reviewers evaluated and tabulated every single detail regarding the match, in a specific excel table. The reviewers used the matches' recordings for data collection. After discussion and literature revision, the following criteria were established for analysis: goals scored (GS), tackling's (T), fouls (F), wrong passes (WP), wins (W), losses (L), draws (D).

The teams were divided into four groups according to the final ranking: Group 1 (G1) 1<sup>st</sup> to 4<sup>th</sup> position; Group 2 (G2) 5<sup>th</sup> to 12<sup>th</sup> position; Group 3 (G3) 13<sup>th</sup> to 16<sup>th</sup> position; and Group 4 (G4) 17<sup>th</sup> to 20<sup>th</sup>. In order to analyze the effects of different the variables in the final ranking, the group division was conducted respecting the positions and their rewards

(ratings for future competitions).

## 2.3. Statistical Treatment

A descriptive analysis (central tendency and dispersion) was first carried out. The analysis of the histograms showed asymmetry of the data and, therefore, non-parametric tests were used. Correlation tests (Spearman) were performed between the technical attributes (GS, SB, F, and WP) and wins, losses and draws.

Wilcoxon test was performed in order to compare the field results, during home and away matches. All the statistical analyses were performed using SPSS 20.0 for windows, with significance being set at  $p < 0.05$ .

## 3. Results

The data demonstrate a greater amount of goals scored in second half (525) in comparison to the first (415), during the 380 matches of the championship. In addition, 54% of the matches had less than three goals. The team that scored the fewest goals (37 goals scored) ended the championship in the middle of the table. However, the team that had the worst defense (72 goals against) was relegated to second division. In contrast, the team with the better defense (33 goals against) was the champion and the best attack was the second (64 goals scored). The average ball possession was 27 minutes and 27 seconds, per game.

**Table 1.** Average's in the home and away matches

Groups	Wins (n)			Losses (n)			Draws (n)			Total Points		
	Home	Away	Total	Home	Away	Total	Home	Away	Total	Home	Away	Total
<b>G1</b>	53	29	82	7	23	30	16	24	40	175	111	286
<b>Mean</b>	13.30*	7.30*	20.52	1.81*	5.82*	7.54	4	6	10	43.81	27.84	71.55
<b>(SD)</b>	(1.70)	(2.62)	(1.01)	(1.25)	(3.31)	(3.11)	(1.41)	(1.41)	(2.70)	(4.28)	(8.38)	(12.69)
<b>G2</b>	75	38	113	34	70	104	43	44	87	268	158	426
<b>Mean</b>	9.37	4.75	14.75	4.25	8.81	13	5.43	5.52	10.91	33.51	19.82	53.32
<b>(SD)</b>	(0.81)	(0.95)	(1.25)	(2.06)	(1.29)	(0.95)	(2.36)	(0.51)	(1.91)	(2.36)	(3.15)	(5.54)
<b>G3</b>	32	15	47	18	40	58	26	21	47	122	66	188
<b>Mean</b>	8	3.75	11.75	4.53	10	14.52	6.51	5.38	11.81	30.53	16.51	472
<b>(SD)</b>	(2.58)	(1.5)	(1.71)	(1.29)	(1.82)	(2.38)	(3.11)	(1.25)	(4.03)	(5.13)	(4.51)	(9.61)
<b>G4</b>	23	10	33	33	50	83	20	16	36	89	46	135
<b>Mean</b>	5.75	2.51	8.25	8.25	12.51	20.87	5	4	9	22.32	11.52	33.82
<b>(SD)</b>	(0.95)	(0.57)	(1.51)	(2.06)	(1.73)	(2.52)	(1.41)	(1.82)	(1.63)	(3.72)	(2.11)	(5.81)

Note - n: total number; \* $p < 0.05$  for Wilcoxon test.

**Table 2.** Average scores of technical attributes

Groups	Technical Attributes											
	GS	Mean	SD	T	Mean	SD	F	Mean	SD	WP	Mean	SD
<b>G1</b>	240	1.62	3.37	16379	107.85	5.11	2797	18.41	1.24	7470	49.19	2.47
<b>G2</b>	380	1.23	6.24	34367	113.15	8.55	5358	17.75	1.62	15774	51.98	3.77
<b>G3</b>	166	1.18	7.78	17165	113	6.56	2512	16.58	5.14	8065	53.16	2.51
<b>G4</b>	154	1.05	1.05	16086	105.99	9.48	2843	18.78	0.71	7488	49.27	2.83

Goals scored (GS), Tackling (T), Fouls (F), and Wrong Passes (WP).

**Table 3.** Correlation between all variables

	P	W	D	L	G	GA	GD	WP	F	T
P	1.000	.959*	.075	-.882*	.844*	-.788*	.927*	-.028	-.023	.096
W	.959	1.000	-.146	-.740*	.873*	-.689*	.859*	-.049	.037	.051
D	.075	-.146	1.000	-.501*	-.219	-.437	.242	.354	-.137	.312
L	-.882	-.740	-.501	1.000	-.626*	.900*	-.906*	-.048	.105	-.139
G	.844	.873	-.219	-.626	1.000	-.506*	.801*	-.039	-.059	.020
GA	-.788	-.689	-.437	.900	-.506	1.000	-.894*	-.140	-.039	-.203
GD	.927	.859	.242	-.906	.801	-.894	1.000	.135	-.048	.166
WP	-.028	-.049	.354	-.048	-.039	-.140	.135	1.000	.171	.835*
F	-.023	.037	-.137	.105	-.059	-.039	-.048	.171	1.000	.266
T	.96	.051	.312	-.139	.020	-.203	.166	.835	.266	1.000

Points (P); Wins (W); Draws (D); Losses (L); Goals (G); Goals against (GA); Goals difference (GD); Wrong passes (WP); Fouls (F); Tackling (T). \*  $p < 0.05$ .

Table 1 shows the point's average in the home and away matches. The Wilcoxon test showed differences between groups in W and L, but no differences were found in D or in total points. Also, 48% of total wins occurred at home and 24% away. Table 2 presents the averages, by groups, of the technical attributes. Finally, in table 3 are demonstrated the correlation between all the variables.

## 4. Discussion

The aim of this study is to analyze the standard performance of the teams that participated in the Brazilian Soccer Championship using SM, and to try to correlate the patterns with the final rankings. The findings show that the highest proportion of goals are scored in the second half. These results corroborate the literature [20, 29, 31]. The findings of Njororai [20] show that the highest proportion of goals are scored between the 76th and 90th minute. Previous studies showed that the highest incidence of goals in the second half is due to the fatigue and consequently decreased technical skills [32, 33]. Yet, other factors could lead to the higher number of goals in the second half including, tactical choices, fluid balance, and lapses in concentration [20].

Our data are in accordance with other championships, such as the English Premiere League 2014/2015, in which the better attack was in the second position (83 goals scored) and the team with the best defense (32 goals against) was the champion. The same occurred in German Bundesliga (2007/2008), Spanish Primera División (2014/2015) and Italian Serie A (2015/2016). These results show that the best attack does not guarantee first place in a championship. The ideal is to have a balance between the offensive and defensive systems.

The ball possession was only 30,3% per game, in this season. Despite the small ball possession, Collet [15] showed that in different championships that this variable is not the best for understanding the game. In contrast, Castellano et. al [13] found that ball possession is an effective variable to

understand the results. These studies indicate that there is great difficulty in finding concrete answers regarding the best variables to be used to understand soccer.

The results showed that G1 obtained more home and away wins and less home and away losses, in comparison to the others three groups. Table 1 shows that, the best teams prefer trying to win the matches than play to draw, especially in home matches. Similar results were found in the literature [22, 34]. Accordingly to Anderson and Sally [14] playing at home increases the chances to win to 42%, and the probability to lose decrease to 19%. These results are emblematic. We believe that winning at home is crucial for a good performance in the championship. Take *Club de Regatas Vasco da Gama* for example. They won only nine matches at home and lost six times. G1 teams lost no more than three times at home. If *Vasco da Gama* (5<sup>th</sup>) had won twelve times at home (67 points in total), they would have moved to the 4<sup>th</sup> place, changing from G2 to G1. The same occur in other groups. *Coritiba Foot Ball Club* (13<sup>th</sup>) with only one more victory at home (51 points in total), would have moved the G2 (11<sup>th</sup>) and they would have qualified themselves for continental competitions.

Pollard [34] explains that the home advantages are many: local crowd support; travel fatigue; familiarity with the stadium; special tactics and psychological factors. If the teams mentioned above had taken advantage of the strategies cited by Pollard, possibly they would have finished the championship in better ratings. In addition, our data indicate that the chance of winning at home is two times higher than playing away. These results show the necessity for a better technical and tactical training, in order to reduce the difference between home and away matches.

On average, the G1 present more goals scored and less wrong passes than the other groups (see table 2). Keeping the ball requires a collective effort, related to the eleven players on the team. The ball possession increases the chances to create new goal situations [14]. Previous studies showed that less wrong passes and consequently ball possession are good determinants of performance [35, 36].

It is the unique qualities of soccer that make it extremely difficult to predict the results, therefore it is a challenge analyze soccer performance [37]. However, the results (table 3) showed positive correlations between the total points with wins, goals and goals difference. In addition, were found negative correlations between total points, losses and goals against. These results are in accordance with results of other competitions, such as Spanish Championship [38], European Championship [39] and English Premiere League [37]. Teams that have a higher number of defeats presents fewer goals scored and fewer goals difference. Finally, the success of a team will most likely be indicated by the collective performance of its players throughout the season [36].

## 5. Conclusions

This study presents some limitations: it was used just one league for analysis, which prevented specific comparison with others championships. Also, it were chosen few technical attributes to compare the performance of the teams. Despite the limitations, 380 matches have been observed, which allows a large amount of data for analysis. Thus, the findings from this study raise the relevance of using technical variables to understand the final ranking in a soccer championship. Yet, these variables could be used as indicators of team performance, allowing the staffs improve the training and planning for the championships. Soccer is a sport with multiple attributes. Therefore, further investigations are needed to compare the different leagues in the same conditions and, new technical aspects, such as correct passes, the difference between player position and the time of substitution during the game.

This study does not end here. We suggest a greater amount of research on the findings, especially regarding the reasons that determine the difference between wins at home and away. Studies analyzing psychological variables, which can increase the athletes' performances; as studies regarding higher altitudes or different time zones could be relevant for a better understanding of soccer. Initiatives to reduce the effects of these variables on the performance should be analyzed in order to provide an increased number of away wins.

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