## SCIENTIFIC EVIDENCES ABOUT THE GOAL OF THE FOOTBALL: A SYSTEMATIC REVIEW

Nelson Kautzner Marques Junior

**ABSTRACT**

The aim of the study was to determine the scientific evidences about the goals of the football. A systematic review methodology proposed in PRISMA. The studies were identified in electronic databases. The results were the following: the goals occurred more during 76 to 90 minutes of the 2nd time and the teams that practiced goals before of 15 minutes usually won. The region of the field that the football player practiced more goals was inside the area. In conclusion, study about the goals is important for the coach prescribes and guides the athletes.

**Key words:** Football. Athletic Performance. Sport.

**RESUMO**

Evidências científicas sobre o gol do futebol: uma revisão sistemática

O objetivo do estudo foi determinar as evidências científicas sobre o gol do futebol. A revisão sistemática utilizou metodologia proposta pelo PRISMA. Os estudos foram identificados em bases eletrônicas. Os resultados foram os seguintes: mais gols ocorreram mais durante 76 a 90 minutos do 2º tempo e as equipes que praticaram gols antes de 15 minutos geralmente venceram. A região do campo que os jogadores de futebol praticaram mais gols foi dentro da área. Em conclusão, estudo sobre os gols é importante para o técnico prescrever e orientar os atletas.

**Palavras-chave:** Futebol. Rendimento Esportivo. Esporte.

1-Mestre em Ciência da Motricidade Humana pela Universidade Castelo Branco, RJ, Brasil.

E-mail:
nk-junior@uol.com.br

## INTRODUCTION

The match analysis of the football is important study for the coach know the motives of the goal and at what moment during the game occurs more the goals (Heuer e Rubner, 2012). The good performance in football is composed by accuracy in pass and kick for the goal (Hughes e Bartlett, 2002). However, an important factor in modern football that provides to the victory of a team is the ball possession (Sarmento and collaborators, 2014).

Then, the study about the football with the factors that result in goal is important for the coach orient his team (Duch, Waitzman and Amaral, 2010). The match analysis of the football goals is important for the coach determines during the game the best tactical scheme in accordance with the time of the match and the score of the game (Silva, Castelo and Santos, 2011). The literature of the football determined that occurs more goals during the end of the 2nd half (Souza, Farah and Dias, 2012), the offensive sequence with more chance of goals is with few touches on the ball (Hughes & Franks, 2005) and practiced by football player in high speed (Marques Junior, 2004). However, the majority of the kicks in male high level football occurred with inside kick (Althoff and Hennig, 2014).

Therefore, the study about the goal of the male football on a systematic review is an important contribution to the studies of the match analysis. The football is a collective sport and the actions of the players during the game depend of the tactical thinking (Silva and collaborators, 2013) and many factors such the heat and others can interfere in the performance of the athletes (Mohr and collaborators, 2012). Then, the football coach needs to know about the motives of the goals during the male high level football.

What is the study with the scientific evidence about the goals of the male high level football?

Searching the literature of the football (Pedro, Machado and Nakamura, 2014; Santos and collaborators, 2014), there is no study about all the contents of the goals during match.

The aim of the study was to determine the scientific evidences about the goals of the football.

## MATERIALS AND METHODS

This study followed the systematic review methodology proposed in PRISMA statement (Moher and collaborators, 2009).

The studies were identified in electronic databases during January to March of 2014. Literature searches were conducted in Google Scholar, Research Gate and in Insight Journal. In electronic databases were consulted using the following keywords: goal, goal in football and ball possession in football. Relevant articles were obtained in full, and assessed against the inclusion and exclusion criteria.

Inclusion criteria of the studies were following: (1) type of participants (male high level football) and (2) type of result (match analysis of the goals).

Exclusion criteria of the studies were following: (1) study that was not male high level football and (2) game actions that do not result in a goal.

The researchers used the scale of Galna and collaborators (2009) for the quality assessment of the studies. The studies were considered low quality with an average below of 0.6 points.

## RESULTS

In the first phase of analysis, 265 studies were found using the keywords listed in the previous section and the author read the title of the study. After the reading the title and/or the abstract of each study (2 moths), the second phase of analysis the total was reduced to 50 relevant studies. The researcher was able to read the 50 studies in a period of 30 days and the total was reduced to 36 potentially relevant studies of match analysis of the goals for inclusion. Of these studies, 36 studies were included in this systematic review. The details the figure 1 shows.

In quality assessment of each study was found medium to high scientific quality. The table 1 shows the methodological quality of the studies.

In table 2 is presented a summary of each study selected for the systematic review.
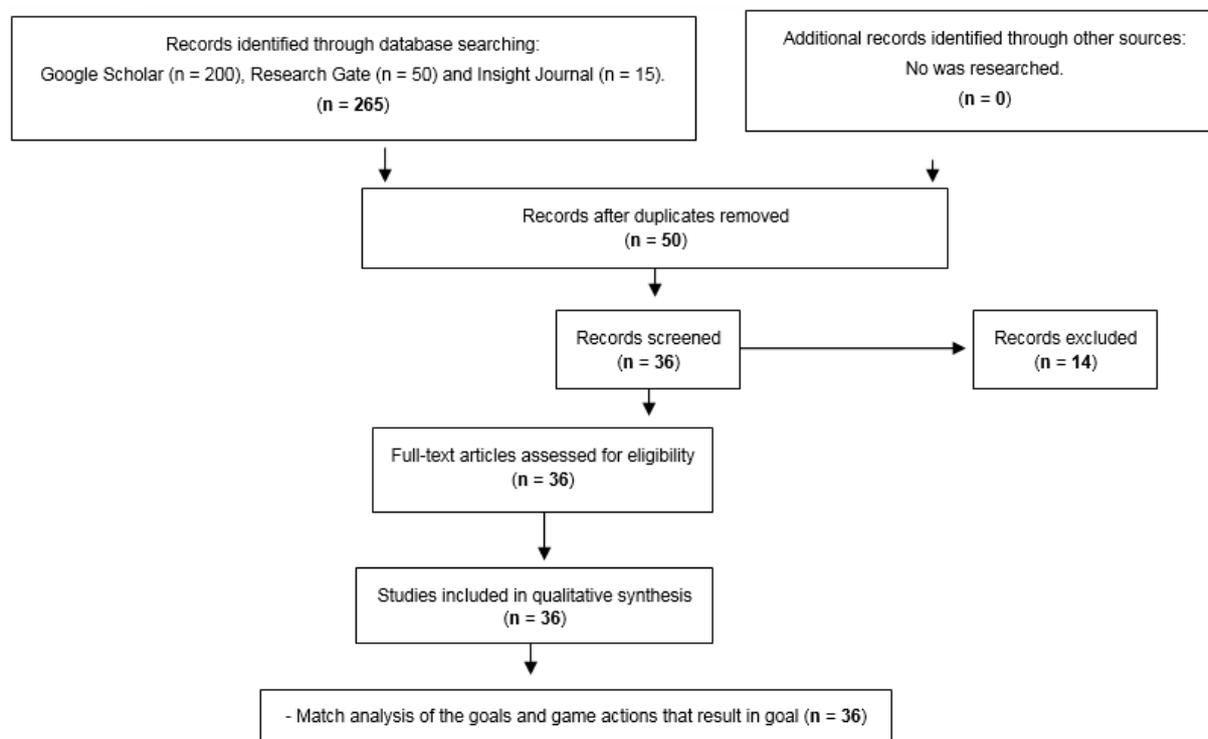
**Figure 1 -** PRISMA flow diagram of the selection of studies

**Table 1 -** Quality assessment of the studies selected.

| Study | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Average of each Study |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Souza, Farah and Dias (2012) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.84** |
| Fleury, Gonçalves and Navarro (2009) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.84** |
| Acar and collaborators (2009) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | **0.92** |
| Diniz da Silva (2006) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.84** |
| Nevill and collaborators (2002) | 0.5 | 1 | 0.5 | 0.5 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.73** |
| Michailidis, Michailidis and Primpa (2013) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.84** |
| Armatas, Yannakos and Sileloglou (2007) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.84** |
| Armatas and collaborators (2009) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.84** |
| Bento and collaborators (2012) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.84** |
| Horn, Williams and Ensum (2002) | 0.5 | 0.5 | 0.5 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.73** |
| Ensum, Taylor and Williams (2002) | 0.5 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.80** |
| Gómez and collaborators (2012) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.84** |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Moraes, Cardoso and Vieira (2012) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | **0.92** |
| Szwarc (2008) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.84** |
| Barreira and collaborators (2014) | 0.5 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.80** |
| Barletta (2009) | 0.5 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.80** |
| Bettega and collaborators (2013) | 1 | 1 | 1 | 1 | 0 | 0.5 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.80** |
| Moraes and collaborators (2013) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | **0.76** |
| Machado (2011) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.80** |
| Andrade, Padilha and Costa (2012) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.80** |
| Braz and Marcelino (2013) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.84** |
| Hughes and Franks (2005) | 1 | 1 | 0.5 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.80** |
| Taylor and Williams (2002) | 0.5 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.80** |
| Jankovic, Leontijevic and Jelusic (2011) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.84** |
| Silva and collaborators, (2009) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.84** |
| Papadimitriou and collaborators (2001) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.84** |
| Ortega (2001) | 0.5 | 1 | 0.5 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.76** |
| Clemente (2012) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | **0.76** |
| Shafizadeh, Taylor and Peñas (2013) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.84** |
| Hughes and Churchill (2005) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | **0.92** |
| Peñas and collaborators, (2010) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.84** |
| Castellano, Casamichana and Lago (2012) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | **0.92** |
| Low, Taylor and Williams (2002) | 0.5 | 1 | 0.5 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.76** |
| Ensum, Williams and Grant (2000) | 0.5 | 1 | 0.5 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | **0.76** |
| Ramos and Oliveira Junior (2008) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | **0.69** |
| Ensum, Williams and Grant (2008) | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | **0.69** |

**Legends:** The numbers from 1 to 13 are the questions of the scale of Galna and collaborators (2009): **1.** Research aims or questions stated clearly (Scoring Criteria: 1 – yes; 0.5 – yes, lacking detail or clarity; 0 – no); **2.** Participant detailed (number, age, sex, height, weight) (Scoring Criteria: 0 to 1); **3.** Recruitment and sampling methods described (1 – yes; 0.5 – yes, lacking detail or clarity; 0 – no); **4.** Inclusion and exclusion criteria detailed (1 – yes; 0.5 – yes, lacking detail or clarity; 0 – no); **5.** Controlled co-variates (walking speed, age, gender) (0 to 1); **6.** Key outcome variables clearly described (1 – yes; 0.5 – yes, lacking detail or clarity; 0 – no); **7.** Adequate methodology able to repeat study (participant sampling, equipment, procedure, data processing, statistical) (0 to 1); **8.** Methodology able to answer research question (participant sampling, equipment, procedure, data processing, statistical) (1 – yes; 0- no). **9.** Reliability of the methodology stated (1 – yes; 0- no). **10.** Interval validity of the methodology stated (1 – yes; 0- no); **11.** Research questions answered adequately in the discussion (1 – yes; 0- no); **12.** Key findings supported by the results (1 – yes; 0- no); **13.** Key findings interpreted in a logical manner which is supported by references (1 – yes; 0- no). **Quality of the Studies:** 0 to 0.59 is low, 0.60 to 0.80 is medium and 0.81 to 1 is high.

**Table 2 -** Summary of the studies selected with match analysis of the goals and game actions that result in goal.

| Study | Participants | Results of the Study |
|---|---|---|
| Souza, Farah and Dias (2012) | Teams (n = 20) that participated of the Brazilian Championship of 2008, 1st division. | Was analyzed the time of incidence of goals of 380 matches of the 20 teams. In total, 1034 goals were scored. The majority of goals occurred in the 2nd time (579 goals) and smaller quantity of goals occurred in the 1st time (455 goals). The quantity of goals in the 1st time occurred in the following time: 148 goals (0 to 15 minutes), 151 goals (16 to 30 min) and 156 goals (31 to 45 min). The quantity of goals in the 2nd time occurred in the following time: 190 goals (46 to 60 min), 168 goals (61 to 75 min) and 221 goals (76 to 90 min). The quantity of goals outside the area was the following: 1±1.2 goals (0 to 15 min), 1.1±0.9 goals (16 to 30 min), 1.4±1.2 goals (31 to 45 min), 1.4±1 goals (46 to 60 min), 1.2±0.7 goals (61 to 75 min) and 1.2±1.2 goals (76 to 90 min). The quantity of goals inside the area was the following: 6.1±1.9 goals (0 to 15 min), 6.6±2.7 goals (16 to 30 min), 6.5±3.3 goals (31 to 45 min), 7.9±2.2 goals (46 to 60 min), 7.4±2.6 goals (61 to 75 min) and 9.9±3.2 goals (76 to 90 min). |
| Fleury, Gonçalves and Navarro (2009) | Goals of all matches (n = 115) of the Brazil Cup of 2007. | In Brazil Cup occurred a total of 327 goals. The quantity of goals in the 1st time (164 goals) and in the 2nd time (163 goals) was similar. The quantity of goals in the 1st time occurred in the following time: 46 goals (0 to 15 minutes), 62 goals (16 to 30 min) and 56 goals (31 to 45 min). The quantity of goals in the 2nd time occurred in the following time: 48 goals (46 to 60 min), 52 goals (61 to 75 min) and 63 goals (76 to 90 min). |
| Acar and collaborators (2009) | Were analyzed all the matches (n = 64) of the World Cup of 2006. | The goals occurred in the following regions of the field: 79% of goals in the inside the penalty area and 21% of goals outside the area (in front of goal). The majority of goals occurred in the 2nd time (69 goals, 47%) and smaller quantity of goals occurred in the 1st time (67 goals, 46%) and in the extra time (11 goals, 7%). The goals occurred more with 4 passes or less. |
| Diniz da Silva (2006) | Were analyzed 2811 matches of eight national championships of the season of 2004/2005. | The majority of goals occurred in the 2nd time (55.66±2% of goals) and smaller quantity of goals occurred in the 1st time (44,34±2% of goals). |
| Nevill and collaborators (2002) | Goals of all matches of the World Cup of 1998. | In World Cup of 1998 occurred a total of 153 goals. The majority of goals occurred in the 2nd time (92 goals) and smaller quantity of goals occurred in the 1st time (61 goals). The quantity of goals in the 1st time occurred in the following time: 24 goals (0 to 15 minutes), 20 goals (16 to 30 min) and 17 goals (31 to 45 min). The quantity of goals in the 2nd time occurred in the following time: 30 goals (46 to 60 min), 24 goals (61 to 75 min) and 38 goals (76 to 90 min). |
| Michailidis, Michailidis and Primpa (2013) | Were analyzed 31 matches from the final phase of the European Championship of 2012. | The majority of goals occurred in the 2nd time (57.9% of goals) and smaller quantity of goals occurred in the 1st time (42.1% of goals). The quantity of goals in the 1st time occurred in the following time: 8% of goals (0 to 15 minutes), 17% of goals (16 to 30 min) and 14% of goals (31 to 45 min). The quantity of goals in the 2nd time occurred in the following time: 19% of goals (46 to 60 min), 17% of goals (61 to 75 min) and 17% goals (76 to 90 min). The goals occurred with following techniques of the football: 40.8% of kick goals, 27.6% of inside kick goals, 21.1% of headed goals, 5.3% of goals with other part of the body, 3.9% of penalty goals and 1.3% of own goal. The goals occurred in the following regions of the field: 71.1% of goals in the inside the penalty area, 21.1% of goals in the inside the goal area and 7.9% of goals in the outside the area. The most goals occurred after of the pass (50% pass resulted in goals) than others techniques of the football (corner kick, penalty so on). |
| Armatas, Yannakos and Sileloglou (2007) | Goals of all matches of the World Cup of 2002 and 2006. | The majority of goals occurred in the 2nd time (2002 = 59% of goals, 2006 = 52.5% of goals) and smaller quantity of goals occurred in the 1st time (2002 = 41% of goals, 2006 = 47.5% of goals). |
| Armatas and collaborators (2009) | All matches (n = 240) of the Greek "SuperLeague" in 2006-2007. | The majority of goals occurred in the 2nd time (58.96% goals) and smaller quantity of goals occurred in the 1st time (41.04% of goals). The quantity of goals in the 1st time occurred in the following time: 12.2% of goals (0 to 15 minutes), 13.62% of goals (16 to 30 min) and 14.87% of goals (31 to 45 min). The quantity of goals in the 2nd time occurred in the following time: 17.02% of goals (46 to 60 min), 19.17% of goals (61 to 75 min) and 23.30% goals (76 to 90 min). |

| | | |
|---|---|---|
| Bento and collaborators (2012) | Goals of the 1st division of the Paulista Championship (2009, 2010 and 2011) before of 15 minutes into the match (n = 201 matches. | The goals before of 15 minutes into the match caused the following results: 132 wins, 36 defeats and 33 draws. |
| Horn, Williams and Ensum (2002) | Were analyzed 10 matches of the English Championship of 2001/2002. | The study determined the regions of the attack that the football player practiced more goals. The goals occurred in the following regions of the attack: 85.7% of goals in the inside the penalty area, 73% of goals in the outside the area (area in front of goal), 7.1% of goals in the left and right of the field (attack zone). |
| Ensum, Taylor and Williams (2002) | Were analyzed the goals in the inside area during the World Cup of 2002. | The goals occurred in the following regions of the inside area: 62% of goals in the inside the penalty area and 38% in the inside the goal area. |
| Gómez and collaborators, (2012) | Were analyzed the regions of the goals of 1900 matches of four seasons (2003 to 2004 and 2007 to 2008) of the Spanish Championship. | The study detected that occurred more goals in the inside the goal area and in the inside the penalty area. The region of the field that was second place in the number of goals was the outside the area (area in front of goal) and in the offensive half-field. |
| Moraes, Cardoso and Vieira (2012) | Were analyzed the regions of the goals (n = 1092 goals) of the Brazilian Championship. | The goals occurred in the following regions of the field: 83.7% of goals in the inside the penalty area, 5% of goals in the offensive half-field, 3.2% of goals in the left of the field (attack zone) and 2.1% of goals in the right of the field (attack zone) |
| Szwarc (2008) | Were analyzed six matches of three teams during the World Cup of 2006. | The study determined that only in the attack zone the football players practiced the situation of 1 on 1 that results in goal (total of 11 goals). |
| Barreira and collaborators (2014) | Were analyzed the attack actions of football players of 21 teams in the years of 1982 to 2010. The teams competed in the World Cup and/or in the European Championship. | The study determined that the football player used more the side of the field during the start of the attack because the half-field has very players. This difficult the action of the defense. The quantity of kicks for the football player practices the goals depends of the distance of the region of kick. For example, inside the area the football player needs less kick to make the goal that outside the area. |
| Barletta (2009) | Were analyzed 63 matches (32 of the Libertadores and 31 of the Champions League). | The study determined that the goals occurred by kick (1110 goals), headed goal (29 goals) and own goal (5 goals). The study determined that the goals occurred in the following regions of the field: attack (121 goals), offensive half-field (20 goals) and defensive half-field (3 goals). In the defense the football player did not practice goal. |
| Bettega and collaborators (2013) | Were analyzed matches of the UEFA Champions League 2012/2013. | The ball possession during the football match at home was of 53.66% to 64.33%. The ball possession during the football match away from home was of 42.85% to 67.66%. The results of the Pearson correlation between the actions of the match were as follows: kicks the ball x ball possession ($r = 0.28$, $p = 0.03$), goals scored x ball possession ($r = -0.10$, $p = 0.24$) and goals conceded x ball possession ($r = 0.10$, $p = 0.25$). |
| Moraes and collaborators (2013) | Were analyzed 31 matches of the Euro Cup of 2012. | The teams with more ball possession (48.38%) won the matches and the teams that lost (29.03%) and drew (22.58%) had lower ball possession. The teams that practiced more kicks (39%) and more kicks on goal (42%) won the matches and the teams that lost (31% of kicks and 27% of kicks for the goal) and drew (30% of kicks and 31% of kicks for the goal) had lower quantity of kicks. The results of the Pearson correlation between the result of the match versus the actions of the match were as follows: result of the match x ball possession ($r = 0.30$, $p = 0.02$), result of the match x kick ($r = 0.25$, $p = 0.06$), result of the match x kick on goal ($r = 0.36$, $p = 0.007$). |

| | | |
|---|---|---|
| Machado (2011) | Were analyzed 64 matches of the World Cup of 2010. | The teams with more ball possession of the classificatory phase (44.44%) won the matches and the teams that lost (26.66%) and drew (28.88%) had lower ball possession. A similar result occurred in the final phase (eighth finals to final), the teams with more ball possession (56.25%) won the matches and the teams that lost (18.756%) and drew (25%) had lower ball possession. |
| Andrade, Padilha and Costa (2012) | Were analyzed 7 matches of the World Cup of 2010. | The ball possession of the Spain team was of $31.65\pm3.42$ min ($1^{st}$ time of $14.46\pm3.93$ min and $2^{nd}$ time of $17.18\pm4.26$ min) in the classificatory phase and was of $31.45\pm3.29$ min ($1^{st}$ time of $16.96\pm3.06$ min and $2^{nd}$ time of $14.49\pm1.42$ min) in the final phase (eighth finals to final). |
| Braz and Marcelino (2013) | Were analyzed all the 64 matches of the World Cup of 2010. | The 23 best teams of the World Cup of 2010 had $41.6\pm2.3$ min of ball possession. The time of the ball possession in the defense was of $7.5\pm1.9$ min, $22.7\pm3$ min in the half-field and $11.4\pm1.8$ min in the attack. |
| Hughes e Franks (2005) | Were analyzed all the matches of the World Cup of 1990 (n = 52) and 1994 (n = 64). | Approximately 80% of the goals occurred with a total of 4 passes or less. |
| Taylor e Williams (2002) | Were analyzed all the matches of the Brazil and its opponents during the World Cup of 2002. | Brazil team practiced more goals with 5 passes or less and opponent practiced more goals with 4 or 5 passes. |
| Jankovic, Leontijevic e Jelusic (2011) | Were analyzed 228 matches of the Serbian Championship. | The successful of the attack occurred with more frequency when the football player practiced 4 passes or less. |
| Silva e colaboradores (2009) | Were analyzed all the technical of the football important in the performance. The data were collected of the Brazilian Championship. | The technical of the football most important in the performance were determined by Pearson correlation ($p\le0.05$): number of points during the championship x goal kick (r = 0.50), number of points during the championship x pass (r = 0.53) and number of points during the championship x ball recovery (r = 0.54). |
| Papadimitriou e colaboradores (2001) | Were analyzed four national teams which qualified for the semifinals of the World Cup of 1998. | Short pass was more used during the match. |
| Ortega (2001) | Were analyzed the matches of the World Cup of 1998. | The best pass was at high speed. |
| Clemente (2012) | Were analyzed the matches of the World Cup of 2010. | The teams had more wins when practiced more accuracy in the pass. |
| Shafizadeh, Taylor e Peñas (2013) | Were analyzed the eight national teams of the Euro Cup of 2012 (n = 38 matches). | The teams had more wins when practiced more accuracy in the pass. |
| Hughes e Churchill (2005) | Were analyzed the matches of the America Cup of 2001. | The study detected that the cross occurred 21 kick goals (1%). |
| Peñas e colaboradores (2010) | Were analyzed 380 matches of 2008/2009 season of the Spanish Championship. | The football teams that practiced more kicks and more kick goals usually won their matches. |
| Castellano, Casamichana e Lago (2012) | Were analyzed 177 matches of the World Cup of 2002, 2006 and 2010. | The football teams that practiced more kicks and more kick goals usually won their matches. |
| Low, Taylor e Williams (2002) | Were analyzed 28 matches of the World Cup of 2002. | The following techniques were performed before of the athletes practiced the kick goal: 24% of the dribble with ball, 22% of the run with ball and 53% of the pass. |

| Ensum, Williams e Grant (2000) | Were analyzed the matches of the Euro Cup of 2000. | The football player practiced 53% of goals ball rolling and 46% of goals from sent pieces. |
|---|---|---|
| Ramos e Oliveira Junior (2008) | Were analyzed the matches of the Euro Cup of 2004. | The football player practiced 69% of goals ball rolling and 31% of goals from sent pieces. |
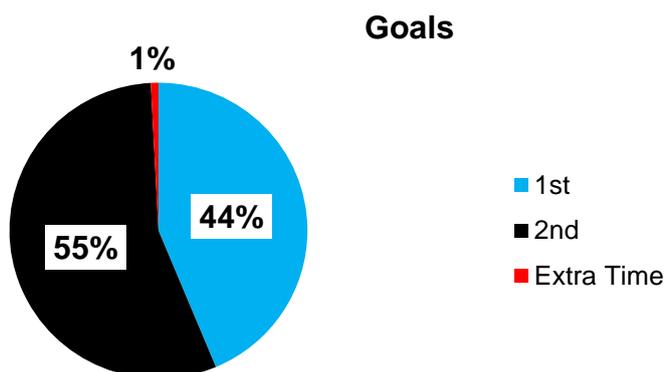


**Figure 2 -** Football players practiced the goals in the following match time.
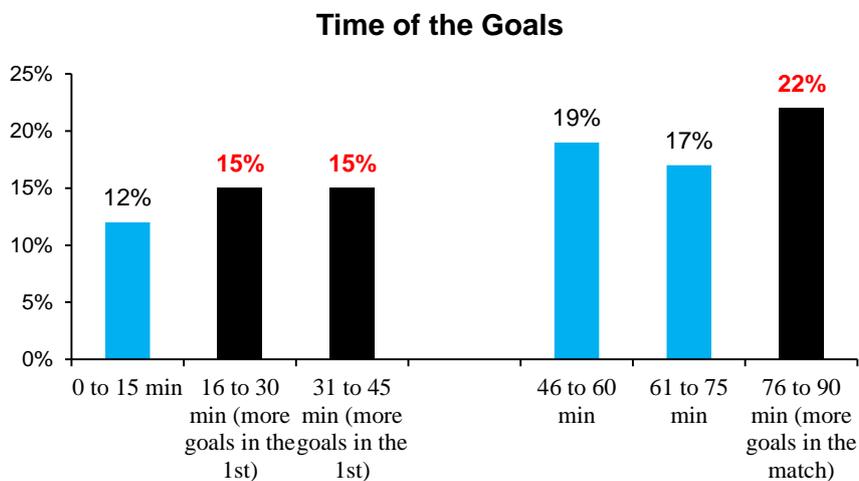


**Figure 3 -** Times that the football player practiced more and fewer goals.
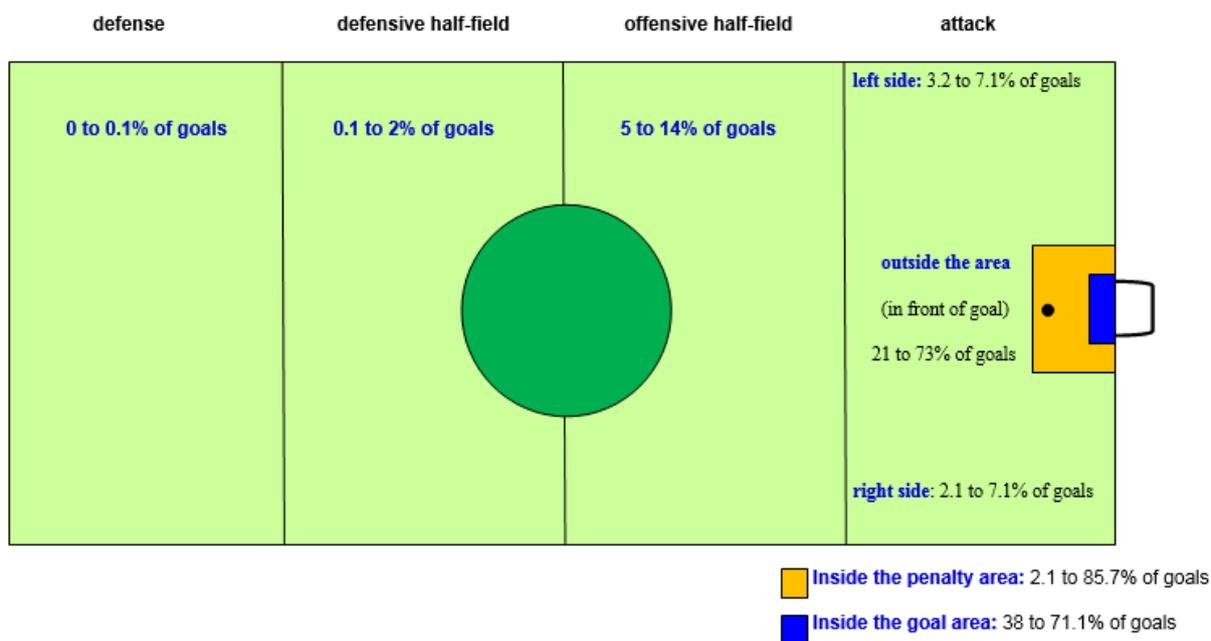
**Figure 4 -** Goals practiced in each region of the field.
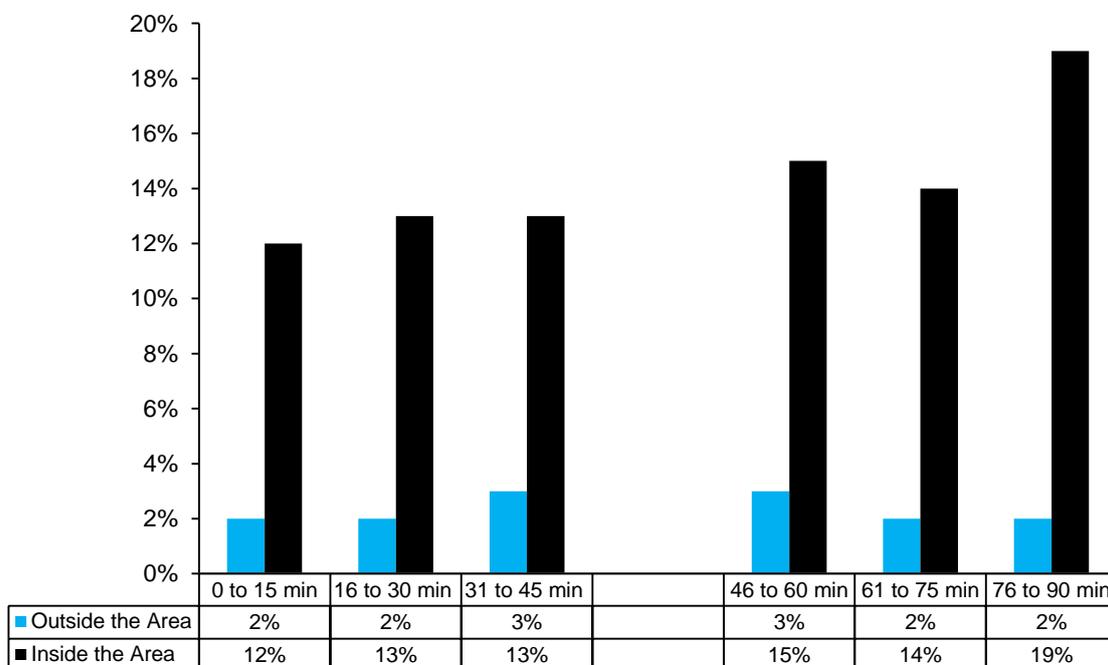


**Figure 5 -** Times that the football player practiced more and fewer goals in the attack.

**Time in Minutes of the Ball Possession**
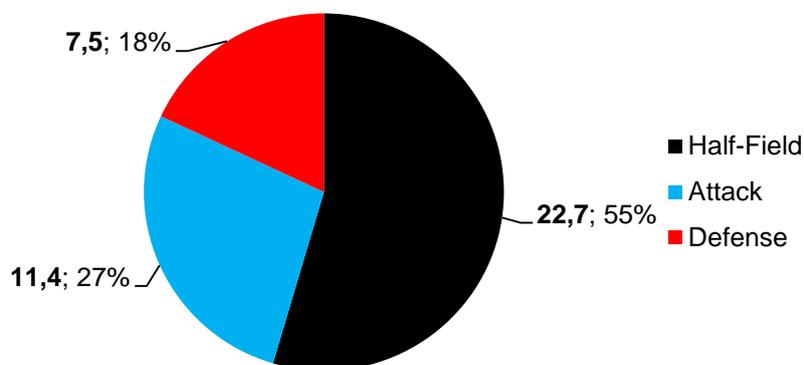


**Figure 6 -** World Cup of 2010: ball possession of the 23 best teams.

The majority of the studies (Acar and collaborators, 2009; Armatas Yannakos and Sileloglou, 2007, Armatas and collaborators, 2009; Diniz da Silva, 2006; Fleury, Gonçalves and Navarro, 2009; Michailidis, Michailidis and Primpa, 2013; Nevill and collaborators, 2002; Souza, Farah and Dias, 2012) determined that occurred more goals in the 2nd time than the 1st time and the extra time. These studies determined that occurred more goals in the match during 76 to 90 minutes of the 2nd time and in the 1st time happened more goals during 16 to 30 minutes and during 31 to 45 minutes. The figure 2 and 3 illustrates these results based on the studies of this systematic review.

Other important result about the time of goals, Bento and collaborators (2012) determined that the goals before of 15 minutes into the match caused more wins (132 wins) than draws (33) and defeats (36). These results were evidenced in the Paulista Championship of 2009 to 2011 (state of the Brazil).

The studies about goals zones (Acar and collaborators, 2009; Ensum, Taylor and Williams, 2002; Gómez and collaborators, 2012; Horn, Williams and Ensum, 2002; Michailidis, Michailidis and Primpa, 2013; Moraes, Cardoso and Vieira, 2012; Szwarc, 2008) determined that the region of the field that the football player practiced more goals was the attack because this region has a less distance of the goal. For example, the regions of the attack with more goals were inside the penalty area and inside the goal area because football player has more accuracy of the kick

and of others offensive techniques, the motive is that these regions of the field have less distance of the goal (Barreira and collaborators, 2014). However, the studies determined that it is very difficult of the football player to score the goal of the defense because of the distance of the goal. The figure 4 illustrates these results based on the studies of this systematic review.

Souza, Farah and Dias (2012) determined the region of the attack that the football player practiced more goals of accordance with the time of the match. The figure 5 shows the results.

The best teams had more ball possession (Andrade, Padilha and Costa, 2012, Machado, 2011) and football teams that compete at home had more ball possession (Bettega and collaborators, 2013). The ball possession is an action important during the football match because the teams practice more kicks and more kicks for the goal, therefore, the teams have more chance of get the win. However, the ball possession had a low correlation, was as follows: kicks the ball x ball possession (r = 0.28, p = 0.03) (Bettega and collaborators, 2013), result of the match x ball possession (r = 0.30, p = 0.02) (Moraes and collaborators, 2013). The time of the ball possession of the best teams was greater in half-field, the figure 6 shows these results (Braz and Marcelino, 2013).

Silva and collaborators (2009) informed that the football techniques most important in the performance are the kick (r = 0.50), the pass (r = 0.53) and the ball recovery (r = 0.54). However, the correlation of the football

techniques with the number of points during the championship was moderate (p≤0.05). The studies (Acar and collaborators, 2009; Hughes and Franks, 2005; Jankovic, Leontijevic and Jelusic, 2011; Taylor and Williams, 2002) of the systematic review determined that 5 or less passes practiced by football players causes more goals. The motive is that few passes during the attack and bad for the defense because has more opportunity of the surprise and becomes more difficult the adequate tactical position of the defense. Second Michailidis, Michailidis and Primpa (2013), 50% of the goals occurred after of the pass. Papadimitriou and collaborators (2001) detected that the pass more used was the short and Ortega (2001) informed that the best pass was at high speed. The short pass at high speed makes it difficult the action of the defense. The teams had more wins when practiced more accuracy in the pass

(Clemente, 2012; Shafizadeh, Taylor and Peñas, 2013).

The football teams that practiced more kicks and more kick goals usually won their matches (Castellano, Casamichana and Lago, 2012; Peñas and collaborators, 2010). However, the kick on goal had a low correlation with the outcome of the match (result of the match x kick on goal: r = 0.36, p = 0.007) (Moraes and collaborators, 2013). Other football techniques that resulted in goals were the cross (Hughes and Churchill, 2005), dribble with ball and run with ball (Low, Taylor and Williams, 2002). Therefore, pass, cross, dribble with ball and run with ball were the football techniques that resulted in more goals scored by kick. The figure 7 illustrates these results based on the studies of this systematic review (Hughes and Churchill, 2005; Low, Taylor and Williams, 2002).

**Technique Before of the Kick Goal**
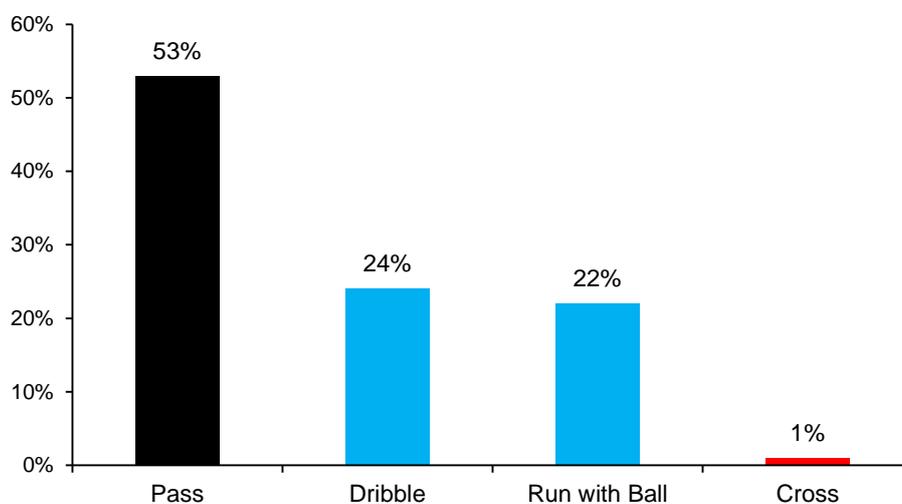


**Figure 7 -** Football techniques that resulted kick goals.

The kick goals was the action that more practiced goals, in second place was the headed goals, in third place was other part of the body and in four place was own goal (Barletta, 2009; Michailidis, Michailidis and Primpa, 2013). The goals ball rolling occurred between 53 to 69% and the goals from sent pieces (penalty, corner, throw-in, free kick so on) occurred between 31 to 46% (Ensum,

Williams and Grant, 2000; Ramos and Oliveira Junior, 2008).

**DISCUSSION**

The largest number of goals at the end of the match is related with the fatigue of the football player. This happens in the football player because occurs a reduction in muscle glycogen (Alghannam, 2012). Then, the results

of the systematic review are in agreement with the literature of the football. Other motive of more goals during the end of the match needs of study, Marques Junior (2008) informed that the attack players can determine the problems of the actions of the opponent`s defense and to score goals at the end of the match.

The systematic review determined that in the attack the football player practiced more goals and the literature of the football is in accordance (Armatas and collaborators, 2009). The football player should use at the start of the attack side of the field (in the region of the offensive half-field and of the attack) because the side of the field has fewer players and facilitates of the football player pass the ball or run with ball to the regions of the field that occurs more goals (Barreira and collaborators, 2014). Other important information during the attack action, only in the attack zone the football players practiced the situation of 1 on 1 that resulted in goal (Szwarc, 2008).

Based in the regions of the field that the football players practiced more goals, the team should not stay long in the field of defense because the opponent has a better chance of goal. This is common action in the weaker teams, in the teams that have the objective of the draw and in the teams that are winning and want to stay with this result. The best solution for these three situations, the team should be for a long time with the ball possession in the offensive half-field and in the attack because the team has less chance of the opponent practice a goal (Marques Junior, 2009).

The studies of the systematic review determined that the best teams had more ball possession. The results were in accordance with the literature (Peñas and Dellal, 2010). However, in the English Championship had more ball possession the teams that lost (39.23±25.12 minutes) than the winners (26.03±30.46 minutes) (Bradley, and collaborators, 2014). Then, this result is rare in studies of the football. The region of the field with more ball possession was the half-field because the football players organize in this region the attack actions. The original article also detected this result (Machado, Barreira and Garganta, 2013).

The pass is an important technique of the football that results in goals. Collet (2013) detected a correlation moderate (r = 0.74, p = 0.001) between pass versus goals. The systematic review determined that 5 or less pass of the football player practiced more goals. In other reference the football player practiced more goals with 4 passes or less (Hughes, 2003). The result of the systematic review was different. But about the kick, the systematic review was equal the literature, the best football teams practiced more kicks and more kick goals (Delgado-Bordonau and collaborators, 2013). The others football techniques that results kick goals, were not found studies (dribble, run with ball and cross).

## CONCLUSION

The systematic review determined that the goals occurred more during 76 to 90 minutes of the 2nd time and the teams that practiced goals before of 15 minutes usually won. The region of the field that the football player practiced more goals was inside the area. In conclusion, study about the goals is important for the coach prescribes and guides the athletes.

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