ORIGINAL

OBSERVATIONAL ANALYSIS OF THE GOALS THE TWO SEASONS OF THE SPANISH PROFESSIONAL FUTSAL LEAGUE

ANÁLISIS OBSERVACIONAL DE LOS GOLES DE DOS TEMPORADAS DE LA LNFS

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ABSTRACT

This article analyse the offensive actions ending goal along the seasons 2.012-2.013 and 2.013-2.014 of the Spanish professional futsal league and determine the relationships between the previous variables which are involved in these actions and influence goal. The total goals analyzed have been 2.449. The method used in this study was observational methodology. For the observational process, it has been used the observational software Lince vl.2.1.

It has been carried out using the IBM SPSS 19.0.0 program to determine the association or independence between variables zone from which the shot is taken-contact surface-type of shot and type of play-number of passes-players involved. The results show with organized defenses, a bigger number of passes and the participation of 3 players touching the ball to find passing lanes before shooting with goal options are required and most of the goals in actual futsal occur in fast moves of 1-2 passes with 1 or 2 players involved in it.

KEY WORDS: futsal, observational analysis, goals, spanish professional futsal league.

RESUMEN

Este estudio analiza las acciones ofensivas que terminan en gol a lo largo de las temporadas 2.012-2.013 y 2.013-2.014 en la liga de fútbol sala profesional español determinando las relaciones entre las variables anteriores que están involucrados en estas acciones. Los goles totales analizados han sido 2.449. El método utilizado fue una metodología observacional a través del programa Lince vl.2. Para el análisis estadístico se utilizó el programa IBM SPSS 19.0.0 para determinar la asociación o independencia entre las variables *zona de tiro-superficie de contacto-tipo de tiro y tipo de acción-número de pases-jugadores involucrados*. Los resultados muestran que la mayoría de los goles en fútbol sala se producen en jugadas rápidas de 1-2 pases con 1-2 jugadores participantes y que con defensas organizadas se requiere un mayor número de pases y la participación de 3 jugadores para encontrar líneas de pase antes de disparar con opciones de hacer gol.

PALABRAS CLAVE: fútbol sala, análisis observacional, goles, liga de fútbol sala profesional español.

1. INTRODUCTION

According to A. De Bortoli, R. De Bortoli, Márquez, & De Castilla (2001), the use/utilization rate is the best predictor of performance in futsal (FS), that is to say, the finalization of the offensive sequences with success determines the final result in this sport. Moreover, they explain that the plays previous to shot at goal keep an stable relationship between them, and, consequently, they can be considered as stimulating for a successful achievement in the game (Lago, Cancela, López, Fernández, & Veiga, 2003)

The attack has to overcome the individual and collective problems to preserve the ball, go through, use and/or avoid the mobile obstacles to get to score a goal. Therefore, the objective of each of the actions is to cause and explode an imbalance in the tactical scheme of the opposing team, creating this way a surprise effect of uncertainty to score a goal (Gréhaigne, 2001). Sánchez (1991), quoted by García, Aniz, Arellano, Domínguez, & García (2010), understands it as the design of transformation structures of the attack schemes

to generate imbalance in the defense (basically, errors in the changes of the opponents), and take advantage of the concluding options given. There are complex motor actions at decision-making mechanism level and for whose resolution there is no execution fixed model which guarantees success, as in the case of shots. The player has to be conscious and carry out a motor adaptability of his motor answer in function to the inherent demands of each specific situation (De Bortoli et al., 2001).

Accordingly, the evaluation and analysis of these specific actions for a complete season is crucial to know what are the variables or factors that may represent a sporting success. The study of these outputs, both at individual player's level or collective team's level, is an essential source of information for coaches that allows them to know the characteristics of the competitive activity in real game situations (González, Ureña, Santos, Llop, & Navarro, 2002). Following the same line of research, Álvarez, Puente, Manero, & Manonelles (2004) already did a study on the offensive actions (OA) ending goal in the Spanish Professional Futsal League (LNFS) during the 2003/2003 season.

According to Medina & Delgado (1999), observation is the method by which it is possible to get information from various events or facts, being necessary the use of different techniques to help the observer's perception. For the analysis of these OA ending goal, Medina & Delgado (1999) and Anguera & Hernández-Mendo (2013) propose methodologies based on the creation of observational designs according to certain observable criteria. All this, always made under a training process to ensure reliability and avoid distortions of the research, including data medium or software to help complete this methodology.

Therefore, the objective of the research is to analyze the OA ending goal along the seasons 2012-2013 and 2013-2014 of the LNFS and determine the relationships between the previous variables which are involved in these OA and influence goal.

2. METHODS

2.1. Sample

This is an observational, descriptive and comparative study, in which the goals of the LNFS last two seasons at its maximum category, First Division, has been analyzed. The total goals analyzed have been 2449 (table 1).

In season 2012-2013, 175 matches have been analyzed from the 182 played among the 14 teams of the championship, in which 1094 goals were analyzed of the 1191 total number, representing a 91.85%. In season 2013-2014, the total 1355 goals scored of the 210 played matches have been analyzed. All the goals have been obtained by means of the internet, using the videos provided by the LNFS.

Table 1. *Characteristics of the analyzed seasons*

Season	Teams in the league	Total teams	Analyzed matches	Total goals	Analyzed goals
2.012-2.013	14	182	175	1.191	1.094 (91,85%)
2.013-2.014	15	210	210	1.355	1.355 (100%)
Totals	29	392	385	2.546	2.449 (96,19%)

2.2.   Method

The method used in this study was observational methodology (Bakeman & Gottman, 1987). The observational design is, according to Anguera (2003), follow-up (the dispute of all matches of the season), nomothetic (because the study focuses on the number if times that a behavior is repeated, in this particular case, the goal), and multidimensional (as it takes into account proxemic conducts as well as gestural ones). The level of participation is non-participative observation, given that the observer does not interact with the observed players and the degree of perceptivity is complete, direct observation.

2.3.   Observational Tool

2.3.1. Observational process

For the observational process, it has been used the observational software Lince vl.2.1, this program offers a quite accurate mechanization of observational data in sport studies, offering also the possibility to export all the data for its subsequent statistical analysis.

To contribute to data reduction and facilitate its coding, a categorization was carried out, assigning nominal values to the different items of the observation form.

2.3.2. Procedure

Following the observational design created by Medina & Delgado (1999) and Anguera & Hernández-Mendo (2013), a protocol and a methodology was developed to achieve an accurate reliability in the results. The observational design is the model of analysis of all OA, given that to approach them from different perspectives is necessary a detailed information comprising all the necessary fields to frame each and every goals in several items. Therefore, first, observational variables that are going to complete the standard form are defined according to the former studies of Álvarez et al. (2004).

Nº	Variable	Category
1	**Definition zone** (where the kick is made)	Zone 1 (Z1): goalkeeper area; Zone 2 (Z2): from 6m line to double penalty point, that is to say, 10m line; Zone 3 (Z3): sidelines of the opponent field; Zone 4 (Z4): from 10m line to midfield; Zone 5 (Z5): own field *(figure 1)*
2	**Contact surface**	Instep (INST), inside edge (INSI), outside edge (OUT), toe (TOE), head (HE), others (OT): heel, knee, chest…
3	**Type of kick**	Satin (SA), médium height (ME), high (HI)
4	**Type of play**	Static attack (SA): *the play or attack passes with an structured and fixed defense*; Counter-attack (CA): *action started with a quick forward move towards the opposing goal without an structured rival defense*; Rebound/clearance (RE): *situation where the ball is free after a shot, a pass or a loss*; Pressing overcoming (PO): *tactic movement made by a team in possession of the ball when the rival is exerting pressure in its own area*; Steal (ST): *recovery of the possession by the defense team without the ball leaves the pitch*; 2nd post (2P): *realization of a goal from the furthest post form where the sequence comes*; Goalkeeper-player (GP): *possibility of attack of a futsal team replacing the goalkeeper by a field player, having the superiority in 5x4 offensive sequences*; Superiority (SU): *greater number of field players than the opponent by the expulsion of an opposing player;* Inferiority (IN): *smaller number of field players than the opponent by the use of the goalkeeper-player or an own expulsion*; Goalkeeper (GO): *goal of the goalkeeper from his own area*; Own goal (OG): *a player of the defending team scores an own goal*
5	**Number of passes** (without any player of the other team getting in contact with the ball)	1-2 passes, 3-4 passes, 5-6 passes, +6 passes.
6	**Players involved** (get in contact with the ball in the offensive sequence)	1 player, 2 players, 3 players, 4 players, 5 players.

Figure 1. *Definition zones*
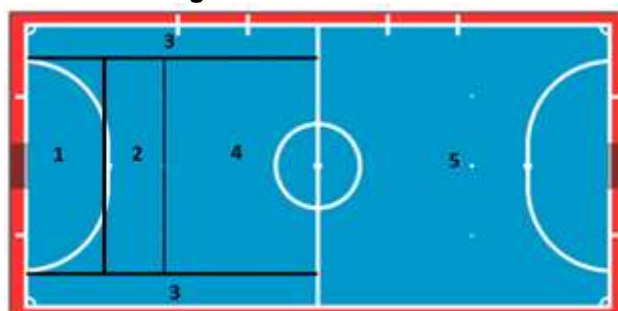
2.4. Recording and coding

The 385 matches played by the teams belonging to the LNFS in seasons 2012-2013 and 2013-2014 were not broadcast by a public television channel, but they were recorded by the teams playing as locals and they facilitated them to the LNFS, who sent us all the recordings for its subsequent coding.

These played matches represent the maximum number of matches that the teams could play within this championship. Each match to be recorded is composed of an specific number of plays and each player, in turn, performs a certain number of actions, which means a minimum recording unit.

According to Bakeman (1978), the type of data we handled is concurrent in time-base (type IV). That is, the data used are of order and duration and concur, they overlap, which is coherent with the multidimensional nature of the design.

If the typology of the data used by Bakeman & Quera (1996) is taken into account, these are multi-event, given it is a multidimensional design and it uses the combination of field format and system of categories as an observational tool. The different multi-events recorded amounted to 385 and the total number of multi-events recorded being 2449.

2.5. Consistency between observations

In order to guarantee the reliability and validity of the study, a period of observational training of the researcher was carried out, where all the matches of a day were randomly selected for its analysis; two days later, the same process was repeated achieving a confidence rate of 0.91, higher than the one set by Anguera & Hernández-Mendo (2013) of 0.85, through its formula (lower number/upper number)*100. This observational training, understood as the first pilot study of the research, supposed an informational feedback about the variables which allowed carry out the following modifications before carrying out the definite observational analysis:

1. Goals ended on the defined limits of the zones of the pitch are considered as actions materialized within this same area.
2. Free kicks are considered as follows. Penalty shot is recorded in zone 1, while double penalty is recorded under zone 2.

To continue with the reliability of the study and to achieve the minimum requirements proposed in other researches, another confidence test was carried out in the middle of the actions analysis in which a day was chosen randomly, and the data were recorded again, getting a coefficient of 0.96.

2.6. Data analysis

It has been carried out using the IBM SPSS 19.0.0 program (University of Zaragoza license). Excel spreadsheets were used to data collection. The results of those findings with statistical meaning or a clear interest to the concerning study, are presented by means of tables and charts. Frequencies and percentages were calculated.

To determine the association or independence between variables (1: zone from which the shot is taken-contact surface-type of shot; 2: Type of play-number of passes-players involved) Pearsons's Chi-square test (χ^2) was used; if the

applying conditions cannot be fulfilled, the Fisher's Exact Test was made; if it is necessary, the Monte Carlo method, based on 10000 sampled tables, will be used. In those variables where the association was determined, by rejecting the hypothesis of null dependence, Haberman adjusted residuals (AR) were used to explain the category or categories in charge of the statistic significance. To measure the association level the contingency coefficient (C) was used.

In all the statistic analysis, it was used a α of 0.05

3. RESULTS

3.1. Relationship between the zone from what the shot is taken-contact surface-type of shot

Zone from what the shot is taken and contact surface (table 3). Association obtained with the Fisher's exact test. In season 2012-2013, C=0.311, and in season 2013-2014, C=0.281, in both seasons p < 0.0001.

Table 3. *Contingency table of the relationship between the area from what the shot is taken and the contact surface when a goal is achieved*

		2.012-2.013						2.013-2.014					
		Inst	Insi	Out	Toe	Ot	N %total	Inst	Insi	Out	Toe	Ot	N %total
Z1	%	21,20%	60,10%	2,60%	10,90%	5,20%	466	42,50%	45,20%	3,00%	7,40%	1,80%	597
	AR	-8,1	7*	2,3*	-1,7	4*	42,63%	-7,4	7,9*	2,2*	-1,9	1,6	45,68%
Z2	%	40,00%	41,70%	0,00%	17,70%	0,60%	175	57,80%	29,80%	0,90%	10,00%	1,40%	429
	AR	1,6	-1,7	-1,8	2*	-2	16,01%	2,1*	-2,2	-2	0,9	0,2	32,82%
Z3	%	47,00%	34,80%	1,50%	15,80%	0,90%	330	69,20%	12,50%	1,90%	16,30%	0,00%	104
	AR	5,5*	-5,6	-0,1	1,8	-2,5	30,19%	3,3*	-4,8	-0,1	2,7*	-1,2	7,96%
Z4	%	56,10%	34,80%	0,00%	9,10%	0,00%	66	76,80%	9,50%	1,10%	12,60%	0,00%	95
	AR	3,7*	-2,2	-1,1	-1	-1,4	6,04%	4,7*	-5,2	-0,7	1,3	-1,2	7,27%
Z5	%	35,70%	55,40%	0,00%	3,60%	5,40%	56	65,90%	29,30%	2,40%	2,40%	0,00%	82
	AR	0,1	1,2	-1	-2,2	1,2	5,12%	2,3*	-0,9	0,2	-2,2	-1,1	6,27%
	N %total	381 34,90%	522 47,80%	17 1,60%	142 13,00%	31 2,80%	1.093 100%	701 53,60%	444 34,00%	27 2,10%	118 9,00%	17 1,30%	1.307 100%

* Statistical significance. direct association

Zone from what the shot is taken and type of shot (table 4). Association is found by using the Chi-Square test. In season 2012-2013, χ^2 =58.2, p < 0.0001, C=0.225. In season 2013-2014, χ^2 =41.3, p < 0.0001, C=0.175.

Table 4. *Contingency table of the relationship between the area from where the shot is taken and the type of shot when a goal is achieved*

		2.012-2.013				2.013-2.014			
		Sa	Me	Hi	N %total	Sa	Me	Hi	N %total
Z1	%	46,60%	37,30%	16,10%	466	51,70%	29,40%	18,90%	597
	AR	-0,9	4*	-3,3	42,63%	3,2*	0,9	-4,7	45,68%
Z2	%	46,90%	28,60%	24,60%	175	40,20%	29,50%	30,20%	429
	AR	-0,4	-0,7	1,3	16,01%	-3,3	0,8	3,1*	32,82%
Z3	%	53,00%	28,50%	18,50%	330	46,20%	31,70%	22,10%	104
	AR	2,1*	-1,1	-1,3	30,19%	-0,1	0,8	-0,7	7,96%
Z4	%	51,50%	19,70%	28,80%	66	51,60%	22,10%	26,30%	95
	AR	0,6	-2	1,6	6,04%	1	-1,4	0,3	7,27%
Z5	%	33,90%	12,50%	53,60%	56	41,50%	14,60%	43,90%	82
	AR	-2,2	-3,1	6,2*	5,12%	-1	-2,8	4,1*	6,27%
	N %total	527 48,20%	338 30,90%	228 20,90%	1.093 100%	613 46,80%	369 28,20%	327 25,00%	1.307 100%

* Statistical significance. direct association

Contact surface and type of shot (table 5). As seen by the result of the Chi-square test, association is found. In season 2012-2013, $\chi^2 = 91.6$, p < 0.0001, C=0.278. In season 2013-2014, $\chi^2 = 120.4$, p < 0.0001, C=0.290.

Table 5. *Contingency table of the relationship between the contact surface and the type of shot when a goal is achieved*

		2.012-2.013				2.013-2.014			
		Sa	Me	Hi	N %total	Sa	Me	Hi	N %total
Inst	%	33,60%	35,70%	30,70%	381	34,50%	33,20%	32,20%	701
	AR	-7,1	2,5*	5,9*	34,90%	-9,5	4,3*	6,5*	53,60%
Insi	%	49,90%	31,40%	18,70%	523	63,60%	22,50%	13,90%	445
	AR	1,1	0,3	-1,6	47,80%	8,8*	-3,4	-6,6	34,00%
Out	%	70,60%	23,50%	5,90%	17	70,40%	18,50%	11,10%	27
	AR	1,9	-0,7	-1,5	1,60%	2,5*	-1,1	-1,7	2,10%
Toe	%	69,00%	22,50%	8,50%	142	55,90%	21,20%	22,90%	118
	AR	5,3*	-2,3	-3,9	13,00%	2,1*	-1,8	-0,6	9,00%
Ot	%	90,30%	9,70%	0,00%	31	5,90%	41,20%	52,90%	17
	AR	4,8*	-2,6	-2,9	2,80%	-3,4	1,2	2,7*	1,30%
	N %total	527 48,20%	339 31,00%	228 20,80%	1.093 100%	613 46,80%	369 28,20%	327 25,00%	1.307 100%

* Statistical significance. direct association

3.2. Relationship between the type of play-number of passes-players involved

Type of play and number of passes (table 6). Association is found by using the Fisher's exact test. In season 2012-2013, C=0.375, and in season 2013-2014, C=0.234, in both seasons p < 0.0001.

Table 6. *Contingency table of the relationship between the type of play and the number of passes when a goal is achieved*

		2.012-2.013					2.013-2.014			
		1-2 passes	3-4 passes	5-6 passes	+ 6 passes	N %total	1-2 passes	3-4 passes	5-6 passes	N %total
Sa	%	69,00%	24,20%	4,90%	1,80%	326	72,60%	25,20%	2,20%	369
	AR	-8,7	7*	3,7*	3,3*	35,36%	-6,2	5,6*	2,5*	47,67%
Ca	%	93,50%	6,20%	0,30%	0,00%	341	88,00%	11,50%	0,50%	200
	AR	6,3*	-5	-3,2	-1,9	36,98%	2,7*	-2,5	-1	25,84%
Re	%	92,50%	5,00%	2,50%	0,00%	40	100,00%	0,00%	0,00%	14
	AR	1,6	-1,6	0	-0,5	4,34%	1,8	-1,7	-0,4	1,81%
Po	%	74,70%	23,00%	2,30%	0,00%	87	86,80%	13,20%	0,00%	68
	AR	-2,3	2,7*	-0,1	-0,8	9,44%	1,1	-0,9	-0,9	8,79%
St	%	100,00%	0,00%	0,00%	0,00%	77	93,20%	6,80%	0,00%	59
	AR	4,1*	-3,6	-1,4	-0,7	8,35%	2,4*	-2,2	-0,9	7,62%
2p	%	90,50%	9,50%	0,00%	0,00%	21	96,30%	3,70%	0,00%	27
	AR	0,9	-0,5	-0,7	-0,4	2,28%	2*	-1,9	-0,6	3,49%
Gp	%	80,00%	10,00%	10,00%	0,00%	10	75,00%	25,00%	0,00%	8
	AR	-0,3	-0,3	1,6	-0,3	1,08%	-0,5	0,6	-0,3	1,03%
Su	%	0,00%	0,00%	100,00%	0,00%	1	100,00%	0,00%	0,00%	1
	AR	-2,2	-0,4	6,4*	-0,1	0,11%	0,5	-0,5	-0,1	0,13%
In	%	100,00%	0,00%	0,00%	0,00%	8	96,40%	3,60%	0,00%	28
	AR	1,3	-1,1	-0,4	-0,2	0,87%	2,1*	-1,9	-0,6	3,62%
Go	%	100,00%	0,00%	0,00%	0,00%	10	100%	0,00%	0,00%	1
	AR	1,4	-1,3	-0,5	-0,3	1,08%	2,1*	-0,6	-0,6	0,13%
Og	%	100,00%	0,00%	0,00%	0,00%	1				
	AR	0,4	-0,4	-0,2	-0,1	0,11%				
	N %total	769 83,40%	125 13,60%	22 2,40%	6 0,70%	922 100%	632 81,70%	133 17,20%	9 1,20%	1.074 100%

* Statistical significance. direct association

Type of play and players involved (table 7). Association is found by means of the Fisher's exact test. In season 2012-2013, C=0.572, and in season 2013-2014, C=0.550, in both seasons p < 0.0001.

Table 7. *Contingency table of the relationship between the type of play and the players involved when a goal is achieved*

		2.012-2.013						2.013-2.014					
		1player	2players	3players	4players	5players	N %total	1player	2players	3players	4players	5players	N %total
Sa	%	6,40%	42,30%	33,40%	14,70%	3,10%	326	12,40%	42,20%	33,90%	10,00%	1,40%	369
	AR	-7,1	-0,4	2,6*	5,2*	3,2*	35,36%	-9,2	0,2	5,9*	6,2*	2,5*	47,67%
Ca	%	18,80%	55,40%	22,90%	2,90%	0,00%	341	15,70%	56,20%	24,70%	3,40%	0,00%	200
	AR	-0,1	5,8*	-2,8	-4,6	-2,8	36,98%	-4,8	5*	0,2	-1,2	-1,4	25,84%
Re	%	10,00%	42,50%	42,50%	2,50%	2,50%	40	85,60%	13,50%	1,00%	0,00%	0,00%	14
	AR	-1,5	-0,1	2,1*	-1,4	0,6	4,34%	13,7*	-6,2	-5,8	-2,4	-0,9	1,81%
Po	%	2,30%	34,50%	47,10%	16,10%	0,00%	87	4,20%	50,70%	42,30%	2,80%	0,00%	68
	AR	-4,2	-1,7	4,1*	2,7*	-1,2	9,44%	-4,6	1,6	3,6*	-0,9	-0,7	8,79%
St	%	87,00%	10,40%	2,60%	0,00%	0,00%	77	45,50%	43,60%	10,00%	0,90%	0,00%	59
	AR	16*	-6,1	-5,2	-2,8	-1,1	8,35%	4,2*	0,4	-3,7	-2,1	-0,9	7,62%
2p	%	0,00%	42,90%	47,60%	4,80%	4,80%	21	0,00%	59,30%	40,70%	0,00%	0,00%	27
	AR	-2,2	0	2*	-0,6	1,3	2,28%	-3,3	1,9	2*	-1,2	-0,4	3,49%
Gp	%	0,00%	40,00%	30,00%	20,00%	10,00%	10	11,10%	44,40%	33,30%	0,00%	11,10%	8
	AR	-1,5	-0,2	0,1	1,3	2,3*	1,08%	-1,1	0,2	0,6	-0,7	3,9*	1,03%
Su	%	0,00%	0,00%	0,00%	100,00%	0,00%	1	0,00%	0,00%	100,00%	0,00%	0,00%	1
	AR	-0,5	-0,9	-0,6	3,3*	-0,1	0,11%	-0,6	-0,8	1,8	-0,2	-0,1	0,13%
In	%	75,00%	25,00%	0,00%	0,00%	0,00%	8	69,00%	26,40%	4,60%	0,00%	0,00%	28
	AR	4,1*	-1	-1,8	-0,9	-0,3	0,87%	8,8*	-3	-4,5	-2,2	-0,8	3,62%
Go	%	100,00%	0,00%	0,00%	0,00%	0,00%	10	100,00%	0,00%	0,00%	0,00%	0,00%	1
	AR	6,6*	-2,8	-2	-1	-0,4	1,08%	5,3*	-2,8	-1,9	-0,8	-0,3	0,13%
Og	%	0,00%	100,00%	0,00%	0,00%	0,00%	1						
	AR	-0,5	1,1	-0,6	-0,3	-0,1	0,11%						
	N	174	398	260	77	12	922	303	450	261	53	7	1.074
	%total	18,90%	43,20%	28,20%	8,40%	1,40%	100%	28,20%	41,90%	24,30%	4,90%	0,70%	100%

* Statistical significance. direct association

Number of passes and players involved (table 8). Association is observed by using the Fisher's exact test. In season 2012-2013, C=0.623, and in season 2013-2014, C=0.683, in both seasons p < 0.0001.

Table 8. *Contingency table of the relationship between the number of passes and the players involved when a goal is achieved*

		2.012-2.013						2.013-2.014					
		1player	2players	3players	4players	5players	N %total	1player	2players	3players	4players	5players	N %total
1-2 passes	%	24,70%	52,10%	22,30%	0,90%	0,10%	769 83,40%	0,30%	73,50%	26,20%	0,00%	0,00%	775 81,70%
	AR	7*	10,8*	-5,1	-19,9	-8,1		0,6	16,3*	-6,8	-17,9	-6,2	
3-4 passes	%	0,00%	7,00%	46,90%	43,00%	3,10%	125 13,60%	0,00%	1,50%	57,90%	39,10%	1,50%	133 17,20%
	AR	-6,2	-9,3	6,1*	16,6*	2,2		-0,6	-15,7	7,4*	17,4*	1,1	
5-6 passes	%	0,00%	0,00%	17,40%	52,20%	30,40%	22 2,40%	0,00%	0,00%	11,10%	33,30%	55,60%	9 1,20%
	AR	-2,5	-4,4	-0,9	8,4*	13,1*		-0,1	-3,9	-1,3	3,5*	19*	
+ 6 passes	%	0,00%	0,00%	16,70%	66,70%	16,70%	6 0,70%						
	AR	-1,3	-2,2	-0,5	5,6*	3,5*							
	N %total	174 18,90%	398 43,20%	260 28,20%	77 8,40%	12 1,40%	922 100%	303 28,20%	450 41,90%	261 24,30%	53 4,90%	7 0,70%	1.074 100%

* Statistical significance. direct association

4. DISCUSSION

4.1. Relationship between zone from what the shot is taken-contact surface-type of shot

Lapresa, Álvarez, Arana, Garzón, & Caballero (2013) in his study about the shots of the Spanish National team in the five matches played in the finals of European Futsal Championship of 2010, determined that 35% of the shots are taken from area 80 (corresponding to zones 1 and 2 in the present study) and in the 21.9% are taken from area 51 (corresponding to zone 4 of the present study), while the 13.5% corresponds to zone 70 and the 12.2% to zone 90 (corresponding to zone 3 in the present study). They set that the 11.4% of the shots ended in goal, of which 78% are made from the zone 80. This result is similar to the one got by Martin (2009) in his study about the futsal goalkeepers, where the 79% of the shots ending in goal are made in the last 12 meters, and by Alves (2010) during the 10 analyzed matches of the last World Futsal Cup, where, from the 53 goals, the 80% was started in the last 10 meters. The obtained results (table 3) coincide with these authors, in season 2013-2014, most of the shots are made from zone 1 (45.68%) and zone 2 (32.82%), although in season 2012-2013 are from zone 1 (42.63%) and zone 3 (30.19%). Data from season 2013-2014 are very similar to the ones achieved in the study of Álvarez et al. (2004) of season 2002-2003 of the LNFS, in which he got a 52% of the goals from zone 1 and a 36% from zone 2.

Lapresa et al. (2013) determine that 75% of total shots were taken using with the instep of the foot, 15.6% with the toe and 5.9% with the inside edge. Of the shots that ended in goal, the 55.2% are taken using the instep of the foot, 22% with the inside edge, 15% with the toe and 3.5% are taken using either the heel or the head. Álvarez et al. (2004) also presents very similar results as he establishes that the 78% of the goals are taken with these contact surfaces. In

the present study, coinciding values with both studies are obtained because the greater percentage of goals is taken with the instep and inside edge, representing between the 75-85% of the total (table 3).

It stands out in both seasons a higher percentage of low shots (around 47-48%), followed by average height shots (between 28-31%) and high shots (between 21-25%) (table 4). No previous study has analyzed this variable.

Area from what the shot is taken and type of shot (table 3)
In season 2012-2103, among the statistically significant variables, it stands up that 60.10% of the goals from zone 1 were taken with the inside edge of the foot (AR=7) and the 47% from zone 3 (AR=5.5) and the 56% from zone 4 (AR=3.7) were taken with the instep. In season 2013-2014, it is observed a significant high percentage of the goals from zone 1 with the inside edge of the foot with a 45.2% (AR=7.9) and a 57.8% from zone 2 (AR=2.1), a 69.2% from Zone 3 (AR=3.3), a 76.8% from zone 4 (AR=4.7) and a 65.9% from zone 5 (AR=2.3) with the instep.

In Lapresa et al. (2013) study with regard to all the shots taken, they set that the instep of the foot is used from all zones of the pitch which coincides with the results obtained in the season 2013-2014, except for the shots from zone 1, while this author obtains that the inside edge of the foot is only used in the three areas belonging to the definition sector, zones 70, 80 and 90 (corresponding to zones 1 and 3 of our study), coinciding with the results obtained in both seasons with shots from zone 1, but not from zone 3.

With regard to this relationship *zone from what the shot is taken-contact surface*, there is a confirmed coherence between what is included in the theoretical manuals (Facchin, Seno, & Osimani, 1999) and the results obtained mainly from season 2013-2014, where the instep has been used in goals from in reality any of the areas of the futsal pitch, as this surface allows to give the ball a greater power, and the inside edge of the foot, characterized by offering a higher precision and lower output speed ball, has been used mainly for shots taken near the goalkeeper.

Area from what the shot is taken and type of shot (table 4)
In season 2013-2013, it is worth highlighting the statistically significant percentage of average height goals from zone 1 with a 31.70% (AR=4) and the 53% (AR=2.1) of low goals from zone 3. In season 2013-2014, it can be stood up the relationship of low goals from zone 1 with a 51.70% (AR=3.2) and the relationship of high goals from zone 5 with a 43.9%. These results demonstrate that in season 2013-2014, as the shot with aim of scoring a goal goes away from the goalkeeper the height of the trajectory of the ball increases, however, in season 2012-2013, this relationship is not confirmed.

Surface contact and type of shot (table 5)
In season 2012-2103, the 35.70% of the goals scored by using the instep are average height shots (AR=2.5) and the 30.7% are high shots (AR=5.9). In

season 2013-2014, percentages and similar relationships to those of the previous season in goals with the instep are observed, 33.2% at average height (AR=4.3) and 32.2% at high (AR=6.5). It is noticed than the surface of the instep enable to raise the ball from the ground and enter the ball into the goal at half height or above.

4.2. Relationship between the type of play-number of passes-players involved

In both seasons, the type of plays which give rise to more goals are the static attack (35.36% and 47.67%) and the counter-attack (36.98% and 25.84%). It is observed how in both seasons, more than 80% of the goals come after 1-2 previous passes and how when the number of previous passes is bigger than 4 the percentage of goals is almost irrelevant. It is also remarkable that the larger percentage of goals come from plays in which more than 2 players are involved (43.20% and 41.90%). In season 2013-2014, it stands up, moreover, the high percentage of goals in plays in which only 1 player is involved (28.20%), in front of the 18.90% of the last season.

Álvarez et al. (2004), despite no connecting these types of variables, analyzed each of them separately obtaining similar values to the ones of this present study. It is worth highlighting the 35% of the goals achieved in static plays and the 15% in the counter-attack, the 83% of the goals in plays of 1-2 passes and the 41% of the goals in plays with 2 players involved.

Any study that analyzes the relationship of these variables and their degree of dependency has not been found in the bibliography. Some of the significant relationships obtained from this research are showed below.

Type of play and number of passes (table 6)
In both seasons it is remarkable the high percentage of the goals after a steal and a counter-attack with 1-2 passes, in season 2012-2013 100% (AR=4.1) and 93.5% (AR=6.3) respectively, and in season 2013-2014 a 93.2% (AR=2.4) and 88% (AR=2.7), respectively. These relationships show that in the plays in which the ball is recovered with the opposing defense disorganized there have to finish as soon as possible with the minimum number of passes to score a goal. In the other hand, it is important the high percentage of goals in static attack with 3-4 passes, in season 2012-2013 with a 24.2% (AR=7) and in season 2013-2014 with a 25.2% (AR=5.6), showing that when the opposing defense is organized it is necessary a larger number of passes before scoring a goal in order to try to move the opponents looking for finishing options.

Type of play and number of players (Table 7)
Both seasons show very similar values in terms of static attack goals, 3 players participate in the 33.4% (AR=3.6) and in the 33.9% (AR=5.9) respectively, and in the goals after a steal, 2 players participate in the 55.4% (AR=5.8) and in the 56.2% (AR=5). These results confirm, again, that with the opposing defense disorganized the play has to finish soon to score a goal, in this case with the

intervention of 2 players, understanding that as fewer players touch the ball to find passing lanes before shot with options of scoring a goal.

Number of passes and number of players involved (Table 8)
The relationships found show that with less participation of players less number of passes carried out and vice versa. It can be highlighted in both seasons the high percentage of goals involving 2 players with a 43.20% and a 41.90% respectively, and the statistically significant relationships established between the intervention of 2 players to score a goal and the realization of 1-2 previous passes with a 52.1% (AR=10.8) in season 2012-2013 and a 73.5% (AR=16.3) in season 2013-2014. These results show that the majority of the goals in actual futsal occur in fast plays with few players, which is contrary to is expressed by Cachón (2012) when he says that 'the change in the rules has caused a loss of intensity and tempo in actual futsal'.

5. CONCLUSIONS

- The instep is used in goals almost taking place from any area of the futsal pitch and the inside is related basically with the shots taken near the goal area.
- In season 2013-2014, the height of the trajectory of the ball increases as the execution of the shot moves away from the goal. In both seasons, the instep of the foot allows to raise the ball from the ground and enter it in the goal at half height or above.
- With organized defenses, a bigger number of passes and the participation of 3 players touching the ball to find passing lanes before shooting with goal options are required.
- With disorganized defenses the play must finish soon making 1-2 passes and the intervention of 2 players to prevent the opponent its defensive organization.
- Most of the goals in actual futsal occur in fast moves of 1-2 passes with 1 or 2 players involved in it.

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