

# Association between playing tactics and creating scoring opportunities in elite football. A case study in Spanish Football National Team

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## ABSTRACT

Gonzalez-Rodenas, J., Lopez-Bondia, I., Calabuig, F., James, N., & Aranda, R. (2015). Association between playing tactics and creating scoring opportunities in elite football. A case study in Spanish Football National Team. *J. Hum. Sport Exerc.*, 10(1), pp.65-80. The aim of this study was to examine the association between playing tactics, situational variables and creating scoring opportunities according to the type of start-up possession in a case-study. All team possessions (n=857) developed by the Spanish Football national team during the World Cup 2010 were analysed and grouped into “strategic set-plays” (n=90), “recoveries” (n=451) and “restarts” (n=316). Fourteen categorical variables which describe offensive playing tactics, opponent situation as well as situational variables and their associations with creating scoring opportunities were examined using chi-square analysis and bivariate logistic regressions. Chi-square analysis showed that “strategic set-plays” were more effective to produce scoring opportunities (29.2%) than recoveries (15.4%) and restarts (8.9%) ( $P<0.001$ ). Within the strategic set-plays, no differences were found between corners kicks and free kicks to produce scoring opportunities. In recoveries, the variables “field starting zone” ( $P=0.001$ ), “initial penetration” ( $P<0.001$ ), “initial opponent number” ( $P=0.004$ ), “initial opponent position” ( $P=0.014$ ), “initial penetration zone” ( $P<0.001$ ), and “type of progression” ( $P=0.049$ ), and for restarts “pass number” ( $P=0.049$ ) and “duration” ( $P=0.006$ ) were associated with the likelihood of creating scoring opportunities. More scoring opportunities were created in the second half ( $P=0.022$ ). The type of start-up possession and the match half may modify the playing tactics developed during the offensive process and influence the creation of scoring opportunities in Football. **Key words:** SOCCER, MATCH ANALYSIS, PERFORMANCE INDICATORS, OFFENSIVE PLAY, EFFECTIVENESS.

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## INTRODUCTION

The primary objective of performance analysis is to support coaches and players in the decision making process by providing relevant information regarding performance (O'Donoghue, 2006). In this sense, notational analysis, understood as a technique for analyzing different aspects of performance through a process which involves producing a permanent record of the events (James, 2007), have provided and continues to provide important information for coaches and athletes, enabling advances in training processes (Borrie et al., 2002). Nevertheless, recent review studies (Mackenzie & Cushion, 2013; Sarmiento et al., 2014) have claimed improvements in the design of notational analysis such as adding innovative performance indicators, examining the influence of opponent interactions and situational variables on the performance as well as including detailed operational definitions about the variables studied.

Regarding literature about offensive performance in football, goal scoring is the ultimate objective measure of offensive effectiveness. In this regard, several studies (Franks, 1988; Pollard & Reep, 1997) found that nearly 1% of possessions end in goals. However, although goal scoring is the main indicator of success in football, it may not truly represent the underlying tactical strategies of a team, i.e. those that are concerned with the actual development of goal scoring opportunities (James et al., 2002). In this sense, Tenga et al. (2010a) showed that scoring opportunities and score-box possessions (shooting opportunities) could be used as a proxy for goals scored when comparing the effectiveness of different playing tactics in football. Thus, the study of scoring opportunities are used to achieve a more refined measure of scoring attempts than simply counting the number of shots (Tenga et al., 2010a) given that these are based on the multidimensional qualitative evaluation of the environment around a scoring attempt and take into account factors such as shooting distance, shooting angle, goalkeeper's position, opponent's defensive pressure, and shooting technique (Franks, 1988; Hughes, 1990; Olsen et al., 1994).

Previous literature about offensive process in football argued about whether "possession play" or "direct play" is more effective to achieve offensive performance (Reep & Benjamin, 1968; Bate, 1988). In this way, Hughes & Franks (2005) showed that longer passing sequences were more effective than shorter passing sequences to achieve goals and shot at goals, although the strike ratio of goals from shots was better for short possessions. In this line, Tenga et al. (2010b) showed that counterattacks were more likely to produce score-box possessions (shooting opportunities) than elaborate attacks when playing against an imbalanced defence but not against a balanced defence from Norwegian league games. Also, Lago-Ballesteros et al. (2012) showed that counterattacks and direct attacks were more effective than elaborate attacks to achieve score-box possessions as well as factors such as match status may influence the offensive behaviour in a professional Spanish football team. In addition to the influence of playing tactics, the situational variables such as match status (Lago-Ballesteros et al., 2012) and time of the match (Armatas et al., 2007) have been showed that can influence the offensive performance in elite football.

In this vein, further work is required to evaluate the processes used in performance analysis of team games (Hughes and Franks, 2005) and assess the suitability of new measurements of offensive and defensive effectiveness in football (Lago-Ballesteros et al., 2012). Besides, some of the above studies that analysed the influence of playing tactics on achieving offensive performance took into account only possessions that started with the recovery of the ball in play so they only provided a portion of team performance given that a large number of possessions begin with a restart of play. Also, it is interesting to look into other kind of tournaments and competitions to explore different contexts and play levels.

Hence, the present study tries to add new research in the field of offensive process in football by showing a complete overview about the association of playing tactics and creating scoring opportunities by the most successful team in the World Cup 2010 which is based on a possession-based and offensive-minded style of play. For this purpose, this study proposes a classification to differentiate types of start-up a possession (from dynamic play: recoveries; and from static play: restarts and strategic set-plays) and takes into account offensive playing tactics performed during the beginning and development of the possession as well as situational variables. In addition, the initial situation of the defensive team is examined by studying the opponent's space of defensive occupation (Grehaigine, 1997), which represents the degree of invasion into the opponent, and it has been demonstrated as a reliable method to study the dynamic space in football (Seabra & Dantas, 2006).

Our hypothesis is that, despite Spanish Football National Team would use a possession-based style of play based on long passing sequences and elaborate attacks, playing tactics related to early penetration over the opponent, the use of counterattacks and starting in penetrative zones would be more effective to create scoring opportunities in recoveries. On the other hand, the use of longer passing sequences would be more effective in restarts. Also, we hypothesize that strategic set-plays would achieve greater proportion of scoring opportunities than recoveries and restarts. Furthermore, playing tactics performed during the second half of the match and in the stage of groups would create higher percentage of scoring opportunities than during the first half and in knock-out rounds, respectively.

Therefore, the aim of this study was to examine the association between playing tactics, situational variables and creating scoring opportunities according to the type of start-up possession by the Spanish Football National Team during the World Cup 2010.

## METHODS

### *Sample*

Team possession was used as the basic unit of analysis according to the definition of Pollard and Reep (1997, p. 542):

*“A team possession starts when a player gains possession of the ball by any means other than from a player of the same team. The player must have enough control over the ball to be able to have a deliberate influence on its subsequent direction. The team possession may continue with a series of passes between players of the same team but ends immediately when one of the following events occurs: a) the ball goes out of play; b) the ball touches a player of the opposing team (e.g. by means of a tackle, an intercepted pass or a shot being saved). A momentary touch that does not significantly change the direction of the ball is excluded.”*

All team possessions (n=857) developed by the Spanish Football National Team during the seven matches played in the World Cup 2010 were analysed. All team possessions were grouped depending on the type of start-up possession into strategic set-plays (n=90), recoveries (n=451) and restarts (n=316) (Table 1). Penalty kicks (n=1) and those possessions that a complete viewing analysis was not possible were excluded (n=6).

### *Variables*

Fourteen independent categorical variables in addition to one dependent categorical variable (possession outcome) were analysed. However, only one variable was analysed for strategic set-plays due to the

tactical differences between this and recoveries or restarts. In the same vein, the variable “type of progression” and variables related to opponent situation only were analysed for recoveries due to during restarts there is no transition between attack and defence with the ball in play. Therefore, these are the variables used in this study:

- One variable that groups possessions (Type of start-up possession) (Table 1)
- Two independent variables related to playing tactics of the possession start (Field starting zone; initial penetration) (Table 2)
- Three independent variables related to playing tactics of the opponent (Initial penetration zone; initial opponent number; initial opponent position) (Table 2)
- Four independent variables related to playing tactics of possession development (Type of progression; pass number; duration; percentage of penetrative passes) (Table 2).
- Three independent variables related to the contextual characteristics (Match half, match status and stage of the tournament).
- One dependent variable that indicates the offensive performance indicator (Possession outcome) (Table 3).

Table 1. Description and categories for the variable “Type of start-up possession”

<p><b>Type of start-up possession:</b> Way to start a team possession according to if the ball is in play or out of play. Three categories:</p> <ol style="list-style-type: none"> <li>a. <i>Recoveries:</i> When a player gains possession of the ball by any means other than from a player of the same team with the ball in play.</li> <li>- When a player restarts the game after a regulatory interruption:</li> <li>b. <i>Strategic set-plays:</i> 1) The restart takes place in the opponent’ half, 2) the tactical situation of the attacking team is prepared to try to shot at goal (Both teams group players into or just in front of the box and player positions change because some of the defenders move forward to try to shot at goal) and 3) the attacking team try to cross the ball into the box or shot at goal in one or two passes. (All corner kicks, all penalty kicks and those free kicks with the above characteristics are considered in this category).</li> <li>c. <i>Restarts:</i> The restart takes place in any half, 2) the tactical situation of the attacking team is not prepared to try to shot at goal (player positions do not change) and 3) the attacking team try to pass the ball and build up a ball possession. (Free kicks, kick off, throw in).</li> </ol>	
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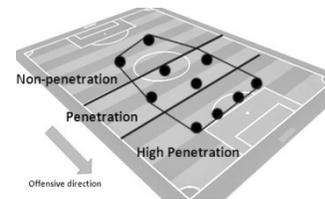
Table 2. Description and categories for the independent variables considered in this study

Variables and Categories	
<p><b>Possession start</b></p> <p><b>1. Field starting zone:</b> Area of the playing field where team possession starts. Four areas were considered:</p> <ol style="list-style-type: none"> <li>a. <i>Defensive</i></li> <li>b. <i>Pre-defensive</i></li> <li>c. <i>Pre-offensive</i></li> <li>d. <i>Offensive</i></li> </ol>	
<p><b>2. Initial penetration:</b> Degree of offensive directness in the first action of team possession:</p> <ol style="list-style-type: none"> <li>a. <i>Penetrative action:</i> Passes or dribbles towards the opponent’s goal past opponent player (s) performed by the first player of the possession.</li> <li>b. <i>Non-penetrative action:</i> Any technical action towards any direction that does not past opponent player (s) performed by the first player of the possession.</li> </ol>	

**Opponent variables**

**3. Initial penetration zone:** Area within the space of defensive occupation (SDO) of the opponent according to Gréhaigne (2001) and Seabra & Dantas (2006) where team possession starts:

- Non-penetration zone:* The possession starts between the medium area of the opponent's SDO and the own goal line.
- Penetration zone:* The possession starts within the medium area of the opponent's SDO.
- High penetration zone:* The possession starts between the medium area of the opponent's SDO and the opponent's goal line.



**4. Initial opponent number:** Number of defending players located between the ball and their goal when possession starts: a. *Low* (3 or less defending players), b. *Medium* (4–6 defending players) and c. *High* (7 or more defending players).

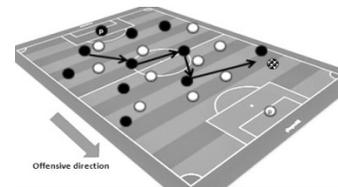
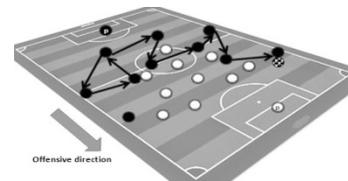
**5. Initial opponent position:** Opponent's height position on the field when team possession starts.

- Advanced:* The opponent has the most backward player closer to the midline than their own goal line.
- Backward:* The opponent has the most backward player closer to their own goal line than the midline.

**Possession development**

**6. Type of offensive progression:** Degree of offensive directness (Bangsbo & Peitersen, 2000; Tenga et al., 2009; Lago Ballesteros et al., 2012) in the offensive process. Two categories were considered:

- Elaborate attack:* 1) The possession starts by winning the ball in play or restarting the game, 2) the progression towards the opponent's goal has high percentage of non penetrative passes and long duration (evaluated qualitatively) as well as 3) this kind of possession allows the opponent to have more opportunity to minimize surprise, reorganize his system and be prepared defensively.
- Counterattack:* The possession starts by winning the ball in play, 2) the first or second player in action tries to penetrate using penetrative passes or dribbles, 3) the progression towards the opponent's goal has high percentage of penetrative passes and short duration (evaluated qualitatively) as well as 3) this kind of possession tries not to allow the opponent to have opportunity to minimize surprise reorganize his system and be prepared defensively.



**7. Pass number:** Passes performed by players during team possession:

- Very few passes* (3 or less passes), b. *Few passes* (4–6 passes) and c. *Many passes* (7 or more passes).

**8. Percentage of penetrative passes**

Percentage of passes that past opponent player(s) in relation to the total number of passes during team possession: a. *Low* (0–33%), b. *Medium* (34–66%) and c. *High* (67–100%).

**9. Duration:** Seconds that the team possession lasts:

- Short duration* (10 seconds or less), b. *Medium duration* (11–20 seconds) and c. *Long duration* (21 or more seconds).

Table 3. Description and categories for the variable “Possession outcome”

**Possession outcome:** Degree of offensive success of the possession. (Score pentagon is used as a zone of reference because it selects the space with high shooting angle and short distance to goal (20 meters or less) which are very important factors to achieve goals (Pollard & Reep, 1997; Ensum, et al., 2005).

a. *Scoring opportunity:* The team has a clear chance of scoring a goal during team possession. This include:

- All shots produced inside the score pentagon and those shots produced outside the score pentagon and pass near the goal (2 meters or less with respect to the goal).
- All chances of shooting inside the score pentagon (The player is facing the goal, there is not any opponents between him and the goal and he has enough space and time to make a playing decision)
- Goals are included as a scoring opportunity.

b. *No scoring opportunity:* the team has any chance of scoring goal during team possession.

**Match performance analysis**

The matches were recorded in DVD from the official World Cup TV channel in Spain and they were reproduced by computer using the program Windows Media Player. The study was based on systematic

observation where a football coach/researcher experienced in match performance analysed each possession post-event as many times as necessary. To codify the offensive behaviours and opponent situation, the REOFUT observational instrument for the analysis of offensive performance in football developed by González-Rodenas (2013) was used. The reliability of data was calculated by the intra and inter observer agreement (Cohen's Kappa) by analysing 54 random possessions (Table 4). The local university ethics committee approved the research protocol before the beginning of the study.

Table 4. Kappa values for intra- and inter-observer reliability

Variable	Inter-observer	Intra-observer
Type of start-up of possession	0.953	1.000
Field starting zone	0.898	0.959
Initial penetration	0,815	0,963
Initial penetration zone	0.771	0.839
Initial opponent number	0.785	0.935
Initial opponent position	0.801	0.943
Type of progression	0,815	0,963
Pass number	0.944	0.944
Percentage of penetrative passes	0.792	0.768
Duration	0.944	0.972
Possession outcome	0.973	0.973

### Statistical analysis

Data collected on paper were transcribed to a database created in SPSS 15.0 (SPSS, Chicago, IL). First, Pearson chi-square analysis was carried out to determine if there was an association between each independent variable and the variable "possession outcome". Second, a bivariate logistic regression analysis was performed in order to study the probabilities of creating scoring opportunities according to the characteristics of playing tactics. To perform this analysis, a category of each variable was taken as a reference for comparison for all other categories based on the achievement of scoring opportunities. From this model, an odds ratio with a 95% confidence limit was calculated. We used an alpha value of <0.05 in all tests.

## RESULTS

### Descriptive analysis

The Spanish Football National Team created a scoring opportunity from 14.7% of all possession registered. Of these, strategic set-plays achieved a higher proportion of scoring opportunities (29.2%) compared to recoveries (15.4%) and restarts (8.9%) ( $P<0.001$ ) (Table 5).

Table 5. Descriptive analysis of the scoring opportunities achieved according to the type of start-up possession

Variable	n (%)	Scoring opportunity		df	X <sup>2</sup>	P*
		n	%			
<b>Type of start-up possession</b>				2	27.225	<0.001
Recoveries	448 (52.7)	69	15.4			
Restarts	313 (36.8)	28	8.9			
Strategic set-plays	89 (10.5)	26	29.2			

In strategic set-plays, no significant association was found between free kicks and corner kicks in relation to the possession outcome (Table 6).

Table 6. Descriptive analysis of scoring opportunities achieved according to the strategic Set-play type

Variable	N (%)	Scoring opportunity		df	X <sup>2</sup>	P*
		n	%			
<b>Strategic Set-Play type</b>				1	0.627	0.293
Free-kick	33 (37.4)	8	24.2			
Corner-kick	56 (61.6)	18	32.1			

df= degrees of freedom; P\* Pearson Chi-square analysis

In recoveries there were differences in the probability of creating scoring opportunities for variables related to the start of possessions such as “field starting zone” ( $P=0.001$ ) and “initial penetration” ( $P<0.001$ ). Also, the variables “initial penetration zone” ( $P<0.001$ ), “initial opponent number” ( $P<0.004$ ), “initial opponent position” ( $P<0.014$ ), and “type of progression” ( $P=0.049$ ) had association with creating scoring opportunities. While for the rest of the variables analysed no significant associations were found (Table 7).

In restarts, significant associations were found for two of the three variables related to the development of the possession such as “pass number” ( $P=0.049$ ) and “duration” ( $P=0.006$ ), while no significant relationship was found for the variable “percentage of penetrative passes”. In addition, no significant association was found for variables related to the start of the possession (Table 8).

As for contextual variables, significant association was found for the variable “match half” showing higher proportion of scoring opportunities in the second half while no association were found for the variables “match status” and “stage of the tournament”. (Table 9)

Table 7. Descriptive analysis of playing tactics and percentage of scoring opportunities in “recoveries”

Variable	n	(% )	Scoring Opportunity		df	X <sup>2</sup>	P*
			n	%			
<b>Possession start</b>					3	17.43	0.001
<b>Field starting zone</b>						9	
Defensive	90	(20.1)	8	8.9			
Pre-defensive	196	(43.8)	24	12.2			
Pre-offensive	143	(31.9)	29	20.3			
Offensive	19	(4.2)	8	42.1			
<b>Initial penetration</b>					1	18.60	<0.001
Non- penetrative	279	(62.3)	27	9.7		0	
Penetrative	169	(37.7)	42	24.9			
<b>Opponent situation</b>					2	16.09	<0.001
<b>Initial penetrative zone</b>						3	
Non- penetrative zone	305	(68.1)	34	11.1			
Penetrative zone	121	(27.0)	27	22.3			
High penetrative zone	22	(4.9)	8	36.4			
<b>Initial opponent number</b>					2	10.80	0,004
High	343	(76.6)	45	13.1		9	
Medium	91	(20.3)	18	19.8			
Low	14	(3.1)	6	42.9			
<b>Initial opponent position</b>					1	5.652	0.014
Advanced position	302	(67.4)	38	12.6			
Backward position	146	(32.6)	31	21.2			

Possession development	Type of progression				df	$\chi^2$	P*	
		n	(%)					
	Elaborate attack	361	(80.6)	50	13.9	1	3.434	0.049
	Counterattack	87	(19.4)	19	21.8			
	<b>Pass number</b>				2	0.887	0.642	
	Very few passes	219	(48.9)	36	16.4			
	Few passes	125	(27.9)	20	16.0			
	Many passes	104	(23.2)	13	12,5			
	<b>Percentage of penetrative passes</b>				2	4.743	0.189	
	Low	151	(33.7)	17	11.3			
	Medium	187	(41.7)	31	16.6			
	High	110	(24.6)	21	19.1			
	<b>Duration</b>				2	1.508	0.470	
	Short duration	195	(43.5)	28	14.4			
	Medium duration	141	(31.5)	26	18.4			
	Long duration	112	(25.0)	15	13.4			

Table 8. Descriptive analysis of playing tactics and percentage of scoring opportunities in “restarts”

Variable	n	(% )	Scoring Opportunity		df	$\chi^2$	P*
			n	%			
<b>Possession start</b>					3	1.618	0.655
Field starting zone							
Defensive	75	(24.0)	6	8.0			
Pre-defensive	123	(39.3)	13	10.6			
Pre-offensive	92	(29.4)	6	6.5			
Offensive	23	(7.3)	3	13.0			
<b>Initial penetration</b>					1	1.042	0.242
Non- penetrative	271	(13.4)	26	9.6			
Penetrative	42	(86.6)	2	4.8			
<b>Possession development</b>					2	6.024	0.049
<b>Pass number</b>							
Very few passes	120	(38.3)	5	4.2			
Few passes	88	(28.1)	9	10.2			
Many passes	105	(33.5)	14	13.3			
<b>Percentage of penetrative passes</b>					2	3.804	0.149
Low	141	(45.0)	17	12,1			
Medium	117	(37.4)	9	7,7			
High	53	(17.6)	2	3,6			
<b>Duration</b>					2	10.25	0.006
Short duration	125	(39.9)	4	3,2	8		
Medium duration	89	(28.4)	14	15,7			
Long duration	99	(31.6)	10	10,1			

Table 9. Association between situational variables and creating scoring opportunities

Variable	n (%)	Scoring opportunity		df	X <sup>2</sup>	P
		n	%			
<b>Stage of tournament</b>				2	1.896	0.388
Groups	355 (41.8)	53	14.9			
16/quarter-final	235 (27.6)	28	11.9			
Semi-final/final	260 (30.6)	42	16.2			
<b>Match half</b>				1	4.507	0.022
First half	429 (52.3)	51	11.9			
Second half	325 (47.7)	67	17.1			
<b>Match status</b>				2	0.482	0.786
Losing	63 (7.4)	10	15.9			
Drawing	560 (65.8)	83	14.8			
Winning	229 (26.8)	30	13.2			

### Logistic regression analysis

For the variable “type of start-up possession”, taking recoveries as the reference category, strategic set-plays registered a higher odds ratio (OR=2.441; 95% confidence interval: 1.460 to 4.081;  $P=0.001$ ), and restarts registered a lower odds ratio (OR=0.540; 95% confidence interval: 0.339 to 0.859;  $P=0.009$ ) (Table 10).

Table 10. Odds Ratio (OR) for creating scoring opportunities according to the type of start-up possession

Variable	B	Error	Wald	df	P*	OR	CI (95%)
<b>Type of start-up possession</b>							
Recoveries (Ref)							
Restarts	-0.617	0.237	6.752	1	0.009	0.540	0.339, 0.859
Strategic set-plays	0.818	0.267	9.372	1	0.001	2.441	1.460, 4.081

In “recoveries” there were differences in the odds ratios for the variables related to the start of possession and initial opponent situation. Therefore, it was observed that starting at the pre-offensive ( $P=0.024$ ) and offensive zones ( $P=0.001$ ), performing an initial penetrative action ( $P<0.001$ ), starting at penetrative ( $P=0.002$ ) or high penetrative zone ( $P=0.002$ ), against low initial opponent number ( $P=0.004$ ), and with the opponent in backward position ( $P=0.019$ ) obtained higher odds ratios than starting at the defensive zone, performing an initial non-penetrative action, starting at non-penetrative zone, against high initial opponent number, and starting with the opponent in an advanced situation. Furthermore, there were no differences in the odds ratios between the categories of the rest of the variables related to the development of possession (Table 11).

In “restarts” there were differences in the odds ratios for two of the three variables related to the development of possession. In this way, performing many passes ( $P=0.019$ ) and registering medium ( $P=0.003$ ) and long duration ( $P=0.004$ ) obtained higher odds ratios than performing few or very few passes and registering short duration. In comparison, there were no differences in the odds ratios for the variable “percentage of penetrative passes” and for the variables related to the possession start (Table 12).

Table 11. Odds Ratio (OR) for creating scoring opportunities according to playing tactics in “recoveries”

	Variable	B	Error	Wald	df	P	OR	CI (95%)
<b>Possession start</b>	<b>Field starting zone</b>							
	Defensive (Reference)							
	Pre-defensive	0.358	0.430	0.623	1	0.405	1.430	(0.616, 3.320)
	Pre-offensive	0.958	0.425	5.090	1	0.024	2.607	(1.134, 5.995)
	Offensive	2.009	0.594	11.42	1	0.001	7.455	(2.326, 23.891)
				8				
	<b>Initial penetration</b>							
	Non- penetrative (Reference)							
	Penetrative	1.127	0.270	17.47	1	<0.00	3.087	(1.820, 5.236)
			6		1			
<b>Opponent situation</b>	<b>Initial penetrative zone</b>							
	Non-penetration (Reference)							
	Penetration	0.828	0.284	8.494	1	0.004	2.289	(1.312, 3.996)
	High penetration	1.516	0.479	10.01	1	0.002	4.555	(1.781, 11.648)
				5				
	<b>Initial opponent number</b>							
	High (Reference)							
	Medium	0.490	0.308	2.535	1	0.111	1.633	(0.893, 2.986)
	Low	1.603	0.563	8.097	1	0.004	4.967	(1.647, 14.980)
	<b>Initial opponent position</b>							
	Advanced position(Reference)							
	Backward position	0.627	0.267	5.540	1	0.019	1.873	(1.111, 3.158)
<b>Possession development</b>	<b>Type of progression</b>							
	Elaborate attack (Reference)							
	Counterattack	0.553	0.301	3.373	1	0.066	1.738	(0.964, 3.135)
	<b>Pass number</b>							
	Very few passes (Reference)							
	Few passes	-0.032	0.305	0.011	1	0.916	0.968	(0.533, 1.759)
	Many passes	-0.320	0.348	0.845	1	0.358	0.761	(0.367, 1.437)
	<b>Percentage of penetrative passes.</b>							
	Low (Reference)							
	Medium	0.449	0.324	1.919	1	0.166	1.566	(0.830, 2.956)
	High	0.621	0.354	3.077	1	0.079	1.860	(0.930, 3.720)
	<b>Duration</b>							
	Short duration (Reference)							
	Medium duration	0.299	0.298	1.006	1	0.316	1.348	(0.752, 2.419)
	Long duration	-0.081	0.334	0.055	1	0.814	0.922	(0.470, 1.812)

Table 12. Odds Ratio (OR) for creating scoring opportunities according to playing tactics in “restarts”

	Variable	B	Error	Wald	df	P	OR	CI (95%)
<b>Possession start</b>	<b>Field starting zone</b>							
	Defensive (Reference)							
	Pre-defensive	0.307	0.517	0.352	1	0.553	1.359	(0.493, 3.743)
	Pre-offensive	-0.220	0.600	0.135	1	0.713	0.802	(0.248, 2.598)
	Offensive	0.545	0.426	0.527	1	0.468	1.725	(0.396, 7.522)
	<b>Initial penetration</b>							
	Non- penetrative (Reference)							
	Penetrative	-0.753	0.753	0.998	1	0.318	0.471	(0.108, 2.063)

Possession development	Pass number							
	Very few passes (Reference)							
Few passes	0.963	0.577	2.791	1	0.095	2.620	(0.846, 8.112)	
Many passes	1.264	0.540	5.486	1	0.019	3.538	(1.229, 10.188)	
Percentage of penetrative passes.	Percentage of penetrative passes.							
	Low (Reference)							
Medium	-0.498	0.433	1.324	1	0.250	0.608	(0.260, 1.419)	
High	-1.290	0.765	2.841	1	0.092	0.275	(0.061, 1.234)	
Duration	Duration							
	Short duration (Reference)							
Medium duration	1.731	0.586	8.736	1	0.003	5.647	(1.792, 17.796)	
Long duration	1.223	0.608	4.051	1	0.044	3.399	(1.033, 11.188)	

## DISCUSSION

The objective of this study was to examine the association between playing tactics, situational variables and creating scoring opportunities according to the start-up of possession by Spanish Football National Team in the World Cup 2010.

Three main findings have been observed in this study. First, the Spanish Football National Team had different probabilities to achieve scoring opportunities according to the type of start-up possession. Second, it was observed that playing tactics related to the beginning of the possession and initial opponent situation in recoveries and playing tactics related to possession development in restarts were associated to create scoring opportunities. Third, Spanish Football National Team obtained higher proportion of scoring opportunities during the second half of the match.

Strategic set-plays were the most effective type of start-up possession to achieve scoring opportunities. Therefore, the fact that this type of possession starts near the goal and can be strategically prepared by coaches may explain the higher degree of effectiveness with respect to recoveries or restarts. Otherwise, restarts showed less effectiveness than recoveries to achieve scoring opportunities. This fact may be due to the absence of an immediate transition between attack and defence with the ball in play in restarts. This may provoke that the defense has more opportunity to minimize surprise and has more time to be defensively organised and prepared, which would reduce the offensive effectiveness in comparison with recoveries where the possibility of taking advantage of the opposing team's transition from attack to defense would exist more frequently.

For strategic set-plays, no differences in effectiveness were found between corner kicks and free kicks. Our study found that 32.1% of corner kicks and 24.2% of free kicks achieved scoring opportunities. These results are in accordance with previous research that found one in every three corner kicks (Taylor et al., 2004) or 21.8% (Sainz de Baranda and Borrás, 2005) ended in a scoring opportunity, showing that this type of start-up possession have lower appearances during the match than recoveries and restarts but achieves higher options to create scoring opportunities in football.

For recoveries, the variable "field starting zone" showed that the Spanish Football National Team obtained greater effectiveness to achieve scoring opportunities whether the possession started in pre-offensive or

offensive zones than defensive zones. This finding is in accordance with Bate (1988), Hughes & Snook (2006), Tenga et al., (2010a, b) and Lago-Ballesteros et al. (2012) who observed that starting possessions in offensive zones produced higher offensive performance in recoveries. For the variable “initial penetration”, bivariate logistic regression showed that performing an initial penetrative action was three times more effective to achieve a scoring opportunity than performing a non-penetrative action (OR=3.087 (1.820, 5.236);  $P<0.001$ ). This fact highlights the importance of overpassing opponents as soon as the offensive team gains ball possession in order to take advantage of the defensive disorganization caused by losing the ball in the opposing team.

In terms of opponent situation, this study showed that starting possessions in penetrative or high penetrative zones or playing against a low initial opponent number increased the effectiveness to create scoring opportunities in recoveries for the Spanish Football National Team. In this regard, Olsen & Larsen (1997) showed that more scoring opportunities and goals were achieved from breakdown attacks (counterattacks) started when the opponent's defence was imbalanced rather than balanced. Similarly, Tenga et al. (2010b) reported that counterattacks were more effective than elaborate attacks when played against an imbalanced defence but not against a balanced defence and Lago-Ballesteros et al. (2012) observed that playing against less than six defender players increased offensive effectiveness.

Another interesting result is that the Spanish Football National Team created a larger proportion of scoring opportunities when the opponent started defending in a backward position rather than an advanced position. Although more research is necessary to explain and contrast this finding, a backward defensive team could have allowed the Spanish Football National Team to comfortably develop possessions in pre-offensive zones. In contrast, starting against an advanced opposing team could have made the elaboration of possessions more difficult due to the reduction of the space of play. Therefore, this study agrees with previous research and supports the idea that the interaction with the opponent during the start of possession may be determinant for the final offensive performance. Thus, football coaches should think about creating appropriate game conditions in order to be able to start the possessions against an imbalanced opposing team as it seems to have great importance in achieving offensive performance in elite football.

In respect to possession development, the variable “type of progression” showed that the Spanish Football National Team was characterised by a high frequency of elaborate attacks (80.6%) as we mentioned in our hypothesis. However, chi-square analysis showed that counterattacks achieved a higher proportion of scoring opportunities (21.8%) than elaborate attacks (13.9%) ( $P=0.049$ ). This finding coincides with previous studies that observed greater effectiveness in counterattacks than elaborate attacks (Tenga et al., 2010a, 2010b; Lago-Ballesteros et al., 2012) and highlight the importance and necessity of taking advantage of game transitions to achieve offensive performance no matter the style of play.

Concerning additional characteristics of possession development, no associations were found for the variables “pass number” and “duration” and creating scoring opportunities. In this sense, the fact that during recoveries the opposing team combined balanced and imbalanced starting situations could demonstrate that both short possessions and long possessions obtained similar effectiveness to achieve scoring opportunities depending on the specific initial tactical conditions. In this line, Tenga et al. (2010) observed that long possessions were more effective than short possessions when playing against a balanced defence but not against an imbalanced defence. However, other studies such as Hughes & Franks (2005) (including all types of start-up possessions) and Lago-Ballesteros et al. (2012) (including only recoveries) observed that long passing sequences were more effective than short passing sequences to achieve

offensive performance. The different context of the analysis and the concrete style of play of the Spanish Football National Team in this tournament may be the reason for the differences with these recent studies.

In the same vein, no significant associations were found between the variable “percentage of penetrative passes” and the possession outcome. This finding may be because the specific moment or situation when and where the penetrative passes took place could be more decisive than the percentage of the total passes performed during the possession.

Concerning restarts, the present study has not found associations between playing tactics and possession outcome for variables related to the possession start. However, significant associations were found for the variables related to possession development such as “pass number” and “duration”. This association indicates that possessions with long passing sequences and medium or long duration were more effective than those with short passing sequences and short duration to achieve scoring opportunities. This finding may be because during restarts, unlike recoveries, there is no attack to defence transition with the ball in play and therefore, the opposing team would have more time to reorganise and be ready for defence. For this reason, the influence of offensive initial behaviours as starting in offensive zones or doing initial penetrative passes would lose effectiveness to achieve scoring opportunities. However, restarting the play against a well-prepared defending team would make advisable to attack with patience and perform long possessions with many passes to penetrate and reach the goal.

As for situational variables, significant higher proportion of scoring opportunities was produced by the Spanish Football National Team in the second half (17.1%) compared to the first half (11.9%). Related to this, Armatas et al. (2007) found that the second half presented higher frequency of goals scored in World Cups of 1998, 2002 and 2006. This fact may be due to the interaction of several interdependent factors such as development of fatigue, lack of concentration and different tactical environment. In this regard, several studies have observed a decrement in players’ performance during the second half (Di Salvo et al., 2007; O’Donoghue et al., 2001; Vigne et al., 2010; Carling, 2011; Carling & Bloomfield, 2010; Carling and Dupont, 2011) what would provoke that towards the end of the match, fatigue that players face leads them to make mistakes and as a result are scored more goals or created more scoring opportunities. In terms of tactical environment, Reilly (1996) reports that play may become urgent towards the end of play as teams chase a result. In this way, it would appear that the players are more willing to take greater risks towards the end of a match in order to affect an outcome (Abt et al., 2002). It is also possible that the losing team pushes players forward in order to create scoring opportunities, thereby scoring themselves or conceding further goals (Reilly, 1997). In this study, the style of play of the Spanish team based on long possessions and offensive-minded needs the opponent to make a great effort and to defend very concentrated during all the game. As a consequence of that, due to the fatigue accumulated by the opponent, the Spanish Football National Team would achieve to break the defense more frequently and create more scoring opportunities in the second half rather than in the first half.

No association was found between proportion of scoring opportunities and match status and stage of the tournament. Although no previous studies have studied these variables with scoring opportunities as an outcome, Lago-Ballesteros et al. (2012) found that when the team was drawing or winning, the probability of reaching the score-box decreased dramatically compared with the losing situation. Several studies (James et al, 2002; Lago & Martin, 2007) found that when ahead, teams decreased their possession, suggesting they preferred to play counter-attack or direct-play. However, when they were losing they increased their possession, suggesting they preferred to “control” the game by dictating the game. In our study, Spanish Football National Team created the same proportion of scoring opportunities regardless of

score status although this study shows how this team was only losing during very few possessions. At last, Spanish Football National Team kept the same proportion of scoring opportunities during the different phases of the tournament, showing a regular offensive performance both in groups stage and knock out rounds. The influence of this variable has not been studied previously (Mackenzie & Cushion, 2013) and more research is needed to clarify the possible influence of the different knock out rounds over the offensive performance.

In light of the results obtained, it seems that the type of start-up possession may modify the playing tactics developed during the offensive process and influence the creation of scoring opportunities. According to our hypothesis, despite Spanish Football National Team used a style of play based on long possessions and elaborate attack; they obtained more effectiveness by means of performing initial penetrating actions, starting in offensive and penetrative zones and progressing with counterattack while in restarts the use of longer possessions was more effective than shorter possessions. Besides, strategic set-plays achieved higher percentage of scoring opportunities than restarts and recoveries as we hypothesized. These results may mean that the game of football has internal principles of play that have prevalence over any style of play such as making the most of the transitions defence-attack or try to gain the ball possession in offensive zones or penetrative areas to increase the proportion of scoring opportunities. However, the fact that the present study only analyses one single football team limits the extrapolation of these results to other teams and contexts. Nevertheless, the analysis of all types of start-up possessions and the use of new variables of analysis may provide the field of performance analysis in football new points of research, comparison and discussion. Moreover, the present results show the playing tactics of one of the most successful teams in the recent history of football, adding historical and cultural value to this research study.

In terms of limitations of this study, our design is based on notational analysis through observing, codifying and interpreting behaviours which occur during the game what may make difficult to detect and show all the complex system that represents the game of football as has recently been exposed (Glazier, 2010; Vilar et al., 2012). However, we consider that describing tactical behaviour through categorical and multidimensional data and interpreting their association with offensive performance may be useful for coaches in order to understand what behaviours take place during the competition.

As practical applications, these findings may help football analysts and coaches to take into account the possible influence of the type of start-up possession and initial opponent situation over the offensive performance, helping to improve game understanding, the design of training exercises and the creation of game strategies.

## CONCLUSIONS

Spanish Football National Team achieved more effectiveness in creating scoring opportunities by means of strategic set-plays than recoveries and restarts. In strategic set-plays both free kicks and corner kicks obtained a similar proportion of scoring opportunities. In recoveries, higher proportion of scoring opportunities were created by means of starting in offensive zones, performing initial penetrative actions, originating from penetrative zones, playing against an opponent with low initial defensive number, in backward position as well as progressing with counterattack. In restarts, playing tactics such as longer passing sequences and longer duration produced a higher proportion of scoring opportunities. In general, more scoring opportunities were created in the second half.

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