WHAT TACTICAL DEFENSIVE BEHAVIORS WOULD HELP BRAZIL STOP GERMANY IN THE 7 TO 1?

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QUAIS COMPORTAMENTOS TÁTICOS DEFENSIVOS AJUDARIAM O BRASIL A PARAR A ALEMANHA NOS 7 A 1?

¿QUÉ COMPORTAMIENTOS TÁCTICOS DEFENSIVOS AYUDARÍAN A BRASIL A FRENAR A ALEMANIA EN EL 7 A 1?

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ABSTRACT

The purpose of this research was to verify which tactical behaviors can predict defensive efficiency among elite football players. The sample was composed of 533 defensive sequences from national teams that were semifinalists in the FIFA World Cup 2014. An ad-hoc instrument was built with the variables: "ball recovery zone", "defensive pressure", "removing depth", "defensive time spent", "number of occupied corridors", "number of fouls committed", and "number of times fouled". The tactical sequences were analyzed using Match Vision Studio Premium software. Multinomial logistic regression was applied to predict the chances of success and failure of collective defensive actions ($P < 0.05$). Recovering the ball in the defensive zone of the field had a 19-times better chance of goal completion compared to recovering the ball in the middle offensive zone (OR = 19.39; $P < 0.01$). On the other hand, removing defensive depth resulted in a decrease of 71% in the chances of completing a goal (OR = 0.29; $P < 0.01$). Moreover, every foul committed increased the chances of failure in the defensive phase (OR = 5.39; $P < 0.01$). Teams that recovered the ball far from their own goals and coordinated their last defensive line to leave attackers in an offside position had success in getting the ball back. ***Level of Evidence IV; Case series.***

Keywords: Football; Athletic performance; Athletes.

RESUMO

O objetivo desta pesquisa foi verificar quais comportamentos táticos podem predizer a eficiência defensiva de jogadores de futebol de elite. A amostra foi composta por 533 sequências defensivas de seleções semifinalistas da Copa do Mundo FIFA 2014. Foi construído um instrumento ad-hoc com as variáveis: "zona de recuperação da bola", "pressão defensiva", "redução de profundidade", "tempo defensivo gasto", "número de corredores ocupados", "número de faltas cometidas" e "número de faltas sofridas". As sequências táticas foram analisadas com o software Match Vision Studio Premium. A regressão logística multinomial foi aplicada para predizer as chances de sucesso e fracasso de ações coletivas defensivas (P < 0,05). A recuperação da bola na zona defensiva do campo teve aumento de 19 vezes das chances de finalização de gol em comparação com a zona ofensiva média (OR = 19,39; P < 0,01). Por outro lado, reduzir a profundidade defensiva resultou em diminuição de 71% das chances de fazer um gol (OR = 0,29; P < 0,01). Além disso, cada falta cometida aumentou as chances de falha na fase defensiva (OR = 5,39; P < 0,01). Os times que recuperaram a bola longe dos próprios gols e coordenaram sua última linha defensiva para deixar os atacantes em posição de impedimento tiveram sucesso na recuperação da bola. ***Nível de Evidência IV; Série de casos.***

Descritores: *Futebol; Desempenho atlético; Atletas.*

RESUMEN

El objetivo de esta investigación fue verificar qué comportamientos tácticos pueden predecir la eficiencia defensiva entre los jugadores de fútbol de élite. La muestra estuvo compuesta por 533 secuencias defensivas de selecciones semifinalistas en la Copa Mundial de la FIFA 2014. Se construyó un instrumento ad-hoc con las variables: "zona de recuperación del balón", "presión defensiva", "reducción de profundidad", "tiempo defensivo empleado", "número de pasillos ocupados", "número de faltas cometidas" y "número de faltas sufridas". Las secuencias tácticas se analizaron utilizando el software Match Vision Studio Premium. Se aplicó la regresión logística multinomial para predecir las posibilidades de éxito y fracaso de las acciones colectivas defensivas (P <0,05). La recuperación del balón en las zonas defensivas del campo representó un aumento de 19 veces las posibilidades de finalización del gol en comparación con la zona ofensiva media (OR = 19,39; P <0,01). Por otro lado, eliminar la profundidad defensiva resultó en una disminución del 71% de las posibilidades de marcar un gol (OR = 0,29; P <0,01). Además, cada falta cometida aumentaba las posibilidades de falla en la fase defensiva (OR = 5,39; P <0,01). Los equipos que recuperaron el balón lejos de sus propios arcos y coordinaron su última línea defensiva para dejar a los atacantes en posición de fuera de juego, tuvieron éxito en la recuperación del balón. ***Nivel de Evidencia IV; Serie de casos.***

Descriptores: *Fútbol; Rendimiento atlético; Atletas.*

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INTRODUCTION

During a game, football teams establish relations of opposition and cooperation, with a high degree of unpredictability and randomness, demonstrating characteristics of open and complex systems, where collective behaviors overlap individual features.[1,2] In order to establish the organization and collective coordination, several defensive tactical behaviors are identified during the game, which aim to ensure defensive efficiency though the recovery of ball possession. The coaches of high-level teams, during their preparation, could anticipate these events with training focused on specific game situations, avoiding what happened to the Brazilian soccer team at the 2014 World Cup, something that can be considered an "embarrassment" for lovers of Brazilian football.

Observation of defensive situations makes it possible to identify and understand the collective features that most contribute to performance in a real game situation.[3,4] In this sense, the effort to understand the factors that allow players and teams to achieve better levels of performance has been one of the focuses of research on observational analysis.[5-10]

Information provided by the literature allows us to understand that during the 2010 FIFA World Cup, interception and defensive behavior followed by a pass were the most frequent defensive tactical patterns presented by semifinalists.[3] Furthermore, top teams usually recovered ball possession faster after losing it[11] and after suffering a shoot from the inside area or from a counter-attack, as well as which, performing a tackle increased the chances of defensive failure.[12] Maneiro et al.,[13] who analyzed tactical indicators from the corner kicks during the 2012 UEFA Euro, indicated that teams prefer to organize their defensive system through the combination of individual and zonal methods.

Although the number of studies on the defensive phase of the game has risen in the past few years, the majority of publications investigated offensive tactical behaviors during the FIFA World Cup.[14-17] There is a lack of studies investigating variables that predict defensive efficiency. This information might help coaches identify important patterns and indicators that could be used as references during the training process. Therefore, the aim of this study is to verify which tactical behaviors can predict defensive efficiency among elite football players.

METHODS

We applied an observational method to assess defensive tactical efficiency among players. According to the specific taxonomy, the observational design is nomothetic, as we analyzed the behavior of different teams (four) and follow-up, with continuous registration throughout the final games of the 2014 FIFA World Cup, with independent observation of each of the teams.[18]

Sample

The sample was made up of national football teams that were semi-finalists in the 2014 FIFA World Cup: Germany, Argentina, Netherlands, and Brazil. For selection of the teams, the performance in the competition was taken into account, that is, it was assumed that the teams that reached this stage were more successful in defensive efficacy.

The sample consisted of 533 defensive tactical sequences extracted from 4 games (Brazil 1-7 Germany, Netherlands 0-0 Argentina, Brazil 0-3 Netherlands, and Germany 1-0 Argentina). A defensive tactical sequence is taken to mean any play in which the team in question loses ball possession and places itself between the ball and the goal defended, in order to avoid the opponents scoring a goal.

From these sequences, the following inclusion criteria were adopted for the selection of plays: I) the sequence was performed during the regulation time or during extra time; II) the filming allowed topographic visualization of the field and identification of the variables. As exclusion criteria, the most common were: I) plays coming from standing balls; II) penalty kicks; III) plays that finished with disrespect of the laws of the game, except for the impediment rule. The local ethics committee (Proc. 2.797.346) approved the project.

Observational instrument

The variables adopted in this study were described in the productions of Castelo[19] and Borges & Teixeira.[20] However, due to the flexibility of the game observational methodology[21] and due to the need to adjust the protocols to the characteristics of the evaluated subjects, in order to emphasize the ecological validity and highlight the actions as they are produced in the real context of the game, we opted for the following tactical-technical indicators: I) ball recovery zone: the exact location where the team recovered ball possession, according to the campogram proposed by Garganta[22] and Gréhaigne, Mahut, & Fernandez;[21] II) defensive pressure: refers to the collective pressure behavior applied to the attackers; III) removing deepness: this tactical behavior refers to the coordinated movements of advancing the last defensive line according to offensive moves; IV) action result: total success (resumption of ball possession) and lack of success (the team conceded the goal or the opposing team could kick at goal); V) defensive time spent: duration of the defensive phase from the moment of loss of possession to recovery of the ball; VI) number of occupied corridors: number of corridors predominantly occupied during the defensive phase of the game; VII) number of committed faults: how many times the team disrespected the laws of the game; and VIII) number of suffered kicks: how many times the attackers were able to shoot at the goal.

Procedures

The data collection took place through recordings of games broadcast on open TV. The cameras of the image generator responsible for recording the games were located at a higher plane in relation to the game plan, facilitating the topographic view of the playing field.

After filming, the videos were cut and separated individually using Windows Movie Maker® software, converted to the .avi model with Freemake Video Converter software, and analyzed using Match Vision Studio Premium software, which is a tool that allows registration of the behaviors of players and teams in the field according to a previously defined observational instrument.[23-27]

In order to record all the behaviors executed during the defensive dynamics of the selections in a reliable manner, the strategy of observing each of the defensive sequences separately was adopted, as often as necessary, at normal speed or using the pause and/or forward and rewind.

Statistical analysis

Data were analyzed using SPSS 23.0 software. The normality of the data was evaluated using the Kolmogorov-Smirnov test. Logistic Regression was carried out to estimate the relative contributions of the tactical defensive indicators on the chances of effectiveness of the plays. The level of significance adopted was 5%.

To observe the reliability of the variables, 60 defensive sequences (11.25% of the total) were randomly selected and re-evaluated by the investigator 21 days after the first evaluation. This percentage is higher than that recommended in the literature (10% of the total) to check for reliability.[28] To assess reliability, the intraclass correlation coefficient (ICC) for quantitative variables and the Kappa index (K) for qualitative variables were used. In this sense, the following values were obtained: ball recovery zone (K = 1.00; $P < 0.01$); defensive pressure (K = 0.81; $P = 0.01$); removing deepness (K = 0.82; $P = 0.01$); action result (K = 1.00; $P < 0.01$); defensive time spent (ICC = 0.98; $P = 0.01$); number of occupied corridors (K = 0.82; $P = 0.01$); number of suffered kicks (ICC = 0.96; $P = 0.01$); and number of committed faults (ICC = 0.89; P = 0.01).

RESULTS

Table 1 indicates the predictive character of the independent variables of the study, where significant values were found in relation to the variables: ball recovery zone, removing deepness, and number of faults ($P < 0.05$). It can be observed that when teams recovered ball possession in their defensive field (the defensive sector) the chances of conceding a kick score increased by 19.36 times when compared to the middle offensive zone ($P < 0.01$).

According to the Logistic Regression analysis, removing depth from the opponent's offensive moves decreased by 71% the chances of suffering a goal or the opponents shooting. Finally, each foul committed during the defensive phase of the game increased by 439% the chances of undergoing a goal score.

Table 1. Contributions of Tactical Variables to the Efficiency of Defensive Sequences.

	OR	CI (95%)	Wald	P
Ball recovery zone[1]				
Defensive zone	19.36	4.21 – 89.06	14.49	<0.01
Defensive midfielder zone	2.16	0.44 – 10.60	0.90	0.34
Defensive pressure[2]				
With pressure	1.21	0.69 – 2.09	0.20	0.65
Removing deepness[3]				
Depth removed	0.29	0.16 – 0.53	16.27	<0.01
Number of occupied corridors	1.16	0.60 – 2.22	0.20	0.65
Number of committed faults	5.39	2.86 – 10.16	27.22	<0.01

Note. Dependent variable on reference: Suffer kick on goal. OR = Odds Ratio; CI = Confidence interval; [1]Reference = offensive midfielder sector; [2]Reference = without pressure; [3]Reference = No depth removed.

DISCUSSION

The aim of this study was to verify the relative contribution of tactical behaviors to the efficiency of the defensive phase of high-level selections. It was possible to identify that the teams that recovered ball possession in the defensive sector increased the chances of suffering a kick. In this regard, the results obtained by Wright, Atkins, Polman, Jones, and Sargeson,[29] corroborate with the present study and point out that the majority of the goals conceded by teams in the English Premier League occurred after stealing near the opposing goal (defensive sector). The results found by Castelo,[19] in an analysis of the World and European Championships between 1982 and 1994, also indicate that losing the ball in the defensive sector increases the risk of undergoing a framed finish or a goal. This can cause demotivation of the players, as it reveals the defensive fragility of the team. In addition, the emotional instability caused by an "easy goal" may allow a sequence of goals from the opposing team, as happened to the Brazilian team at the 2014 World Cup, ensuring the success of Germany's defense in the game in question.

Although studies conducted by Barreira et al.[3] and Almeida et al.[27] pointed out that elite teams usually recover ball possession in defensive and middle defensive zones, the current study highlights the importance of generating pressure by raising the marking lines, when in a defensive organization, aiming to generate constraints to the opponent during times of offensive transition and offensive organization, especially when they are in the first stage of building the attack, at field locations closer to their own goal.

In this context, there are two main defensive behaviors that could be applied in interactions to be successful in recovering the ball in the offensive sector. The first consists of compacting defensive lines by pushing back the team in the field, after which, the forwards start to press opponents in early zones. However, if the team recovers ball possession, the opposing defense will be more organized.

The second defensive pattern refers to the press immediately after losing the ball, in which the defensive line advances on the ground trying to remove time and space from offensive actions of the opponent team by removing intersectoral spaces, limiting counter-attack elaboration. In case of success in recovering ball possession, the team will find the opponent team unorganized, which is important to score goals.

Regarding the defensive pressure, there was no significant association between the teams analyzed; indicating that in this study there was no change in defensive efficacy in the teams that performed active or passive behavior. Actively reacting to the loss of the ball is named in the literature as pressing, which according to Castelo[19] is characterized by strong pressure on opposing spaces and players which can continue the progression of the offensive process, aiming at quick recovery of possession of the ball.

Volgelbein, Nopp and Hökelmann[11] evaluated the reaction time of the defensive transition process of the Bundesliga teams in the 2010/2011 season, making a comparison between the teams according to their classification in the league, and observed that the teams with better rankings retook ball possession in less time compared to the other teams, pressing being a collective behavior adopted by the most successful teams when the final classification of the championship was analyzed. Although this behavior is pointed out in the literature as fundamental to ensure defensive efficacy, in our study the pressure after ball loss was not a predictor of defensive success (Table 1). It is possible collective efficiency in high-performance football may be explained by a set of factors instead of an isolated feature.

In contrast, it was identified that the variable "removing deepness" contributed positively to better defensive efficiency, reducing the chances of finishing in a goal ($P<0.05$). Therefore, teams that seek effectiveness in defender behaviors after losing the ball should encourage closer approximation of the marking lines in order to reduce the longitudinal range of the opposing team (in an offensive phase), and thus reduce the effective playing space.[30]

In this sense, Bediri,[31] who studied the relationship between tactical behaviors and physical aspects in the final match of the 2014 FIFA World Cup, indicated that when a team is in a defensive phase, they seek to position their lines as high as possible in the opponent's field, thus removing depth, reducing the effective playing space, and increasing the pressure in the first stage of construction of the opponent and moving the opponent away from their own goal.

In relation to the number of fouls, it was observed that an increase in the number of fouls committed by the team was associated with a greater chance of the opponents aiming a kick at the goal, indicating that there is a risk for teams that commit a high volume of fouls. In a study published by Armatas, Yiannakos, Papadopoulou and Galazoulas,[32] the authors concluded that there is great danger generated from faults committed during the defensive phase.

Therefore, the process of analysis of tactical behaviors through observational methodology can provide subsidies for day-to-day teaching-learning-training practice, indicating that the game model can enhance based on the indicators found in this study. In this way, the results of the present study highlight the importance of a game model guided by medium and high marking blocks, which aim to approach the team's own marking lines in order to reduce the spatiotemporal structure of the opponent's game, as well as committing a low frequency of fouls.

CONCLUSION

Brazilian selection should have pressed opponents on advanced zones of the soccer field, avoiding the commitment of faults, and seeking for collective coordination in the last defensive line to leave attackers in an offside position.

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