HUMAN MOVEMENT
2017;18(5):special/issue: 31–38

COMPARISON OF TACTICAL PRINCIPLES EFFICIENCY AMONG SOCCER PLAYERS FROM DIFFERENT GAME POSITIONS

original paper
doi: 10.1515/humo-2017-0040

LEANDRO RECHENCHOSKY[1], PAULO HENRIQUE BORGES[1], VANESSA MENEZES MENEGASSI[1], MATHEUS DE OLIVEIRA JAIME[1], JOSÉ GUILHERME[2], ISRAEL TEOLDO[3], WILSON RINALDI[1]

[1] Department of Physical Education, State University of Maringá, Maringá, Brazil
[2] Faculty of Sports, University of Porto, Porto, Portugal
[3] Department of Sports, Federal University of Viçosa, Viçosa, Brazil

ABSTRACT

Purpose. The aim of the study was to analyse the execution efficiency of core tactical principles in young soccer players and compare them among different game positions.

Methods. The sample included 54 Brazilian young soccer players. Tactical performance was measured by the System of Tactical Assessment in Soccer with the GR3-3GR test in 3770 tactical actions. Friedman followed by Wilcoxon tests were used to analyse differences between tactical principles. Kruskal-Wallis and Mann-Whitney U tests were performed to compare tactical efficiency between defenders, midfielders, and forwards ($p < 0.05$).

Results. Offensively, the results indicated that young players demonstrated less efficiency in executing the principle 'depth mobility' compared with 'penetration,' 'offensive coverage,' 'width and length,' and 'offensive unity.' Regarding the defensive aspects, 'concentration' was performed more efficiently than other principles. Comparisons between positions proved that midfielders and forwards executed 'offensive unity' more efficiently than defenders. Defenders tended to present high 'defensive coverage' efficiency when compared with 'midfielders.'

Conclusions. High efficiency in the execution of 'concentration' represents an obstacle to make deep passes and hinders offensive movements between the last defender line and goal, given low efficiency of 'depth mobility.' Midfielders and forwards performed 'offensive unity' more efficiently than defenders. As for defensive principles, defenders presented better performance in 'defensive coverage,' giving support to the first defender. In practical applications, it is suggested that coaches of young regional soccer players carry out activities which allow depth passes to teammates as well as games to promote 'offensive unity' for defenders and 'defensive coverage' for midfielders.

Key words: adolescents, soccer, decision making, efficiency

INTRODUCTION

During a soccer game, the tactical dimension is fundamental to execute correct decision making and control a game situation with or without the ball. Thus, this must be assessed throughout the teaching-learning-training process [1]. This dimension has been highlighted thanks to the process of overcoming traditional approaches, giving space to methodologies guided by systemic paradigms [2]. Players with low skill levels but tactical understanding can play soccer [3]. On the other hand, limited tactical knowledge can result in low technical efficiency as all skills should be executed in a complex game situation [4].

In this sense, there are two types of tactical knowledge that should be used to evaluate soccer players: declarative ('what to do') and procedural ('how to do it') [5]. This knowledge, organized and structured, represents cognitive parameters to identify the quality of players [6, 7]. Regarding procedural knowledge, it

Correspondence address: Leandro Rechenchosky, Universidade Estadual de Maringá, Departamento de Educação Física, Bloco M-06, Sala 18, Avenida Colombo, 5790, 87020-900, Maringá, Paraná, Brasil, e-mail: rechenchosky@yahoo.com.br

Received: May 5, 2017
Accepted for publication: June 14, 2017

Citation: Rechenchosky L, Borges PH, Menegassi VM, de Oliveira Jaime M, Guilherme J, Teoldo I, Rinaldi W. Comparison of tactical principles efficiency among soccer players from different game positions. Hum Mov. 2017;18(5)special/issue:31–38; doi: 10.1515/humo-2017-0040.

has been reported in the literature that there are ten core tactical principles to be performed by soccer players. Five are related to the offensive phase of the game: 'penetration,' 'offensive coverage,' 'depth mobility,' 'width and length,' and 'offensive unity.' Defensively, the following five core principles can be identified: 'delay,' 'defensive coverage,' 'balance,' 'concentration,' and 'defensive unity' [8].

These behaviours, when executed efficiently, allow a team to manage the playing space and solve problems presented during the game [8]. Moreover, the implementation of core tactical principles helps teams to maintain ball possession [9], change the pace of play, take opponents to previously defined sectors, and destabilize the organization of the opponent team [10]. Collective tactical efficiency during a match contributes to better performance as much for the player as for the team. The way in which each principle appears will depend on the game style proposed by the coach [11].

Some studies have been performed analysing core tactical principles efficiency in soccer. Carvalho and da Costa [12] compared tactical efficiency between the results of victory and defeat. Losing teams presented higher percentages of errors in 'offensive coverage' and 'balance' when compared with winners. Andrade and da Costa [13] verified how tactical efficiency and date of birth affected tactical performance of soccer players. Positive associations between tactical behaviour efficiency and tactical performance were identified for the principles of 'offensive coverage,' 'offensive unity,' 'defensive coverage,' 'balance,' and 'defensive unity.' Collectively, these results indicate the relevance of understanding tactical efficiency in soccer as well as the relationship with other kinds of variables.

Although core tactical principles efficiency is important to increase soccer performance, few studies have actually been performed to analyse these behaviours in young regional soccer players, also characterized as non-elite players, according to their skill level [14] and participation in competitions. Da Costa et al. [15] investigated the frequency, efficiency, and performance index of soccer players in training, comparing them by game category, while the majority of studies have focused on high performance athletes [14, 16]. It is known that regional players tend to underestimate the performance results of national players [17]; however, this should be investigated through tactical aspects, relevant to understand whether different principles are executed with similar efficiency between regional players. Furthermore, can tactical functions related to game positions influence offensive and defensive efficiency? The results may be applied by coaches to plan training content, since core tactical principles of soccer are central components to reach high performance and better learning. Thus, the aim of this study was to analyse the execution efficiency of core tactical principles in young soccer players and compare them among different game positions.

MATERIAL AND METHODS

Participants

The total of 86 young male soccer players taking part in an extension project at a university in the south of Brazil were invited to participate in the study. The following inclusion criteria were adopted: (1) participation in systematic training in soccer for at least one year; (2) absence of any muscular injuries; (3) participation in regional competitions; and (4) free and clarified consent term signed by a parent or guardian. The final sample was composed of 54 players (14.85 ± 1.58 years of age).

Procedures

To evaluate the core tactical principles of soccer, the players executed the GR3-3GR field test described by da Costa et al. [18]. The test was designed to allow coaches and researchers to assess tactical performance in a small-sided game. The GR3-3GR is held on a reduced field (36 × 27 m) where 6 players (3 vs. 3) are required to play for 4 minutes in accordance with the official rules of soccer, except the offside rule. The players were divided by the coach into game categories in an aleatory way. This format is standardized with proportional dimensions to the game space delimited for each player on an official field. In addition, the basic structure allows participants to execute all tactical principles that constitute a formal game. Players were filmed during the test, after which the videos were analysed with the use of the Soccer Analyser® software.

The core tactical principles performed by each player were evaluated in accordance with the System of Tactical Assessment in Soccer – FUT-SAT [18] – which analyses 10 tactical principles of soccer. Offensively, 'penetration,' 'offensive coverage,' 'width and length,' 'depth mobility,' and 'offensive unity' were measured,

Table 1. Definitions, category and sub-categories of the variables assessed by the FUT-SAT [18]

Category	Subcategories	Variables	Definitions
Tactical principles	Offensive	Penetration	Movement of the player with the ball towards the goal line
		Offensive coverage	Offensive support to the player who has the ball
		Depth mobility	Movement of the players between the final defender and goal line
		Width and length	Movement of the player to extend and use the effective play-space
		Offensive unity	Movement of the last line of defenders towards the offensive midfield to support the offensive actions of teammates
	Defensive	Delay	Actions to slow down the opponent's attempt to move forward with the ball
		Defensive coverage	Offering defensive support to the 'delay' player
		Balance	Positioning of off-ball defenders in reaction to the movements of attackers in an attempt to achieve numerical stability or superiority in the opposition relationship
		Concentration	Positioning of off-ball defenders to occupy vital spaces and protect the scoring area
		Defensive unity	Positioning of off-ball defenders to reduce the effective play-space of the opponents

and defensively, 'delay,' 'defensive coverage,' 'balance,' 'concentration,' and 'defensive unity' (Table 1). The efficiency of all principles was classified with the criteria described by da Costa et al. [18]. In total, 3770 actions of tactical principles were evaluated and the percentage of right decisions made was used as the final score. The players were divided into three groups, considering game position: defenders (central backs and side backs; n = 16), midfielders (central midfielders and side midfielders; n = 18), and forwards (n = 20).

Statistical analysis

Regarding the statistical analysis, data normality was assessed with the Kolmogorov-Smirnov test. The distribution was nonparametric, thus, data are presented as median and 25th (Q1) and 75th (Q3) percentiles. The Friedman and Wilcoxon tests were conducted to identify any differences between the tactical principles. The Kruskal-Wallis test was performed to evaluate differences between the defender, midfielder, and forward groups, followed by the Mann-Whitney U test to establish the source of differences. The total of 377 (10%) tactical actions were re-evaluated by two researchers trained to apply the FUT-SAT system. The reliability of the tactical performance assessment was verified with Cohen's kappa test, which indicated agreement above 81% in all cases. The significance was set at 5%.

Ethical approval

The research related to human use has been complied with all the relevant national regulations, institutional policies and in accordance the tenets of the Helsinki Declaration, and has been approved by the local Research Ethics Committee (opinion 653.698) in May, 2014.

RESULTS

Figure 1 presents the offensive tactical efficiency of the players. Significant differences were observed between 'depth mobility' and all offensive core tactical principles (p < 0.001), which indicates low efficiency in actions performed between the last defender line and goal to attack. The values described for execution efficiency in each offensive principle were: 'offensive unity,' *Md* = 95.83 (66.67–100.00); 'width and length,' *Md* = 80.95 (67.80–90.12); 'depth mobility,' *Md* = 50.00 (00.00–100.00); 'offensive coverage,' *Md* = 85.71 (66.67–100.00); and 'penetration,' *Md* = 89.44 (50.00–100.00).

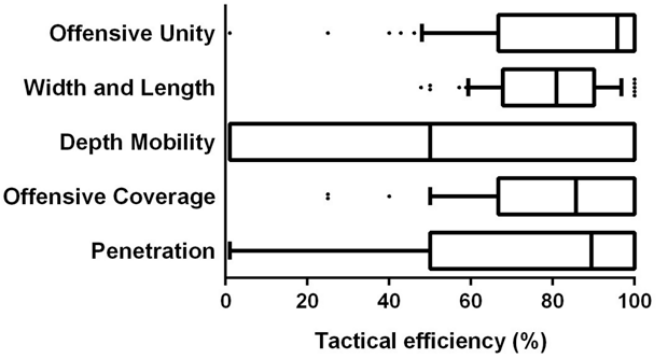

Figure 1. Offensive tactical efficiency executed by young soccer regional players, represented by median and 10th, 25th, 75th, and 90th percentiles

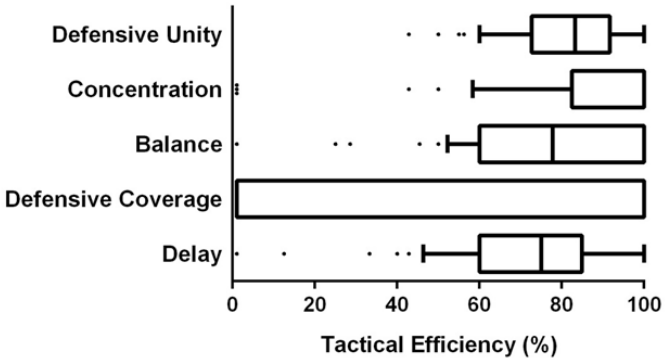

Figure 2. Defensive tactical efficiency executed by young soccer regional players, represented by median and 10th, 25th, 75th, and 90th percentiles

Table 2. Comparison of offensive and defensive tactical efficiency among different positions in young soccer players

Variable		Tactical principle efficiency (%) Median (Q1–Q3)			*p*
		Defenders (*n* = 16)	Midfielders (*n* = 18)	Forwards (*n* = 20)	
Offensive	Penetration	100.00 (51.39–100.00)	87.30 (50.00–100.00)	92.85 (50.00–100.00)	0.804
	Offensive coverage	83.76 (68.75–90.40)	83.33 (60.00–100.00)	93.49 (63.54–100.00)	0.711
	Depth mobility	83.33 (0.00–100.00)	50.00 (0.00–87.49)	50.00 (8.33–65.00)	0.742
	Width and length	83.33 (75.00–88.54)	76.39 (66.67–87.49)	82.22 (65.26–91.48)	0.600
	Offensive unity	73.33 (66.67–90.68)	100.00 (77.49–100.00)*	100.00 (76.25–100.00)*	0.046**
Defensive	Delay	72.50 (51.39–80.00)	75.96 (61.87–90.41)	69.05 (60.00–91.66)	0.697
	Defensive coverage	100.00 (85.00–100.00)	25.00 (0.00–100.00)*	100.00 (0.00–100.00)	0.025**
	Balance	88.31 (51.39–100.00)	75.96 (65.00–89.15)	74.17 (59.11–96.42)	0.873
	Concentration	100.00 (84.37–100.00)	96.66 (72.50–100.00)	100.00 (74.40–100.00)	0.542
	Defensive unity	87.08 (64.64–93.50)	83.97 (75.18–89.58)	79.16 (62.94–91.86)	0.751

* significant differences for defenders
** $p < 0.05$

Figure 2 illustrates the defensive tactical efficiency of the players. 'Concentration' was the principle executed with more quality by young players ($p < 0.001$). It was observed that 'defensive unity' was bound with higher performance than 'delay' ($Md = 83.33$ vs. 75.00; $p = 0.02$). The values described for execution efficiency in the other defensive principles were: 'concentration,' $Md = 100.00$ (82.49–100.00); 'balance,' $Md = 77.35$ (60.00–100.00); and 'defensive coverage,' $Md = 100.00$ (00.00–100.00).

Table 2 presents the comparison of values between different game positions. 'Offensive unity' turned out higher in midfielders and forwards than in defenders ($p = 0.046$). Defensively, it was identified that 'defensive coverage' was executed more efficiently by defenders than midfielders ($p = 0.025$).

DISCUSSION

The aim of the study was to analyse the execution efficiency of core tactical principles in young soccer players and compare them among different game positions. The main findings indicated that 'depth mobility' was the offensive principle executed with least efficiency and 'concentration' was the defensive principle performed with highest efficiency, when considering all subjects evaluated. Players from different game positions tend to achieve different efficiency during a game. In a match situation, even if there are predetermined rules and principles, there is also recurrent susceptibility to actions derived from confrontation. This is a consequence of the autonomy and individual diversity of players in a team, and tends to happen even if the coach imposes a previously established game model [2]. Although actions within the same team usually occur in convergence, the shape that the game will take depends on a reasoning that aims to solve problems from game situations and also on the quality of individual tactical execution.

The study findings show that the players demonstrated less efficiency when executing the offensive principle of 'depth mobility' as compared with 'penetration,' 'offensive coverage,' 'width and length,' and 'offensive unity,' suggesting that they were not efficient when trying to expand the effective playing area by performing breaking movements on the final defensive line [19]. Perhaps this situation can be explained with the reduced field size and number of players, since this type of action can be perceived as a risk in defensive transition. The forwards, who usually perform the 'depth mobility' principle, may not feel confident since the loss of ball possession arising from this situation could cause a counterattack in numerical superiority, leading to danger in the defensive area.

With the exception of 'depth mobility,' all offensive principles presented a median percentage of tactical efficiency of above 80%. Américo et al. [20] evaluated the efficiency of offensive tactical behaviour in base-level players and found similar values for the under-15 category, who achieved an average percentage in performing effectiveness of 79.29%. On the other hand, the same study verified that 'width and length' was performed less efficiently from under-13 to under-17 players, while 'depth mobility' turned out one of the principles that attained a greater score of execution effectiveness, showing that the two samples represented an offensive game model in which the offensive player without ball possession diverges in the strategy of occupying the free game space. It is also important to remember that efficiency is related to the qualitative level of the players, the interaction promoted during confrontations, and the game model adopted by the team.

Regarding defensive aspects, 'concentration' was performed more efficiently than other principles, which indicates that – as a defensive strategy – players try to minimize the offensive progression of the opposing team by reducing the effective play-space, as well as 'play between lines,' avoiding free space left over, especially when close to the player performing 'delay' [19]. The findings of the present study are in agreement with Américo et al. [20], who also verified that in all evaluated categories, the 'concentration' principle was the most efficiently executed, evidencing that both samples were concerned about the importance of adopting block defence organization in a space on the field more favourable to opposition players shooting to goal.

In addition, results show that 'defensive unity' was performed with higher quality than 'delay,' reflecting that although both principles were implemented with considerable effectiveness, players did not perform individual marking of the player with ball possession or when they positioned themselves to mark opponents without ball possession who were closest to their defensive goal [19]. In a study with soccer players from different age groups, Müller et al. [21] verified that the average percentage of execution errors in the offensive principle 'delay' was higher than the one for 'defensive unity.' This supports the findings of the present study.

The comparison of offensive execution efficiency among positions indicated that midfielders and forwards implemented 'offensive unity' more efficiently than defenders. This proved that players in these po-

sitions tended to perform actions of extension on the offensive lines effectively, aiming at the maintenance of ball possession, in a way that transmitted confidence to the players inside the game centre, in a direct contact with the ball, and making it possible to create break situations in the composition of the opposing defence [19]. Complementing these findings, in a study with under-13 soccer players, Padilha et al. [22] observed that midfielders presented a significantly higher tactical performance index in the principle of 'offensive unity' when compared with forwards, demonstrating better control over the execution of this specific principle.

In relation to the defensive situation, defenders tend to present higher 'defensive coverage' efficiency than midfielders. According to da Costa et al. [19], this principle is executed with considerable quality when a player stands to support the first defender, who is performing 'delay,' further decreasing the chances of the opponent progressing towards the goal, or, in other words, 'serving as a new obstacle to the opponent in ball possession, if he passes the other player' (p. 664). Furthermore, with results very similar to those found in the present study, Gonçalves et al. [23], evaluating under-17 players from different positions, verified that in the defensive phase, the defenders presented less execution errors in tactical principles when compared with midfielders and forwards.

Small-sided games allow players to be in more frequent contact with the ball, which results in a more intense game play. Moreover, in less complex situations than in traditional games, players tend to commit a smaller number of execution errors, attaining better performance scores [24]. The way ball possession switches between teams during a soccer match reflects the dynamics of the situations in which there is constant inversion between attack and defence [25]. These characteristics, when compared with the results of the present study, reveal that players of different positions and tactical functions may have similar performance owing to different imposed requirements [22].

According to Gréhaigne and Godbout [26], the team must always seek to explore and conquer free space to play, in this way trying to use the maximum length and width of the field, keep the defence stuck in one zone while playing in another, switch between long and short passes, constantly change the orientation of the move, and take advantage of speed and space to play. Garganta and Gréhaigne [2] argue that the game cannot occur as a mechanical thing, as only the reproduction of formulas learned in training, but the players rather have to follow the evolution of the game structure, using heuristic reasoning to solve problems that are imposed.

As practical applications, we recommend adoption of training methodologies focused on tactical-technical behaviours based on tactical offensive and defensive principles as orientation guides during the teaching-learning-training processes. This especially refers to 'depth mobility' in general and 'offensive unity' for defenders and 'defensive coverage' for midfielders. Implementing this methodology may improve tactical efficiency in regional teams where children and teenagers must learn the content and solve problems related to 'what to do' and 'how to do it.' The literature contains some interesting proposals with regard to the way of teaching sports, such as Teaching Games for Understanding [27], the Ball School Model [28], and the Decision Training approach [29], among others.

CONCLUSIONS

The young soccer players evaluated presented low quality of execution in 'depth mobility' and high quality of execution in 'concentration.' These findings indicate that when in offensive situations, the players were not efficient in trying to perform breaking movements on the last defensive line. In defensive situations, they were efficient when reducing the opponents' playing area, avoiding their progression. When comparing game positions in relation with offensive principles, midfielders and forwards executed 'offensive unity' with more efficiency than defenders, which means that these players increase the effective playing area, helping the offensive players to construct situations. In defensive principles, defenders presented better performance in 'defensive coverage,' providing support to the first defender, implementing 'delay.'

Acknowledgements

The authors would like to thank the Associate Post-Graduate Program in Physical Education UEM/UEL and CAPES for their support.

Disclosure statement

Disclosure statement: No author has any financial interest or received any financial benefit from this research.

Conflict of interest

Authors state no conflict of interest.

REFERENCES

1. González-Víllora S, Serra-Olivares J, Pastor-Vicedo JC, da Costa IT. Review of the tactical evaluation tools for youth players, assessing the tactics in team sports: football. Springerplus. 2015;4:663; doi: 10.1186/s40064-015-1462-0.
2. Garganta J, Gréhaigne JF. Systemic approach to soccer game: a case of fashion or need? [in Portuguese]. Movimento. 1999;5(10):40–50. Available from: http://www.seer.ufrgs.br/index.php/Movimento/article/view/2457/1122.
3. Oslin JL, Mitchell SA, Griffin LL. The Game Performance Assessment Instrument (GPAI): development and preliminary validation. J Teach Phys Educ. 1998; 17(2):231–243; doi: 10.1123/jtpe.17.2.231.
4. Teodorescu L. Methodology and theory problems in sports games [in Portuguese]. Lisboa: Livros Horizonte; 1984.
5. Eysenck MW, Keane MTG. Cognitive psychology: an introductory manual [in Portuguese]. Porto Alegre: Artmed; 1994.
6. Giacomini DS, Soares VO, Santos HF, Matias CJ, Greco PJ. Declarative and procedural tactical knowledge in soccer players of different ages [in Portuguese]. Motricidade. 2011;7(1):43–53; doi: 10.6063/motricidade.7(1).119.
7. Andrade MOC, Machado GF, Teoldo I. Relationship between impulsiveness and tactical performance of U-15 youth soccer players. Hum Mov. 2016;17(2):126–130; doi: 10.1515/humo-2016-0014.
8. Teoldo I, Garganta J, Greco PJ, Mesquita I. Proposal for tactical assessment of soccer player's behaviour regarding core principles of the game [in Portuguese]. Motriz. 2011;17(3):511–524; doi: 10.1590/S1980-65742011000300014.
9. Lago-Peñas C, Dellal A. Ball possession strategies in elite soccer according to the evolution of the match-score: the influence of situational variables. J Hum Kinet. 2010;25:93–100; doi: 10.2478/v10078-010-0036-z.
10. Santos RMM, Moraes EL, da Costa IT. Analysis of patterns of offensive of the Spanish National Soccer Team in the 2014 FIFA® World Cup [in Portuguese]. Rev Bras Educ Fís Esporte. 2015;29(1):119–126; doi: 10.1590/1807-55092015000100119.
11. Hewitt A, Greenham G, Norton K. Game style in soccer: what is it and can we quantify it? Int J Perform Anal Sport. 2016;16(1):355–372. Available from: https://www.researchgate.net/publication/301204271_Game_style_in_soccer_what_is_it_and_can_we_quantify_it.
12. Carvalho FM, da Costa IT. Efficiency of tactical principles execution in small sided soccer games: comparison between victory and defeat [in Portuguese]. R Min Educ Fís. 2013;9:605–609. Available from: http://www.novoscursos.ufv.br/projetos/ufv/nupef/www/wp-content/uploads/81_Eficiência-de-Realização-dos-Princ%C3%ADpios-Táticos-em-jogos-Reduzidos-no-Futebol_Felipe_605-609.pdf.
13. Andrade MOC, da Costa IT. How tactical behaviour efficiency and birthdate affect performance of soccer players? [in Portuguese]. Rev Bras Educ Fís Esporte. 2015;29(3):465–473; doi: 10.1590/1807-55092015000300465.
14. Malina RM, Ribeiro B, Aroso J, Cumming SP. Characteristics of youth soccer players aged 13–15 years classified by skill level. Br J Sports Med. 2007;41(5):290–295; doi: 10.1136/bjsm.2006.031294.
15. Da Costa IT, Garganta J, Greco PJ, Mesquita I, Afonso J. Assessment of tactical principles in youth soccer players of different age groups. Rev Port Cien Desp. 2010; 10(1):147–157. Available from: http://www.scielo.mec.pt/pdf/rpcd/v10n1/v10n1a04.pdf.
16. Vandendriessche JB, Vaeyens R, Vandorpe B, Lenoir M, Lefevre J, Philippaerts RM. Biological maturation, morphology, fitness, and motor coordination as part of a selection strategy in the search for international youth soccer players (age 15–16 years). J Sports Sci. 2012; 30(15):1695–1703; doi: 10.1080/02640414.2011.652654.
17. Coelho e Silva MJ, Figueiredo AJ, Simões F, Seabra A, Natal A, Vaeyens R, et al. Discrimination of U-14 soccer players by level and position. Int J Sports Med. 2010; 31(11):790–796; doi: 10.1055/s-0030-1263139.
18. Da Costa IT, Garganta J, Greco PJ, Mesquita I, Maia J. System of tactical assessment in soccer (FUT-SAT): development and preliminary validation. Motricidade. 2011;7(1):69–83; doi: 10.6063/motricidade.7(1).121.
19. Da Costa IT, Garganta J, Greco PJ, Mesquita I. Tactical principles of soccer: concepts and application [in Portuguese]. Motriz. 2009;15(3):657–668; doi: 10.5016/2488.
20. Américo HB, Cardoso FSL, Machado GF, Andrade MOC, Resende ER, da Costa IT. Analysis of the tactical behavior of youth academy soccer players. J Phys Educ. 2016;27:e2710; doi: 10.4025/jphyseduc.v27i1.2710.
21. Müller E, Garganta J, Santos RMM, Teoldo I. Tactical behaviour and performance: comparative study between soccer and futsal players [in Portuguese]. R Bras Ci e Mov. 2016;24(2):100–109. Available from: http://www.nucleofutebol.ufv.br/wp-content/uploads/183-2016-Comportamento-e-Desempenho-T%C3%A1ticos-Estudo-Comparativo-entre-Jogadores-de-Futebol-e-Futsal.pdf.
22. Padilha MB, Moraes JC, da Costa IT. Can positional statute influence tactical performance of U-13 youth soccer players? [in Portuguese]. Rev Bras Ci e Mov. 2013; 21(4):73–79; doi: 10.18511/0103-1716/rbcm.v21n4p73-79.
23. Gonçalves E, Rezende ALG, Teoldo I. Comparison of defensive and offensive tactical performance of U-17 soccer players from different positions [in Portuguese]. Rev Bras Ciênc Esporte. 2017;39(2):108–114; doi: 10.1016/j.rbce.2015.10.015.

24. Da Costa IT, Garganta J, Greco PJ, Mesquita I, Muller E. Relationship between pitch size and tactical behaviour of soccer player [in Portuguese]. Rev Bras Educ Fís Esporte. 2011;25(1):79–96. Available from: http://www.scielo.br/pdf/rbefe/v25n1/09.pdf.
25. Moura FA, Martins LEB, Anido RO, Ruffino PRC, Barros RM, Cunha SA. A spectral analysis of team dynamics and tactics in Brazilian football. J Sports Sci. 2013;31(14):1568–1577;doi:10.1080/02640414.2013.789920.
26. Gréhaigne JF, Godbout P. Tactical knowledge in team sports from a constructivist and cognitivist perspective. Quest. 1995;47:490–505; doi: 10.1080/00336297.1995.10484171. Available from: https://pdfs.semanticscholar.org/8673/88b35d0ea232b96b9329719ea6cbedc3c992.pdf.
27. Bunker D, Thorpe R. A model for the teaching of games in the secondary schools. Bull Phys Educ. 1982;10:9–16.
28. Kröger C, Roth K. Ball school: an ABC for game beginners [in German]. Schorndorf: Hofmann; 1999.
29. Vickers JN. Decision training: an innovative approach to coaching. Can J Women Coach. 2003;3(3):1–9. Available from: http://www.coach.ca/files/WiC_Journal_Feb_2003_Vol_3_No_3.pdf.